

FACULTY OF ENGINEERING AND TECHNOLOGY

OUTCOME BASED EDUCATION

CURRICULUM & SYLLABUS

BACHELOR OF TECHNOLOGY Cyber Forensics and Information Security

REGULATION 2022

DEPARTMENT

OF

COMPUTER SCIENCE AND ENGINEERING

Vision:

To become a Premier Institution of Excellence in Computer Science and Engineering that would develop self sustaining and globally competent Computer Science and Information Technology Professionals.

Mission:

M1: Enable students with the best of Technologies and Knowledge emerging in the domain of Computer Science and Engineering.

M2: Equip the department laboratories with the power of in-demand Technologies and Software for the On-Demand Industry.

M3: Share and Collaborate knowledge across the IT Industries for holistic development of skilled and talented students.

M4: Impart the students with Ethical values, Critical thinking and Broad based computational skills.

M5: Motivate the students to comprehend problems across Inter Disciplinary Domains and offer innovative solution using ICT.

Program Educational Objectives (PEO)

The Graduate will be able to

PEO-1: Establish a successful careers in the profession & innovation at an industry and/or in government in one or more of discipline of forensic science.

PEO-2: Incorporate current and emerging technologies and software practices for detection, analyses, and evaluation of forensic evidence.

PEO-3: Embrace the code of professional ethics while providing solution to multidisciplinary social problems in industrial, entrepreneurial and research environment to demonstrate leadership qualities.

PEO-4: Serve the society not solely as forensic expert but as a contributor towards healthy, secure and vibrant society by making people alert about various methods adopted by the criminals.

PEO-5: Re-learn and innovate in ever-changing global economic and technological environments.

PEO-6: Pursue higher education in Forensic Science and Information Security

Program Outcomes (PO)

- 1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO)

PSO's describe what students are expected to know or be able to do by the time of graduation from the program.

- **PSO1:** To understand, analyze and develop essential proficiency in the areas related to Digital Forensic, Cyber Defense, Network Security, Cyber Laws and Ethics
- **PSO-2:** To utilize the forensic techniques during criminal investigations that are economically viable and knowledge to regional, national and global crime related problems
- **PSO3:** To Analyze the sample in field and laboratory test of crime exhibits with the latest norms and standards

PSO4: To Design and Develop the research based solutions of complex forensic problem.

| Mission/ PEO | PEO1 | PEO2 | PEO3 | PEO4 | PEO5 | PEO6 |
|-----------------|------|------|------|------|------|------|
| M1 | 3 | 3 | 3 | 2 | 3 | 2 |
| M2 | 3 | 3 | 3 | 1 | 2 | 2 |
| M3 | 3 | 2 | 3 | 3 | 2 | 1 |
| M4 | 2 | 2 | 3 | 3 | 3 | 1 |
| M5 | 2 | 2 | 3 | 2 | 3 | 3 |

Mapping of Mission with PEO

Mapping of PEO with PO

| PEO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| PEO1 | 3 | 3 | 3 | 2 | 2 | 3 | 1 | 2 | 3 | 2 | 1 | 3 |
| PEO2 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 1 | 3 |
| PEO3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 2 |
| PEO4 | 3 | 3 | 3 | 1 | 2 | 3 | 3 | 3 | 3 | 2 | 1 | 1 |
| PEO5 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 |
| PEO6 | 3 | 2 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 |

Mapping of PEO with PSO

| PEO/PSO | PSO1 | PSO2 | PSO3 | PSO4 |
|---------|------|------|------|------|
| PEO1 | 3 | 3 | 2 | 1 |
| PEO2 | 2 | 2 | 1 | 2 |
| PEO3 | 2 | 3 | 3 | 3 |
| PEO4 | 3 | 1 | 2 | 2 |
| PEO5 | 1 | 2 | 3 | 2 |
| PEO6 | 2 | 2 | 2 | 2 |

Strength of Correlation 3-High 2-Medium 1-Low

| S.No | Subject Code | Subject Name | Ty/Lb/ETL/ IE | L | T/SLr | P/R | С | Category | |
|------|--------------------|--|------------------|---|-------|-----|---|----------|--|
| 1 | EBEN22001 | Technical English –I | Ту | 2 | 0/0 | 0/0 | 2 | HS | |
| 2 | EBMA22001 | Mathematics – I | Ту | 3 | 1/0 | 0/0 | 4 | BS | |
| 3 | EBPH22ET1 | Engineering Physics | ETL | 2 | 0/0 | 2/0 | 3 | BS | |
| 4 | EBCH22ET1 | Engineering Chemistry | ETL | 2 | 0/0 | 2/0 | 3 | BS | |
| 5 | EBME22ET1 | Basic Mechanical & Civil Engineering | ETL | 2 | 0/0 | 2/0 | 3 | ES | |
| 1 | EBCC22I01 | Orientation to Entrepreneurship & Project Lab | IE | 1 | 0/0 | 1/0 | 1 | ID | |
| 2 | EBCS22ET1 | C Programming and MS office tools | ETL | 1 | 0/0 | 2/0 | 2 | PC | |
| | Credits Sub Total: | | | | | | | | |

SEMESTER – I

18

SEMESTER – II

| S.No | Subject Code | Subject Name | Ty/Lb/ETL /IE | L | T/SLr | P/R | С | Category |
|------|--------------|--|------------------|---|-------|-----|---|----------|
| 1 | EBMA22003 | Mathematics – II | Ту | 3 | 1/0 | 0/0 | 4 | BS |
| 2 | EBPH22001 | Solid State Physics | Ту | 3 | 0/0 | 0/0 | 3 | BS |
| 3 | EBCH22002 | Technical Chemistry | Ту | 3 | 0/0 | 0/0 | 3 | BS |
| 4 | EBME22001 | Engineering Graphics | Ту | 2 | 0/0 | 2/0 | 3 | ES |
| 5 | EBCF22001 | Fundamentals of Digital Forensics | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 1 | EBCC22I02 | Communicative English Lab | IE | 1 | 0/0 | 1/0 | 1 | HS |
| 2 | EBCS22ET2 | Python Programming | ETL | 1 | 0/0 | 2/0 | 2 | PC |
| 3 | EBCC22I03 | Environmental Science(Audit Course) | IE | 1 | 0/0 | 1/0 | 0 | HS |

*For non-circuit branch students **For circuit branch students

Note:

TOTAL CREDITS FOR I YEAR:37

Credits Sub Total: 19

Ty/Lb/ETL/IE: Theory/Lab/Embedded Theory and lab/Internal evaluation

L/T/SLr/P/R/C: Lecture/Tutorials/Supervised Learning/Practical/Research/Credit

HS: Humanities and Social Science, ES: Engg. Science, BS: Basic Science, PC: Program core,

PE: Program Elective, OE:Open Elective, P:Project

SEMESTER – III

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL/IE | L | T/SLr | P/R | C | Category | |
|-------|--------------|---|--------------|---|-------|-----|---|----------|--|
| 1 | EBMA22006 | Discrete Mathematics | Ту | 3 | 1/0 | 0/0 | 4 | BS | |
| 2 | EBCF22002 | Fundamentals of Networking | Ту | 3 | 1/0 | 0/0 | 4 | PC | |
| 3 | EBCF22003 | Advanced Digital Forensics | Ту | 3 | 1/0 | 0/0 | 4 | PC | |
| 4 | EBEC22ID1 | Digital Principles and System Design | Ту | 3 | 0/0 | 0/0 | 3 | ID | |
| 5 | EBCS22006 | Computer Organization and Architecture | Ту | 3 | 1/0 | 0/0 | 4 | PC | |
| | PRACTICALS* | | | | | | | | |
| 1 | EBCC22ET1 | Universal Human Values I - Understanding Harmony | ETL | 1 | 0/0 | 2/0 | 2 | ID | |
| 2 | EBCF22L01 | Fundamentals of Networking Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC | |
| 3 | EBCF22L02 | Advanced Digital Forensics Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC | |
| 4 | EBEC22IL1 | Digital System Lab | Lb | 0 | 0/0 | 3/0 | 1 | ID | |
| 5 | EBCS22ET3 | Object Oriented Programming With C++ | ETL | 2 | 0/0 | 2/0 | 3 | PC | |

Credits Sub Total 26

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL /IE | L | T/SLr | P/R | С | Category |
|-------|-------------------------|--|------------------|---|-------|-----|---|----------|
| 1 | EBMA22011 | Statistics for Computer Engineers | Ту | 3 | 1/0 | 0/0 | 4 | BS |
| 2 | EBCF22004 | Cryptography and Network Security | Ту | 3 | 1/0 | 0/0 | 4 | PC |
| 3 | EBCF22005 | Vulnerability Analysis / Penetration Testing | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 4 | EBCS22003 | Database Management System | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 5 | EBCC22I04/ EBCC22I05 | The Indian Constitution/ The Indian Traditional Knowledge (Audit Course) | IE | 2 | 0/0 | 0/0 | 0 | ID |
| | | PRACTICALS* | | | | | | |
| 1 | EBCS22L02 | Database Management System Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 2 | EBCF22L03 | Cryptography and Network Security Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 3 | EBCF22L04 | Vulnerability Analysis / Penetration Testing Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 4 | EBCF22I01 | Technical Skill I | IE | 0 | 0/0 | 2/0 | 1 | SC |
| 5 | EBCC22I06 | Soft Skill I – Employability Skills | IE | 0 | 0/0 | 2/0 | 1 | SC |

Credits Sub Total 19

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL/ IE | L | T/SLr | P/R | С | Category |
|-------|--------------|--|------------------|---|-------|-----|---|----------|
| 1 | EBCF22006 | Fundamentals of Information Security | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 2 | EBCF22007 | Database Security | Ту | 3 | 1/0 | 0/0 | 4 | PC |
| 3 | EBCF22008 | Cloud Computing and Security | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 4 | EBCF22EXX | Program Elective I | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 5 | EBXX22OEX | Open Elective I | Ту | 3 | 0/0 | 0/0 | 3 | ID |
| 6 | EBOL22I01 | Online Course(NPTEL/SWAYAM/Any MOOC Online Course Approved by AICTE/UGC) | IE | 1 | 0/0 | 1/0 | 1 | ID |
| | • | | | | | | | • |
| 1 | EBCF22L05 | Fundamentals of Information Security lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 2 | EBCF22L06 | Database Security lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 3 | EBCF22I02 | Technical Skill II | IE | 0 | 0/0 | 2/0 | 1 | SC |
| 4 | EBCS22ET5 | User Experience Design | ETL | 2 | 0/0 | 2/0 | 3 | PC |

Credits Sub Total 23

SEMESTER – VI

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL/ IE | L | T/SLr | P/R | С | Category |
|-------|--------------|---|------------------|---|-------|-----|---|----------|
| 1 | EBCF22009 | Advanced Information Security | Ту | 3 | 1/0 | 0/0 | 4 | PC |
| 2 | EBCF22010 | Application Security | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 3 | EBCF22011 | Cyber Criminology and Cyber Crime | Ту | 3 | 0/0 | 0/0 | 3 | PC |
| 4 | EBCF22EXX | Program Elective II | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 5 | EBXX22OEX | Open Elective II | Ту | 3 | 0/0 | 0/0 | 3 | ID |
| | | PRACTICA | LS | | | | | |
| 1 | EBCF22L07 | Advanced Information Security Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 2 | EBCF22L08 | Application Security Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC |
| 3 | EBCC22I07 | Soft Skill II (Qualitative and Quantitative Skills) | IE | 0 | 0/0 | 2/0 | 1 | SC |
| 4 | EBCF22I03 | Technical Skill III | IE | 0 | 0/0 | 2/0 | 1 | SC |
| 5 | EBCF22I04 | Mini Project/Internship | IE | 0 | 0/0 | 3/0 | 1 | SC |

Credits Sub Total 21

SEMESTER – VII

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL/ IE | L | T/SLr | P/R | С | Category | | | |
|-------|--------------|--------------------------------|------------------|---|-------|-----|---|----------|--|--|--|
| 1 | EBCF22012 | Database Administration | Ту | 3 | 1/0 | 0/0 | 4 | PC | | | |
| 2 | EBCF22013 | Web Security | Ту | 3 | 1/0 | 0/0 | 4 | PC | | | |
| 3 | EBCF22014 | Resilience Management | Ту | 3 | 0/0 | 0/0 | 3 | PC | | | |
| 4 | EBCF22015 | Cyber Law | Ту | 3 | 0/0 | 0/0 | 3 | PC | | | |
| 5 | EBCF22EXX | Program Elective III | Ту | 3 | 0/0 | 0/0 | 3 | PE | | | |
| | PRACTICALS | | | | | | | | | | |
| 1 | EBXX22OLX | Open Lab | Lb | 0 | 0/0 | 3/0 | 1 | ID | | | |
| 2 | EBCF22L09 | Database Administration Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC | | | |
| 3 | EBCF22L10 | Web Security Lab | Lb | 0 | 0/0 | 3/0 | 1 | PC | | | |
| 4 | EBCF22I05 | Project Phase – I | IE | 0 | 0/0 | 3/3 | 2 | Р | | | |
| 5 | EBFL22IXX | Foreign Language | IE | 1 | 0/0 | 1/0 | 1 | HS | | | |

Credits Sub Total 23

SEMESTER – VIII

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL/IE | L | T/SLr | P/R | С | Category | |
|------------|--------------|---|--------------|---|-------|-------|---|----------|--|
| 1 | EBCC22ID2 | Principles of Management and Behavioural Science | Ту | 3 | 0/0 | 0/0 | 3 | ID | |
| 2 | EBCF22EXX | Program Elective IV | Ту | 3 | 0/0 | 0/0 | 3 | PE | |
| 3 | EBCF22EXX | Program Elective V | Ту | 3 | 0/0 | 0/0 | 3 | PE | |
| PRACTICALS | | | | | | | | | |
| 1 | EBCF22L11 | Project - Phase – II | Lb | 0 | 0/0 | 12/12 | 8 | Р | |

Credits Sub Total: 17

TOTAL CREDITS: 166

PROGRAM ELECTIVE I

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL | L | T/SLr | P/R | С | Category |
|-------|--------------|--------------------------------------|-----------|---|-------|-----|---|----------|
| | | | /IE | | | | | |
| 1 | EBCF22E01 | General Forensic Science | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 2 | EBCF22E02 | Business Continuity Planning | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 3 | EBCF22E03 | Artificial Intelligence and Security | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 4 | EBCF22E04 | Mobile Security & Forensics | Ту | 3 | 0/0 | 0/0 | 3 | PE |

PROGRAM ELECTIVE II

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL /IE | L | T/SLr | P/R | С | Category |
|-------|--------------|----------------------------|------------------|---|-------|-----|---|----------|
| 1 | EBCF22E05 | Incident Response | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 2 | EBCF22E06 | Digital Forensic Lifecycle | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 3 | EBCF22E07 | IT Risk Management | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 4 | EBCF22E08 | Malware Analysis | Ту | 3 | 0/0 | 0/0 | 3 | PE |

PROGRAM ELECTIVE III

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL /IE | L | T/SLr | P/R | С | Category |
|-------|--------------|---|------------------|---|-------|-----|---|----------|
| 1 | EBCF22E09 | Critical Infrastructure Security and Management | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 2 | EBCF22E10 | Fundamentals of Virtualization and Information Security | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 3 | EBCF22E11 | Security Threat Intelligence | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 4 | EBCF22E12 | IoT Security | Ту | 3 | 0/0 | 0/0 | 3 | PE |

PROGRAM ELECTIVE IV

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL /IE | L | T/SLr | P/R | С | Category |
|-------|--------------|----------------------------|------------------|---|-------|-----|---|----------|
| 1 | EBCF22E13 | Biometrics Security | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 2 | EBCF22E14 | Information Security Audit | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 3 | EBCF22E15 | Data Privacy | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 4 | EBCF22E16 | Professional Ethics | Ту | 3 | 0/0 | 0/0 | 3 | PE |

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PROGRAM ELECTIVE V

| S.No. | Subject Code | Subject Name | Ty/Lb/ETL/ | L | T/SLr | P/R | С | Category |
|-------|--------------|--|------------|---|-------|-----|---|----------|
| | | | IE | | | | | |
| 1 | EBCF22E17 | Intellectual Property Rights | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 2 | EBCF22E18 | BFSI & Telecom Frauds | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 3 | EBCF22E19 | Big Data Security | Ту | 3 | 0/0 | 0/0 | 3 | PE |
| 4 | EBCF22E20 | Vigilance and Information Security Management | Ту | 3 | 0/0 | 0/0 | 3 | PE |

OPEN ELECTIVES OFFERED FOR CFIS STUDENTS

ELECTRONICS AND COMMUNICATION ENGINEERING

| S.No. | Subject Code | Subject Name | Ty/Lb/ET | L | T/S | P/R | С | Categ |
|-------|--------------|---|----------|---|-----|-----|---|-------|
| | | | L/IE | | Lr | | | ory |
| 1 | EBEC22OE1 | Internet of Things and its Applications | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 2 | EBEC22OE2 | Cellular Mobile communication | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 3 | EBEC22OE3 | Satellite and its Applications | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 4 | EBEC22OE4 | Fundamentals of Sensors | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 5 | EBEC22OE5 | Microprocessor Based System Design | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 6 | EBEC22OE6 | Industry 4.0 Concepts | Ту | 3 | 0/0 | 0/0 | 3 | OE |

ELECTRICAL AND ELECTRONICS ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T/S | P/R | С | Cat |
|------|--------------|---------------------------------|--------|---|-----|-----|---|-----|
| | | | ETL/ | | Lr | | | ego |
| | | | IE | | | | | ry |
| 1 | EBEE22OE1 | Electrical Safety for Engineers | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 2 | EBEE22OE2 | Energy Conservation Techniques | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 3 | EBEE22OE3 | Electric Vehicle Technology | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 4 | EBEE22OE4 | Biomedical Instrumentation | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 5 | EBEE22OE5 | Industrial Instrumentation | Ту | 3 | 0/0 | 0/0 | 3 | OE |

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| | Dr.M.G.R. Educational and Research Institute (Deeffied to be University) | | | | | | | | | | |
|---|--|--------------------------------|----|---|-----|-----|---|----|--|--|--|
| | Department of Computer Science and Engineering | | | | | | | | | | |
| | | 2022 Regulation | - | | | | | | | | |
| 6 | EBEE22OE6 | Solar Energy Conversion System | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |
| 7 | EBEE22OE7 | Wind Energy Conversion System | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |
| 8 | EBEE22OE8 | Energy Storage Technology | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |
| 9 | EBEE22OE9 | Electrical Machines | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |

Dr M G R Educational and Research Institute (Deemed to be University)

MECHANICAL ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T/S | P/R | С | Cat |
|------|--------------|------------------------------------|--------|---|-----|-----|---|-----|
| | | | ETL/ | | Lr | | | ego |
| | | | IE | | | | | ry |
| 1 | EBME22OE1 | Industrial Engineering | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 2 | EBME22OE2 | Refrigeration and Air conditioning | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 3 | EBME22OE3 | Automobile Engineering | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 4 | EBME22OE4 | Industrial Robotics | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 5 | EBME22OE5 | Sustainable Energy | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 6 | EBME22OE6 | Composite Materials | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 7 | EBME22OE7 | Industry 4.0 | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 8 | EBME22OE8 | Virtual and Augmented Reality | Ту | 3 | 0/0 | 0/0 | 3 | OE |

CIVIL ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T/S | P/R | C | Categ |
|------|--------------|---|--------|---|-----|-----|---|-------|
| | | | ETL/ | | Lr | | | ory |
| | | | IE | | | | | |
| 1 | EBCE22OE1 | Water Pollution and Its management | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 2 | EBCE22OE2 | Air Pollution Control | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 3 | EBCE22OE3 | Green Building and Vastu Concepts | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 4 | EBCE22OE4 | Climate Change and Sustainable Development | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 5 | EBCE22OE5 | Intelligent Transportation Systems | Ту | 3 | 0/0 | 0/0 | 3 | OE |

| | 2022 Regulation | | | | | | | | | | |
|---|-----------------|-------------------------------------|----|---|-----|-----|---|----|--|--|--|
| 6 | EBCE22OE6 | Environment, Health and Safety in | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |
| | | Industries | | | | | | | | | |
| 7 | EBCE22OE7 | Industrial Pollution Prevention and | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |
| | | Cleaner Production | | | | | | | | | |
| 8 | EBCE22OE8 | Fundamentals of NanoScience | Ту | 3 | 0/0 | 0/0 | 3 | OE | | | |
| | | | | | | | | | | | |

BIOTECHNOLOGY

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T/S | P/R | С | Cat |
|------|--------------|--|--------|---|-----|-----|---|-----|
| | | | ETL/ | | Lr | | | ego |
| | | | IE | | | | | ry |
| 1 | EBBT22OE1 | Food and Nutrition | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 2 | EBBT22OE2 | Human Physiology | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 3 | EBBT22OE3 | Clinical Biochemistry | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 4 | EBBT22OE4 | Bioprocess Principles | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 5 | EBBT22OE5 | Biosensors and Biomedical Devices in Diagnostics | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 6 | EBBT22OE6 | Basic Bioinformatics | Ту | 3 | 0/0 | 0/0 | 3 | OE |

CHEMICAL ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/E | L | T/S | P/R | С | Cate |
|------|--------------|--|---------|---|-----|-----|---|------|
| | | | TL/IE | | Lr | | | gory |
| 1 | EBCT22OE1 | Fundamentals of Nanoscience | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 2 | EBCT22OE2 | Electrochemical Engineering | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 3 | EBCT22OE3 | Alternative Fuels And Energy System | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 4 | EBCT22OE4 | Petrochemical Unit Processes | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 5 | EBCT22OE5 | Principles of Desalination Technologies | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 6 | EBCT22OE6 | Piping Design Engineering | Ту | 3 | 0/0 | 0/0 | 3 | OE |
| 7 | EBCT22OE7 | E- Waste Management | Ту | 3 | 0/0 | 0/0 | 3 | OE |

C: Credits L: Lecture T: Tutorial S.Lr: Supervised Learning P: Problem / Practical R: Research Ty/Lb/ETL: Theory /Lab/Embedded Theory and Lab * Internal Evaluation

B.Tech – Cyber Forensics and Information Security -2022 Regulation

Dr APJ Abdul Kalam Center For Research

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ETL /IE | L | T/SLr | P/R | С | Catego ry |
|------|--------------|----------------------------|------------------|---|-------|-----|---|--------------|
| 1 | EBMG22OE1 | Technical Entrepreneurship | ETL | 3 | 0/0 | 0/0 | 3 | OE |

OPEN LAB OFFERED FOR CFIS STUDENTS ELECTRONICS AND COMMUNICATION ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T/S | P/R | С | Cat |
|------|--------------|----------------------|--------|---|-----|-----|---|-----|
| | | | ETL/ | | Lr | | | ego |
| | | | IE | | | | | ry |
| 1 | EBEC22OL1 | Sensors and IoT Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 2 | EBEC22OL2 | Robotics Control Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBEC22OL3 | Basics of MATLAB | Lb | 0 | 0/0 | 3/0 | 1 | OL |

ELECTRICAL AND ELECTRONICS ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T/S | P/R | С | Cat |
|------|--------------|---------------------------------|--------|---|-----|-----|---|-----|
| | | | ETL/ | | Lr | | | ego |
| | | | IE | | | | | ry |
| 1 | EBEE22OL1 | Transducer Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 2 | EBEE22OL2 | PLC and SCADA Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBEE22OL3 | Electrical Maintenance Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 4 | EBEE22OL4 | Power Electronics Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 5 | EBEE22OL5 | Bio Medical Instrumentation Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 6 | EBEE22OL6 | Electrical Machines Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ ETL/ IE | L | T/S Lr | P/R | С | Cat ego ry |
|------|--------------|--|----------------------|---|-----------|-----|---|------------------|
| 1 | EBME22OL1 | Internal Combustion Engines and Steam Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 2 | EBME22OL2 | ComputerAidedDesign and Simulation Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBME22OL3 | Engineering Metrology Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 4 | EBME22OL4 | Automation Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 5 | EBME22OL5 | Virtual and Augmented Reality Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| | | | | | | | | OL |

CIVIL ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ ETL/ IE | L | T/S Lr | P/R | С | Cat ego ry |
|------|--------------|--|----------------------|---|-----------|-----|---|------------------|
| 1 | EBCE22OL1 | Building Drawing Practice using Auto CADD | Lb | 0 | 0/0 | 3/0 | 1 | ÖL |
| 2 | EBCE22OL2 | Geographical Information System And Mapping Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBCE22OL3 | Environmental Engineering Laboratory | Lb | 0 | 0/0 | 3/0 | 1 | OL |

BIOTECHNOLOGY

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ ETL/ IE | L | T/S Lr | P/R | С | Cat ego ry |
|------|--------------|--------------------------|----------------------|---|-----------|-----|---|------------------|
| 1 | EBBT22OL1 | Basic Biochemistry Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 2 | EBBT22OL2 | Basic Bioprocess Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBBT22OL3 | Basic Microbiology Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 4 | EBBT22OL4 | Basic Bioinformatics Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |

CHEMICAL ENGINEERING

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ | L | T / | P/R | С | Cat |
|------|--------------|-----------------------------------|--------|---|------------|-----|---|-----|
| | | | ETL/ | | SL | | | ego |
| | | | IE | | r | | | ry |
| 1 | EBCT22OL1 | Chemical Separation Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 2 | EBCT22OL2 | Chemical Composition Analysis Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBCT22OL3 | Alternate Fuel Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 4 | EBCT22OL4 | Food Testing Laboratory | Lb | 0 | 0/0 | 3/0 | 1 | OL |

LIST OF OPEN ELECTIVES OFFERED BY CFIS DEPARTMENT TO OTHER DEPARTMENT STUDENTS

| S.N O | SUBJECT CODE | SUBJECT NAME | Ty/Lb /ETL/ IE | L | T/ SL r | P/R | С | Cat ego ry |
|----------|--------------|----------------------------|----------------------|---|---------------|-----|---|------------------|
| 1 | EBCS22OE1 | Cyber security & Forensics | Ту | 3 | 0/0 | 0/0 | 3 | OL |
| 2 | EBCS22OE2 | Artificial Intelligence | Ту | 3 | 0/0 | 0/0 | 3 | OL |
| 3 | EBCS22OE3 | Data Base Concepts | Ту | 3 | 0/0 | 0/0 | 3 | OL |
| 4 | EBCS22OE4 | Software Engineering | Ту | 3 | 0/0 | 0/0 | 3 | OL |

LIST OF OPEN LABS OFFERED BY CFIS DEPARTMENT TO OTHER DEPARTMENT STUDENTS

| S.NO | SUBJECT CODE | SUBJECT NAME | Ty/Lb/ ETL/ IE | L | T/S Lr | P/R | С | Cat ego ry |
|------|--------------|-----------------------------|----------------------|---|-----------|-----|---|------------------|
| 1 | EBCS22OL1 | Artificial Intelligence Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 2 | EBCS22OL2 | PHP/My SQL Programming Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |
| 3 | EBCS22OL3 | Database Lab | Lb | 0 | 0/0 | 3/0 | 1 | OL |

LIST OF FOREIGN LANGUAGES

| S.NO | COURSE CODE | COURSE NAME |
|------|-------------|-------------|
| 1 | EBFL22I01 | FRENCH |
| 2 | EBFL22I02 | GERMAN |
| 3 | EBFL22I03 | JAPANESE |
| 4 | EBFL22I04 | ARABIC |
| 5 | EBFL22I05 | CHINESE |
| 6 | EBFL22I06 | RUSSIAN |
| 7 | EBFL22I07 | SPANISH |

Components of Curriculum and Credits Distribution

| Course Component | Description | No. of Courses | Credits | Total | Credit Weightage(%) | Contact Hours |
|--|-------------|-------------------|---------|-------|------------------------|------------------|
| Basic Science | Theory | 6 | 22 | 28 | 16.87 | 330 |
| | Lab | - | - | | | - |
| | ETL | 2 | 6 | | | 90 |
| Engineering Science | Theory | 1 | 3 | 6 | 3.61 | 45 |
| | Lab | 0 | 0 | | | - |
| | ETL | 1 | 3 | | | 45 |
| Humanities and social science | Theory | 3 | 3 | 4 | 2.40 | 105 |
| | Lab | 1 | 1 | | 2.40 | 45 |
| | ETL | 0 | 0 | | | 0 |
| Program core | Theory | 17 | 58 | 79 | 47.6 | 885 |
| | Lab | 11 | 11 | | | 495 |
| | ETL | 4 | 10 | | | 135 |
| Program Electives | | 5 | 15 | 15 | 9.04 | 225 |
| Open Elective | Theory | 2 | 6 | 7 | 4.22 | 90 |
| | Lab | 1 | 1 | | | 45 |
| Inter Disciplinary | Theory | 5 | 8 | 11 | | 150 |
| | Lab | 1 | 1 | | 6.62 | 45 |
| | ETL | 1 | 2 | | | 30 |
| Skill Component | - | 6 | 6 | 6 | 3.61 | 165 |
| Internship/Mini project/Main project | | 2 | 10 | 10 | 6.02 | 90 |
| If others any | - | - | - | - | - | - |
| | TOTAL | 69 | 166 | 166 | 100 | 3195 |

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Revision/modification done in syllabus content:

| S.No. | Course | Course (Subject) | Concept/topic if | Concept/topic added in | % of Revision |
|-------|------------|--------------------------------------|------------------------------------|--|----------------|
| | (Subject) | Name | any, removed in | the new curriculum | / Modification |
| | Code | | current curriculum | | done |
| 1 | EBCF22C01 | Fundamentals of Digital Forensics | Unit II Content | Topics added in Unit I: Digital Forensic Tools – Tool Selection Unit II Completely changed | 25 |
| 2 | EBCF22C02 | Fundamentals of Networking | | Topics added in Unit I: LAN –MAN – WAN-VPN- VLAN- Wireless Network Topologies Topics added in Unit III: Networking Media – Secure Transmission and Physical Media – Media Connectors Topics added in Unit IV: Common Networking DevicesSpecialized Network Devices Purpose, features Topics added in Unit V: TCP/IP Reference Model and their functions | 40 |
| 3 | EBCF22C03 | Advanced Digital Forensics | Unit I & Unit V Content removed | Unit I & Unit V entire content changed | 40 |

| S.No. | Course (Subject) Code | Course (Subject) Name | Concept/topic if any, removed in current curriculum | Concept/topic added in the new curriculum | % of Revision / Modification done |
|-------|------------------------------------|--|---|--|---|
| 4 | EBCF22C06 | Fundamentals of Information Security | Unit IV & Unit V entire content removed | Topics added in Unit II Risk Identification – Risk Assessment – Risk Control – Management Requirements for Information Security Risk Topics added in Unit III System Security concepts, Desktop & Server Security, Firewalls, Password cracking Techniques, Threats involved, Key- logger, viruses and worms, Malwares & Spy wares, Windows Registry. Anti Malware / AV/Anti Rootkit and other solutions Unit IV & Unit V entire content changed | 70 |
| 5 | EBCF22C07 | Database Security | Unit V content removed | Entire Unit V content changed | 20 |
| 6 | EBCF22C09 | Advanced Information Security | Removed all 5 Unit's Content | New Syllabus | 100 |
| 7 | EBCF22C10 | Application Security | Unit V content removed | Entire Unit V content changed | 20 |
| 8 | EBCF22C11 | Cyber Criminology and Cyber Crime | | All 5 Unit's content updated | 75 |
| 9 | EBCF22C13 | Web Security | Removed all 5 Unit's Content | New Syllabus | 100 |
| 10 | EBCF22C14 Resilience Management | | Unit V content removed | Entire Unit V content changed | 20 |

| S.No. | Course (Subject) Code | Course (Subject) Name | Concept/topic if any, removed in current curriculum | Concept/topic added in the new curriculum | % of Revision / Modification done |
|-------|------------------------------|--------------------------------|---|--|---|
| 11 | EBCF22C15 | Cyber Law | | Unit III and Unit IV Completely changed | 40 |
| 12 | | Database Security lab | | Included 3 programs | 20 |
| 13 | EBCF22CE01 | General Forensic Science | Unit II & Unit V entire content removed | Unit II & Unit V entire content changed | 40 |
| 14 | EBCF22CE05 | Incident Response | Unit V content removed | Unit 5 Completely changed | 20 |
| 15 | EBCF22CE07 | IT Risk Management | Unit V content removed | Unit 5 Completely changed | 20 |
| 16 | EBCF22CE12 | IoT Security | Removed all 5 Unit's Content | New Syllabus | 100 |
| 17 | EBCF22CE14 | Information Security Audits | Removed all 5 Unit's Content | New Syllabus | 100 |
| 18 | EBCF22CE15 | Data Privacy | Unit V content removed | Unit 5 revised | 20 |

Dr.M.G.R. Educational and Research Institute (Deemed to be University) Department of Computer Science and Engineering 2022 Regulation List of New courses/value added courses//life skills/Electives/interdisciplinary /courses

focusing on employability/entrepreneurship/skill development.

| S.No | New courses | Value added courses | Life skill/ ETL | Electives | Inter Disciplinary | Focus on employability/ Entrepreneurship/ skill development. |
|------|---|--|--|---|--|---|
| 1 | C Programming and MS Office Tools | Technical Skill I | Python Programming | Total number of Program Electives: 20 (as given in the curriculum) | Digital Principles And System Design | |
| 2 | Fundamentals of Digital Forensics | Technical Skill II | Communicative English Lab | Total number of Open Electives (Theory & Lab) 71 (as given in the curriculum) | | Technical Skill I |
| 3 | Cryptography and Network Security | Technical Skill III | Object Oriented Programming With C++ | | Digital Systems Lab | Technical Skill II |
| 4 | Cloud Computing and Security | Environmental Science | User Experience Design | | | Technical Skill III |
| 5 | Database Administration | Universal human values : Understanding harmony | | | | Mini Project/ Internship |
| 6 | Cryptography and Network Security Lab | Soft Skill I - Employability Skills | Soft Skill I - Employability Skills | | Online Course (NPTEL/ SWAYAM /Any MOOC approved by AICTE/UGC) | Project Phase – I |
| 7 | Database Administration Lab | Soft Skill II - Qualitative And Quantitative Skills | Soft Skill II - Qualitative And Quantitative Skills | | Principles of Management and Behavioural Science | Project Phase – II |
| 8 | Web Security Lab | | Universal human values : Understanding harmony | | | |

| Dr.M.G.R. Educational and Research Institute (Deemed to be University) |
|--|
| Department of Computer Science and Engineering |
| 2022 Regulation |

| S.No | New courses | Value added courses | Life skill/ ETL | Electives | Inter Disciplinary | Focus on employability/ Entrepreneurship/ skill development. |
|------|---|------------------------|---|-----------|--------------------|---|
| 9 | Business Continuity Planning | | | | | |
| 10 | Artificial Intelligence and Security | | Foreign Language | | | |
| 11 | Mobile Security & Forensics | | | | | |
| 12 | Critical Infrastructure Security and Management | | The Indian Constitution/ The Indian Traditional Knowledge | | | |
| 13 | Security Threat Intelligence | | | | | |
| 14 | IoT Security | | | | | |
| 15 | Biometrics Security | | | | | |
| 16 | Big Data Security | | | | | |
| 17 | Vigilance and Information Security Management | | | | | |

Credit Summary

Semester: 1:18

Semester: 2:19

Semester: 3:26

Semester: 4:19

Semester: 5:23

Semester: 6:21

Semester: 7 : 23

Semester: 8 : 17

Total Credits : 166

SEMESTER - I

| COURSE CODE | | COU T | COURSE NAME : TECHNICAL ENGLISH | | | | | | L | | T/SLr | • | | P/R | C |
|----------------|---|--------------------|------------------------------------|-----------|-----------|-------------|----------|----------|---------|----------------|------------|---------|-------|-------------|---------|
| EBEN22001 | l | Prere | equisit | te : Pass | in Plus 2 | English | | Ту | 2 | | 0/0 | | | 0/0 | 2 |
| C: Credits | , L: Leo | cture, | T: 1 | Tutoria | , SLr: | Supervise | ed Lear | ming, l | P: Pro | bler | n / Pract | tical | | | |
| R: Researc | ch, Ty/I | _b/ET | ΓL/II | E/IE: T | heory / | Lab/Emb | edded 7 | Theory | and] | Lab/ | Internal | Eva | luati | on | |
| OBJECTI | VES: | | | | | | | | | | | | | | |
| The student | ts should | l be m | nade | to | | | | | | | | | | | |
| • To | refresh | and st | timu | late stu | dents' E | nglish lea | rning th | rough | Conte | nt In | tegrated | Lang | guage | e Learning | to have |
| ant | an in-depth understanding of the components of English language and its use in communication that they are competent in inter-personal and academic communication for a successful career. | | | | | | | | | | | | | | |
| COURSE | OURSE OUTCOMES (Cos): Students will be able to | | | | | | | | | | | | | | |
| <u>CO1</u> | Pafrasl | and | otim | ilata the | vir Engli | ch loornin | a throw | gh Con | tont In | toor | atad Lan | 01100 | | rning | |
| CO1 | Have a | $\frac{1}{n}$ in-d | lenth | unders | anding | of the con | ponent | s of En | olish 1 | anor | ateu Lan | its us | e in | communic | ation |
| | Strongt | hon th | hoir t | voorbul | anuand | | moulo | lga for | | | lamia an | d tool | | | iontion |
| 005 | Strengt | nen u | | | ary and | syntactic i | chowiec | ige for | use m | acat | | | mca | | Ication |
| CO4 | Learn t | o nego | otiate | e meani | ng in in | ter-person | al and a | cadem | ic com | nmun | ication f | for a s | succe | essful care | er |
| CO5 | Engage | in or | rganiz | zed aca | demic ai | nd profess | ional w | riting f | or life | -long | g learning | g and | rese | arch | |
| Mapping o | apping of Course Outcome with Program Outcome (POs) | | | | | | | | | | | | | | |
| Cos/POs | PO1 | PC | 02 | PO3 | PO4 | PO5 | PO6 | PO7 | PO | 08 | PO9 | PO | 10 | PO11 | PO12 |
| CO1 | 1 | | | 1 | 1 | 3 | 1 | 1 | | 2 | 3 | | 3 | 1 | 3 |
| CO2 | | 1 | 1 | | 2 | 3 | 2 | 1 | | 1 | 3 3 | | 3 | | 3 |
| CO3 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | | | 2 | 3 | 3 | | 1 | 3 |
| CO4 | 1 | 2 | 2 | 1 | 1 | 3 | | 1 | | | 2 | 2 | 2 | 1 | 2 |
| CO5 | 1 | 4 | 2 | 1 | | 2 | 1 | | | 1 | 3 | 3 | 3 | 1 | 3 |
| COs/PSOs | | P | PSO1 | - | | PSO2 | | | PSC |)3 | | | PS | 04 | |
| CO1 | | | | 1 | | | - | | | | - | | | - | |
| CO2 | | | | 1 | | | - | | | | - | | | - | |
| CO3 | | | | 1 | | | 1 | | | | - | | | 2 | |
| CO4 | | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | 1 | | | 1 | |
| 3/2/1 Indica | ates Stre | ngth (| Of C | orrelati | on, 3 – I | High, 2- N | ledium, | 1- Lov | V | | | | | | |
| > | | | | | pu | | tive | | 0 | nary | | tao | | | ject |
| gor. | gor. ing ience ience | | | Core | eleci | | cuve | cipli | I | 1000 | Indii | | /Pro | | |
| late | Zate, Zate, Cate, | | | ram | ram | Ē | l Ele | Disc | | ² C | | | ical | | |
| | Basic C Engi | | Hum socia | Prog | Prog | 0 | Oper | nter | | 11712 | | | Pract | | |
| | | V. | • | | | | | | | | | 4 | | | |
| | | | | | | | | | | | | | | | |

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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
|----------------|-------------------|------------------|---|------------|-----|---|
| EBEN22001 | TECHNICAL ENGLISH | Ту | 2 | 0/0 | 0/0 | 2 |

Unit I Vocabulary Development:

Affixes: prefixes and suffixes and word formation–synonyms and antonyms-nominal compounds, expanding using numbers and approximation - preposition, prepositional phrases, preposition + relative pronoun- adjective: degrees of comparison, formation of adjectives, irregular comparatives- Infinitive and Gerunds

Unit II Grammar

Tenses- auxiliary and modal -voice: active, passive and impersonal passive - Questions: Whpattern, Yes/no questions, tag questions - adverbs and adverbial clauses- 'If' clause, 'cause and effect', 'purpose'- Concord: subject-verb agreement

Unit III Reading

Comprehension: extracting relevant information from the text, by skimming and scanning and inferring, identifying lexical and contextual meaning for specific information, identifying the topic sentence and its role in each paragraph, comprehension exercises - Note - making - Précis writing-instructions, suggestions and recommendations.

Unit IV Writing

Jumbled sentences - paragraph writing coherence devices- discourse markers. Essay writing-Letter writing, Informal and formal: seeking permission to undergo practical training, letter to an editor of a newspaper complaining about civic problems and suggesting suitable solutions

Unit V Visual Aids in Communication

Interpretation of diagrams - tables, flow charts, pie charts and bar charts, and their use in Business reports

Total Hours: 30

Text book:

Panorama_: Content Integrated Language Learning for Engineers, M. ChandrasenaRajeswaran&R.Pushkala,, Vijay Nicole Imprints Pvt. Ltd., Chennai

References:

- 1. Bhatnagar & Bhatnagar, Communicative English for Engineers and Professionals, Pearson
- 2. Wren and Martin: Grammar and Composition, Chand & Co, 2006
- 3. https://learnenglish.britishcouncil.org
- 4. <u>www.better-english.com/grammar/preposition</u>.

6Hrs

6 Hrs

6Hrs

6 Hrs

6 Hrs

| COURSE CO | | CO | COURSE NAME: | | | | | Ty/Lb | / | L | | T/SLr | | P/R | | С |
|------------|--|---------------|-----------------|------------------|------------|-----------|------|----------------------------|---|-----------|----------------|---------------|-------------|------------|------------|---------------|
| CODE | | | M | ATHE | EMATI | CS-I | | ETL/ | ΙE | | | | | | | |
| EBMA22 | 2001 | Pre Ma | requis thema | ite: Hig tics | gher secon | ndary | | Ту | | 3 | | 1/0 | | 0/0 | | 4 |
| C: Cred | lits, L: l | ectu | ire, T | : Tuto | rial, SL | r: Supe | erv | vised Le | arni | ng, F | P: Pr | oblem | / Practi | cal | | |
| R: Rese | arch, T | y/Lb | /ETL | /IE/IE | : Theor | y /Lab/ | En | nbedded | l Th | leory | and | Lab/Ir | ternal | Evaluati | on | l |
| OBJEC | TIVES | | | | | | | | | | | | | | | |
| The stud | ents sho | uld b | e mao | le to | | | | | | | | | | | | |
| • | Apply th | e Ba | sic co | ncepts | in Alge | ora | | | | | | | | | | |
| • | Use the | Basic | conc | epts ir | Matrice | S | | | | | | | | | | |
| • | Identify | and s | solve | proble | ms in Tr | gonom | etr | У | | | | | | | | |
| • | Underst | and th | ne Bas | sic con | cepts in | Differe | nti | ation | | | | | | | | |
| • | Apply the Basic concepts in Functions of Several variables URSE OUTCOMES (Cos): Students will be able to | | | | | | | | | | | | | | | |
| COURS | RSE OUTCOMES (Cos): Students will be able to | | | | | | | | | | | | | | | |
| CO1 | Find the summation of given series of binomial, exponential and logarithmic | | | | | | | | | | | | | | | |
| CO2 | Transf | orm | a non- | -diago | nal matri | x into a | n e | equivaler | nt di | agona | ıl ma | atrix usi | ng ortho | ogonal | | |
| | transfo | rmat | ion | | | | | | | | | | | | | |
| CO3 | Find t | ne exj | pansio | on of t | rigonome | etric fur | icti | ion into a | an ir | nfinite | e seri | les and s | separate | real and | | |
| ~~ (| imaginary parts | | | | | | | | | | | | | | | |
| <u>CO4</u> | Find t | ne ma | ixima | and m | inima of | the giv | ven | tunction | 1 | | | <u> </u> | 6 | | 11 | |
| <u>C05</u> | Evalua | te th | e part | ial/tota | al differe | ntiation | an | id maxin | $\frac{na}{m}$ | 111111111 | a of | function | n of seve | eral varia | ible | 3 |
| | g of Co | $\frac{1}{1}$ | | DO2 | Ith Prog | ram O | utc | $\frac{\text{come}(P)}{P}$ | <u>JS)</u> | D | 20 | DOO | DO10 | DO11 | Тг | 012 |
| | | 1 1 | 202 | 2 | PO4 | 2 | P | 1 P | $\frac{0}{2}$ | P | $\frac{38}{2}$ | 2 | 2 | 1 | r | 2 |
| C01 | 3 | | 3 | <u> </u> | 2 | 2 | | $\frac{1}{2}$ | <u></u> 1 | | $\frac{2}{2}$ | 3 | <u> </u> | 2 | + | 3 |
| C02 | 3 | | 3 | 1 | 2 | 2 | | 2 | 1 | | 2 1 | 2 | 3 | 2 | + | 1 |
| C04 | 3 | | 2 | 2 | 2 | 1 | | 2 | $\frac{1}{2}$ | | $\frac{1}{2}$ | $\frac{2}{2}$ | 3 | 2 | + | $\frac{1}{2}$ |
| CO5 | 3 | | 3 | 1 | 2 | 1 | | 1 | 2 | | <u>-</u> 1 | 2 | 2 | 1 | + | 3 |
| COs/PS | $\frac{1}{2}$ | I | PSO | 1 | | PSO2 | 1 | 1 | | PSC |)3 | | PS | 04 | _ | 5 |
| CO1 | | | | 2 | | | | 3 | | | - | 1 | | 2 | | |
| CO2 | | | | 2 | | | | 3 | | | | 1 | | 2 | | |
| CO3 | | | | 2 | | | | 3 | | | | 1 | | 2 | | |
| CO4 | 204 2 | | | | | | | 3 | | | | 1 | | 2 | | |
| CO5 | 05 2 | | | | | | | | | | | 1 | | 2 | | |
| 3/2/1 Inc | 3/2/1 Indicates Strength Of Correlation, 3 –Hig | | | | | | | | n, 1- | Low | | | | | | |
| Catagory | Category Basic Science Engineering Science Humanities and Social Science Program | | | | | | ole | Program clective | rogram ective pen lective isciplinary kill omponent | | | | | Project | | |
| | <u> </u> | | | - | 1 8 0 | | | e H | | <u> </u> | Π | <u> </u> | | | \uparrow | <u>H</u> |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
|----------------|-----------------|------------------|---|------------|-----|---|
| EBMA22001 | MATHEMATICS – I | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I

ALGEBRA

Binomial, Exponential, Logarithmic Series (without proof of theorems) – Problems on Summation, Approximation and Coefficients. UNIT II MATRICES

12Hrs

12Hrs

Characteristic equation – Eigen values and Eigen vectors of a real matrix – Properties of Eigen values – Cayley - Hamilton theorem(without proof) – Orthogonal reduction of a symmetric matrix to Diagonal form.

UNIT III TRIGONOMETRY

12Hrs Expansions of Sin n θ , Cos n θ in powers of Sin θ and Cos θ –Expansion of Tan n θ – Expansions of Sinⁿ θ and Cosⁿ θ in terms of Sines and Cosines of multiples of θ – Hyperbolic functions – Separation into real and imaginary parts.

UNIT IV DIFFERENTIATION

12Hrs

Basic concepts of Differentiation –Elementary differentiation methods –Parametric functions – Implicit function –Leibnitz theorem (without proof) – Maxima and Minima – Points of inflection.

UNIT V FUNCTIONS OF SEVERAL VARIABLES

12Hrs

Partial derivatives – Total differential – Differentiation of implicit functions – Taylor's expansion – Maxima and Minima by Lagrange's Method of undetermined multipliers – Jacobians.

Total Hours: 60

Text & Reference Books:

- 1) Kreyszig E., Advanced Engineering Mathematics (10th ed.), John Wiley & Sons, (2011).
- 2) Grewal B.S., *Higher Engineering Mathematics*, Khanna Publishers, (2012).
- 3) John Bird, Basic Engineering Mathematics (5th ed.), Elsevier Ltd, (2010).
- **4**) Veerarajan T., *Engineering Mathematics (for first year)*, Tata McGraw Hill Publishing Co., (2008).
- 5) P.Kandasamy, K.Thilagavathy and K. Gunavathy, *Engineering Mathematics Vol. I* (4th *Revised ed.*), S.Chand& Co., Publishers, New Delhi (2000).
- 6) sJohn Bird, Higher Engineering Mathematics (5th ed.), Elsevier Ltd, (2006)

| COURSE C CODE C | | | | URS | SE NA | ME: | | | Ty FT | /Lb/ 1 /IF | | | T/SLr | | P/R | | С |
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| EBPH | 22ET | .1 | Prei | requis | site: Hi | gher Sec. | Physics | 5 | I | ETL | 2 | | 0/0 | | 2/0 | | 3 |
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| OBJE | CTIV | ES: | | | | | | | | | | | | | | | |
| The s | tude | nts shou | ıld ł | be ma | ade to: | | | | | | | | | | | | |
| • | Οι | tline th | e re | latio | n betw | veen Sci | ence, E | ngi | ineeri | ng & | Tech | nol | ogy. | | | | |
| • | De | emonstr | ate (| comp | petenc | y in und | erstand | ling | g basic | c con | cepts | | | | | | |
| • | Aŗ | ply fun | dan | nenta | l laws | of Phys | sics in l | Eng | gineer | ing & | z Tec | hno | logy. | | | | |
| • | То | identif | y & | solv | e prob | lems us | ing phy | ysic | es con | cepts | • | | | | | | |
| • | Pre | oduce a | and | pres | sent a | ctivities | assoc | iate | ed wi | ith th | ne co | ours | e throu | gh eff | ective t | ecł | nnical |
| | co | mmunic | atic | on | | | | | | | | | | - | | | |
| COUR | RSE (| E OUTCOMES (Cos): Students will be able to | | | | | | | | | | | | | | | |
| CO1 |] | Demonstrate competency in understanding basic concepts. | | | | | | | | | | | | | | | |
| CO2 | 1 | Jtilize | scie | entifi | c met | hods fo | r form | al | inves | tigati | ons | & (| demonst | trate co | ompeter | су | with |
| <u>CO3</u> | 1 | aperin | | | unous | and ver | for one | | | nuch | lama | KIIO | wiedge | • | | | |
| 05 | Identify and provide solutions for engineering problems. | | | | | | | | | | | | | | | | |
| CO4 |] | Relate t | ne te | echni | ical co | ncepts t | o day t | o d | ay life | e and | to pr | acti | cal situa | tions. | | | |
| CO5 | - | Think a | naly | rtical | ly to ii | nterpret | concep | ots. | | | | | | | | | |
| Mapp | oing o | of Cours | e O | utco | me wit | h Progra | am Out | tcor | me (P | Os) | | | | | | | |
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| CO_2 | | 3 | - | 3 | 2 | 2 | 2 | - | 2 | 1 | | 1 | <u> </u> | 2 | 1 | - | 1 |
| CO_4 | | 3 | + | 3 | <u>ゝ</u> | $\frac{2}{2}$ | | + | 2 | 1 2 | _ | 1 | 1 | $\frac{2}{2}$ | 1 | - | $\frac{2}{2}$ |
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| COs/F | PSOs | 5 | <u> </u> | PSO1 | 2 | 1 | PSO2 | | 2 | 1 | PSO | 3 | 1 | PS | $\overline{)4}$ | | |
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Total Hours: 60

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UNIT I PROPERTIES OF MATTER

Elasticity - stress, strain and Hook's law - Poisson's ratio - three moduli of elasticity - twisting couple on a wire – Shafts – Solid & Hollow Shafts – Bending moment – Youngs Modulus Determination by non uniform bending -I form of girders.

viscosity - flow of liquid through a narrow tube: Poiseuille's law (Qualitative)- Ostwald's viscometer – LubricationLab Component – 1. Coefficient of Viscosity determination using Poiseuille's Method

UNIT II ACOUSTICS & ULTRASONICS

Fundamentals of acoustics - reverberation- reverberation time - factors affecting acoustics.Ultrasonics -Production of ultrasonic waves - detection of ultrasonic waves+ - acoustic grating - application of ultrasonic waves.Lab Component - 2. Ultrasonic Velocity Determination

UNIT III WAVE OPTICS

Huygen's principle - interference of light – wave front splitting and amplitude – air wedge - Newton's rings - Michelson interferometer and its applications - Fraunhofer diffraction from a single slit - diffraction grating

Lab Component – 3. Spectrometer – Grating

UNIT IV LASER

COURSE

CODE

EBPH22ET1

Laser principle and characteristics - amplification of light by population inversion - properties of laser beams: mono-chromaticity, coherence, directionality and brightness - different types of lasers - Ruby laser-Nd-YAG laser-He-Ne laser-CO₂ laser - semiconductor laser - applications of lasers in science, engineering and medicine. Lab Component – 4. Determination of Wavelength of the given Laser source & Particle size determination

UNIT V FIBER OPTIC COMMUNICATION

Total Internal Reflection – Propagation of Light in Optical Fibers – Numerical aperture and Acceptance Angle – Types of Optical Fibers (material, refractive index, mode) – Fiber Optical Communication system (Block diagram) – Attenuation–Transmitter, Receiver, Dispersion, Modulation/Demodulation Advantages of Fiber Optical Communication System – IMT, PMT, Wavelength Modulated & Polarization Modulated Sensors – Endoscope Applications.Lab Component – 5. Determination of Numerical Aperture of Optical Fiber

12Hrs

12 Hrs

12Hrs

12Hrs

12Hrs

С

3

TEXT BOOKS

- 1. Brijlal, M. N. Avadhanulu& N. Subrahmanyam, Text Book of Optics, S. Chand Publications, 25th edition, 2012
- 2. R. Murugeshan, Electricity and Magnetism, S.Chand Publications, 10th edition, 2017
- 3. R. Murugeshan & Kiruthiga Sivaprasath, Modern Physics, S.Chand Publications, 2016

REFERENCE BOOKS

| 1. | Dr. Senthil Kumar Engineering Physics I VRB Publish | hers | , 2016 |
|----|---|------|---------------------------------|
| 2. | | N S | Subrahmanyam & Brijlal, Waves |
| | and Oscillations, Vikas Publications, New Delhi, 1988 | | |
| 3. | | Ν | Subrahmanyam & Brijlal, |
| | Properties of Matter, S. Chand Co., New Delhi, 1982 | | |
| 4. | | Ν | Subrahmanyam & Brijlal, Text |
| | book of Optics, S. Chand Co., New Delhi, 1989 | | |
| 5. | | R. | Murugeshan, Electricity and |
| | Magnetism, S. Chand & Co., New Delhi, 1995 | | |
| 6. | Thygarajan K & Ajay Ghatak, Laser Theory and A | ppli | ications, Macmillan, New Delhi, |
| | 1988 | | |

7. Dr. S. Muthukumaran, Dr.G.Balaji, S.Masilamani - PHYSICS LABORATORY I & II by Sri Krishna Hitech Publishing Company Pvt.Ltd.

| COURSE C CODE E C | | | OURS NGIN HEMI | SE NA EERI ISTRY | ME: NG | | | Ty/ ET | Lb/ L/IE | | L | | T/SLr | | | P/R | | С | |
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| The stu 1.To ded 2.To pro 3.To artic 4. To imp 5. To cre 6.To intr | The students should be made to 1.To deduce practical application of theoretical concepts 2.To provide and insight into fundamental concepts of chemical thermodynamics 3.To articulate the water treatment methods 4. To impart the knowledge in electrical conductance and EMF 5. To create awareness about the modern Nano composites along with concepts of polymers 6.To introduce analytical tools for characterization techniques. COURSE OUTCOMES (Cos): Students will be able to | | | | | | | | | | | | | | | | | | |
| COURS | E OU | ГСОМ | ES (Co | s): Stuc | ents will | be able t | 0 | | | | | | | | | | | | |
| | Appl | y relev | ant ins | trumen | tation tee | enniques | 5 to | solve c | omple | ex] | proble | ems | ninainlas | ofF | nain | oning co | ion | 000 | |
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| CO3 | Dem | onstrat | te the co | ollabor | ntion of s | cience a | nd | Engine | ering | to | recog | nize | the need | l for | life l | ong lear | nin | σ. | |
| C01 | CO5 Analyse the impact of contextual knowledge to access the health and society issues. | | | | | | | | | | | | | | | | | | |
| CO5 Monnin | Alla | | | | th Drog | | se u | mo (D | $\frac{1}{\Omega_{\alpha}}$ | llea | iui ai | iu su | ciety issu | ies. | | | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBCH22ET1 | ENGINEERING CHEMISTRY | ETL | 2 | 0/0 | 2/0 | 3 |

UNIT -I CHEMICAL THERMODYNAMICS

Introduction, Terminology in thermodynamics –System, Surrounding, State and Path functions, Extensive and intensive properties.Laws of thermodynamics – I and II laws-Need for the II law.Enthalpy, Entropy, Gibbs free energy, Helmholtz free energy - Spontaneity and its criteria.Maxwell relations, Gibbs -Helmholtz equation (relating E & A) and (relating H & G).

UNIT -II TECHNOLOGY OF WATER

Water quality parameters – Definition and expression. Analysis of water – alkalinity, hardness and its determination (EDTA method only). Boiler feed water and Boiler Troubles-Scales and sludges, Caustic embrittlement, Priming and Foaming and Boiler corrosion. Water softening processes – Internal conditioning, external conditioning – Demineralization methods. Desalination processes-RO and Electrodialysis.

Lab Component-1. Analyze the water quality parameters for the given water sample. UNIT -III ANALYTICAL AND CHARACTERIZATION TECHNIQUES 12Hrs

Chromatographic techniques – column, thin layer and paper. Instrumentation-working with block diagram- UV-Visible Spectroscopy, IR Spectroscopy, Scanning electron microscope, Transmission electron microscope.

Lab Component-2. Determination of Rf values of various components using thin layer chromatography.

3. Compute and interpret the structures of the given molecules using Chem Draw.

UNIT – IV ELECTROCHEMISTRY

Conductance – Types of conductance and its Measurement. Electrodes and electrode potential, Nernst equation – EMF measurement and its applications-Electrochemical series- Types of electrodes- Reference Electrodes-Standard hydrogen electrode- Saturated calomel electrode-

Determination of P^H using this electrode.

Lab Component-4.Studies on acid-base conductometric titration.

5. Determination of redox potentials using potentiometry

UNIT -VPOLYMERS AND NANO COMPOSITES

Polymers-Introduction-Monomers – Functionality – Degree of polymerization-Tacticity. Classification- Plastics – Thermoplastics and thermosetting plastics, Compounding of plastics – Compression moulding, injection moulding and extrusion processes. Nano composites: particulates, clay and carbon nano tubes. Graphene nano composites and its applications.

 Lab Component-6.Polymeric analysis using capillary viscometer
 Total Hours: 60

12**Hrs**

12Hrs

12Hrs

12Hrs

References

1. Jain & Jain Engineering Chemistry 17th Edition, Dhanpat Rai Publishing Company

2. <u>Vasant R. Gowariker</u>, <u>N. V. Viswanathan</u>, <u>Jayadev Sreedhar</u>, *Polymer Science*, New Age International, 1986

3. B.K. Sharma, Polymer Chemistry, Goel Publishing House

4. Y. R. Sharma , *Elementary Organic Spectroscopy*, S. Chand& Company Ltd.

5. N.Krishnamurthy, K.Jeyasubramanian, P.Vallinayagam, Applied Chemistry, Tata McGraw-Hill Publishing Company Limited, 1999.

6. Chichester, polymer-clay-nano composites, Johnwiley (2000)

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| C: Credits, L: Lecture, T: Tutorial, SLr: Supervised Learning, P: Problem / Practical | | | | | | | | | | | | | |
| R: Research, Ty/Lb/ETL/IE/IE: Theory /Lab/Embedded Theory and Lab/Internal Evaluation | | | | | | | | | | | | | |
| OBJECTIVES: | | | | | | | | | | | | | |
| The students should be made to | | | | | | | | | | | | | |
| • To understand the fundamentals and applications of IC Engines, power plants, manufacturing | | | | | | | | | | | | | |
| processes and mechanics. | | | | | | | | | | | | | |
| • To expose the students to the various construction materials and their applications. | | | | | | | | | | | | | |
| COURSE OUTCOMES (Cos): Students will be able to | | | | | | | | | | | | | |
| CO1 | Demonstrate the working principles of power plants. IC Engines and boilers. | | | | | | | | | | | | |
| CO2 | Utilize the concept of metals forming, joining process and apply in suitable machining process | | | | | | | | | | | | |
| CO3 | Understand the various machining process in machine tool | | | | | | | | | | | | |
| CO4 | Utilize the concept of Building materials and construction able to perform concrete mix and masonry | | | | | | | | | | | | |
| | types | | | | | | | | | | | | |
| CO5 | Demonstrate how Roads, Railways, dams, Bridges have been constructed | | | | | | | | | | | | |
| Mapping of Cou | urse Outco | me wi | th Prog | ram Out | come (POs | ;) | | | | | | | |
| Cos/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO1 | 0 | PO11 | PO12 |
| CO1 | 3 | | | | | 2 | | 3 | 3 | | 3 | | 3 |
| CO2 | 3 | | | | 1 | 2 | | 1 | 2 | 2 | | | 2 |
| CO3 | 3 | 3 | | | 1 | 1 | | 1 | 2 | 2 | | | 2 |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBME22ET1 | BASIC MECHANICAL & CIVIL ENGINEERING (FOR CIRCUIT BRANCHES) | ETL | 2 | 0/0 | 2/0 | 3 |

UNIT I THERMAL ENGINEERING

Classification of internal combustion engine - Working of two stroke, four stroke petrol and diesel engines.Classification of Boilers - Cochran boiler - Locomotive boilers - Power plant classification -Working of Thermal and Nuclear power plant- Working of Solar-Wind - Tidal and Geothermal power plants.

Lab component: Study of Boilers and IC engines

UNIT II MANUFACTURING PROCESS

Metal forming processes – Rolling, forging, drawing, extrusion and sheet metal operations- fundamentals only. Metal Joining processes - Welding - arc and gas welding, Soldering and Brazing. Casting process -Patterns -Moulding tools - Types of moulding - Preparation of green sand mould -Operation of Cupola furnace.

Lab component: Sheet metal works,

Fitting- Cutting (T, V, L and dovetail joints)

UNIT III MACHINING PROCESS

Basics of metal cutting operations - Working of lathe- parts-Operations performed. Drilling machine -Classification - Radial drilling machine - Twist drill nomenclature. Milling machine-types-different operations performed.

Lab component: Lathe operation: Step turning and Taper turning

Drilling operation- Making hole drilling

UNIT IV **BUILDING MATERIALS AND CONSTRUCTION**

Materials: Brick - Types of Bricks - Test on bricks - Cement – Types, Properties and uses of cement – Steel - Properties and its uses - Ply wood and Plastics.

Construction: Mortar - Ingredients - Uses - Plastering - Types of mortar - Preparation - Uses - Concrete - Types - Grades - Uses - Curing - Introduction to Building Components (foundation to roof) - Masonry – Types of masonry (Bricks & Stones)

Lab component: Carpentry: Joints (Tee halving, Cross Lap, Dovetail Joint) **Plumbing works- Pipe connections**

UNIT V **ROADS, RAILWAYS, BRIDGES & DAMS**

Roads - Classification of roads - Components in roads - Railways -Components of permanent way and their function – Bridges – Components of bridges – Dams – Purpose of dams – Types of dams.

TEXT BOOKS

- 1. S. Bhaskar, S. Sellappan, H.N.Sreekanth,, (2002), "Basic Engineering" -Hi-Tech Publications
- 2. K. Venugopal, V. Prabhu Raja, (2013-14), "Basic Mechanical Engineering", Anuradha Publications.
- 3. K.V. Natarajan (2000), Basic Civil Engineering, Dhanalakshmi Publishers
- 4. S.C. Sharma(2002), Basic Civil Engineering, Dhanpat Raj Publications

REFERENCES

- 1. PR.SL. Somasundaram, (2002), "Basic Mechanical Engineering" –, Vikas Publications.
- 2. S.C. Rangawala(2002), Building Material and Construction, S. Chand Publisher

B.Tech – Cyber Forensics and Information Security -2022 Regulation

14Hrs

14Hrs

12 Hrs

10 Hrs

10 Hrs

Total Hours: 60

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| • | Under | stan | d how | entrep | oreneurs | ship Edi | ucation | trans | storm | s in | dividua | ls into s | successi | ul leaders. |
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| • 1 | Under | stan | d diffe | rence | betwee | n ideas | & oppo | ortuni | ities | | | | | |
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| • | | | | | Use | brainsto | rming | in a g | group | to g | generate | ideas. | | |
| COURSI | COURSE OUTCOMES (Cos): Students | | | | | | to | | | | | | | |
| CO1 | CO1 Develop a Business plan | | | | | | ability | to re | cogn | ize l | ousines | s oppor | tunity | |
| CO2 | CO2 Do a self-analysis to build | | | | | n entrep | reneuri | al ca | reer. | | | | | |
| CO3 | CO3 Articulate an effective el | | | | | tor pitch | 1. | | | | | | | |
| CO4 | CO4 Analyze the local market | | | | | vironme | ent & de | emon | strate | the | ability | to find | an attra | ctive market |
| CO5 | Iden | tify t | he req | uired | skills fo | or entrep | preneur | ship | & dev | velo | р | | | |
| Mappin | g of C | ours | e Outc | ome w | ith Pro | gram O | utcome | (POs | 5) | | | | | |
| Cos/POs | P | D1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | ' P0 | 28 | PO9 | PO10 | PO11 | PO12 |
| CO1 | | | 2 | 2 | 3 | 2 | 2 | 2 | | | 2 | 2 | 2 | 1 |
| CO2 | | 3 | 2 | | 3 | 2 | 3 | 2 | | 3 | 3 | 3 | 2 | 2 |
| CO3 | | | 2 | 2 | 2 | | 3 | | | 3 | 3 | 3 | | |
| CO4 | | | 3 | 2 | 2 | 2 | 2 | | | 3 | 2 | 2 | 3 | |
| CO5 | | | 2 | 2 | 3 | 2 | 2 | 3 | | 3 | 2 | 2 | 3 | 1 |
| COs/PSO | Os | | PSO | 1 | | PSO2 | | | PSC | 3 | | PSG | 04 | |
| CO1 | | | | | | | 1 | | | | | | 2 | |
| CO2 | | | | | | | 1 | | | | | | 1 | |
| CO3 | | | | | | | 1 | | | | | | 2 | |
| CO4 | | | | | | | 2 | | | | 1 | | 2 | |
| CO5 | CO5 | | | | | | | | | | 1 | | | |
| 3/2/1 Inc | 3/2/1 Indicates Strength Of Correlation | | lation, 3 | 3 – High | <u>, 2- Mee</u> | dium, | 1- Lo | W | | | | | | |
| Category Basic Science Engineering Science Humanities and social Science | | | | | Humanities and social Science | Program Core | Program elective | ļ | Open Elective | Inter Disciplinary | | Skill Component | | Practical /Project |
| | Bas: Bas: A | | | | | | | | | V | | | | |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBCC22I01 | ORIENTATION TO ENTREPRENEURSHIP & PROJECT LAB | IE | 1 | 0/0 | 1/0 | 1 |

UNIT I **CHARACTERISTICS OF A SUCCESSFUL ENTREPRENEUR** 3 Hrs

Introduction to entrepreneurship education - Myths about entrepreneurship - How has entrepreneurship changed the country - Dream it. Do it - Idea planes - Some success stories -Global Legends – Identify your own heroes.

UNITII **ENTREPRENEURIAL STYLE**

Entrepreneurial styles - Introduction, concept & Different types - Barrier to Communication -Body language speaks louder than words

UNIT III **DESIGN THINKING**

Introduction to Design thinking – Myth busters – Design thinking Process - Customer profiling – Wowing your customer - Personal selling - concept & process - show & tell concept -Introduction to the concept of Elevator Pitch

UNIT IV RISK MANAGEMENT

Introduction to risk taking & Resilience – Managing risks (Learning from failures, Myth Buster) – Understanding risks through risk takers – Why do I do? – what do I do?

UNIT V PROJECT

How to choose a topic – basic skill sets necessary to take up a project – creating a prototype – Pitch your project – Project presentation.

Idea Generation, Evaluation and Project Presentation

Total Hours: 30

Reference Books & Website

- 1. Encyclopedia of Small Business (2011) (e book)
- 2. Oxford Handbook of Entrepreneurship (2014) (e book)
- 3. lms.learnwise.org

3 Hrs

3 Hrs

3 Hrs

15 Hours

| COURSE | COU | RSE N | AME: | | | 0 | | T | y/Lb/ | L | Т | 7 I | P/R | С |
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| EBCS22ET1 | C | PROG | RAM | MING | | AS OF | FICE | Ε | TL/IE | | S.I | Ĺr | | |
| | C | I NOC | | TOO | LS | | | | | | | | | |
| | Prerec | quisite: | Nil | | | | | | ETL | 1 | 0/ | 0 | 2/0 | 2 |
| C: Credits, L: | Lectu | re, T: 7 | Futoria | ıl, SLr: | Super | rvised | Learni | ng, P: | Problem | n / Pr | actio | cal | | |
| R: Research, ' | Ty/Lb/ | ETL/I | E/IE: T | Theory | /Lab/E | Embedo | led Th | eory a | nd Lab/l | Inter | nal E | Evaluat | ion | |
| OBJECTIVE | S: | 1 | | | | | | | | | | | | |
| The students sh | nould b | e made | to | ~ • | | | | | | | | | | |
| • learn a | progra | mming | langua | .ge. | | | | | | | | | | |
| • learn p | roblem | solving | g techn | iques. | 1.1 | | | | | | | | | |
| • write p | program | is in C a | and to s | solve th | e probl | ems. | . 1 | | | •.1 | cc' | | | |
| • familia | arize the | e studer | its in pi | reparati | on of d | ocumer | nts and | presen | tations w | ith o | ffice | automa | ation | |
| tools. | TCOM | | O a) , C+ | udanta | will bo | abla to | | | | | | | | |
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| CO2 | Write | the C α | nu trac | · a give | n algori | ithm | grams | written | | guag | с. | | | |
| CO2 | Apply | $\frac{100 \text{ C} \text{ C}}{4 \text{ Array}}$ | s and Fi | unction | s conce | ents to v | vrite Pr | ooram | 2 | | | | | |
| CO4 | Apply | Struct | ures an | d noint | ers con | cents fo | r writin | ogram | rams | | | | | |
| C05 | Tope | rform d | | ntation | | nting or | eration | s and 1 | resentati | on s | cills | | | |
| Mapping of C | ourse (| Dutcon | nes wit | h Prog | ram Oi | utcome | s (POs) |) | <u>i esentati</u> | 011 51 | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PC |)10 | PO11 | P | D12 |
| CO1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | | 1 | 2 | | 2 |
| CO2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | | 1 | 2 | | 2 |
| CO3 | 2 | 2 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | | 1 | 3 | | 2 |
| CO4 | 2 | 2 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | | 1 | 3 | | 2 |
| CO5 | 1 | 1 | 1 | 1 | 1 | 1 | | | 2 | | 3 | 2 | | |
| | | | | | | | | | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSC |)3 | | PSC |)4 | | |
| CO1 | | 3 | | | 3 | | | 2 | | | 1 | | | |
| CO2 | | 3 | | | 3 | | | 2 | | | 1 | | | |
| CO3 | | 3 | | | 3 | | | 2 | | | 1 | | | |
| CO4 | | 3 | | | 2 | | | 2 | | | 1 | | | |
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| ate | asi cie | ing | nuf | rog | rog lect |)pe. Jec | nteı Visc | τ | rac Pro | | | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBCS22ET1 | C PROGRAMMING AND MS OFFICE TOOLS | ETL | 1 | 0/0 | 2/0 | 2 |

UNIT I Introduction

Basic Structure of C programme- Constants, Variables and data types, Keywords, Identifiers- Operators and expressions- executing a C Program

UNIT II **Decision making statements and looping statements**

Decision making with if statement, Simple if statement, else-if statement, Nesting if-else statement, The else if ladder, The switch statement, The goto statement, The while statement, The do while statement, The for statement, jumps in loops

UNIT III **Arrays and Functions**

Introduction to Arrays- One dimensional arrays, Two dimensional array, and Multidimensional array-Introduction to Functions- calling a function, category of functions- arguments with return values, argument with no return values- parameter passing Mechanism: Call by Value and Call by Reference. Recursion.

UNIT IV **Structures & Pointers**

Structures definition, giving values to members, Structure initialization, comparison of structure variables, Structure within structures, understanding pointers, accessing the address of the variable, declaring and initializing pointer, accessing a variable through its pointer and array

UNIT V **Ms-Office**

Introduction to MS-Word- Menus- Introduction to MS-Excel: features of MS- Excel, spread sheet/worksheet, parts of MS-excel window, functions in excel sheet, chart, Introduction to MS-Power point

List of Experiments :

- **C PROGRAMMING** 1. Find the factorial of a given positive number using function.
- 2. Calculate X raised to y using function.
- 3. Find GCD and LCM of two given integer numbers using function.
- 4. Find the sum of N natural numbers using function.
- 5. Book information using Structure.
- 6. Student information using Structure.
- 7. Print the address of a variable and its value using Pointer
- 8. Find area and perimeter of a circle
- 9. Check whether the given number is palindrome or not
- 10. Check whether the given number is prime or not
- 11. Calculate sum of the digits of the given number
- 12. Display Fibonacci series up to N terms
- 13. Check whether a given character is alphabetic, numeric or special character
- 14. Count vowels and consonants in a given string

B.Tech – Cyber Forensics and Information Security -2022 Regulation

30 Hours

3 Hrs

3 Hrs

3 Hrs

3 Hrs

3 Hrs

15 Hours

15. Find product of two matrices

MS-OFFICE

- 16. Preparing a news letter:
- 17. To prepare a newsletter with borders, two columns text, header and footer and inserting a graphic image and page layout.
- 18. Creating and editing the table
- 19. Printing envelopes and mail merge.
- 20. Using formulas and functions: To prepare a Worksheet showing the monthly sales of a company in different branch offices
- 21. Prepare a Statement for displaying Result of 10 students in 5 subjects

Total Hours : 45

TEXT BOOKS:

- 1. E.Balaguruswamy, Programming in ANSI C
- 2. Padma Reddy ,Computer Concepts & 'C' Programming
- 3. ShobhaHangirke, Computer Application For Business

II SEMESTER

| COURSE | COU | RSE N | AME : | | | | | Ту | / Lb / | L | T/ | P/F | 2 (| С |
|----------------|---|--------------------|---------------|-------------|----------------|---------------|-----------------------|--------------------|-----------------------|--------|--------|----------|-------|--------|
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| EBMA22003 | _ | <u> </u> | MAT | <u>'HEM</u> | ATICS. | <u>-II</u> | | | | - | 4.40 | | | |
| | Prerec | quisite: | Higher | second | lary Ma | themat | ics | | Ту | 3 | 1/0 | 0/0 |) 4 | 4 |
| C: Credits, L: | Lectu | re, T: 7 | Futoria | l, SLr: | Super | vised | Learnii | ng, P: P | roblem | / Pra | actica | ıl | | |
| R: Research, | Ty/Lb/ | ETL/I | E/IE: T | heory | /Lab/E | mbeda | led The | eory an | d Lab/I | nterr | nal Ev | valuatio | m | |
| OBJECTIVE | S: havid h | a mada | to | | | | | | | | | | | |
| | ble to m | e maue nderstan | 10 d basic | concent | s in inte | oration | | | | | | | | |
| • To be a | erstand t | the conc | ents in 1 | nultiple | integral | s | | | | | | | | |
| • To use | the basi | c concep | ots in or | dinary d | ifferenti | al equat | ions | | | | | | | |
| • To be a | ble to ap | oply con | cepts of | analyti | cal geon | netry | | | | | | | | |
| To be a | ble to u | nderstan | d the ba | sic conc | cept of v | ector ca | lculus | | | | | | | |
| COURSE OU | TCOM | IES (C | Os): St | udents | will be | able to | | | | | | | | |
| CO1 | Integra | ate the g | iven fun | ction by | using 1 | nethods | of integ | ration an | d to find | the a | rea un | der curv | e and | |
| | the vol | lume of | a solid b | by revalue | uation | olue | nd to -1 | an ag the | onder of | int- | notion | | | |
| <u>CO2</u> | Evalua | | iuitiple i | integrals | ifforonti | olume a | nd to ch | ange the | order of | ifforo | ration | austion | | |
| | Apply Find a | concept | of plana | linary D | and sph | are equal | shortost | distance | botwoon | skou | linos | quation | | |
| C04 | Verify | green/s | tokes/ga | is, mes | and spin | theorem | | uistance | Detween | SKEW | mes | | | |
| Manning of C | | Jutcon | lokes/ga | h Prog | ram O I | itcome | $\frac{1}{c(POc)}$ | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | | PO6 | PO7 | PO8 | PO9 | PC | 010 | PO11 | PO | 12 |
| CO1 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | | 2 | 1 | 3 | 14 |
| CO2 | 3 | 3 | 1 | 2 | 2 | 3 | 2 | 2 | 3 | | 3 | 2 | 2 | |
| CO3 | 3 | 3 | 1 | 2 | 2 | 3 | 1 | 1 | 3 | | 3 | 2 | 2 | |
| CO4 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | | 3 | 2 | 2 | |
| CO5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | | 3 | 1 | 2 |) e |
| | | | | | | | | | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO. | 3 | 4 | | | | |
| CO1 | | 2 | | | 3 | | | 1 | | | 2 | | | |
| CO2 | | 2 | | | 3 | | | 1 | | | 2 | | | |
| CO3 | | 2 | | | 3 | | | 1 | | | 2 | | | |
| CO4 | | 2 | | | 3 | | | 1 | | | 2 | | | |
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| CO5 | | 2 | | | 3 | | | 1 | | | 2 | | | |
| 3/2/1 Indicate | dicates Strength Of Corr | | | | 3 – Hig | h, 2- M | ledium | , 1- Lov | V | | | | | |
| Category | Category Basic Science Engineering Science Humanities and | | | | | Open Elective | Inter Disciplinary | Skill Component | Practical /Project | | | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ET/IE L | L | T/S.Lr | P/R | С |
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| EBMA22003 | MATHEMATICS – II | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I INTEGRATION

Basic concepts of Integration – Methods of Integration– Integration by substitution – Integration by parts – Definite integrals– Properties of definite integrals – Problems on finding Area and Volume using single integrals (simple problems).

UNIT II MULTIPLE INTEGRALS

Double integral in Cartesian and Polar Co-ordinates – Change of order of integration – Triple integral in Cartesian Co-ordinates – Spherical Polar Co-ordinates – Change of variables (simple problems).

UNIT III ORDINARY DIFFERENTIAL EQUATIONS 12Hrs

First order differential equations – Second and higher order linear differential equations with constant coefficients and with RHS of the form: e^{ax} , x^n , Sin ax, Cos ax, $e^{ax}f(x)$, x f(x) where f(x) is Sin bx or Cos bx – Differential equations with variable coefficients (Euler's form) (simple problems).

UNIT IVTHREEDIMENSIONAL ANALYTICAL GEOMETRY12 Hrs

Direction Cosines and Ratios – Equation of a straight line – Angle between two lines – Equation of a plane – Co-planar lines – Shortest distance between skew lines – Sphere – Tangent plane.

UNIT V VECTOR CALCULUS

Scalar and Vector functions – Differentiation – Gradient, Divergence and Curl – Directional derivatives – Irrotational and Solenoidal fields– Line, Surface and Volume integrals – Green's, Stoke's and Gauss divergence theorems (statement only) – Verification.

Total Hours: 60

Reference Books:

- 1) Kreyszig E., Advanced Engineering Mathematics (10th ed.), John Wiley & Sons, (2011).
- 2) Grewal B.S., *Higher Engineering Mathematics*, Khanna Publishers, (2012).
- **3**) John Bird, *Basic Engineering Mathematics* (5th ed.), Elsevier Ltd, (2010).
- **4**) Veerarajan T., *Engineering Mathematics (for first year)*, Tata McGraw Hill Publishing Co., (2008).
- 5) P.Kandasamy, K.Thilagavathy and K. Gunavathy, *Engineering Mathematics Vol. I* (4th *Revised ed.*), S.Chand& Co., Publishers, New Delhi (2000).
- 6) John Bird, Higher Engineering Mathematics (5th ed.), Elsevier Ltd, (2006).

12Hrs

12 Hrs

| | | | | | | 2022 Re | gulation | | | - | | | | |
|----------------------|---|---------|---------------|----------------|--------------|-----------|----------|----------------|------------|--------------|----------------------|---------|-------|----------|
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| C: Creat | s, L: Le | cture, | 1:1 ГТ /ТТ | $\frac{1}{2}$ | I, SLT: 3 | ob/Emb | sed Leai | ming, Theor | P: Pro | oblei Lob | n / Prac /Intorno | ticai | tion | |
| R. Resea | | LU/EI | L/11 | C/IC. I | neory /1 | au/ Eini | Jedded | Theor | y and | Lau | mema | Evalua | uon | |
| OBJECTI The stude | VES ents show | uld be | ma | le to | | | | | | | | | | |
| | esign c | onduc | t evi | nerime | nt and a | nalvze d | lata | | | | | | | |
| • D | evelon a | Scie | ntifia | r attitu | de at mi | cro and | nano se | ale of | fmate | ials | | | | |
| • U | nderstar | nd the | con | cents c | of Moder | n Physic | cs | | mater | iuis | | | | |
| • A | pply the | scien | ice o | f mate | rials to F | Engineer | ring & [| Fechn | ology | | | | | |
| COURSE | OUTCO | MES (| Cos): | Studen | ts will be | able to | | | <u></u> | | | | | |
| CO1 | Enable | the st | uder | nt to en | nploy th | e classic | cal & qu | iantur | n theo | ries | & Laws | in gene | ral | |
| CO2 | Critical | ly eva | aluat | e to bu | ild mod | els to ur | nderstar | d the | solid | state | fundan | nentals | | |
| CO3 | Formul | ata & | orston | tha hat | aviour | of solid | stata | davia | | | | | | |
| 005 | Formu | erstand | i the bei | laviour | or sond | state | device | :8 | | | | | | |
| CO4 | Articul | ate the | ysical j | propertie | es of cor | ndensed | matte | er | | | | | | |
| CO5 | Interpre | et the | role | of soli | d state p | hysics i | n the ac | lvance | ed tech | nol | ogical d | evelopm | nents | |
| Mapping of | of Course | Outco | ome v | vith Pro | ogram Ou | tcome (P | POs) | | | | | | | |
| Cos/POs | PO1 | PC | 02 | PO3 | PO4 | PO5 | PO6 | PO7 | PC |)8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | | 3 | 2 | 2 | 2 | 1 | 1 | | | | 2 | | 1 |
| CO2 | 3 | | 3 | 1 | 2 | 2 | 1 | 1 | | | 1 | 2 | | 1 |
| CO3 | 3 | | 3 | 3 | 3 | 2 | 2 | 2 | | 1 | | 2 | 1 | 1 |
| CO4 | 3 | | 3 | 3 | 3 | 2 | 2 | 1 | | 1 | 3 | 2 | 1 | 1 |
| CO5 | 3 | | 2 | 2 | 2 | 2 | 1 | 1 | | 1 | 2 | 2 | | 1 |
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| CO2 | | | | 2 | | | 3 | | | | 1 | | | |
| CO_3 | | | | | | | | | | | 1 | | 1 | |
| C05 | | | | 2 | | | 2 | | | | 2 | | 2 | |
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| | asic | | ngir vien | 100 | umé | togr | togr | | pen | ter | | kill | | racti |
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| EBPH22001 | SOLID STATE PHYSICS | Ту | 3 | 0/0 | 0/0 | 3 |
| UNIT I | CRYSTAL STRUCTURE | | | | | |

9Hrs

Space Lattice – Unit cell – Bravais lattice – Lattice planes – Miller indices – Calculation of number of atoms per unit cell – Atomic radius – Coordination number – Packing factor for SC, BCC, FCC and HCP structures – Ceramic Materials & Graphite Structures – Crystal Growth Techniques (Slow Evaporation Method & Melt Growth)

UNIT II CONDUCTORS & SUPER CONDUCTORS

9Hrs

9Hrs

Qualitative analysis of Free electron theory – Electrical & Thermal Conductivity (Derivation) -Fermi energy & its importance – Qualitative analysis of conductors, semiconductors & insulators – Important electrical materials

Superconductors – Transition temperature – BCS theory – Properties of super conductors – Types – Low & High temperature superconductors – AC & DC Josephson effect – SQUIDS, Magnetic Levitation – Applications of super conductors

UNIT III SEMICONDUCTOR PHYSICS

Bonds in Semiconductors – Types – Importance of Germanium & Silicon – Other Commonly Used Semiconducting materials - Carrier concentration in Intrinsic Semiconductors (Electron and Hole Density) – Band Gap Determination – Carrier Transport in Semiconductors – Drift, Mobility and Diffusion – Hall effect – Determination of Hall Coefficient and its Applications – Dilute Magnetic Semiconductors (DMS) & their Applications construction, working and characteristics of semiconductor diode, Zener diode, transistor (n-p-n and p-n-p transistor), Transistor characteristics (CB, CE, CC), JFET (Construction and its characteristics).

UNIT IV MAGNETIC & DIELECTRIC PHYSICS

Magnetic Materials: Types – Comparison of Dia, Para and Ferro Magnetism – Heisenberg's interpretation –Domain theory – Hysteresis – Soft and Hard Magnetic Materials – Application of Magnetic Resonance Imaging – Important Magnetic, Insulating & Ferro electric materials. Dielectric Materials: Electrical Susceptibility – Dielectric Constant – Concept of Polarization – Frequency and Temperature Dependence of Polarization – Dielectric loss – Dielectric breakdown – Commonly used Dielectric materials and their practical applications.

UNIT V OPTO ELECTRONICS

9Hrs Properties & Classification of Optical Materials – Absorption in Metals, Insulators & Semiconductors – Composite Materials – Nano Materials – Bio Materials – MEMS – NEMS – LED's – Organic LED's – LCD's – Laser diodes – Photodetectors – Tunneling – Resonant Tunneling Diodes (RTD's) – Carbon Nanotubes – Various Ttypes of Optical Materials with Properties.

Total Hours :45

TEXT BOOKS & REFERENCE BOOKS

- 1. V. Rajendran&Mariakani "Materials Science", Tata McGraw Hill (2004).
- 2. P.K.Palanisamy," Materials science", Scitech Publication(2002).
- 3. Dr.SenthilKumar, "Engineering Physics II" VRB Publishers (2016).
- 4. V. Arumugam, Materials Science", Anuradha Agencies, (2003 Edition).
- 5. Pillai S.O., "Solid State Physics", New Age International, (2005)

| COURSE | COI | DE T | OURSI ECHN | E NAME NICAL | : CHEM | ISTRY | Ty, ET | 'Lb/ 'L/IE | L | | T/SLr | | P/R | C |
|--|-----------------|--------------|----------------------|-----------------------|----------------------|------------|--------------|---------------|---------|--------|------------|---------|--------|-------|
| EBCH220 | 02 | P | rerequis | ite: Engg | . Chemistr | ry | Ту | | 3 | 0 |)/0 | 0/0 | | 3 |
| C: Credit | ts, L | .: Lectu | re, T: 7 | Futorial | , SLr: S | upervise | ed Learn | ing, P | : Prob | lem | / Practic | al | | I |
| R: Resea | rch, | Ty/Lb/ | ETL/I | E/IE: T | heory /L | ab/Embo | edded T | neory | and L | ab/Iı | nternal E | valuati | on | |
| OBJECTI | VES | 5: ahauld | h | da ta | | | | | | | | | | |
| 1 ne stude | ents | snould | be ma | de to emicond | uctors in o | optics and | solar cells | 2 | | | | | | |
| 2.To analyz | ze th | e radical | improv | ement in | electrical | energy sto | orage devi | ces. | | | | | | |
| 3. To under | rstan | d the deg | gradatio | n of elect | rical fittin | gs and me | etallic join | ts. | | | | | | |
| 4. To solve 5.To differ | e che: entia | mical pro | oblems t rious en | y simula gineering | tion. g materials | s by under | standing i | ts prop | erties. | | | | | |
| COURSE | OUT | ГСОМЕ | S (Cos) | : Student | s will be a | ble to | 0 | 1 1 | | | | | | |
| CO1 | Pa | raphrase | the en | gineering | g knowled | lge by ide | ntifying | oroper | chemi | cal sc | ience tech | nique. | | |
| CO2 | Int | erpret a | ppropri | ate solu | tion for co | omplex pr | roblems b | y usin | g mode | rn er | ngineering | and IT | tools. | |
| CO3 | Ret | trieve an | d show | the desi | gn solutio | ns for saf | fety and s | ustain | able de | velop | oment. | | | |
| CO4 | Int | egrate tl | ne elect | rical and | electroni | c concept | ts with pr | ofessio | nal eth | ics. | | | | |
| CO5 | Ar | ticulate (| the tech | nologica | l changes | recogniz | ing the ne | ed for | lifelon | g lea | rning. | | | |
| Mapping | of (| Course (| Dutcon | ne with | Program | Outcon | ne (POs) | | | | | | | |
| Cos/POs | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | Р | 08 | PO9 | PO10 | PO11 | PO12 |
| CO1 | | 3 | | 2 | | 3 | | | | | | | | |
| CO2 | | 3 | | 3 | 3 | 3 | | | | | | | | |
| CO3 | | 3 | | 3 | 3 | | | 3 | | 2 | | | | |
| CO4 | | 3 | | | | | | | | 3 | | | | 3 |
| CO5 | | 3 | | 3 | | | | 3 | | | | | | 2 |
| COs/PSO | S | | | PSO | | | PSO2 | | | P | SO3 | | PSO4 | |
| CO1 | | | | 3 | | | 3 | | | | 2 | | | |
| CO2 | | | | 3 | | | 3 | | | | 2 | | | |
| CO3 | | | | 3 | | | 3 | | | | 2 | | | |
| CO4 | | | | 3 | | | 3 | | | | 2 | | | |
| CO5 | | 3 | | | | 2 | | | | | | | | |
| 3/2/1 Indicates Strength Of Correlation, 3 – 1 | | | | | | igh, 2- M | ledium, 1 | - Low | | | | | | |
| y | | e | | | und ce | e | tive | | e | | | nent | | oject |
| gor | | ienc | ing | | ies a ienc | Col | elea | | sctiv | | lary | odu | | /Pro |
| ate | | c Sc | neer | JCe | anit I Sc | ram | ram | | n Elt | | iplir | Coi | | ical |
| C | | Basic | Engi | Scier | Hum socia | Prog1 | Progr | | Open | Inter | Disci | Skill | | Pract |
| | | | | - | | | | | - | | | | | |

B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
|----------------|---------------------|------------------|---|------------|-----|---|
| EBCH22002 | TECHNICAL CHEMISTRY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT - 1 CHEMISTRY OF SEMICONDUCTORS

Semiconductors – Introduction – holes and electrons-Band theory-properties of semi conductors-Types of semiconductors-Intrinsic-Extrensic semiconductors -Mobility of electrons and Holes -Fermi level in Semiconductors- Industrial application of Semiconductors-Semiconductors in Optics - LEDs, OLEDs, Semiconductors in solar cells - Types - First generation solar cells - Single crystalline and poly crystalline solar cells -Czochralski Process of single crystalline silicon synthesis

UNIT -2 ELECTROCHEMICAL CELLS AND BATTERY TECHNOLOGY

Electrochemical cells: Galvanic cell (Daniel cell); Batteries: Classification of batteries, primary batteries (dry cells) and secondary batteries -nickel-cadmium, lead-acid battery, Solid state batteries – Lithium battery, Lithium Sulphur battery, Fuel cells.

UNIT -3 DEVICECORROSION

Introduction – chemistry of IC and PCB- causes of corrosion on IC, PC-miniaturization, complex material utilization, production and service factors –environmental contamination (airborne contaminants) - Forms of corrosion – anodic, cathodic corrosion- Electrical Contact and metallic joints degradation- fretting corrosion - corrosion costs – corrosion protection of computer hardware.

UNIT-4 COMPUTATIONAL CHEMISTRY

Introduction, Software tools available for chemistry and its applications, Chem Draw- Designing a Chemical Structure- Shortcuts and Hotkeys on designing a chemical structure, Biopolymer Drawing, Advanced drawing Techniques. Structure Analysis, Creating 3D Models, Estimating and displaying Proton and carbon-13 NMR chemical shifts, Creating TLC Plates to find Rf values, Chem Draw/Excel functions.

UNIT -5 MODERN ENGINEERING MATERIALS FOR ELECTRONIC DEVICES 9Hrs

Alloys and Need for Alloys - Modern Electronic grade alloys-Applications in electrical components, transducers, electromagnetic shielding of computers, telecommunications equipment and rocket motor casings. Thin films- Preparation by the Sol-Gel Method-Application of thin films.

Total Hours: 45

References

- 1. Oleg Roussak & H. D. Gesser, *Applied Chemistry*: A Textbook for Engineers and Technologists, Springer.
- 2. Samuel Glasstone, An Introduction of Electrochemistry, Franklin Classics Trade Press.
- 3. Kharton V.V, *Solid state electrochemistry I*: Electrodes, interfaces and ceramic membranes, Wiley
- 4. Jain and Jain, Engineering Chemistry, Dhanpat Rai Publishing Company.
- 5. *Chemdraw 16.0 User Guide*, Perkin Elmer Informatics Inc.
- 6. Rolf E. Hummel, Electronic Properties of Materials, Springer

B.Tech – Cyber Forensics and Information Security -2022 Regulation

9Hrs

9 Hrs

9Hrs

| COURS | E | CO | URSE I | NAME | : | | Ту | /Lb/ | L | | T/SLr | | P/R | C |
|-----------------------|--|----------|-----------|----------|--------------------|------------|-----------|-------------------------|-------------|---------|------------|-------------|-----------|----------|
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| EBME2 | 2001 | Prei | requisite | : Nil | JICIII | | Ty | / | 2 | 0. | /0 | 2/0 | | 3 |
| C: Cree | dits, L | : Lect | ure, T: | Tutor | ial, SLr | : Super | vised I | Learn | ing, P: | Prot | olem / P | ractical | | |
| R: Rese | earch, | Ty/Lł | o/ETL/ | TE/IE: | Theory | /Lab/E | mbedd | ed Tł | neory a | and L | .ab/Inter | nal Ev | aluation | |
| OBJEC | TIVES | : | | | | | | | | | | | | |
| The stu | idents | shoul | d be m | ade to | | | | | | | | | | |
| • | To ac | quire | knowle | edge ir | n geome | etrical di | rawing | • | | | | | | |
| • | | | | | To exp | oose the | studer | ts in | compu | iter a | ided dra | fting. | | |
| COURS | SE OU | JTCO | MES (| Cos): S | tudents | will be a | ble to | | | | | | | |
| CO1 | Util | ize the | conce | pt of Ei | ngineerii | ng Graph | nics Tec | hniqu | es to d | raft le | etters, Nu | umbers, | Dimensio | oning in |
| | Indi | ian Sta | ndards | | | | | | | | | | | |
| CO2 | Der | nonstra | ate the | drafting | g practic | e visuali | zation a | and pr | ojectio | n skil | ls useful | for con | veying id | eas in |
| | eng | ineerin | ig appli | cations | | 6 | | | • | | | | | |
| CO3 | Idei | itify ba | asic ske | tching | techniqu | les of en | gineeri | ng equ | upmen | ts | | | | |
| C04 | CO4 Demonstrate | | | | ons of F | oints, Li | ines, Pi | anes a | na Soli | las. P | na | | | |
| CO5 Manuia | Dra | w the s | Sectiona | | of simp | | ng drav | $\frac{1}{\mathbf{DO}}$ | | | | | | |
| | | | | DO2 | DO4 | | come (| PUS) | 7 E | 000 | DO0 | DO10 | DO11 | DO12 |
| C03/FO | 8 . | , , | PO2 | 2 | P04 | PO3 | 2 | rU | / r | 08 | PO9 | 2 | FOIT | P012 |
| CO1 | • | 3 2 | 3 | 3 | 2 | 2 | 2 | | | | 3 | 3 | | 3 |
| CO_2 | • | 5 2 | 3 | 3 | 2 | 2 | 2 | | | | 3 | 3 | | <u> </u> |
| CO_{4} | | 3 | 3 | 3 2 | 1 | | 2 | | 2 | | 2 | 2 | | 2 |
| C04 | | 2 | 3 | 2 | 2 | 2 | 3 1 | | 2 | 1 | 3 | 3 | | 3 |
| CO_{S}/PS | | 5 | 3 | PSO1 | 2 | 3 | 1 PSO2 | | | ' P | 3 | 3 | PSO | <u> </u> |
| CO1 | 03 | | | 1501 | | | 1502 | | | 1 | 1 | | 150- | т |
| CO^2 | | | | 1 | | | | | | | 1 | | | |
| CO3 | | | | - 1 | | | | | | | 1 | | | |
| CO4 | | | | | | | 1 | | | | I | | | |
| CO5 | 204 205 | | | | | | 1 | | | | | | | |
| 3/2/1 In | 3/2/1 Indicates Strength Of Correlation, | | | | tion. 3 - | - High, 2 | 2- Medi | um. 1 | - Low | | | | | |
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| Ċ | Cat(3asic Scien | | Eng | SCIE | Hun and Scie | Prof | Prog | elec | Ope Elec | Inte | Dis(| Skil Con | | Prac |
| Cal Basic Scier | | | | | | | | - | | | | | | |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBME22001 | ENGINEERING GRAPHICS | Ту | 2 | 0/0 | 2/0 | 3 |

CONCEPTS AND CONVENTIONS (Not for examination)5 HrsIntroduction to drawing, importance and areas of applications – BIS standards – IS: 10711 – 2001: Technical products Documentation – Size and layout of drawing sheets – IS 9606 – 2001:Technical products Documentation – Lettering – IS 10714 & SP 46 – 2003: Dimensioning ofTechnical Drawings – IS : 15021 – 2001 : Technical drawings – Projections Methods – drawingInstruments, Lettering Practice – Line types and dimensioning – Border lines, lines title blocksConstruction of polygons – conic sections – Ellipse, Parabola, Hyperbola and cycloids.

UNIT I PROJECTION OF POINTS, LINES AND PLANE SURFACES 12 Hrs Projection of points and straight lines located in the first quadrant – Determination of true lengths and true inclinations – projection of polygonal surface and circular lamina in simple position only.

UNIT IIPROJECTION OF SOLIDS10 HrsProjection of simple solids like prism, pyramid, cylinder and cone in simple positionSectioning of above solids in simple vertical position by cutting plane inclined to any one of the reference plane and perpendicular to the other.

UNIT III DEVELOPMMENT OF SURFACES

Development of lateral surfaces of simple and truncated solids – prisms, pyramids, cylinders, and cones.

9 Hrs

UNIT IVISOMETRIC PROJECTION9 Hrs

Principles of isometric projection – isometric scale – isometric projections of simple solids, like prisms pyramids, cylinders and cones.

| UNIT V | ORTHOGRAPHICS PROJECTIONS | 8 Hrs |
|----------------------|---|-----------------|
| Orthographic proje | ction of simple machine parts – missing views | |
| BUILDING DRAV | WING | 7 Hrs |
| Building componer | nts – front, Top and sectional view of a security shed. | |
| (Basic Auto CAD | commands to be taught- not for Examinations) | |
| | | Total Hours: 60 |

Note: First angle projection to be followed. TEXT BOOKS

- 1. Bhatt, N.D. and Panchal, V.M. (2014) Engineering Drawing Charotar Publishing House
- 2. Gopalakrishnan, K.R. (2014) Engineering Drawing (Vol.I& II Combined) Subhas Stores, Bangalore.
- 3. Natrajan K.V., "A Text Book of Engineering Graphics", Dhanalakshmi Publishers, Chennai, 2018.
- 4. Venugopal K. and Prabhu Raja V., "Engineering Graphics", New Age International (P) Limited, 2008.

| Subject Code: | COI | IRSE | NAME | · | | | | | | | | | |
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| EBCF22001 | FUN | DAME | NTAL | S OF D | IGITA | L FOR | RENSIC | $\mathbf{T}_{\mathbf{S}} \mid \mathbf{T}_{\mathbf{S}}$ | y/Lb/ETL | L | T/S.Lr | P/R | C |
| | Prere | quisite: | NIL | | - | | | | Ту | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : T | utorial | S.Lr | : Super | vised L | earning | P:Pro | ject R | : Resear | ch C: Credi | its | | | <u> </u> |
| Ty/Lb/ETL : The | eory/La | ıb/Embe | edded T | Theory a | and Lab |) | U | | | | | | |
| | | | | | | | | | | | | | |
| OBJECTIVES | : | | | | 1 | | | | | | | | |
| After studying th | ns pape | er a stuc | lent wil | l be abl | e to fol | low: | | | | | | | |
| • The fundam | nentals (| of Digit | tal Fore | nsics | | | | | | | | | |
| Basic Tech | niques i | nvolve | d in dig | ital fore | ensics in | nvestiga | tion; ar | nd | | | | | |
| • Digital Fore | ensic pr | actice r | elating | to inter | net | | | | | | | | |
| COURSE OUT | COME | ES (CO | s) : (3- | 5) | | | | | | | | | |
| CO1 | Under | stand tl | he scon | e and ro | ole of di | ioital fo | rensics | | | | | | |
| CO2 | Achie | ve adec | juate pe | rspectiv | ves of c | ollectin | g evide | nce | | | | | |
| CO3 | Learn | to adhe | ere to th | e highe | st profe | essional | securin | ig inform | ation colle | cted | | | |
| CO4 | Acqui | re knov | vledge | of analy | sing fil | es, and | media d | devices | | | | | |
| CO5 | Acqui | re knov | vledge (| of vario | us digit | tal forer | nsic tool | ls | | | | | |
| Mapping of Co | urse Ou | utcome | s (COs |) with l | Program | m Outc | omes (l | POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO | 12 |
| C01 | 2 | 3 | 3 | 2 | | 3 | | | 1 | 3 | 2 | 2 | 2 |
| CO2 | 2 | 3 | 2 | 3 | 3 | 3 | | 3 | 2 | 2 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 1 | 3 | 3 | 2 | | | 2 | 3 | 2 | 1 | 1 |
| CO4 | 2 | 3 | 3 | 3 | 2 | 1 | | | 2 | 1 | 1 | | 3 |
| CO5 | 2 | 1 | 3 | 3 | 3 | 3 | | | 2 | | 3 | | 3 |
| Mapping of Co | urse Oi | utcome | s (COs |) with I | Program | m Speci | ific Out | tcomes (| PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | 6 | | PSO4 | ł | |
| CO1 | | 3 | | | 2 | | | 2 | | | 3 | | |
| CO2 | | 3 | | | 3 | | | 3 | | | 3 | | |
| CO3 | | 3 | | | 3 | | | 3 | | | 3 | | |
| <u>CO4</u> | | 3 | | | 3 | | | 3 | | | 3 | | |
| <u> </u> | | 3 | | | 3 | | | 3 | | | 3 | | |
| 3/2/1 indicates S | Strengt | h of Co | orrelati | on 3- | High, | 2- Med | ium, 1-Low | | | | | | |
| | SS | | nd ces | re | | es | | ii | | | | | |
| ~ | ence | ы В | es a ien | C | | ctiv | | s/ Sk | | | | | |
| O | Scie | es eri | Sc | m | es m | Elec | al / | lhip cal | dills | | | | |
| ate | ic f | gine enc | nar ial | gri | gra ctiv | l ne | ctic ject | srns hni | t SI | | | | |
| Ŭ | Bas | Eng Scie | Hui Soc | Pro | Pro | Opé | Pra Pro | Inte Tec | Sof | | | | |
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| Subject Code: | COURSE NAME | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22001 | FUNDAMENTALS OF DIGITAL FORENSICS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Digital Forensics

Definition, Nature and Scope.Uses of Digital Forensics - Digital Forensic Tools - Tool Selection - Role of Forensic Analyst and Forensic tools - Traditional Analysis vs Tools-based Analysis - Forensic Analysis Tools Requirements.

UNIT II – Collecting Evidence

Introduction - Crime scenes and Collecting evidence - Removable Media, Cell Phones, Order of Volatility - Documenting the scene – Photography, Notes - Chain of Custody – Marking evidence, Cloning – Purpose of cloning, The cloning process, Forensically clean media, Forensic image formats, Risks and Challenges -Live System vs Dead System – Live acquisition concerns, Advantage of Live collection, Principles of live collection, Conducting and documenting a Live collection - Hashing – Types of Hashing Algorithms, Hashing Example, Uses of Hashing - Final Report.

UNIT III – Seizure of Computers

Preparations to be made before seizure - Actions at the scene - Treatment of exhibits.Witnessstatements, briefing case officers and Counsel - An outline on recovery of evidence from computers.

UNIT IV – Analysis Categories

Physical Media – Media Management – File System Analysis – Application Analysis – Network Analysis-Memory Analysis

UNIT V – Digital Forensic Tools Categories

Disk & Data capture tools - File Viewers - File Analysis Tools - Network Forensic Tools - Database Forensics Tools – Mobile Devices Analysis Tools – Email Analysis Tools – Internet Analysis Tools – **Registry Analysis Tools**

TEXT BOOK:

- 1. John Sammons,"The Basics of Digital Forensics: The Primer for Getting Started in Digital Forensics" Elsevier, 2012, ISBN: 978-1-59749-661-2
- Brown, C. "Computer Evidence: Collection & Preservation." Hingham: Thomson/Delmar. 2006. 2.

REFERENCE BOOKS:

- 1. Eoghan Casey, "Handbook of Digital Forensics and Investigation" published by Elsevier Science and Technology, 2009
- 2. Vacca, J, "Computer Forensics, Computer Crime Scene Investigation", 2nd Ed, Charles River Media, 2005, ISBN: 1-58450-389.
- 3. Carrier, B. "Digital Forensics Tool Testing Images.", 2011.http://dftt.sourceforge.net

8 Hrs

13 Hrs

8 Hrs

7 Hrs

9Hrs

Total Hours: 45

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| C: Credit | s, L: | Lectu | ıre, T: | Tutoria | ıl, SLr: | Supervi | sed Lea | rning, I | P: Pr | roblen | n / Prac | tical | | |
| R: Reseau | rch, T | Ty/Lb | /ETL/I | E/IE: 7 | Theory / | /Lab/Em | bedded | Theory | v and | 1 Lab/ | Interna | l Evalua | tion | |
| ORIFCTI | VFS | | | | | | | | | | | | | |
| The stude | The students should be made to To ongogo students in meaningful oral English communication and organized coordanic and professional | | | | | | | | | | | | | |
| • To | • To engage students in meaningful oral English communication and organized academic and professional | | | | | | | | | | | | | |
| re | reading and writing for a successful career. | | | | | | | | | | | | | |
| 10 | reading and writing for a successful career. | | | | | | | | | | | | | |
| COURSE | COURSE OUTCOMES (Cos):Students will be able to | | | | | | | | | | | | | |
| CO1 | Engage in meaningful oral communication in English with writing as a scaffolding activity. | | | | | | | | | | | | | |
| CO2 | Have an in-depth understanding of the components of English language and its use in oral | | | | | | | | | | | | | |
| GOA | communication. Strengthen their vocabulary and syntactic knowledge for use in academic and technical communication | | | | | | | | | | | | | |
| CO3 | Strengthen their vocabulary and syntactic knowledge for use in academic and technical communication Learn to negotiate meaning in inter-personal and academic communication for a successful career | | | | | | | | | | | | | |
| CO4 | Learn to negotiate meaning in inter-personal and academic communication for a successful career. | | | | | | | | | | | | | |
| CO5 Engage in organized academic and professional writing for life-long learning and research | | | | | | | | | | | | | | |
| Mapping | of Co | ourse | Outcor | ne with | Progra | m Outco | ome (PO | s) | | | | | | |
| Cos/POs | PO1 PO2 PO3 PO | | | | | PO5 | PO6 | PO7 | I | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | | 1 | | 1 | 1 | 3 | 2 | 1 | | 1 | 3 | 3 | | 3 |
| CO2 | | 2 | 1 | 1 | 1 | 3 | 3 | 1 | | 2 | 3 | 3 | 1 | 2 |
| CO3 | | 1 | 1 | 1 | 1 | 2 | 1 | | | 2 | 3 | 3 | 1 | 3 |
| CO4 | | 1 | | | 2 | 3 | 1 | 2 | | 1 | 2 | 2 | | 3 |
| CO5 | | | 1 | 1 | 2 | 3 | 1 | 1 | | | 3 | 1 | 1 | 2 |
| COs/PSOs | 5 | | PSO | [| | PSO2 | | | PS | 03 | | PSO | D4 | |
| CO1 | | | | 1 | | | | | | | | | | |
| CO2 | | | | 1 | | | | | | | | | | |
| CO3 | | | | 1 | | | 1 | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | CO5 | | | | | | | | | | 1 | | | |
| 3/2/1 India | Indicates Strength Of Correlation, 3 | | | | ion, 3 – | High, 2- | Medium | , 1- Lov | v | | | | | |
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B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
|---|---|---------------------------------|------------|----------------|------------|------------|
| EBCC22I02 | COMMUNICATIVE ENGLISH LAB | IE | 1 | 0/0 | 1/0 | 1 |
| Unit I | Listening | | | | 6 H | rs |
| Authentic audios | and videos | | | | | |
| Prescribed Book: | English Pronunciation in use – Mark Hancock, | | | | | |
| Unit II | Speaking | | | | 6 Hr | s |
| Individual- Solo | Self introduction, Describing, anchoring, welcome | address, vote o | of tł | nanks, | | |
| Pair & Group : R | cole play- formal -informal, narrating stories, film re- | view, analysin | g n | ewspape | r head | lings and |
| reports, interpreti | ng Advertisement pamphlets | | | | | |
| Group discussion | n, mock interviews, formal presentation, power poin | t presentation | | | | |
| Prescribed Book: | J. C. Richards with J. Hull &S. Proctor, Interchange | e, Cambridge U | Jniv | versity P | ress, 2 | 2015. |
| Unit III | Reading | | | | 6 H1 | rs |
| Extensive, focuse | d reading, | | | | | |
| Strategies for effe | ective reading - Reading comprehensions – Note mal | king- summari | sing | g- parapł | nrasing | g, Review |
| Suggested reading | g: Short stories, news paper reports, film reviews | | | | | |
| Unit IV | Writing | | | | 6 Hr | S |
| Extensive writing | practices – note taking, Cognitive and metacognitiv | e strategies to | inc | ulcate a | sense | of |
| organising ideas i | nto coherent sentences and paragraphs, Formal letter | rs, Business le | tter | s. Resun | ne wit | h covering |
| letter | | | | | | |
| Unit V | Non verbal communication/ charts, diagrams ar | nd table | | | 6 Hrs | 5 |
| Interpretation of c | charts Flow chart, pie chart, bar diagram, table, tree o | diagram, etc., | | | | |
| | | | , | Fotal H | ours: | 30 |
| Prescribed Text: 1. J. C. R | Richards with J. Hull & S. Proctor, Interchange, Level | 2, Cambridge | Un W | iversity | Press, | 2021. |
| 2. W. Ch Reference 1. Hanc 2. <i>Skills</i> | ock, Mark, English Pronunciation in Use; Cambridg Dutt, K, Rajeevan, G & Prakash , 1st edn, Cambridge University Press, Chennai | e Univ. Press, , CLN 2008, 4 | 201 4 C | 3 Jourse of | n Con | nmunicatio |

Dr.M.G.R. Educational and Research Institute (Deemed to be University) Department of Computer Science and Engineering 2022 Regulation

| COURSE CODE | COU | COURSE NAME: PYTHON PROGRAMMING | | | | | | Ty /Lb/ ETL/IE | L | T / S.Lr | P/ R | C |
|--------------------|------------------|--|-----------------|--------------------------------------|--------------------------|-------------------|-----------------|---------------------|------------|-------------|---------------|---------------|
| EBC522E12 | Prerect OFFIC | quisite: 0 CE TOOL | C PROC .S | GRAMM | IING AI | ND MS | | ETL | 1 | 0/0 | 2/0 | 2 |
| C: Credits, L: | Lectu | re, T: T | utorial | , SLr: | Superv | vised Le | arning, | , P: Proble | m / Prac | tical | | |
| R: Research, ' | Ty/Lb/ | 'ETL/IE | E/IE: Th | neory / | Lab/Er | nbeddeo | l Theor | ry and Lab | /Interna | l Evaluat | tion | |
| OBJECTIVE : | : | | | | | | | | | | | |
| The students sh | nould b | e made t | 0 | | | | | | | | | |
| Develo | op a bas | sic under | rstandin | g of pr | ogramn | ning and | the Pyt | hon progra | mming la | inguage | | |
| • Write | progran | ns in Pyt | thon to | solve re | al worl | ld proble | ms | | | | | |
| See the | e value | of progr | rammin | g in a v | ariety c | of differe | nt disci | plines, espe | cially as | it relates | in engin | eering. |
| COURSE OU | тсом | IES (CC |)s): Stu | dents w | vill be a | ble to | | | | | | |
| CO1 | Reme | mber the | e syntax | and se | mantics | s of pyth | on prog | ramming la | inguage | | | |
| CO2 | Under | rstand ho | ow func | tional a | nd oper | rations a | re to be | utilized | | | | |
| CO3 | Apply | the fund | lamenta | l progra | amming | g constru | cts like | variables, | condition | al logic, l | looping, | and |
| | functi | ons to b | uild bas | ic prog | rams . | | | | | | | |
| CO4 | design | <u>1 object-</u> | orienteo | d progra | ams wit | h Pythor | <u>1 classe</u> | <u>s</u> | | | | |
| C05 | Apply | Apply the knowledge to solve various real-world problems | | | | | | | | | | |
| Mapping of C | ourse (| Jutcom | es with | Progra | am Out | comes (| POS) | DOO | DOO | DO10 | DO11 | DO12 |
| COS/POs | POI | PO2 | PO3 | PO4 | PO5 | <u>PO6</u> | PO7 | PO8 | <u>PO9</u> | POIO | | PO12 |
| | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 1 | 1 | | 1 | 1 |
| CO2 | 3 | $\frac{2}{2}$ | $\frac{2}{2}$ | 2 | 2 | 1 | 1 | 1 | 1 | | 1 | 1 |
| | 3 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | | 2 | 1 |
| C04 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | | 2 | | $\frac{2}{2}$ | $\frac{2}{2}$ |
| 0.05 | 5 | 5 | 5 | 5 | 2 | 1 | 2 | | 4 | | 2 | 2 |
| COs / PSOs | | PSO1 | | | PSO2 | ſ | | PSO3 | | PS | 04 | |
| CO1 | | 3 | | | 3 | | | 2 | | : | 1 | |
| CO2 | | 3 | | | 2 | | | 2 | | | 1 | |
| CO3 | | 3 | | | 3 | | | 2 | | : | 1 | |
| CO4 | | 3 | | | 2 | | | 2 | | : | 1 | |
| CO5 | | 3 | | | 3 | | | 2 | | : | 1 | |
| H/M/L indicat | tes Stre | ength of | Correl | orrelation H- High, M- Medium, L-Low | | | | | | | | |
| | | | | | | | | | | | | |
| y | SS | erii es | uitie ocia | n | n es | es es es es ill / | | | ills | | | |
| gor | ic | ine | nan Sc | grai e | grai Xiv | ü Xiv | otic | šrms šchi Ski | Sk | | | |
| ate | Bas: Scie | Eng | Hur | Pro _{ Core | Pro _{ Elec | Dpe Elec | Prac Proj | Inte Te | Sofi | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
|----------------|---------------------------|------------------|---|------------|-----|---|
| EBCS22ET2 | PYTHON PROGRAMMING | ETL | 1 | 0/0 | 2/0 | 2 |

UNIT I: INTRODUCTION

History of Python, Need of Python Programming, Applications Basics of Python Programming Using the REPL(Shell), Running Python Scripts, Variables, Assignment, Keywords, Input-Output, Indentation.

UNIT II: TYPES, OPERATORS AND EXPRESSIONS

Types - Integers, Strings, Booleans; Operators- Arithmetic Operators, Comparison (Relational) Operators, Assignment Operators, Logical Operators, Bitwise Operators, Membership Operators, Identity Operators, Expressions and order of evaluations Control Flow- if, if-elif-else, for, while, break, continue, pass.

UNIT III: FUNCTIONS

Defining Functions, Calling Functions, Passing Arguments, Keyword Arguments, Default Arguments, Variablelength arguments, Anonymous Functions, Fruitful Functions (Function Returning Values), Scope of the Variables in a Function - Global and Local Variables.

UNIT IV: LISTS, TUPLES, DICTIONARIES

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing - list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V: OBJECT ORIENTED PROGRAMMING OOP IN PYTHON

Classes, 'self variable', Methods, Constructor Method, Inheritance, Overriding Methods, Data hiding.

List of Experiments:

- 1. Develop a Python program using function to compute the factorial of a given number.
- 2. Develop a Python program to find the sum of 'N' natural number using function.
- 3. Develop a Python program to display only the positive elements of the list.
- 4. Develop a Python program to find the second largest digit from a number using function.
- 5. Develop a Python program to find the largest digit from a number using function.
- 6. Develop a Python program to check the given string is palindrome or not.
- 7. Develop a Python program to count the number of vowels in the given string.

8. Develop a Python program to calculate the number of characters and the number of words present in a string without using built-

in functions and string methods.

9. Develop a Python program to remove the duplicate items from a list.

10.Develop a Python program to read in a list of 'N' integers and print its elements in reverse order without using reverse slicing, reverse method.

Total Hours: 45

9 Hrs

9 Hrs

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9 Hrs

9 Hrs

TEXT BOOKS:

- 1. Python Programming: A Modern Approach, VamsiKurama, Pearson.
- 2. Think Python:How to Think Like a Computer Scientist'', 2nd editionUpdated for Python 3, Shroff/O'Reilly Publishers,Allen B. Downey
- 3. Learning Python, Mark Lutz, Orielly.

REFERENCE BOOKS:

- 1. Core Python Programming, W.Chun, Pearson.
- 2. Introduction to Python, Kenneth A. Lambert, Cengage.

| COURSE | | | | | | | | | | | | | | |
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| CODE | | | NOL 1 | | • | | | | Ту/Т | h/ | | | | |
| CODE. | | ENVI | RONM | ENTAL | SCIEN | ICE (AU | JDIT | | ETL | /IE L | T/S.L | r P/R | С | |
| EBCC22I0 | 3 | COUF | RSE) | | | | | | | | | | | |
| | C | Prere | anisite | Nil | | | | | IE | 1 | 0/0 | 1/0 | 0 | |
| C: Credits. | L: Lect | ure. T: 7 | <u>Futoria</u> | 1. SLr: | Super | vised I | earnir | ng. P: F | robler | n / Practi | cal | 10 | • | |
| R: Research | n, Ty/Lt | /ETL/I | E/IE: T | heory | /Lab/E | mbedd | ed The | eory an | d Lab/ | Internal | Evaluati | on | | |
| OBJECTI | VES: | | | | | | | <u> </u> | | | | - | | |
| The student | s should | d be ma | de to | | | | | | | | | | | |
| • To a | cquire | quire knowledge of the Environment and Ecosystem & Biodiversity | | | | | | | | | | | | |
| • To a | cauire | uire knowledge of the different types of Environmental pollution | | | | | | | | | | | | |
| • To k | now m | ow more about Natural Resources | | | | | | | | | | | | |
| • To 2 | ain und | understanding of social issues and the Environment | | | | | | | | | | | | |
| | ttoin fo | miliorit | u of hu | mon n | onulati | on and | Envir | onmont | | | | | | |
| | | | $\frac{1}{(CO)}$ | | | | LIIVII | Jiiiiein | | | | | | |
| COURSE | | JMES (| (COS): | Student | ts will b | e able to | 0 D | | | | | | | |
| COI | Knov | | | | | | | | | | | | | |
| CO2 | Com | Comprehend air, water, Soil, Marine, Noise, Thermal and Nuclear Pollutions and Solid | | | | | | | | | | | | |
| | Wast | Waste management and identify the importance of natural resources like forest, water, and | | | | | | | | | | | | |
| | food | resourc | es | | | | | | | | | | | |
| CO3 | Disco | over wa | ter con | servati | on and | waters | shed m | anagen | nent | | | | | |
| | | | | | | | | | | | | | | |
| CO4 | Ident | ify its p | oroblen | ns and | concer | ns clin | nate ch | nange, | global | warming | g, acid ra | ain, ozon | e layer | |
| | deple | tion etc | ••, | | | | | | | | | | | |
| CO5 | Expla | ain fami | ly wel | fare pro | ogramr | nes and | d role o | of infor | matio | n technol | ogy in h | uman hea | ılth | |
| | and e | nvironr | nent | | | | | | | | | | | |
| Mapping of | Course | Outcon | nes wit | n Progr | am Ou | itcomes | s (POs) | DOG | DOG | DO10 | DO11 | DOIA | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO 7 | PO8 | PO9 | PO10 | POII | PO12 | | |
| $\frac{CO1}{CO2}$ | | | | | | $\frac{2}{2}$ | 3 | 2 | | 2 | | 1 | | |
| C02 | | | | | | 2 | 3 | 2 | | 2 | | 1 | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | <u> </u> | <u> </u> | 2 | 3 | | | 2 | | 1 | | |
| H/1 | M/L indi | cates str | ength o | of correl | ation | H – Hig | | Mediu | m, L – | Low | I | 1 - | | |
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| ate ry | 3asi Scie | Eng. | Hun uniti | s ant ioci | Core | Prog um | eleci Ze | Elec Jec | Disc | Skill | ıt | Prac Prac | | |
| Ŭ | | | | H C | | | | | | | | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
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| EBCC22I03 | BENVIRONMENTAL SCIENCE (AUDIT COURSE) | IE | 1 | 0/0 | 1/0 | 0 |

ENVIRONMENT AND ECOSYSTEM UNIT I

Definition, Scope and Importance of environment - need for public awareness - concept, structure and function of an ecosystem- producers, consumers and decomposers - energy flow in the ecosystem. Biodiversity at national and local levels – India

UNIT II **ENVIRONMENT POLLUTION**

Definition – causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Nuclear hazards (g) E-Wastes and causes, effects and control measures

UNIT III NATURAL RESOURCES

Forest resources: Use and over-exploitation, deforestation. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems.

SOCIAL ISSUES AND THE ENVIRONMENT **UNIT IV**

From unsustainable to sustainable development - urban problems related to energy - water conservation, rain water harvesting, watershed management – resettlement and rehabilitation of people; its problems and concerns climate change, global warming, acid rain, ozone layer depletion, nuclear accidents, central and state pollution control boards-Public awareness.

UNIT V HUMAN POPULATION AND THE ENVIRONMENT

Population growth, variation among nations – population explosion, environment and human health – human rights – value education - HIV/AIDS - women and child welfare - role of information technology in environment and human health

(A) AWARENESS ACTIVITIES:

i) small group meetings about water management, promotion of recycle use, generation of less waste, avoiding electricity waste

ii) Slogan making event

iii) Poster making event

iv) Cycle rally

v) Lectures from experts

(B) ACTUAL ACTIVITIES:

i) Plantation

ii) Gifting a tree to see its full growth

iii) Cleanliness drive

iv) Drive for segregation of waste

v) To live some big environmentalist for a week or so to understand his work

vi) To work in kitchen garden for mess

vii) To know about the different varieties of plants

viii) Shutting down the fans and ACs of the campus for an hour or so

TEXT BOOKS

1. Gilbert M.Masters, 'Introduction to Environmental Engineering and Science', 2nd edition, Pearson Education (2004).

2. Benny Joseph, 'Environmental Science and Engineering', Tata McGrawHill, NewDelhi, (2006).

REFERENCES

- 1. Vairamani, S. and Dr. K. Sankaran. Elements of Environmental and Health Science. Karaikudi: KPSV Publications, 5th Edition, July 2013.
- 2. If thikarudeen, Etal, Environmental Studies, Sooraj Publications, 2005.
- 3. R.Murugesan, Environmental Studies, Millennium Publishers and Distributors, 2nd Edition, July, 2009.

15 Hours

3Hrs

3Hrs

3Hrs

3Hrs

3Hrs

Total Hours:30

| COURSE | COU | OURSE NAME : | | | | | | | ſy/Lb/ | L | T/S.I | Lr | P/R | С |
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| CODE | DISC | RETE | MATH | ЕМАЈ | FICS | | |] | ETL/IE | | | | | |
| EBMA22006 | | | | | | | | | | | | | | |
| | Prerec | uisite: | First ye | ar Engi | neering | g Mathe | matics | | Ту | 3 | 1/0 |) | 0/0 | 4 |
| L : Lecture T : ' | Tutoria | l S.Lr | : Super | rvised I | earnin | g P : P | roject I | R : Res | search C: | Crec | lits | | | |
| Ty/Lb/ETL/IE | : Theor | y/Lab/E | Embedd | ed Theo | ory and | Lab | | | | | | | | |
| OBJECTIVES | 5: | | | | | | | | | | | | | |
| The students sh | ould be | e made t | to | | | | | | | | | | | |
| To understand t | he Basi | ic conce | epts in [| Fruth T | able, M | lathema | tical Lo | ogic ar | nd Inferen | ice T | heory | | | |
| To understand t | he Basi | ic conce | epts in l | Mathem | natical I | Inductio | on and F | Recurr | ence relat | ions | | | | |
| To understand t | the Basi | ic conce | epts in (| Group t | heory, l | Rings a | nd Field | ds | | | | | | |
| To understand t | the Basi | ic conce | epts in I | Finite A | utomat | a, Finit | e state 1 | machi | ne. | | | | | |
| To understand t | he Basi | ic conce | epts in (| Graph t | heory | | | | | | | | | |
| COURSE OU | ICOM. | ES (CC |)s) : Stu | dents wi | II be ab | le to | | | | | | | | |
| CO1 | To un | derstan | d the Ba | asic cor | ncepts in | n Logic | and Pr | edicat | e calculus | 5 | | | | |
| CO2 | To un | derstan | d the Ba | asic cor | ncepts in | n Comł | oinatorio | cs | | | | | | |
| CO3 | To un | derstan | d the Ba | asic cor | ncepts in | n Grouj | theory | 1 | | | | | | |
| CO4 | To un | derstan | d the Ba | asic cor | ncepts in | n Autoi | nata | | | | | | | |
| CO5 | To un | derstan | d the Ba | asic cor | ncepts in | n Grapł | n theory | 7 | | | | | | |
| Mapping of Co | ourse O | ourse Outcomes with Program Outcomes (POs) | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PC | D10 | PO1 | l PO | D12 |
| CO1 | 3 | 3 | 2 | 3 | 2 | 1 | 1 | 1 | 2 | | 1 | 1 | | 3 |
| CO2 | 3 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | | 1 | 1 | | 3 |
| CO3 | 2 | 3 | 1 | 3 | 2 | 2 | 2 | 1 | 1 | | 2 | 1 | | 3 |
| CO4 | 3 | 3 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | | 2 | 1 | | 2 |
| CO5 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | | 2 | 2 | | 3 |
| | | | | | | | | | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSC |)3 | | | PSC |)4 | |
| CO1 | | 2 | | | 1 | | | 3 | | | | 1 | | |
| CO2 | | 2 | | | 1 | | | 3 | | | | 1 | | |
| CO3 | | 2 | | | 1 | | | 3 | | | | 1 | | |
| CO4 | | 2 | | | 1 | | | 3 | | | | 1 | | |
| CO5 | | 2 | | | 1 | | | 3 | | | | 1 | | |
| 3/2/1 Indicates | Streng | gth Of (| Correla | tion, 3 | – High | n, 2- Mo | edium, | 1- Lo | W | | | | | |
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| | ien | ng | es 2 enc | | В | ctiv | scip | du | I/P | | | | | |
| | Sc | e ie | niti Sci | E | gra ive | Ele | Di | Co | ica | | | | | |
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| COURSE CODE: EBMA22006 | COURSE NAME : | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | C |
|------------------------------|----------------------|------------------|---|--------|-----|---|
| | DISCRETE MATHEMATICS | Ту | 3 | 1/0 | 0/0 | 4 |

(Common to II yr. / III Sem. B.Tech (Full Time), CSE, IT; ECE(elective))

LOGIC UNIT I

Statements - Truth Table - Connectives - Normal Forms - Predicate Calculus - Inference Theory.

UNIT II **COMBINATORICS**

Mathematical Induction - Pigeon Hole Principle - Principle of Inclusion and Exclusion - Recurrence Relations -Generating Functions.

UNIT III GROUPS

Basic Concepts – Groups – Subgroups – Homomorphism – Kernel – Cosets – Lagrange's theorem - Group Homomorphisms – Rings and Fields (Definitions and simple theorems and problems).

UNIT IV AUTOMATA

Finite Automata - Regular grammar - Introduction - Context free grammar - Introduction to Turing machine -Finite state machine – Introduction – Language Recognition

UNIT V GRAPHS

Introduction to Graphs – Terminology – Matrix representation of Graphs: Incidence matrix, Adjacency matrix – Graph Isomorphism – Connectivity – Euler and Hamiltonian Paths (simple theorems and problems).

Total Hours: 60

Reference Books:

- 1) Veerarajan T., *Discrete Mathematics*, Tata McGraw Hill Publishing Co., (2008).
- 2) Tremblay J.P., Manohar R., Discrete Mathematical structures with applications to Computer science, Tata McGraw Hill Publishing Co., (2008).
- 3) Kolman, Busby, Ross, *Discrete Mathematical Structures*, Pearson, (2014).
- 4) Kenneth Rosen, Discrete Mathematics and its applications (SIE), Tata McGraw Hill Publishing Co., (2007).

12 hrs

12 hrs

12 hrs

12hrs

12 hrs

| Subject Code: | | COU | RSE NA | AME : | | | | | Ty/ | Lb/ETL | L | T/S | .Lr | P/R | С |
|--|--|--|---|--------------------------|------------------------------------|----------------------------------|----------|------------|-----------|--------------------|----|------------|-----|-----|------|
| EDCF 22002 | | Prereq | VANEN uisite: N | <u>TALS (</u> III | JF NE | | AING | | | Tv | 3 | 1/ | /0 | 0/0 | 4 |
| I · Lecture T · | Tutoria | | $\cdot \cdot Super$ | vised L | earning | $\mathbf{P} \cdot \mathbf{Pro}$ | iect R · | Resear | ch C· Cre | 1 y dits | 5 | 1/ | U | 0/0 | - |
| Tv/Lb/ETL : T | Theory/I | Lab/Eml | buper | Theory a | and Lab | 1.110 | jeer R. | Researc | | uns | | | | | |
| OBJECTIVE At the end of t • Basics Co • Protocols • How to in COURSE OU | S: his cour oncepts require nplemen | rse the s of Netw d for Net nt and m IES (CC | tudents orking etworkin nanage a Ds) : (3 - | will be a and the networ | able to u neir fund k enviro | andersta ction and ponment | nd: d | | | | | | | | |
| CO2 | Famili | arise wi | th the T | ransmis | sion Me | dia. me | dia cont | rols and | l Flow Co | ontrol | | | | | |
| CO3 | Gain f | amiliari | ty with o | commor | netwoi | king an | d netwo | orking de | evices | | | | | | |
| CO4 | Learn | to perfo | rm secu | re transi | mission | | | | | | | | | | |
| CO5 | Descri | be the f | unctions | of OSI | model | | | | | | | | | | |
| Mapping of C | Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | | |
| COs/PO | s | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | D10 | PO | 11 | PO12 |
| <u>CO1</u> | | 3 | 3 | 3 | 2 | 3 | 3 | 2 | | 1 | | | 3 | | 1 |
| <u>CO2</u> | | 3 | 1 | 3 | 3 | 3 | 3 | 2 | | 1 | _ | | 3 | | 1 |
| | | 3 | 1 | 3 | 3 | 3 | 3 | 2 | | 1 | | | 3 | | 3 |
| C04 | | 2 | 5 1 | | | | | 2 | | | | | 3 | | 1 |
| Manning of C | 'ourse (| <u> </u> | es (COs | x) with 1 | rnorar | n Sneci | fic Out | comes (| PSOs) | | | | | | |
| COs / PS | Os | | PSO1 | <i>)</i> ((1011) | Ingitu | PSO2 | | | PSO: | 3 | | | PSC |)4 | |
| CO1 | | | 3 | | | | | | | | | | 2 | | |
| CO2 | | | 3 | | | | | | | | | | 2 | | |
| CO3 | | | 3 | | | | | | | | | | 3 | | |
| CO4 | | | 3 | | | | | | | | | | 3 | | |
| CO5 | | | 2 | | | | | | | | | | | | |
| 3/2/1 indicates | s Streng | gth of C | Correlat | ion 3- | High, 2 | 2- Medi | um, 1-I | JOW | | | | | | | |
| | | | | | | | | | | | | | | | |
| Category | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | | | | | |
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12Hrs

12Hrs

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4

B.Tech – Cyber Forensics and Information Security -2022 Regulation

| Subject Code: | COURSE NAME : |
|---------------|---------------------------|
| EBCF22002 | FUNDAMENTALS OF NETWORKNG |

UNIT I - Basics of Networking and Network Topologies

Networking Concepts - Logical or physical network topologies: Star/-Hierarchical - bus - mesh - ring wireless - LAN - MAN - WAN-VPN-VLAN-Wireless Network Topologies

UNIT II – Main Features

Main features of 802.2 (LLC), 802.3 (Ethernet), 802.5 (token ring), 802.11b (wireless) and FDDI networking technologies - Speed - Access - Method - Media - Characteristics of 10BASE-T, 100BASE-TX , 10BASE2, 10BASE5, 100BASE-FX, Gigabit Ethernet

UNIT III - Media Connectors and Users

Networking Media – Secure Transmission and Physical Media – Media Connectors - - RJ-11 - RJ-45 - AUI - BNC - ST -

UNIT IV – Network Devices

Common Networking Devices- -Specialized Network DevicesPurpose, features - Hubs, Switches, Bridges, Routers, Gateways, CSU/DSU, Network Interface Cards/ISDN adapters/system area network cards, Wireless access points, Modems

UNIT V - MAC Address

Concepts and applications - Seven layers of the OSI model and their functions -TCP/IP Reference Model and their functions- IP addresses (Ipv4, Ipv6) and their default subnet masks.

TEXT BOOK:

- 1. Huitema, C., "Routing in the Internet, 2nded.", Prentice-Hall, 2000.
- 2. Keshav, S., "An Engineering Approach to Computer Networking", Addison-Wesley, 1997

REFERENCE BOOKS:

- 1. Tanenbaum, A, "Computer Networks", 3rd Edition, Prentice-Hall,
- 2. Wright and Stevens, "TCP/IP Illustrated v.2", Addison-Wesley, 1996
- 3. Peterson and Davie, ``Computer Networks: A Systems Approach,'' 2ndEdition, Morgan Kaufmann, 2000

12Hrs

12Hrs

12Hrs

Total Hours: 60

| Subject Code: | COUL | RSE N | AME : | | | | | Tv/Lb/ | ETL | L | T/S.I | r P | / R | С |
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| EBCF22003 | ADVA | NCE | D DIG | ITAL | FORE | NSICS | \$ | | | - | 1/0 | | /0 | |
| | Prereq | uisite: N | | | | | | Ty | | 3 | 1/0 | 0 | /0 | 4 |
| L: Lecture T: $T_{\rm T}/L = T_{\rm T}$ | Tutoria. | l S.Lr | : Super | rvised L | earning | g P:Pr | oject R | : Resear | ch C: C | redits | | | | |
| IY/LD/EIL:I | neory/L | ab/Emt | eaaea | Theory | and La | D | | | | | | | | |
| OBJECTIVES | 5: | | . 1 | . 1 | | | | | | | | | | |
| This paper will | help a s | student | to unde | erstand: | | | | | | | | | | |
| • Windo | ws Fore | nsic Re | gistry A | Analysis | s and its | s impor | tance. | | | | | | | |
| Analys | is of var | rious ne | twork a | and syst | em pro | cesses a | ind Ant | I-Iorensic | tecnnic | jues. | 11 | | | |
| • Manag | ing fore | insic da | ta using | s open-s | ource t | oois and | 1 unders | standing i | ne vario | ous cr | aneng | es | | |
| • The wo | Maahi | | ng repe | atability | , valid | ty and | preservi | ng or ang | ital evic | lence | | | | |
| • virtual | Machin | le roiei | lisics, co | oncepts | and lec | mique | 5. | | | | | | | |
| COURSE OU' | тсом | ES (CC | (3):(3 | - 5) | | | | | | | | | | |
| CO1 | Under | stands | the imp | ortance | of regi | stry in f | forensic | analyst | | | | | | |
| CO2 | Under | stands | the role | of fore | nsic and | alysis ir | the net | work and | l system | n proc | ess | | | |
| CO3 | Learn | to man | age and | l preser | ve digit | al foren | sic evid | ence data | ì | _ | | | | |
| CO4 | Acqui | re knov | vledge o | of tools | and tec | hnique | s in buil | ding wor | kflows | | | | | |
| CO5 | Acqui | re the s | kill virt | ual mac | chine fo | rensics | | | | | | | | |
| Mapping of C | ourse O | utcom | es (CO | s) with | Progra | m Out | comes (| POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | D10 | PO11 | Р | 012 |
| CO1 | 2 | 3 | 1 | 3 | | 3 | | | 1 | | | | | 1 |
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| CO2 | 2 | 3 | 3 | 3 | 2 | 3 | | | 1 | | | 3 | | 1 |
| CO2 CO3 | 2 2 2 | 3 2 | 3 3 | 3 1 | 2 2 | 3 3 | | 3 | 1 1 | | | 3 3 | | 1 3 |
| CO2 CO3 CO4 | 2 2 2 2 | 3 2 3 | 3 3 2 | 3 1 1 | 2 2 3 | 3 3 2 | | 3 | 1 1 1 | | | 3 3 1 | | 1 3 2 |
| CO2 CO3 CO4 CO5 | 2 2 2 2 2 | 3 2 3 1 | 3 3 2 3 | 3 1 1 1 | 2 2 3 3 | 3 3 2 3 | | 3 | 1 1 1 | | | 3 3 1 1 | | 1 3 2 1 |
| CO2 CO3 CO4 CO5 Mapping of Co | 2 2 2 2 0urse 0 | 3 2 3 1 Dutcome | 3 3 2 3 es (CO: | 3 1 1 3) with | 2 2 3 3 Progra | 3 3 2 3 m Spee | cific Ou | 3 tcomes (| 1 1 1 PSOs) | | | 3 3 1 1 | | 1 3 2 1 |
| CO2 CO3 CO4 CO5 Mapping of Co COs / PSOs | 2 2 2 2 0urse O | 3 2 3 1 Putcomo PSO1 | 3 3 2 3 es (CO | 3 1 1 s) with | 2 2 3 3 Progra PSO2 | 3 3 2 3 3 am Spec | cific Ou | 3 tcomes (PSO3 | 1 1 PSOs) | | | 3 3 1 1 PSO4 | | 1 3 2 1 |
| CO2 CO3 CO4 CO5 Mapping of Co COs / PSOs CO1 | 2 2 2 2 0urse O | 3 2 3 1 Putcome PSO1 3 | 3 3 2 3 es (CO | 3 1 1 s) with | 2 3 3 Progra PSO2 3 | 3 3 2 3 m Spec | cific Ou | 3 tcomes (PSO3 3 | 1 1 PSOs) | | | 3 3 1 1 PSO4 1 | | 1 3 2 1 |
| CO2 CO3 CO4 CO5 Mapping of Co COs / PSOs CO1 CO2 | 2 2 2 2 0urse O | 3 2 3 1 Putcome PSO1 3 3 | 3 3 2 3 es (CO: | 3 1 1 s) with | 2 3 3 Progra PSO2 3 3 | 3 3 3 3 3 5 1 1 1 1 1 1 1 1 1 1 | cific Ou | 3 tcomes (PSO3 3 3 | 1 1 PSOs) | | | 3 3 1 1 PSO4 1 3 | | 1 3 2 1 |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF2003 | ADVANCED DIGITAL FORENSICS | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I – Forensic Analysis of the Registry

Introduction – Windows Registry Analysis – Core Analysis Concepts – Malware and the Windows Registry – Viewing Registry Hives – Tools - Regedit, Registry Explorer – Pros and Cons – Timeline Analysis – Differencing – Deleted Keys and Values – Analysis of complete and partial MRU streams – Analysis of the System Hives – Artifact categories, Security Hive, SAM Hive, System Hive, Software Hive and AmCache Hive.

UNIT II - Network&System Process Analysis and Anti – Forensics

Memory –Swap File – Network Processes – System Processes – File System Information – Raw Disk Blocks - Open & Deleted files – Network Connections – Routes – Processes – Users, Anti Forensic Techniques - Methods used which attempt to thwart subsequent forensic analysis - Forensic traces left by these methods

UNIT III – Managing Forensic Data

Tools for basic process functions, such as viewing, converting, cryptographic hashing - Open source analysis tools and their Use, Benefits – Risks - Challenges (Encryption, Anonymity, Volatility, Anti-Forensic Programs, Operating System Dependency)

UNIT IV – Building a Forensically Sound Workflow

Choices: Tools and approach - Forensic issues within the workflow, including repeatability and validity - Managing and preserving evidence. Photographing the scene – Recording System Time – Data Acquisition in order of volatility –Securing the Evidence – Documenting & Labelling – Transporting the Evidence

UNIT V – Virtual Machine Forensics

Overview of Virtual Forensics – Hypervisors, Parallel Desktops, KVM, Microsoft Virtual PC, VMWare Workstations and Player – Files associated with VMWare, Virtual Box, Conducting an Investigation, Other VM Examination methods, Using VMs as Forensic Tools.

Total Hours: 60

TEXT BOOK:

- 1. Warren G. Kruse II and Jay G. Heiser, "Computer Forensics: Incident Response Essentials", Addison Wesley, 2002.
- 2. Ellick M Chan, "A Framework for Live Forensics", Proquest, Umi Dissertation Publishing, 2012

REFERENCE BOOKS:

- 1. Nelson, B, Phillips, Amelia Phillips, F, Stuart, C., "Guide to Computer Forensics and Investigations, 5thed., Cengage Learning, 2006, ISBN: 978-1-285-06003-3.
- 2. Albert J. Marcella Jr et al, Cyber Forensics: From Data to Digital Evidence, Wiley, 2012

12Hrs

12Hrs

12Hrs

12Hrs

| COURSE CODE: | CC D | OURSE IGITA | NAMI L PRII | E : NCIPL DESI | .ES AN GN | ND SYS | STEM | Ty/L ETL | /b/ /IE | L | T/ S.Lr | P/R | С |
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| EBEC22ID1 | Pre | requisi | te: Nil | | | | | T | ÿ | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T | : Tuto | orial S | S.Lr:St | upervis | ed Lea | rning I | P : Proje | ect R : | Resear | rch (| C: Cre | dits | |
| Ty/Lb/ETL/IE | E: Th | eory/La | b/Emb | edded ' | Theory | and La | ıb | | | | | | |
| OBJECTIVES | 5: | | | | | | | | | | | | |
| The students sh | ould | be mad | e to | | | | | | | | | | |
| To intr | oduc | e numb | er syste | ems and | d codes | and its | conver | rsions | | | | | |
| To intr | To introduce Boolean algebra and its applications in digital systems | | | | | | | | | | | | |
| To intr | • To introduce the design of various combinational digital circuits using logic gates | | | | | | | | | | | | |
| To brin | ng ou | t the an | alysis f | or sync | chronou | is and a | synchr | onous S | equen | tial | circuit | ts | |
| COURSE OU | JTCC |)MES (| (COs) : | Studen | ts will | be able | to | | | | | | |
| CO1 | A | Acquire | d know | ledge a | about n | umber | systems | s and its | conve | ersic | ons | | |
| CO2 | A | Acquire | d know | ledge a | about b | oolean | algebra | Ļ | | | | | |
| CO3 | A | Ability t | o ident | ify, ana | alyze& | design | combin | national | circui | its | | | |
| CO4 | A | Ability t | o ident | ify &a | nalyze | synchro | onous & | z asyncl | nronou | ıs ci | rcuits | | |
| Mapping of C | Cours | e Outc | omes w | vith Pr | ogram | Outco | mes (P | Os) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | O10 | PO11 | PO12 |
| CO1 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | | 2 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 |
| CO3 | 2 | 2 | 3 | 1 | 1 | 2 | 1 | 1 | 2 | | 2 | 1 | 1 |
| CO4 | 2 | 2 | 3 | 1 | 1 | 2 | 1 | 1 | 2 | | 2 | 1 | 1 |
| COs / | DS | 01 | | DC | 02 | | | PSO3 | | | | DSO4 | |
| PSOs | 13 | UI | | 13 | 02 | | | | | | | 1304 | |
| CO1 | | 1 | | | 3 | | | 1 | | | | 1 | |
| CO2 | | 1 | | | 3 | | | 1 | | | | 1 | |
| CO3 | , | 3 | | 2 | 2 | | | 1 | | | | 1 | |
| CO4 | , | 3 | | 7 | 2 | | | 1 | | | | 1 | |
| 3/2/1 Indicates | s Stre | ngth Of | f Correl | lation, | 3 – Hig | h, 2- M | ledium, | 1- Low | / | | | | |
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| Category | Basic Science | Engineeri ng | Humanities and social Science Program Core Den Elective Inter Disciplinary Skill Component Practical /Project | | | | | | | | | | |
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B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBEC22ID1 | DIGITAL PRINCIPLES AND SYSTEM DESIGN | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I NUMBER SYSTEMS

Review of Decimal, Binary, Octal And Hexadecimal Number Systems-Binary Addition Subtraction, Multiplication& Division—Number Conversions – Signed Magnitude form – 1's and 2's Complement – Binary weighted codes- Binary arithmetic – codes – BCD code, Gray code, Excess-3 Code.

UNIT II BOOLEAN ALGEBRA

Binary logic Functions- Boolean laws –Boolean Algebra – Reduction of Boolean Expressions De Morgan's Theorems, Sum Of Products –Product Of Sums –karnaugh map- Quine McCluskey Method.

UNIT III COMBINATIONAL LOGIC

Logic gates – AND, OR, NOT, NOR, NAND and EX-OR Gates– Half adder – Full adder- Half subtractor–Full subtractor - Multiplexer – Demultiplexer- Encoder – Decoder.

UNIT IV SYNCHRONOUS/ASYNCHRONOUS SEQUENTIAL LOGIC 9 Hrs

Latches-R-S- Flip Flop, S-R Flip Flop, D Flip Flop, JK Flip Flop, T Flip-Flop - Master slave Flip-Flop - Counters –Up Down counters- Binary Counters-Ring counter- Shift Registers.Asynchronous counters –Decade counters - State diagram - State Table – State Reduction – State Assignment- Excitation Table-Analysis of Asynchronous sequential circuits -Design of ASynchronous Sequential Circuits.

UNIT V MEMORY DEVICES

Basic memory structure – ROM -PROM – EPROM – EEPROM – EAPROM, RAM – Static and dynamic RAM - Programmable Logic Devices – Programmable Logic Array (PLA) - Programmable Array Logic (PAL) – Field Programmable Gate Arrays (FPGA) – Implementation of combinational logic circuits using PLA, PAL.

Total Hours: 45

9Hrs

9 Hrs

9 Hrs

TEXT BOOKS:

- 1. Charles H. Roth & Larry L.Kinney, "Fundamentals of Logic Design", Cengage Learning, 7th Edition.
- 2. M. Morris Mano & Michael D.Ciletti (2008) Digital Design. Pearson Education
- 3. Thomas.L.Floyd (2013) "Digital Fundamentals", 10th Edition Pearson Education
- 4. A.Anand Kumar Fundamentals of Digital Circuits^{II}, 4th Edition, PHI Learning Private Limited, 2016.
- 5. Soumitra Kumar Mandal Digital Electronics, McGraw Hill Education Private Limited, 2016.

REFERENCE BOOKS:

- 1. Ronald J. Neal S. Gregory L (2009), "Digital Systems", 10th Edition, Pearson Prentice Hall.
- 2. R P Jain, (2010), "Modern Digital Electronics", 4th Edition, Tata Mcgraw Hill Ed. Pvt. Ltd

| COURSE CODE: | COU | RSE N COMP | AME: PUTER | ORG | ANIZA | TION | AND | | Ty/l | Lb/ | L | T/S. | Lr | P/R | С | |
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| | Prerec | quisite: | Nil | | | | | | Γ | y | 3 | 1/ | 0 | 0/0 | 4 | |
| L : Lecture T | : Tutori | ial S. | Lr : Sup | pervise | d Learn | ing P | : Projec | pject R : Research C: Credits | | | | | | | | |
| Ty/Lb/ETL/IE | E : Theo | ory/Lab | /Embeo | dded T | heory a | nd Lab | | | | | | | | | | |
| OBJECTIVE | S: | | | | | | | | | | | | | | | |
| Thestudents sl | hould b | e made | e to | | | | | | | | | | | | | |
| Conce | eptualiz | the n | najor co | ompone | ents of a | a comp | uter inc | ludin | g CP | U, mei | mor | y, I/O | and s | storag | e, | |
| unders | tand th | e uses t | for cacł | ne mem | nory, | | | | | | | | | | | |
| • under | stand a | tand a wide variety of memory technologies both internal and external, | | | | | | | | | | | | | | |
| • under | stand the role of the operating system in interfacing wit | | | | | | | | | e comp | uter | hard | ware | | | |
| COURSE OU | JTCON | MES (O | Cos): St | tudents | will be | e able to |) | | | | | | | | | |
| CO1 | Under | rstand t | he theo | retical | basics | of cent | ral proc | essin | g uni | t[L2] | | | | | | |
| CO2 | Under | rstand t | he basi | c opera | tions of | f CPU[| L2] | | | | | | | | | |
| CO3 | apply | the know | owledge | e gaine | d and E | Designa | centra | l proc | essin | g unit | [L3] | | | | | |
| CO4 | apply | the cor | ncepts o | of mem | ory org | anizati | on and | I/O p | roces | sing u | nit[I | L2] | | | | |
| CO5 | Analy | ze the | executi | on of s | imple i | nstructi | on[L4] | | | | | | | | | |
| Mapping of (| Course | Outco | mes wi | th Pro | gram (| Outcon | nes (Po | s) | | | | | | | | |
| Cos/Pos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO | 8 | PO9 | P | 010 | PO1 | 1 P | D12 | |
| CO1 | 3 | 2 | 2 | | | | | | | 1 | | | 1 | | 1 | |
| CO2 | 3 | 3 | 3 | | | | | | | 1 | | | 1 | | 1 | |
| CO3 | 3 | 2 | 2 | 1 | | | | 1 | 1 | | - | | 1 | _ | 1 | |
| C04 | 3 | 2 | 3 | 1 | | | | 1 | L | 1 | | | 1 | | 1 | |
| 05 | 5 | 2 | 5 | 1 | | | | | L | 1 | | | 1 | | 1 | |
| Cos / PSOs | | PSO1 | | | PSO2 | | | PS | 503 | l | | | PS(|)4 | | |
| CO1 | | 3 | | | 1 | | | | | | | | 1 | _ | | |
| CO2 | | 3 | | | 2 | | | | 1 | | | | | | | |
| CO3 | | - | | | 3 | | | | 1 | | | | | | | |
| CO4 | | 2 | | | 2 | | | | | | | | 1 | | | |
| CO5 | <u> </u> | $\frac{2}{100}$ | <u> </u> | ·· 2 | $\frac{2}{11.1}$ | 2.14 | 1 | 1 т | | | | | 1 | | | |
| 3/2/1 Indicates | s Streng | gth Of (| Correla | tion, 3 | – High | , 2- Me | dium, | 1- L0 | W | | | | | | | |
| Category | Basic Science | Basic Science Engineering Engineering Science Program Core Program Core Program core Den Elective Inter Disciplinary | | | | | | Skill Component | Practical /Project | | | | | | | |
| | | | | V | | | | | | | | | | | | |

69 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
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| EBCS22006 | COMPUTER ORGANIZATION AND | Tu | 2 | 1/0 | 0/0 | 4 |
| | ARCHITECTURE | Тy | 3 | 1/0 | U/U | 4 |

UNIT I BASIC STRUCTURE OF COMPUTERS

Basic functional blocks of a computer: CPU, memory, input-output subsystems, control unit. Instruction set architecture of a CPU – registers, instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set. Case study – instruction sets of some common CPUs.

UNIT II ARITHMETIC AND LOGIC UNIT

Data representation: signed number representation, fixed and floatingpoint representations, character representation. Computer arithmetic – integer addition and subtraction, ripple carry adder, carry look-ahead adder, etc. multiplication – shift-and-add, Booth multiplier, carry save multiplier, etc. Division – non-restoring and restoring techniques, floating point arithmetic.

UNIT III PROCESSOR UNIT

Data path implementation-Control unit-hardwired control – micro programmed control, nano programming -Concepts of pipelining – Pipeline hazards

UNIT IV MEMORY SYSTEM

Memory hierarchy-Internal organization of RAM – ROM – Interleaved Memory-Cache and associative memories -Virtual memory – Memory organization and cache coherence issues

UNIT V INPUT/OUTPUT AND PERIPHERALS 12 Hrs Input-output subsystems, I/O transfers – program controlled, interrupt driven and DMA, privileged and non-privileged instructions, software interrupts and exceptions. Programs and processes – role of interrupts in process state transitions.

Total Hours: 60

TEXT BOOKS:

- John L. Hennessey and David A. Patterson, "Computer Architecture A Quantitative Approach", Morgan Kaufmann / Elsevier Publishers, Fouth Edition, 2012.
- 2. John Hayes (2012) ,(2007) digitized Computer Architecture and Organization, Tata McGraw Hill
- 3. Carl Hamacher, ZvonkoVranesic, SafwatZaky and NaraigManjikian, "Computer Organization and Embedded Systems", Sixth Edition, Tata McGraw Hill, 2012.

REFERENCE BOOKS:

1. Morris Mano (2009) Computer System Architecture,(3rd ed.),Pearson Education

12 Hrs

12 Hrs

12 Hrs

| 2022 Regulation | |
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| COURSE EBCC22 | CODE: ET1 | COURSI UNIVER UNDERS | E NAME SAL HU STANDI | : JMAN V NG HAI | VALUI RMON | ES: NY | | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|------------------|----------------------|----------------------------|----------------------------|---------------------------------|---------------|---|-----------------|-----------------------|------------------|------------|-----------------|----------------|
| | | Prerequi | site:Non | e, UHV1 | (Desi | rable) | | ETL | 1 | 0/0 | 2/0 | 2 |
| L:Lect | ureT :Tuto | rial SLr: S | upervise | dLearnir | ng P:Pr | oject | | | | | | |
| R:Res | earchC:Cre | ditsT/L/ET | L:Theor | y/Lab/Er | nbedde | ed Theo | ryand Lal | 0 | | | | |
| OBJEC | TIVES: | | | | | | | | | | | |
| The stu Huma | dents shoul | d be made | to During | the In | ductio | n Proc | tram sti | idents wo | uld ge | t an ini | tial evo | osure to |
| human | values t | nrough U | niversal | Huma | n Val | lues – | I. This | exposure | is to | be aug | mented | by this |
| compu | lsory full s | semester f | oundatio | on cours | e. | | | | | | | |
| 1. Dev | velopment | of a holi | stic per | spective | e base | d on s | elf- expl | oration ab | out th | emselve | S | |
| (hun | nan being) | , family, s | ociety a | nd natu | re/exis | stence. | | | | | | |
| 2. Un | derstandir | ng (or dev | eloping | clarity |) of th | ne harn | nony in | the human | being | g, family | , society | 7 |
| and | nature/exis | stence | 1 0 | | | | J | | | , , | | |
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| 5. 5ti | valanman | t of comm | itmont | nd cour | naa ta | aat | | | | | | |
| 4. De | velopmen | | intiment a | | age to |) act. | | | | | | |
| COURS | | $\frac{AES(Cos)}{16}$ | The stuc | lents will | be abl | eto | •1 •1•7 • | 1.0 | | | | |
| | Relate | self and su | rroundin | gs and 10 | lentify | respons | 1bility in | | • 1 | . 11 | 1 | |
| CO2 | Associ | ate human | relations | $\frac{1}{1}$ and $\frac{1}{2}$ | | to hand | e problen | ns and prov | ide sus | tainable s | olutions | |
| C03 | Develo | | bility and | 1 engage | in refi | $\frac{1}{2}$ | na indepe | endent I nin | King | | | |
| C04 | A pply | | u toward | s unders | | g of vall | les lifo | | | | | |
| CO3 Manning | Appry | | with Prog | romOut | comes | $\frac{\mathbf{PO}_{\mathbf{s}}}{\mathbf{PO}_{\mathbf{s}}}$ | lite | | | | | |
| COs/POs | s PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| C01 | | 101 | 1 | 1 | 100 | 2 | 1 | 100 | 1 | 1 | 1011 | 2 |
| CO2 | | | 2 | 2 | 1 | 2 | 3 | 1 | | 2 | | 2 |
| CO3 | | | 1 | 1 | 1 | 2 | | | 1 | 2 | | 3 |
| <u>CO4</u> | | | 2 | | 1 | 1 | 1 | 3 | 1 | 1 | | 3 |
| | PSOs | | | | | | 1 | 2 | | | DS | $\frac{3}{04}$ |
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| Category | Basic Scienc e | Engine ering Scienc | Human ities | and social Science | Program | Progra m | electiv Open | Electiv e Inter | Discipli nary | | Skill Compon | Pra ctic |
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71 B.Tech – Cyber Forensics and Information Security -2022 Regulation
| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|---|------------------|---|--------|-----|---|
| EBCC22ET1 | UNIVERSAL HUMAN VALUES : UNDERSTANDING HARMONY | ETL | 1 | 0/0 | 2/0 | 2 |

UNIT I Introduction - Need, Basic Guidelines, Content and Process for Value Education 9 hrs

Purpose and motivation for the course, recapitulation from Universal Human Values-I -Self-Explorationwhat -Its content is it? and process; 'Natural Acceptance'andExperientialValidation-astheprocessforself-exploration. Continuous Happiness and Prosperity-A look at basic Human Aspirations - Right understanding, Relationship and Physical Facilitythe basic requirements for fulfilment of a spirations of every human being with their correct priority-UnderstandingHappinessandProsperitycorrectly-Acriticalappraisalof the current scenario-Method to fulfil the above human aspirations: understanding and living in harmony at various levels.

Include practice sessions to discuss natural acceptance in human being as the innate acceptance forliving with responsibility (living in relationship, harmony and co-existence) rather than asarbitrariness in choice based on liking-disliking.

UNIT II Understanding Harmony in the Human Being - Harmony in Myself! 9 hrs

Understanding human being as a co-existence of the sentient 'I' and the material 'Body'.- Understanding the needs of Self ('I') and 'Body' - happiness and physical facility. - Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer). - Understanding the characteristics and activities of 'I' and harmony in 'I' - Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physicalneeds, meaning of Prosperity in detail - Programs to ensureSanyam and Health.

Include practice sessions to discuss the role others have played in making material goods available tome. Identifying from one's own life. Differentiate between prosperity and accumulation. Discussprogram for ensuring health vs dealing with disease

UNIT IIIUnderstanding Harmony in the Family and Society- Harmony in Human-HumanRelationship

9 hrs

Understanding values in human-human relationship; meaning of Justice (nine universal values inrelationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect asthe foundational values of relationship - Understanding the meaning of Trust; Difference between intention and competence - Understanding the meaning of Respect, Difference between respect and differentiation; the othersalient values in relationship - Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals - Visualizing a universal harmonious order in society- Undivided Society, Universal Order- fromfamily to world family. Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacherstudent relationship, goal of education etc. Gratitude as a universal valuein relationship. Discuss with scenarios. Elicit examples from students' lives.

UNIT IVUnderstanding Harmony in the Nature and Existence - Whole existence as Coexistence

9 hrs

Understanding the harmony in the Nature - Interconnectedness and mutual fulfilment among the four orders of nature- recyclability and self-regulationin nature -Understanding Existence as Co-existence of mutually interacting units in all-pervasive space - Holistic perception of harmony at all levels of existence - Include practice

sessions to discuss human being as cause of imbalance in nature (film "Home" canbe used), pollution, depletion of resources and role of technology etc.

UNIT VImplications of the above Holistic Understanding of Harmony on Professional Ethics

9 hrs

Natural acceptance of human values - Definitiveness of Ethical Human Conduct -Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order - Competence in professional ethics: a. Ability to utilize the professional competence foraugmenting universal human order b. Ability to identify the scope and characteristics of peoplefriendlyand eco-friendly production systems, c. Ability to identify and develop appropriatetechnologies and management patterns for above production systems. - Case studies of typical holistic technologies, management models and production systems - Strategy for transition from the present state to Universal Human Order: ((a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers, (b)Atthe level of society: as mutually enriching institutions and organizations - Sum up .Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions e.g.To discuss the conduct as an engineer or scientist etc.

Text Book

Total Hours:45

1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010

Reference Books

- 1. Jeevan Vidya: EkParichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.
- 2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
- 3. The Story of Stuff (Book).
- 4. The Story of My Experiments with Truth by Mohandas Karamchand Gandhi.
- 5. Small is Beautiful E. F Schumacher.

| Subject Code: | COU | RSE N | JAME | | ETWO | DUIN | CIAD | Ту | /Lb/ETI | LL | T/S.Lr | P/R | С |
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| Tv/I b/ETL · Th | neorv/L | ab/Emb | edded ' | Theory | and La | 5 I . I I h | oject N | . Resear | II C. CIC | uns | | | |
| OBJECTIVES | : | | Jeadea | meory | und Eu | 0 | | | | | | | |
| The fundamenta | als of ne | etworki | ng lab y | will assi | ist a stu | dent in | getting | firsthand | knowled | ge on: | | | |
| • Understa | nding t | he esta | ablishm | ent of | differe | nt topo | ologies. | cabling. | domain | controll | er and c | ient se | rver |
| architec | ture | | | | | | 0, | 6, | | | | | |
| • Analyzin | g logs a | and rout | ing pro | tocols | | | | | | | | | |
| • Installing | and Co | onfiguri | ng netv | vork sw | vitch | | | | | | | | |
| COURSE OUT | COM | ES (CC | (3) | - 5) | | | | | | | | | |
| CO1 | Under | stand t | he diffe | rent typ | bes of to | pologi | es | | | | | | |
| CO2 | Const | ruct a s | imple n | etwork | and sul | bnet it | | | | | | | |
| CO3 | Demo | nstrate | the inst | allatior | and co | onfigura | ation of | network o | levices. | | | | |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (COs | s) with | Progra | ım Out | comes | (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | O3PO4PO5PO6PO7 | | | | | PO9 | PO10 | PO11 | PO | 12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | | | 1 | | 3 |] | |
| CO2 | 2 | 1 | 3 | 3 | | 3 | | | | | 3 | 2 | 2 |
| CO3 | 3 | 3 | 3 | 3 | | 3 | | 3 | 1 | | | | 3 |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (COs | s) with | Progra | m Spe | cific Ou | itcomes (| PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | PSO ₂ | | |
| <u>CO1</u> | | 3 | | | | | | | | | 1 | | |
| CO2 | | 3 | | | | | | | | | | | |
| <u>CO3</u> | | 3 | | | | | | | | | 3 | | |
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| 3/2/1 indicates | Streng | th of C | orrelat | 10n 3 | - Hign, | 2- Me | aium, I | -LOW | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22L01 | FUNDAMENTALS OF NETWORKING LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Understanding different types of topologies e.g.: Bus, Star and Ring topologies.
- 2. LAN Installation and Configuration
- 3. IP subnet addressing Network & Transport Layers
- 4. Setting up of a simple network and subnet it.
- 5. TCP/IP Connectivity
- 6. Analyzing Logs, routing protocols.
- 7. Encapsulation & Multiplexing
- 8. HTTP interaction using Telnet
- 9. Understanding Client Server Architecture
- 10. Understanding the concept of workgroup.
- 11. Understanding and configuring file sharing between computers.
- 12. Installing and configuring network switch.

| Subject Code: EBCE22L02 | | RSE NA | AME : D DIGI | TAL F | OREN | SICS I | AB | Ty/Lb/ | ETL | L T/ | S.Lr | P/R | С |
|---|--|---|---|---|---|--------------------------------|---|----------------------------------|-------------|--------|------|-----|------|
| | Prerec | uisite: | NIL | | | | | Lb | | 0 | 0/0 | 3/0 | 1 |
| L : Lecture T : 7 Ty/Lb/ETL : Th | Futorial neory/L | S.Lr ab/Emb | : Super | vised L Theory | earning | g P:Pı b | oject R | : Resear | ch C: C | redits | | | |
| OBJECTIVES This practical la • To unders • Acquisitio • Email inv | : Iborator stand V on of da vestigat | ry session farious of ata, sean ion alor | $\frac{1}{1000}$ on will digital first, set $\frac{1}{1000}$ on $\frac{1}{1000}$ on $\frac{1}{10000}$ | help stu forensic zure and recover | idents v tools d reviev ring ima | vork on v proce age file | :: ss along s from v | g with convarious sc | ntrols; a | nd | | | |
| | Decor | ur dala | $\frac{1}{100}$ | | | | | | | | | | |
| | Learn | to perf | orm for | ensic a | nalveie | using t | nols | | | | | | |
| CO2 | Learn | to acqu | uire and | analys | e mobil | e data | 5015 | | | | | | |
| CO4 | Lean | to acqu | ine and | anarys | | e uata | | | | | | | |
| C05 | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcome | es (COs | s) with | Progra | m Out | comes (| (POs) | | • | • | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO | 11 | PO12 |
| CO1 | 3 | | | | | | | | | | | | |
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| CO4 | | | | | | | | | | | | | |
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| Mapping of Co | urse O | utcome | es (COs | s) with | Progra | m Spe | cific Ou | tcomes (| PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | PS | 04 | |
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| CO3 | | 3 | | | 3 | | | 3 | | | 3 | ; | |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| 3/2/1 indicates | Streng | th of C | orrelat | ion 3 | - High, | 2- Me | dium, 1 | -Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22L02 | ADVANCED DIGITAL FORENSICS LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Deleted File recovery in FAT file system
- 2. Mobile data acquisition using "SUNTOKU_0.5".
- 3. Network forensics analysis using "Xplico".
- 4. Perform digital forensics incident response using "CAIN-8".
- 5. Perform digital forensics data analysis using "Autopsy".
- 6. Open source forensics tool analysis using "DEFT".
- 7. CRD Analysis
- 8. SIM card analysis data acquisition using SIM card reader.
- 9. Forensic image analysis using SANS SIFT
- 10. Tempering of digital evidence using hxd
- 11. Mobile data acquisition and analysis using Mobile Check
- 12. Network pcap analysis using NeSA2.0

| COURSE | CC | OURSE | NAM | IE: | | | | Tv/I | . b / | | T/S | | | | |
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| EBEC22IL1 | | DIG | ITAL | SYS'I | TEMS | LAB | | | | | | | | | |
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| | $\frac{\text{IE}:\Pi}{\text{EC}}$ | neory/La | ad/Em | ibeaae | a ine | ory an | d Lab | | | | | | | | |
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| Thestudents | s snou | | | tome e | and co | dae an | d its c | onvore | ione | | | | | | |
| • To in | ntrodu | ce Bool | on sys | gebra a | and its | annlia | a its c | in dig | ital cu | ustem | 2 | | | | |
| • To in | ntrodu | ce the de | esion | of vari | | mbin | ational | dioital | circi | its us | , ing le | oic o | ates | | |
| • To b | ring of | ut the ar | alvsis | s for sv | vnchro | nous a | and asy | vnchroi | nous | Seque | ntial o | circuit | ts | | |
| COURSE C | OUTC | OMES | (COs |):Stud | ents w | ill be a | ble to | | | - 1 | | | | | |
| CO1 | | Acquire | d knov | wledge | abou | t numl | ber sys | stems a | nd its | conv | ersior | IS | | | |
| CO2 | 1 | Acquire | d knov | wledge | e abou | t boole | ean alg | gebra | | | | | | | |
| CO3 | 1 | Ability t | o ider | ntify, a | nalyze | e& des | ign co | mbinat | tional | circu | its | | | | |
| CO4 | 1 | Ability t | o ider | ntify & | analyz | ze syn | chrono | ous & a | synch | nronou | is circ | cuits | | | |
| | | | | | | | | | | | | | | | |
| Mapping of | Cour | se Outo | comes | with] | Progr | am O | utcom | es (PO | s) | | | | | | |
| COs/POs | PO1 | PO2 | POS | 8 PO |)4 PO5 I | | PO6 | PO7 PO8 PO | |)9 | PO10 | P | D11 | PO12 | |
| CO1 | 3 | 1 | 2 | 1 | | 1 | 1 | 1 | 1 | 1 | | 2 | | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 |
| CO3 | 2 | 2 | 3 | 1 | | 1 | 2 | 1 | 1 | 2 | 2 | 2 | | 1 | 1 |
| CO4 | 2 | 2 | 3 | 1 | | 1 | 2 | 1 | 1 | 2 | 2 | 2 | | 1 | 1 |
| COs/ | PS | 501 | F | PSO2 | | PSO | 3 | PS | 04 | | | | | | |
| PSUs | | 1 | | 2 | | 1 | | 1 | 1 | | | | | | |
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| CO4 | | 3 | | 2 | | 1 | | 1 | 1 | | | | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
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| EBEC22IL1 | DIGITAL SYSTEMS LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Verification of Truth tables of Logic Gates
- 2. Implementation of Boolean function
- 3. Implementation of Adders&Subtractors
- 4. Implementation of Multiplexers
- 5. Implementation of Demultiplexers
- 6. Implementation of Encoder
- 7. Implementation of Decoders
- 8. Verification of Flip Flops
- 9. Implementation of SISO, SIPO,
- 10. Implementation of PISO, PIPO
- 11. Implementation of Johnson counter
- 12. Study of Modulo-N Counter

| $ \begin{array}{ c c c c c c } \hline CODE \\ EBCS22ET3 \\ \hline PBCS22ET3 \\ \hline PHC = OBJECT ORIENTED PROGRAMMING WITH \\ C++ \\ \hline Prerequisite: C PROGRAMMING AND MS OFFICE \\ \hline PODE \\ \hline POOLS \\ \hline POOLS$ | | | | | | |
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| $\begin{tabular}{ c c c c c c } Precequisite: C PROGRAMMING AND MS OFFICE TOOLS IS COLLET SUPERVISE Learning P: Project R: Research C: Credits Ty/Lb/ETL/IE: Theory/Lab/Embedded Theory and Lab IS Concepts IS Ty/Lb/ETL/IE: Theory/Lab/Embedded Theory and Lab IS Concepts IS IS COLLET TO THE ADDITIONAL IS CONCEPTIONES IS THE students should be made to IS Understand the basic concepts and techniques which form the object oriented programming paradigm. If the applications using File concepts IS IS COURSE OUTCOMES (COS): Students will be able to IS COURSE OUTCOMES (COS): Students will be able to IS COURSE OUTCOMES (COS): Students will be able to IS COURSE OUTCOMES (COS): Students will be able to Imparting skills on various kinds of overloading and inheritance concepts [L3] IS CO4 Is generic classes with C++ templates [L6] Imparting skills on various kinds of overloading and inheritance concepts [L3] IS CO5 Is Develop an Application with C++ templates [L6] IS COS POSIDE TO EVERONE WITH Program Outcomes (POS) IS CO3 (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2$ | | | | | | |
| L : Lecture T : Tutorial S.Lr : Supervised Learning P : Project R : Research C : Credits Ty/Lb/ETL/IE : Theory/Lab/Embedded Theory and Lab OBJECTIVES: The students should be made to • Understand the basic concepts and techniques which form the object oriented programming paradigm. • Remember the operator concepts • Design the applications using File concepts • Design the applications using File concepts • Design the applications using File concepts • OURSE OUTCOMES (COs): Students will be able to CO1 Understanding the Basic Concepts of object oriented programming. [L2] CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ techniques[L6] CO5 Develop an Application with C++ techniques[L6] CO5 Develop an Application with C++ techniques[L6] CO5 Develop an Application with C++ techniques[L6] CO3 3 3 1 2 2 2 2 2 1 2 1 1 1 2 1 1 1 CO3 3 2 2 2 2 2 1 2 2 1 2 1 2 1 1 CO4 3 2 2 2 1 2 2 1 2 1 2 1 2 CO5 3 3 3 2 1 1 2 2 2 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 1 2 CO5 3 3 3 2 1 1 1 2 CO5 3 3 3 2 1 1 1 2 CO5 4 1 3 1 1 CO3 1 1 3 CO5 4 1 3 1 CO5 4 1 3 CO5 4 1 3 CO5 4 1 3 CO5 4 1 3 CO5 7 1 4 CO5 7 1 4 CO | | | | | | |
| Ty/Lb/ETL/IE : Theory/Lab/Embedded Theory and Lab OBJECTIVES: The students should be made to Understand the basic concepts and techniques which form the object oriented programming paradigm. Remember the operator concepts Design the applications using File concepts OBJECTIVES: COURSE OUTCOMES (COs): Students will be able to CO1 Understanding the Basic Concepts of object oriented programming. [L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ templates[L6] CO1 PO2 PO3 PO4 PO5 PO8 PO9 PO10 PO11 PO12 CO3 1 2 2 2 1 1 1 1 1 CO4 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 <td colspan<="" td=""></td> | | | | | | |
| OBJECTIVES: The students should be made to Understand the basic concepts and techniques which form the object oriented programming paradigm. Remember the operator concepts Design the applications using File concepts COURSE OUTCOMES (COS): Students will be able to CO1 Understanding the Basic Concepts of object oriented programming. [L2] CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] Co5 Develop an Application with C++ Techniques[L6] CO3 CO3 Object PO3 PO4 PO5 PO6 PO1 PO1 PO1 PO2 PO3 PO4 PO5 PO6 PO7 <t< td=""></t<> | | | | | | |
| The students should be made to • Understand the basic concepts and techniques which form the object oriented programming paradigm. • Remember the operator concepts • Design the applications using File concepts COURSE OUTCOMES (COs): Students will be able to CO1 Understanding the Basic Concepts of object oriented programming. [L2] CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ Techniques[L6] CO5 Develop | | | | | | |
| Understand the basic concepts and techniques which form the object oriented programming paradigm. Remember the operator concepts Design the applications using File concepts COURSE OUTCOMES (COs): Students will be able to CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ Techniques[L6] CO5 Develop an Application with C++ Techniques[L6] CO5 Develop an Application with C++ Techniques[L6] CO5 CO4 Design 3 1 2 2 2 1 2 1 2 1 2 1 2 1 2 2 3 3 2 2 2 3 3 2 2 3 3 2 3 4 2 1 1 2 1 1 2 1 2 1 2 1 2 2 3 3 3 3 4 2 4 4 | | | | | | |
| Paradigin. • Remember the operator concepts • Design the applications using File concepts COURSE OUTCOMES (COs): Students will be able to CO1 Understanding the Basic Concepts of object oriented programming. [L2] CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ techniques[L6] Mapping of Course Outcomes with Program Outcomes (POs) CO5 PO1 PO1 PO1 PO12 CO5 PO2 PO3 PO6 PO7 PO8 PO9 PO10 PO12 CO1 3 1 1 1 Objection of the PO12 PO8 PO9 PO10 PO11 PO12 COs/POS PO2 | | | | | | |
| Venember the operator concepts Design the applications using File concepts COURSE OUTCOMES (COs): Students will be able to CO1 Understanding the Basic Concepts of object oriented programming. [L2] CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ Techniques[L6] CO5 Develop an Application with C++ Techniques[L6] CO5 Develop an Application with C++ Techniques[L6] CO1 3 3 1 2 2 2 2 1 1 2 2 1 1 1 CO2 3 2 2 2 2 1 1 2 2 1 1 1 CO3 3 3 2 2 2 1 1 2 2 1 1 1 2 CO4 3 3 2 2 1 1 1 2 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 1 1 CO5 3 3 3 2 1 1 1 1 1 1 1 1 1 CO5 3 3 3 2 1 1 1 1 1 1 1 1 1 1 CO5 3 3 3 2 1 1 1 1 1 1 1 1 1 1 CO5 3 3 3 2 1 1 1 1 1 1 1 1 1 1 CO5 3 3 3 2 1 1 1 1 1 1 1 1 1 1 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 2 1 1 1 1 2 CO5 3 3 3 3 2 1 1 1 1 2 CO5 3 3 3 3 2 1 1 1 1 1 1 CO5 3 3 3 3 2 1 1 1 1 1 < | | | | | | |
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| CO1Understanding the Basic Concepts of object oriented programming. [L2]CO2Getting Knowledge about Classes and Objects[L2]CO3Imparting skills on various kinds of overloading and inheritance concepts[L3]CO4Design generic classes with C++ templates[L6]CO5Develop an Application with C++ Techniques[L6]Mapping of Course Outcomes with Program Outcomes (POS)PO10PO11PO12CO3331222112111CO33312221121111CO433122211211111CO43312221121111CO4332222112112CO33322221121211CO33321121211212CO43221121211212CO43211211111111PSOsP | | | | | | |
| CO2 Getting Knowledge about Classes and Objects[L2] CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ Techniques[L6] Mapping of Course Outcomes with Program Outcomes (POS) CO4 PO1 PO1 PO1 PO11 PO12 CO5 Develop an Application with C++ Techniques[L6] Mapping of Course Outcomes with Program Outcomes (POS) CO1 3 1 1 PO1 PO11 PO12 CO5 PO4 PO5 PO6 PO7 PO8 PO11 PO12 CO1 3 2 2 2 2 2 PO11 PO12 PO1 PO11 PO12 CO3 3 2 <th< td=""></th<> | | | | | | |
| CO3 Imparting skills on various kinds of overloading and inheritance concepts[L3] CO4 Design generic classes with C++ templates[L6] CO5 Develop an Application with C++ Techniques[L6] Mapping of Course Outcomes with Program Outcomes (POs) CO5 PO1 PO2 PO3 PO6 PO7 PO8 PO10 PO11 PO12 COs/POS PO1 PO2 PO3 PO6 PO7 PO8 PO10 PO11 PO12 COs/POS PO1 2 2 2 CO1 3 3 2 2 1 1 PO10 PO11 PO11 PO12 PO11 PO12 PO11 PO11 PO12 CO1 PO1 PO11 PO12 CO1 1 | | | | | | |
| CO4 Design generic classes with C++ templates[L6] Mapping of Course ULCOURS WITH C++ Techniques[L6] COs/POs PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 CO1 3 3 1 2 2 1 1 2 1 10 CO2 3 2 2 2 2 1 1 2 1 1 CO3 3 2 2 2 2 1 1 2 1 1 CO3 3 2 2 2 1 1 2 1 2 CO4 3 2 2 1 2 1 1 2 1 2 CO4 3 2 1 1 2 1 2 1 2 1 2 1 1 2 CO4 3 2 1 1 2 1 1 1 1 1 CO5 | | | | | | |
| Overlop an Application with C++ Techniques[L6] Mapping of Course Outcourse with Program Outcourse (POs) PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 CO1 3 3 1 2 2 2 1 1 2 1 1 CO2 3 2 2 2 2 1 1 2 1 1 CO3 3 3 2 2 2 1 1 2 1 1 CO3 3 3 2 2 1 1 1 2 1 1 CO3 3 3 2 2 1 1 1 2 1 2 CO4 3 2 2 1 1 2 1 2 1 1 1 CO4 3 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | | | | |
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| COs / PSOs PSO1 PSO2 PSO3 PSO4 CO1 1 3 1 1 CO2 1 3 1 1 CO3 2 3 2 1 CO4 2 3 1 2 CO5 1 3 1 1 3/2/1 Indicates Strength Of Correlation 3 – High 2- Medium 1- Low | | | | | | |
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| CO3 2 3 2 1 CO4 2 3 1 2 CO5 1 3 1 1 3/2/1 Indicates Strength Of Correlation 3 – High 2- Medium 1- Low 1 1 | | | | | | |
| CO4 2 3 1 2 CO5 1 3 1 1 3/2/1 Indicates Strength Of Correlation 3 – High 2- Medium 1- Low 1 0 | | | | | | |
| 3/2/1 Indicates Strength Of Correlation 3 - High 2- Medium 1- Low | | | | | | |
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80 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE SUB CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|--------------------|--|------------------|---|--------|-----|---|
| EBCS22ET3 | OBJECT ORIENTED PROGRAMMING WITH C++ | ETL | 2 | 0/0 | 2/0 | 3 |

UNIT I

BASIC CONCEPTS OF OOPS: Programming methodologies - Object Oriented Concepts -Features & Applications of OOPS-Benefits of OOPS-Structure of C++ - C++ Tokens-Operators in C++ - Data types- Control statements – Arrays UNIT II

Class & Objects: Classes and Objects-Abstraction-Encapsulation-Definition - Data members -Function members - Access Modifiers- Constructors - Types of Constructors- Destructors -Static members - Inline functions- Arrays of Objects **UNIT III**

INHERITANCE AND POLYMORPHISM: Overloading Operators - Rules for Operator overloading, - Function Overloading- Overloading Unary& Binary Operators - Friend Function -Virtual functions - Abstract Classes -Inheritance –Definition –Single Inheritance-Multiple Inheritance-Hierarchical Inheritance-Single Inheritance-Hybrid Inheritance. UNIT IV

TEMPLATES & EXCEPTION HANDLING: Class Templates - Function Templates -Overloading Template Functions-Basics of Exception handling –Try-Catch-Throw – Rethrowing an Exception, Exception specifications, Processing Unexpected Exceptions-Error handling during File operations, Formatted I/O.

UNIT V

Files and Streams: Creating a Sequential Access File- Reading Data from A Sequential Access File, Updating Sequential Access Files-Random Access Files-Creating A Random Access File-Writing Data Randomly To a Random Access File- Reading Data Sequentially from a Random Access File. Stream Input/Output Classes and Objects, Stream Output, Stream Input, Unformatted I/O (with read and write), Stream Manipulators, Stream Format States, Stream Error States.

Total Hours: 60

12 Hrs

12 Hrs

12 Hrs

12 Hrs

12 Hrs

TEXT BOOKS:

1. Stanley, B. Lippman (2012) The C++ Primer, (5th ed.), Addison Wesley 2.C++ How to Program by H M Deitel and P J Deitel, 1998, Prentice Hall **REFERENCES:**

- 1. Stroustrup, B (2004) The C++ Programming Language, (3 rd ed.), Pearson Education
- 2. Balagurusamy, E (2008) Object Oriented Programming with C++, (4th ed.), Tata Mcgraw Hill

IV SEMESTER

| COURSE CODE | COUI STAT | RSE NA FISTIC | ME : CS FOF | R COM | IPUTE | R | | Ty/ | Lb/ | T | T/S | Ir | D/D | C |
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| L : Lecture T : | Tutoria | al S.I | r : Sup | ervised | l Learn | ing P: | Project | R : 1 | Researc | h C: | Cred | its | | |
| Ty/Lb/ETL/IE | : Theo | ry/Lab/ | Embed | lded Th | eory a | nd Lab | | | | | | | | |
| OBJECTIVE | S : | | | | | | | | | | | | | |
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| • To und | erstand | the Ba | sic con | cepts in | n Frequ | iency d | istributi | ion, M | leasures | s of C | Centra | al Ter | denc | У |
| and Re | lative N | Aeasure | $\frac{1}{2}$ es of D | Ispersic | n. | Б | | | | | 1.0 | | | |
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| COURSE OU | TCOM | IES (C | Os): S | tudents | will be | able to | | | | | | | | |
| CO1 | To un | derstar | d the E | Basic co | oncepts | in Stat | istics | | | | | | | |
| CO2 | To un | derstar | d the E | Basic co | oncepts | in Prol | bability | | | | | | | |
| CO3 | To un | derstar | d the E | Basic co | oncepts | in Cor | relation | | | | | | | |
| CO4 | To un | derstar | d the E | Basic co | oncepts | in Prol | bability | distri | butions | | | | | |
| CO5 | To un | derstar | d the E | Basic co | oncepts | in San | npling tl | neory | | | | | | |
| Mapping of C | ourse | Outcor | nes wit | h Prog | gram O | utcom | es (POs | 5) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | 010 | PO1 | l PO |)12 |
| CO1 | 2 | 3 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | | 2 |
| CO2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | | 2 |
| CO3 | 2 | 2 | 1 | 3 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | | 3 |
| CO4 | 3 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | | 3 |
| CO5 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | | 2 |
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| COs / PSOs | | PSO1 | | | PSO2 | | | PSO 2 | 3 | | | PSC | 94 | |
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82

B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|--------------------------------------|------------------|---|--------|-----|---|
| EBMA22011 | STATISTICS FOR COMPUTER ENGINEERS | Ту | 3 | 1/0 | 0/0 | 4 |

Course Outcomes:

To understand the Basic concepts in Statistics

To understand the Basic concepts in Probability

To understand the Basic concepts in Correlation

To understand the Basic concepts in Probability distributions

To understand the Basic concepts in Sampling theory

UNIT I **BASICS OF STATISTICS**

Variables - Uni-variate Data - Frequency Distribution - Measures of Central Tendency - Mean -Median – Mode – Quartiles – Measures of Dispersion – The Range – Mean deviation - Quartile Deviation – Standard Deviation – Relative Measures of Dispersion – Coefficient of Variation – Ouartile Coefficient of Variation – Skewness and Kurtosis (Definition and Simple problems).

UNIT II PROBABILITY AND RANDOM VARIABLE

Axioms of Probability - Independent Events – Mutually exculsive Events – Conditional probability - Total probability - Baye's Theorem - Random variable - Probability mass function -Probability density function – Properties(Definition and simple problems).

UNIT III **CORRELATION & REGRESSION**

Bi-variate data – Applications of Correlation: Karl Pearson's Coefficient of Correlation – Rank Correlation: Spearman's Rank Correlation - Linear Regression. STANDARD DISTRIBUTIONS

UNIT IV

Binomial – Poisson – Geometric – Uniform – Exponential – Normal distributions.

UNIT V **TESTING OF HYPOTHESIS**

Tests of Significance – Null hypothesis – Alternative hypothesis – Critical points - Large Sample Tests – Mean proportions – Small Sample Tests – t, F, Chi-square Tests: Independence of Attributes, Goodness of Fit.

Total Hours: 60

12 hrs

12 hrs

12 hrs

12 hrs

12 hrs

Reference Books:

- 1) Veerarajan T., *Probability, Statistics and, Random Processes*, Tata McGraw Hill Publishing Co., (2008).
- 2) Singaravelu, Probability and Random Processes, Meenakshi Agency, (2017).
- **3**) Gupta S.C., Kapoor V.K., *Fundamentals of Mathematical Statistics*, S.Chand& Co., (2007).
- **4)** Richard Johnson A., *Miller & Freund's Probability and statistics for Engineers (9thed)*, Prentice Hall of India, (2016).

| Subject Code | | DCF N | AME . | | | | | | | | | | |
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| | Prere | quisite: | NIL | | | | | | Ту | 3 | 1/0 | 0/0 | 4 |
| L : Lecture 7 | : Tutoria | al S.L | r : Supe | rvised l | Learnin | g P:Pr | oject R | Resear | ch C: Cr | edits | | | |
| Ty/Lb/ETL : | Theory/I | Lab/Em | bedded | Theory | and La | ıb | - | | | | | | |
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| COURSE O | UTCOM | IES (CO | Os): (3) | 3- 5) | | | | | | | | | |
| CO1 Lea | rn to use | encrypt | tion tecl | hniques | to prev | ent data | from ge | tting int | the har | nds of u | nauthori | ized ag | gents |
| $CO2 \qquad Lea \\ -w$ | rn to use hether it | cryptog is at-res | graphy t at or in- | echnique motion. | ues to se | ecure th | e systems | s that ho | ld its mo | ost imp | ortant as | set – c | lata |
| CO3 Lea | rn variou | s hashii | ng techi | niques | | | | | | | | | |
| CO4 Eff | ciently in | npleme | nt secu | rity poli | cies to j | protect s | sensitive | data and | l critical | assets | | | |
| CO5 Sec and | ures Ema protect f | il from rom vir | spam n us and i | naterial, phishing | , detect | content | that is co | mplaint | with the | organi | zation p | olicies | 3 |
| Mapping of | Course (| Outcom | nes (CO | s) with | Progra | am Out | comes (F | POs) | | | | | |
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| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO | 12 |
| COs/POs CO1 | PO1 3 | PO2 3 | PO3 3 | PO4 3 | PO5 | PO6 3 | PO7 | PO8 | PO9 2 | PO10 | PO11 2 | PO | 12 2 |
| COs/POs CO1 CO2 | PO1 3 3 | PO2 3 3 | PO3 3 3 | PO4 3 3 | PO5 | PO6 3 3 | PO7 | PO8 | PO9 2 2 | PO10 | PO11 2 2 2 | PO | 12 2 2 |
| COs/POs CO1 CO2 CO3 | PO1 3 3 3 | PO2 3 3 3 3 | PO3 3 3 3 | PO4 3 3 1 | PO5 | PO6 3 3 3 | PO7 | PO8 | PO9 2 2 2 2 | PO10 | PO11 2 2 2 2 | PO | 12 2 2 |
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| COs/POs CO1 CO2 CO3 CO4 CO5 | PO1 3 3 3 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 | PO2 3 3 3 3 3 3 vtsor | PO3 3 3 3 3 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 | PO4 3 1 3 3 3 x) with | PO5 | PO6 3 3 3 3 3 3 3 | PO7 | PO8 | PO9 2 2 2 2 2 2 2 PSO 2 | PO10 | PO11 2 2 2 2 2 | PO | 12 2 2 2 2 |
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| COs/POs CO1 CO2 CO3 CO4 CO5 Mapping of COs / PSOs CO1 CO2 CO2 CO3 | PO1 3 3 3 3 3 Course | PO2 3 3 3 3 3 Dutcom PSO1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | PO3 3 3 3 3 as (CO | PO4 3 1 3 5 s) with | PO5 3 Progra PSO2 2 2 | PO6 3 3 3 3 3 am Spee | PO7 | PO8 3 comes (PSO3 | PO9 2 2 2 2 2 PSOs | PO10 | PO11 2 2 2 2 2 2 2 3 PSC 3 3 3 3 | PO 22 22 22 22 22 22 22 22 22 22 22 | 12 2 2 2 2 2 |
| COs/POs CO1 CO2 CO3 CO4 CO5 Mapping of COs / PSOs CO1 CO2 CO3 CO3 CO4 | PO1 3 3 3 3 3 Course | PO2 3 3 3 3 3 Dutcom PSO1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | PO3 3 3 3 3 3 es (CO | PO4 3 3 1 3 5 s) with | PO5 3 Progra PSO2 2 2 3 | PO6 3 3 3 3 3 3 am Spec | PO7 | PO8 3 comes (PSO3 | PO9 2 2 2 2 2 2 PSOs | PO10 | PO11 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 | PO | 12 2 2 2 2 |
| COs/POs CO1 CO2 CO3 CO4 CO5 Mapping of COs / PSOs CO1 CO2 CO3 CO3 CO4 CO5 | PO1 3 3 3 3 3 3 Course | PO2 3 3 3 3 3 Dutcom PSO1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | PO3 3 3 3 3 as (CO | PO4 3 3 1 3 5 s) with | PO5 3 Progra PSO2 2 3 3 | PO6 3 3 3 3 3 am Spec | PO7 | PO8 3 Comes (PSO3 | PO9 2 2 2 2 2 PSOs) | PO10 | PO11 2 2 2 2 2 2 PSC 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | PO 22 22 22 22 22 22 22 22 22 22 22 22 22 | 12 2 2 2 2 2 2 2 |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22004 | CRYPTOGRAPHY AND NETWORK SECURITY | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I – Introduction

Services, Mechanisms and attacks-the OSI security architecture-Network security model-Classical Encryption techniques (Symmetric cipher model, substitution techniques, transposition techniques, steganography.

UNIT II – Block Ciphers and Public Key Cryptography

Data Encryption Standard-Block cipher principles-block cipher modes of operation-Advanced Encryption, Standard (AES)-Triple DES-Blowfish-RC5 algorithm. Public key cryptography: Principles of public key, cryptosystems-The RSA algorithm-Key management – Diffie Hellman Key exchange-Elliptic curve arithmetic-Elliptic curve cryptography

UNIT III - Hash Functions and Digital Signatures

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC – MD5 – SHA – HMAC – CMAC – Digital signature and authentication protocols – DSS – EI Gamal – Schnorr

UNIT IV - Security Practice and System Security

Authentication applications – Kerberos – X.509 Authentication services – Internet Firewalls for Trusted System: Roles of Firewalls – Firewall related terminology- Types of Firewalls – Firewall designs – SET for E-Commerce Transactions. Intruder – Intrusion detection system – Virus and related threats – Countermeasures – Firewalls design principles – Trusted systems – Practical implementation of cryptography and security.

UNIT V - E-Mail, IP and Web Security

E-mail Security: Security Services for E-mail-attacks possible through E-mail – establishing keys privacyauthentication of the source-Message Integrity-Non-repudiation-Pretty Good Privacy-S/MIME. IPSecurity: Overview of IPSec – IP and IPv6-Authentication Header-Encapsulation Security Payload (ESP)-Internet Key Exchange (Phases of IKE, ISAKMP/IKE Encoding). Web Security: SSL/TLS Basic Protocolcomputing the keys- client authentication-PKI as deployed by SSLAttacks fixed in v3- Exportability-Encoding-Secure Electronic Transaction (SET).

TEXT BOOKS

- 1. William Stallings, "Cryptography and Network Security", 6thEdition, Pearson Education, March 2013. (UNIT I,II,III,IV).
- 2. Charlie Kaufman, Radia Perlman and Mike Speciner, "Network Security", Prentice Hall of India, 2002.(UNIT V).

REFERENCE BOOKS

- 1. AtulKahate, "Cryptography and Network Security", 6th Edition, Tata Mcgraw-Hill, 2003, ISBN: 0070494835, 9780070494831
- 2. BhushanTrivedi, Savita Gandhi, DhirenPandit, "Cryptography and Network Security", BPB Publications, 2021, ISBN: 9789389328660

86

12Hrs

12Hrs

Total Hours: 60

12Hrs

12Hrs

12Hrs

| | | | | | 2022 1 | eguian | on | | | | | | | |
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| Ty/Lb/ETL : Th | eory/La | ab/Emb | edded 7 | Theory | and Lal | 0 | - | | | | | | | |
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| OBJECTIVES | : | | | | | | | | | | | | | |
| Students would | learn: | | | | • , • | 1 | | | | | | | | |
| • the degree | e of exp | osure to | o exteri | hal and | interna | | S | | . d | | | | | |
| • the metho | bologies of assessing the appropriate defence systems ; and | | | | | | | | | | | | | |
| • the impor | portance of patch management | | | | | | | | | | | | | |
| COURSE OUT | COMES (COs) : (3- 5) | | | | | | | | | | | | | |
| CO1 | Define | e vulne | rability | analysi | s and p | enetrati | on testi | ng | | | | | | |
| CO2 | Descr | ibe hacl | king me | ethodol | ogy | | | | | | | | | |
| CO3 | Expla | in web | applica | tion and | d netwo | rk hack | ting | | | | | | | |
| CO4 | Descr | ibe pen | etration | testing | strateg | jies | | | | | | | | |
| CO5 | Parap | hrase re | port wr | iting ar | nd mitig | gations | | | | | | | | |
| Mapping of Co | urse O | utcome | es (COs |)with | Progra | m Out | comes (| (POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | 010 | PO | 11 P | 012 |
| CO1 | 3 | 3 | 3 | 3 | | 3 | | | | | 3 | | | 2 |
| CO2 | 3 | 3 | 3 | 3 | | 3 | | | | | | | | 2 |
| CO3 | 3 | 3 | 3 | 3 | | 3 | | | | | | | | |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | | | 3 | | 3 | 3 | | 2 |
| CO5 | 3 | | 3 | | | 3 | | | 3 | | 3 | 3 | | 1 |
| Mapping of Co | urse O | utcome | es (COs |) with | Progra | m Spec | cific Ou | tcome | s (PSOs) | - | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO | 3 | | | PS(| 04 | |
| CO1 | | 3 | | | 3 | | | | | | | 3 | | |
| CO2 | | 3 | | | 3 | | | | | | | 3 | | |
| CO3 | | 3 | | | 3 | | | | | | | 3 | | |
| CO4 | | 3 | | | 3 | | | | | | | 3 | | |
| CO5 | | 1 | | | | | | | | | | 3 | | |
| 3/2/1 indicates | Strengt | th of Co | orrelati | ion 3 | - High, | 2- Med | lium, 1 | -Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
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| Subject Code: | Subject Name | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
|---------------|---|-----------|---|--------|-----|---|
| EBCF22005 | VULNERABILITY ANALYSIS / PENETRATION TESTING | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Overview

Definition of VA & PT – Need & Benefits of VA & PT – Types of VA & PT – Application – Performance Analysis of VA& PT – Challenges & Limitations of VA & PT – Skillset Required – Ethics of VA & PT team

UNIT II - Introduction to Hacking Methodology

Hacking Methodology, Process of Malicious Hacking, Footprinting and Scanning: Footprinting, Scanning. Enumeration: Enumeration. System Hacking and Trojans: System Hacking, Trojans and Black Box Vs White Box Technology

UNIT III – Web and Network Hacking Vulnerability Assessment

SQL Injection, Hacking Wireless Networking, Viruses, Worms Denial of Service, Sniffers, Session Hijacking and Hacking Web Servers: Session Hijacking, Hacking Web Servers. Web Application Vulnerabilities and Web Techniques Based Password Cracking: Web Application Vulnerabilities, Web Based Password Cracking Techniques

UNIT IV – Penetration Testing

Pen Testing Strategies - Usefulness of Test Results – Assets Connection Testing – Security Risk Assessment – Manual vs. Automated Testing – Various Tools for PT

UNIT V – Reporting Writing and Mitigation

Introduction to Report Writing & Mitigation, requirements for low level reporting & high level reporting of Penetration testing results, Demonstration of vulnerabilities and Mitigation of issues identified including tracking

Total Hours: 45

TEXT BOOK:

1. Mark Dowd, John McDonald, Justin Schuh, "The Art of Software Security Assessment: Identifying and Preventing Software Vulnerabilities", Addison Wesley, 2006

REFERENCE BOOKS:

- 1. Georgia Weidman, "Penetration Testing: A Hands-On Introduction to Hacking", No Starch Press, 2014
- 2. Felicia M. Nicastro, "Security Patch Management", CRC Press, 2011
- 3. Stuart McClure, Joel Scambray, George Kurtz, "Hacking Exposed" 7th Edition, McGraw Hill, 2010
- 4. Patrick Engerbrestson, "Basic of Hacking and Penetration", 2010

9 Hrs

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| COURSE CODE: | COU DAT | RSE N ABAS | AME: E MAN | NAGE | MENT | SYST | EMS | Ty/Lb/ ETL/I | E L | T/S.Lr | P/R | С | |
|-----------------|--|---------------|-----------------|------------|-------------|------------|----------------------|--------------------------------|------------|------------|------------|---------|--|
| EBCS22003 | Prere | quisite | : DATA | STRU | CTURES | | | Ту | 3 | 0/0 | 0/0 | 3 | |
| L : Lecture T | : Tutor | ial S. | Lr : Su | pervise | d Lear | ning P | : Proje | ct R : R | esearch | C: Credi | its | | |
| T/L/ETL : The | eory/La | ab/Emb | edded | Theory | and La | ab | | | | | | | |
| OBJECTIVE: | | 1 | | | | | | | | | | | |
| The students sh | ould be | e made | to | | | | | | | | | | |
| • To underst | nderstand the different issues involved in the design and implementation of a database system. | | | | | | | | | | | | |
| • To study the | dy the physical and logical database designs, database modeling, relational, hierarchical, and | | | | | | | | | | | | |
| network m | nodels. | | | | | | | | | | | | |
| To develop | p an un | derstar | iding of | f essen | tial DB | MS con | ncepts | such as: | databas | se securit | y, integri | ty, and | |
| concurrent | concurrency. | | | | | | | | | | | | |
| COURSE OU | JTCON | MES (O | C Os): S | Student | s will t | be able | to | | | | | | |
| CO1 | Under | stand t | he fund | lament | al conc | epts an | d techn | iques of | DBMS | S[L2] | | | |
| CO2 | Apply | indexi | ng and | hashir | ng in da | tabase | implen | nentation | [L3] | | | | |
| CO3 | Analy | ze rout | ine req | uisite f | or main | ntaining | g and q | uerying | databas | es and ne | ed for so | orting | |
| | and join operations in databases[L4] | | | | | | | | | | | | |
| CO4 | Unde | rstand | the imp | ortanc | e of tra | nsactio | n mana | gement, | concu | rrency co | ntrol and | | |
| | recove | ery syst | tem in o | databas | ses[L2] | | | 0 / | | 2 | | | |
| CO5 | Apply | v advan | ced rep | resenta | ations c | f datab | ases su | ited for 1 | real-tin | ne applica | tions[L3 | 6] | |
| Mapping of C | Course | Outco | mes wi | ith Pro | gram (| Outcon | nes (PC | Ds) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | |
| CO1 | 3 | 2 | 2 | 1 | | | | 2 | 2 | 2 | | 2 | |
| CO2 | 3 | 2 | 3 | 1 | 1 | | | 2 | 2 | 2 | 1 | 3 | |
| CO3 | 2 | 3 | 3 | 1 | | | | 1 | 3 | 3 | 1 | 3 | |
| <u>CO4</u> | 2 | 3 | 3 | 1 | 1 | 1 | | 2 | 3 | 3 | 1 | 3 | |
| CO5 | 3 | 3 | 3 | 1 | | I | | 3 | 3 | 2 | | 3 | |
| COS/PSOS | | 2 | | | <u>PSO2</u> | | | PS03 | | | <u>1</u> | | |
| CO1 | | $\frac{2}{2}$ | | | 1 | | | | | | 1 | | |
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| CO4 | | 2 | | | 1 | | | 2 | | | 1 | | |
| CO5 | | 2 | | | 1 | | | 2 | | | 1 | | |
| 3/2/1 Indicates | dicates Strength Of Correlation, 3 – High, 2- Medium, 1- Low | | | | | | | | | | | | |
| Category | Basic Basic Science Basic Science Basic Basic Basic Basic Basic Basic Basic Basic Basic Program Copen Basic Basic Basic Basic Science Basic Science Basic Science Basic Science Basic Science Basic Basic Program Basic Science Basic Science Basic Science Basic Science Basic Basi | | | | | | Inter Disciplinar | Skill Comnonen Draotical | | | | | |

89 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/ S.Lr | P/R | С |
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| EBCS22003 | DATABASE MANAGEMENT | T- | 2 | 0/0 | 0/0 | 2 |
| | SYSTEMS | Тy | 3 | U/U | 0/0 | 3 |

UNIT I FUNDAMENTALS OF DATABASE

9 Hrs

Introduction - Purpose of database systems – Data Abstraction -Data models – Instances and schemas – Data Independence – DDL – DML – Database user – ER model – Entity sets- keys – ER diagram – relational model – structure – relational algebra- relational calculus- views **UNIT II SQL, INDEXING & HASHING**

9 Hrs

SQL - normalization – normalization using functional – Multivalued join dependence - file transaction – data dictionary – indexing and hashing basic concepts and B+ tree Indices - static and dynamic hash functions

UNIT III QUERY PROCESSING AND TRANSACTIONS

9 Hrs

Overview - Measures of Query Cost - Selection Operation – Sorting - Join Operation - Transaction Concept - A Simple Transaction Model - Storage Structure – Serializability

UNIT IV CONCURRENCY CONTROL AND RECOVERY SYSTEM

9 Hrs

Total Hours: 45

Lock-Based Protocols - Deadlock Handling - Timestamp-Based Protocols - Validation-Based Protocols - Failures Classification – Storage - Recovery and Atomicity - Recovery Algorithm - Buffer Management

UNIT V ADVANCED TOPICS IN DATABASES

9 Hrs

Database-System Architectures - Parallel Databases - Distributed Databases - Database Tuning - Introduction to Special Topics - Spatial & Temporal Databases – Data Mining and Warehousing.

TEXT BOOKS:

1. Abraham, Silberschatz. Henry, F. K..Sudharshan, S. (2013) Database System Concepts (6thed.) Tata McGraw Hill, New Delhi

REFERENCE BOOKS:

- 1. Ramez, E. Shamkant, B. Navathe (2008) Fundamentals of database systems (5th ed.), Pearson Education
- 2. Date, C. J, (2012) An Introduction to Database Systems (8th ed.), Pearson Education

| COURSE | | COURS | SE NAI | ME | | | | | | | | |
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| |] | Prerequi | isite: N | IL | | | | IE | 2 | 0/0 | 0/0 | 0 |
| L : Lecture T : Tuto | orial S.I | r : Supe | ervised | Lear | ning | P : Proje | ect R : Rese | arch C: C | Credi | ts | | |
| T/L/ETL : Theory/ | Lab/Emb | edded T | heory | and I | Lab | | | | | | | |
| OBJECTIVES: | | | | | | | | | | | | |
| The students shou | ld be ma | ade to | | | | | | | | | | |
| • To provide a | an overvi | ew of th | e histo | ry of | the n | naking o | f Indian Co | onstitution | 1 | | | |
| • To understan | nd the pr | eamble | and th l | basic | struc | tures of | the Constit | ution. | | | | |
| To Know the To window to the test of test | e fundam | ental rig | ghts, du | ities a | and th | ne direct | ive princip | les of sta | te po | licy | | |
| COURSE OUTCO | MES (C | Cos): St | <u>ity of t</u> udents | will b | gisiati | e to | executive a | na the ju | <u>11C1a</u> | ry | | |
| CO1 | To provi | deanov | erview | of th | ehisto | rvofthe | makingofIn | dianCon | stitut | ion | | |
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| C02 | To unde | rstandth | epream | iblea | ndthe | basicstr | uctures oftr | eConstit | ution | • | | |
| CO3 | To Knov | w the fu | ndamer | ntalri | ghts, | dutiesan | dthedirecti | veprincip | lesof | state po | licy | |
| Mapping of Cours | se Outco | mes wit | h Prog | gram | Outo | comes (l | Pos) | | | | | |
| Cos/Pos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
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| CO2 | - | - | - | - | - | 3 | 1 | 1 | 1 | 1 | - | - |
| CO3 | - | - | - | - | - | 3 | 1 | 1 | 2 | - | - | - |
| Cos / PSOs | P | 501 | PS | 502 |] | PSO3 | PSO | 4 | - | - | - | - |
| CO1 | | 1 | 1 | | | 2 | 3 | | - | - | - | - |
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91 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|-------------|---|------------------|---|--------|-----|---|
| EBCC22I04 | THE INDIAN CONSTITUTION (Audit Course) | IE | 2 | 0/0 | 0/0 | 0 |

| UNIT I | 6Hrs |
|--|------|
| The History of the Making of Indian Constitution, Preamble and the BasicStructures | |
| UNIT II | 6Hrs |
| Fundamental Rights and Duties, Directive Principles of State Policy | |
| UNIT III | 6Hrs |
| Legislature, Executive and Judiciary | |
| UNIT IV | 6Hrs |
| Emergency Powers | |
| UNIT V | 6Hrs |
| Special Provisions for Jammu andKashmir, NagalandandOtherRegions, Amendments | |

Total Hours: 30

TEXT BOOKS:

1. D DBasu, IntroductiontotheConstitutionof India, 20th Edn., LexisnexisButterworths, 2012.

REFERENCE BOOKS:

- 1.Rajeev Bhargava(ed), Ethics and Politics of the Indian Constitution, Oxford University Press, NewDelhi, 2008.
- 2. GranvilleAustin,TheIndianConstitution: CornerstoneofaNation, OxfordUniversityPress, Oxford, 1966.
- 3. Zoya Hassan, E. Sridharan and R. Sudarshan (eds), India's Living Constitution: Ideas, Practices, Controversies, PermanentBlack, NewDelhi, 2002.

4.SubhashC.Kashyap,OurConstitution,NationalBookTrust, NewDelhi, 2011.

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| T/L/ETL : Theory | Lab/Ember | Lab/Embedded Theory and Lab | | | | | | | | | cuits | | |
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| OBJECTIVES: 1 | امحمد مالدا | | | | | | | | | | | | |
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| • To understa | stand the Pre- colonial and Colonial Period, Indian Traditional Knowledge System | | | | | | | | | | | | n |
| • To understa | tandtheTraditional Medicine, Traditional Production and Construction Technology | | | | | | | | | | | gy | |
| • To Know th | Know the History of Physics and Chemistry, Traditional Art and Architecture and | | | | | | | | | | | | |
| VastuShas | ntra, Astroi | nomy | and | Astrolog | gу | | т · | | | • | | C. | 1 75 1 |
| • To understand the Origin of Mathematics, Aviation Technology in Ancient India, Crafts and Trade | | | | | | | | | | | | | |
| COURSE OUTC | OMES (CO |):):S | tude | nts will | be a | ble to |) | | | | | | |
| CO1 | To underst | and th | ne Pro | e- colon | ial a | nd C | olonial | l Peri | od, Indiar | ı Tra | ditional | Knowl | edge |
| | System | | | | | | | | | | | | - |
| CO2 | To underst | andth | eTra | ditional | Med | licine | , Trad | itiona | al Product | ion a | and Cons | structio | n |
| | Technolog | у | | | | | · | | | | | | |
| CO3 | To underst | and th | ne Or | igin of] | Matl | nemat | ics. A | viatio | on Techno | logy | in Anci | ent Ind | lia. |
| | Crafts and | Trade | e in A | Incient] | India | a | , | | | - 01 | | | |
| Crafts and Trade in Ancient India Mapping of Course Outcomes with Program Outcomes (Pos) | | | | | | | | | | | | | |
| Mapping of Course Outcomes with Program Outcomes (Pos) | | | | | | | | | | | | | |
| Mapping of Cour | se Outcom | es wi | th Pr | ogram | Out | tcome | es (Pos | 5) | | | | | |
| Mapping of Cour | se Outcom | es wi | th Pr PO3 | ogram | Out | tcome PO5 | es (Pos | s) PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| Mapping of Cour COs/Pos | se Outcom PO1 | es wi PO2 | th Pr PO3 | ogram PO4 | Out | tcomo PO5 | es (Pos PO6 | s) PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| Mapping of Cour COs/Pos | se Outcom PO1 | es wi PO2 | th Pr PO3 | rogram PO4 | Out | rcomo PO5 | es (Pos PO6 | s) PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| Mapping of Cour COs/Pos CO1 | se Outcom PO1 | es wi PO2 3 | th Pr PO3 | rogram PO4 | Out 1 | rcomo PO5 | es (Pos PO6 | s) PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| Mapping of Cour COs/Pos CO1 CO2 | se Outcom PO1 | es wi PO2 3 3 | th Pr PO3 3 3 | PO4 | Out | PO5 | es (Pos PO6 2 2 | s) PO7 | PO8 | PO9 | PO10 2 2 2 | PO11 | PO12 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 | se Outcom PO1 | es wi PO2 3 3 3 | th Pr PO3 3 3 3 | PO4 | Out | PO5 | es (Pos PO6 2 2 2 | s) PO7 | PO8 | PO9 | PO10 2 2 2 2 | PO11 | PO12 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 / PSOs | se Outcom PO1 PO1 PS | es wi PO2 3 3 3 SO1 | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 | Out 1 02 | PO5 | es (Pos PO6 2 2 2 SO3 | s) PO7 | PO8 | PO9 | PO10 2 2 2 2 | PO11 | PO12 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 COs / PSOs | se Outcom PO1 | es wi PO2 3 3 3 SO1 | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS6 | Out 1 02 | PO5 | PO6 2 2 2 SO3 | s) PO7 | P08 | PO9 | PO10 2 2 2 2 | P011 | PO12 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 COs / PSOs CO1 | se Outcom PO1 | es wi PO2 3 3 3 SO1 1 | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 | Out 1 02 | PO5 | es (Pos PO6 2 2 2 SO3 2 | s) PO7 | PO8 PSO4 2 | PO9 | PO10 2 2 2 2 | P011 | PO12 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 CO5 / PSOs CO1 CO2 | se Outcom PO1 PO1 P | es wi PO2 3 3 3 SO1 1 1 | PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 | Out | PO5 | PO6 2 2 2 SO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | s) PO7 | PO8 PO8 PSO4 2 1 | PO9 | PO10 2 2 2 | PO11 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 COs / PSOs CO1 CO2 CO2 CO3 | se Outcom PO1 P | es wi PO2 3 3 3 3 501 1 1 1 1 | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 | Out 1 02 | PO5 PO5 P | PO6 2 2 2 SO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | s) PO7 | PO8 PO8 2 1 3 | PO9 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | se Outcom PO1 PO1 PS | es wi PO2 3 3 3 3 SO1 1 1 1 2 Correl | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 1 1 1 3- Hi | Out | PO5 | es (Pos PO6 2 2 2 2 SO3 2 2 2 2 2 edium | s) PO7 | PO8 PSO4 2 1 3 ow | PO9 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | se Outcom PO1 PO1 Pt Pt rength of C | es wi PO2 3 3 3 3 SO1 1 1 2 Correl | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 1 1 1 1 | Out | PO5 P 2- M | PO6 2 2 2 SO3 2 2 edium | s) PO7 | PO8 PO8 2 1 3 ow | PO9 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | se Outcom PO1 Pt Pt rength of C | es wi PO2 3 3 3 3 SO1 1 1 1 2 Correl | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 1 1 1 1 1 1 1 1 1 | Out | PO5 PO5 2- M | es (Pos PO6 2 2 2 SO3 2 2 2 edium | s) PO7 | PO8 PO8 2 1 3 ow | PO9 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | se Outcom PO1 PS | es wi PO2 3 3 3 501 1 1 Correl | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Out | PO5 | PO6 2 2 2 2 2 SO3 2 2 2 edium 1 | s) PO7 | PO8 PO8 2 1 3 ow tu | 909 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | se Outcom PO1 P1 P1 rength of C | es wi PO2 3 3 3 3 SO1 1 1 1 2 Orrel | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Out | PO5 PO5 P 2- M | es (Pos PO6 2 2 2 2 2 2 2 2 2 2 2 2 2 | s) PO7 | PO8 2 1 3 ow | roject 600 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 CO1 CO2 CO3 3/2/1 indicates Str | se Outcom PO1 PO1 Pt Pt rength of C | es wi PO2 3 3 3 3 SO1 1 1 1 2 Correl | th Pr PO3 3 3 3 | rogram PO4 1 1 1 PS0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Out | PO5 PO5 PO5 P | PO6 2 2 2 2 2 SO3 2 2 edium | ciplinary | PO8 PSO4 2 1 3 ow | /Project 604 | PO10 2 2 2 | PO11 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | PO1 PO1 P1 P1 rength of C | es wi PO2 3 3 3 3 3 SO1 1 1 1 2 Correl | th Pr PO3 3 3 3 | PO4 PO4 1 1 1 PS0 1 1 1 1 1 3- Hi | Out | PO5 PO5 PO5 P | PO6 2 2 2 2 2 3 3 2 2 2 2 2 2 2 2 2 2 2 edium | S) PO7 | PO8 PSO4 2 1 3 ow | cal /Project 60d | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | PO1 PO1 PS PS PS PS PS PS PS PS PS PS PS PS PS | es wi PO2 3 3 3 3 SO1 1 1 1 2 Correl | th Pr PO3 3 3 3 | manifies and ial Science ial Science | Out | portion of the section of the sectio | PO6 PO6 2 2 2 SO3 2 2 2 edium | er Disciplinary | PO8 PSO4 2 1 3 ow | ictical /Project 604 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 CO1 CO2 CO3 CO1 CO2 CO3 3/2/1 indicates Str | PO1 PO1 PSIC Science rength of C | Engineering Bendineering Soince Science | th Pr PO3 3 3 3 | Humanities and 1 1 1 PSo 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Logram Core diagonal | Program elective | PO6 2 2 2 SO3 2 2 2 2 edium | Inter Disciplinary 1-1, | PO8 PSO4 2 1 3 ow | Practical /Project 604 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO3 CO1 CO2 CO3 3/2/1 indicates Str | PO1 PO1 P1 P1 P1 P1 P1 P1 P1 P1 P1 P1 P1 | Engineering Bugineering Soling | th Pr PO3 3 3 3 | Humanities and Humanities and Social Science | Logram Core | Program elective PO2 | PO6 2 2 2 SO3 2 2 edium | Inter Disciplinary | PO8 Skill Component 2 1 3 ow | Practical /Project 604 | PO10 2 2 2 | PO11 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Mapping of Cour COs/Pos CO1 CO2 CO3 CO5 / PSOs CO1 CO2 CO3 3/2/1 indicates Str | PO1 PO1 Point Science Basic Science Basic Science | Es wi PO2 3 3 3 SO1 1 1 1 2 Correl | th Pr PO3 3 3 | Humanities and Humanities and Humanities and Hi PSo 1 1 1 1 1 1 1 1 1 1 1 1 1 | Junction Logith Logith </td <td>Program elective PO2</td> <td>PO6 2 2 2 SO3 2 2 edium</td> <td>V Inter Disciplinary (€</td> <td>PO8 Skill Component</td> <td>Practical /Project 604</td> <td>PO10 2 2 2</td> <td>P011</td> <td>PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> | Program elective PO2 | PO6 2 2 2 SO3 2 2 edium | V Inter Disciplinary (€ | PO8 Skill Component | Practical /Project 604 | PO10 2 2 2 | P011 | PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |

93 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|---|------------------|---|--------|-----|---|
| EBCC22I05 | THEINDIAN TRADITIONAL KNOWLEDGE (Audit Course) | IE | 2 | 0/0 | 0/0 | 0 |

| UNIT I 6 Hrs |
|---|
| Historical Background: TKS During the Pre- colonial and Colonial Period, Indian Traditional |
| Knowledge System |
| UNIT II 6 Hrs |
| Traditional Medicine, Traditional Production and Construction Technology |
| UNIT III 6 Hrs |
| History of Physics and Chemistry, Traditional Art and Architecture and VastuShashtra, Astronomy and Astrology |
| UNIT IV 6 Hrs |
| Origin of Mathematics, Aviation Technology in Ancient India, Crafts and Trade in Ancient India |
| UNIT V 6 Hrs |
| TKS and the Contemporary World, TKS and the Indian Union, TKS and IT Revolution |
| |

Total Hours: 30

TEXT BOOKS:

- 1. Amit Jha (2009) , Traditional knowledge system in india, 1st Edition, Delhi University (North Campus)
- 2. Dr.A.K.Ghosh (2011), Traditional Knowledge of Household Products

| COURSE | COUI | RSE NA | AME: | | | | | | T A | | | | | | |
|--------------------|--|---|----------------------------------|--------------|------------------|---------------|--------------------|-----------------|--------------------|-------------|------|--------|------------|-----|-----|
| CODE: EBCS22LO2 | DAT | ABASI | E MAN | IAGEN | AENT | SYST | EMS L | AB | Ty/I ETI | _b/ _/IE | L | T/S. | .Lr | P/R | C |
| | Prerec | quisite: | Nil | | | | | | L | b | 0 | 0/ | 0 | 3/0 | 1 |
| L : Lecture T | : Tutor | ial S. | Lr : Su | pervise | d Lear | ning P | : Proje | ct R | : Res | earch | C: (| Credit | s | | • |
| Ty/Lb/ETL/IE | E : Theo | ory/Lab | o/Embe | dded T | heory a | and Lat |) | | | | | | | | |
| OBJECTIVE | E: | | | | | | | | | | | | | | |
| Thestudents | should | nould be made to f_{0} added to f_{0} and f_{0} | | | | | | | | | | | | | |
| • lo cre | stand the significance of integrity constraints, referential integrity constraints, triggers | | | | | | | | | | | | | | |
| • Under | ions. | | | | | | | | | | | | | | |
| | | MFS ((| ⁷ Oc) • 9 | Student | e will b | a abla | to | | | | | | | | |
| | Unda | TCOMES (COs) : Students will be able to | | | | | | | | | | | | | |
| 01 | Under | stanu t | ne prog | gramm | ing and | theore | | ncep | | лппа | nus | | | | |
| CO2 | Analy | ze the | probler | n and a | pply th | e synta | ctical s | truct | ure of | query | /[L4 |] | | | |
| CO3 | Reme | mber th | ne struc | ture an | d synta | x of Pl | L/SQL[| <u>[L1]</u> | _ | | | | | | |
| CO4 | Under solution | rstand t | he prot] | olem an | id apply | y the pr | ogram | ming | know | ledge | for | deter | minin | g | |
| CO5 | Apply | ving the | e knowl | edge g | ained to | o desig | n a data | abase | [L3] | | | | | | |
| Mapping of C | Course | Outco | mes wi | ith Pro | gram (| Outcon | nes (PO | Ds) | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO | 8 | PO9 | P | 010 | PO1 | 1 P | 012 |
| CO1 | 3 | 2 | 2 | 1 | | | | 2 | 2 | 2 | | 2 | | | 2 |
| CO2 | 3 | 2 | 3 | 1 | 1 | | | | 2 | 2 | | 2 | 1 | | 3 |
| <u>CO3</u> | 2 | 3 | 3 | 1 | | | | | 1 | 3 | | 3 | 1 | | 3 |
| <u>CO4</u> | 2 | 3 | 3 | 1 | 1 | 1 | | 4 | 2 | 3 | | 3 | 1 | | 3 |
| <u>CO5</u> | 3 | 3 | 3 | 1 | 1 | 1 | | • | 3 | 3 | | 2 | 1 | | 3 |
| | | | | | DCO1 | | | Б | | | | | DCC | | |
| | | 2 | | | 1 | | | P | 505 | | | | 1 | J4 | |
| | | 2 | | | 1 | | | | | | | | <u> </u> | | |
| | | <u></u> 1 | | | 1 1 | | | | | | | | 1 | | |
| CO4 | | 2 | | | 1 | | | | 2 | | | | <u> </u> | | |
| C05 | | 2 | | | 1 | | | | $\frac{2}{2}$ | | | | 1 | | |
| 3/2/1 Indicate | s Stren | gth Of | Correla | tion, 3 | - High | n, 2- M | edium, | 1- Lo |)W | | I | | | | |
| | | | | , | 0 | , | , | | | | | | | | |
| Category | Basic Science | Engineering Science | Humanities and social Science | Program Core | Program elective | Open Elective | Inter Disciplinary | Skill Component | Practical /Project | | | | | | |
| | | | | \checkmark | | | | | \checkmark | | | | | | |

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B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|-----------------------------------|------------------|---|--------|-----|---|
| EBCS22LO2 | DATABASE MANAGEMENT SYSTEM LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

I. Program to learn DDL and DML commands

- 1. Execution of data description language commands
- 2. Execution of data manipulation language commands
- 3. Execution of data control language commands
- 4. Execution of transaction control language commands
- 5. Insert command
- 6. SQL Queries
 - a. Simple SQL Queries
 - b. Nested Queries
 - c. Aggregation Operators
 - d. Grouping and Ordering commands
- 7. Select, from and where clause
- 8. Set operation [union, intersection, except]
- 9. String operations
- 10. Join operation
- 11. Modification of the database

II. PL / SQL programs

- 1. Control statements (for loop)
- 2. Control statements (while loop)
- 3. Control statements (for reverse loop)
- 4. Control statements (loop end loop)
- 5. Sum of even numbers
- 6. Sum of odd numbers
- 7. Series generation
- 8. Implementation of sub-program
- 9. Implementation of cursor using pl/sql
- 10. Control statement (if-else end if)

| SubjectCode: | COU | RSE NA | ME : | | | | | | | | | | Ι |
|--|--|---|-----------------------------------|--------------------|----------------------|----------------|-------------------------------|----------------------------------|-------------|-------|--------|-----|----|
| EBCF22L03 | CRY | PTOG | RAPHY | Y AND | | | | T | y/Lb/ET] | LL | T/S.Lr | P/R | С |
| | NET | WORK | SECU | RITY I | LAB | | | | | | | | |
| | Prerec | quisite: N | NIL | | | | | | Lb | 0 | 0/0 | 3/0 | 1 |
| L : Lecture T : | Tutoria | l S.Lr | : Superv | vised Lea | arning I | P : Proj | ect R : | Resear | ch C: Cr | edits | | | |
| Ty/Lb/ETL : T | heory/L | .ab/Emb | edded T | heory ar | nd Lab | U | | | | | | | |
| OBJECTIVES This practical 1 • Understa • Learn to | 5 : aborato ands cry secure | ry sessio ptograp network | on will h hy algor | elp stude ithms | ents wor | rk on: | | | | | | | |
| COURSE OU | тсом | ES (CO | s):(3- | 5) | | | | | | | | | |
| CO1 | Imple | mplement various Cryptography algorithms | | | | | | | | | | | |
| CO2 | Hands | Iands on training on windows monitoring tools | | | | | | | | | | | |
| CO3 | Instal | install, Configure and Manage firewalls | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| Mapping of C | ing of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO | 12 |
| C01 | 3 | 3 | 3 | 3 | | 3 | 2 | | | | | 1 | 2 |
| CO2 | 2 | 3 | 3 | 3 | 3 | 2 | | | | | 3 | | 3 |
| CO3 | 2 | 1 | 3 | 2 | 3 | 2 | 1 | | | | 3 | | 1 |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| Mapping of C | ourse (| Jutcome | es (COs) | with P | rogram | Specif | ic Out | comes (| (PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | 5 | | PSO | 4 | |
| C01 | | 3 | | | | | | | | | 2 | | |
| CO2 | | 3 | | | 3 | | | | | | 3 | | |
| CO3 | | 3 | | | 3 | | | | | | 2 | | |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| 3/2/1 indicates | Streng | gth of Co | orrelati | on 3-1 | High, 2- | Mediu | ım, 1-l | Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical | Internships / Technical Skill | Soft Skills | | | | |
| | | | | | | | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
|---------------|--|-----------|---|--------|-----|---|
| EBCF22L03 | CRYPTOGRAPHY AND NEWTORK SECURITY LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Write a program to implement the DES algorithm logic
- 2. Write a program to implement the Blowfish algorithm logic
- 3. Write a program to implement the RSA algorithm logic
- 4. Write a program to implement the Deffie Hellman algorithm logic
- 5. Write a program to implement the SHA 1 algorithm logic
- 6. Write a program to implement the MD5 algorithm logic
- 7. Windows monitoring tools.
- 8. Installing and Configuring DHCP
- 9. Installing and Configuring DNS
- 10. Installing and Configuring IIS
- 11. Installing and Configuring the functions of Routers
- 12. Installing and Configuring firewalls and IDS

| Subject Code: EBCF22L04 | COU | RSE NA | AME : ERAB | ILITY | ANAL | YSIS / | | Tv/L | b/ETL | L | T/S. | Lr | P/R | С |
|---|----------------|--|-----------------------------------|--------------|----------------------|----------------|-----------------------------------|----------------------------------|-------------|-------|------|-----|------|-----|
| | | PENE | TRAT | ION T | ESTIN | G LAB | | -3, | | | | | | |
| | Prerec | quisite: | NIL | | | | | Ι | .b | 0 | 0/0 | 0 | 3/0 | 1 |
| L : Lecture T : T | Futorial | l S.Lr | : Super | vised L | earning | g P:Pı | oject R | t : Rese | arch C: 0 | Credi | its | | | |
| Ty/Lb/ETL : Th | neory/L | ab/Emb | edded ' | Theory | and La | b | | | | | | | | |
| OBJECTIVES | : | | | | | | | | | | | | | |
| This lab session | focus | on train | ing the | student | ts in | | | | | | | | | |
| Penetra | tion Te | sting m | ethodol | ogies | | | | | | | | | | |
| Monitor | ring the | e networ | rk traffi | c and | | | | | | | | | | |
| • To unde | erstand | the hos | t and se | ervices | discove | ry | | | | | | | | |
| COURSE OUT | ГСОМ | ES (CO | s):(3 | - 5) | | | | | | | | | | |
| CO1 | Monit | or netw | ork tra | ffic | | | | | | | | | | |
| CO2 | Perfor | erform port scanning | | | | | | | | | | | | |
| CO3 | Perfor | erform internal and external penetration testing | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs 0 with Program Outcomes (POs) | | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | 010 | PO | 11 P | 012 |
| CO1 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 1 | | | | | 1 |
| CO2 | 3 | 3 | 3 | 3 | | 2 | 2 | | | | | | | |
| CO3 | 3 | 3 | 3 | 3 | | 2 | 2 | 3 | 1 | _ | | 2 | | 2 |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | (00 | | | a | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (COs | s) with | Progra | m Spe | cific Ou | itcome | s (PSOs) |) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO. | 3 | | | PSC |)4 | |
| CO1 | | 3 | | | | | | 3 | | | | | | |
| CO2 | | 3 | | | | | | 3 | | | | | | |
| CO3 | | 3 | | | | | | 3 | | | | 3 | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| 3/2/1 indicates | Streng | th of C | orrelat | ion 3 | - High, | 2- Me | dium, 1 | -Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
| | | 4 | | | | - | \checkmark | | - | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|---|-----------|---|--------|-----|---|
| EBCF22L04 | VULNERABILITY ANALYSIS / PENETRATION TESTING LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Monitoring Network Traffic
- 2. Host & Services Discovery using Nmap
- 3. Vulnerability Scanning using OpenVAS
- 4. Internal Penetration Testing
 - 1. Mapping
 - 2. Scanning
 - 3. Gaining access through CVE's
 - 4. Sniffing POP3/FTP/Telnet Passwords
 - 5. ARP Poisoning
 - 6. DNS Poisoning

5. External Penetration Testing

- 1. Evaluating external Infrastructure
- 2. Creating topological map & identifying IP address of target
- 3. Lookup domain registry for IP information
- 4. Examining use of IPV6 at remote location

| 2022 Regulation | |
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| COURSE CODE: | 1 | CC | DURSE | NAME: TECHNICAL SKILL I | | | | | Ty/L | ,b / | L | T/S. | P/R | C |
|-----------------|---|-------|-------------|----------------------------|-----------|-----------|-----------|-------------|---------|--------------|-------|------|----------|------|
| EBCF22 | 2101 | | | 12011 | | | | | ETI | /IE | 2 | Lr | 1/1 | |
| | | Pre | requisit | e: Nil | | | | | | E | 0 | 0/0 | 2/0 | 1 |
| L: Lecture | e T : Ti | utori | al S.L | r : Super | vised Le | earning | P: Pro | ject R : | Researc | h C: Cr | edits | | | |
| I y/L U/E I | L/IC . | i neo | ny/Lau/ | EIIIDeuue | a meo | ry and L | Lau | | | | | | | |
| OBJECT | IVES: | | | | | | | | | | | | | |
| The stude | ents sh | oulo | d be ma | ade to | | | | | | | | | | |
| • To | o make | the | students | s expert in | n domai | n specif | ic know | ledge. | | | | | | |
| • T | o deve | lop p | orofessio | onals with | n idealis | stic, pra | ctical ar | id moral | values. | | | | | |
| • | • To facilitate the students with emerging technology | | | | | | | | | | | | | |
| COURSE | COURSE OUTCOMES (Cos) : Students will be able to | | | | | | | | | | | | | |
| CO1 | CO1 Understand the domain specific knowledge. | | | | | | | | | | | | | |
| CO2 | Able to | app | ly ideal | istic, prac | tical an | d moral | values | | | | | | | |
| | Fomilie | | with on | aanaina ta | ahnala | ~~~ | | | | | | | | |
| 05 | ганши | inze | with en | lierging te | echnolo | gy | | | | | | | | |
| Mapping | of Cou | irse | Outcon | nes with] | Progra | m Outc | omes (I | Pos) | | | | | | |
| Cos/Pos | PO | D1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 PO8 PO9 | | | PO | 10 F | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | | 3 | 1 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | | 3 | 1 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | | 3 | 1 |
| Cos /PSO | s | PSC | 01 | | PSC | 02 | 1 | | PSO3 | | |] | PSO4 | |
| CO1 | | 3 | | | 3 | | | | 1 | | | | 1 | |
| CO2 | | 3 | | | 3 | | | | 1 | | | | 3 | |
| CO3 | | 3 | | | 3 | | | | 1 | | | | 3 | |
| 3/2/1indic | ates St | trenş | gth of C | Correlatio | on 3- | High, 2 | - Mediı | ım, 1-L | ow | | | | | |
| | | | | | | | | | | | | | | |
| | | | | cial | | /e | | ~ | | | | | | |
| | | | | d so | | ctiv | | nary | | lent | | 100 | Ject | |
| gory | | SIICE | 60 | and | ore | l ele | ive | | | | | | | |
| late | | SCIE | erin | ities | Ŭ | ram | lect | Disc | | Com | | | <u>.</u> | |
| | | SIC | ine | nan ince | gran | rog | acti | | | | | | | |
| | Ě | Da | Eng Scie | Hur Sci£ | Pro | | Pr. Sk | | | | | | | |
| | | | | | | | | | | \checkmark | | ✓ | | |
| | | | | | | | | | | | | | | |

101 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|-------------------|------------------|---|--------|-----|---|
| EBCF22I01 | TECHNICAL SKILL I | IE | 0 | 0/0 | 2/0 | 1 |

OBJECTIVES:

- To make the students expert in domain specific knowledge.
- To develop professionals with idealistic, practical and moral values.
- To facilitate the students with emerging technology.

From the list of skill development courses declared by the department, the students are expected to acquire the skill and get certified. This will be evaluated at the end of the semester by the faculty.

DESCRIPTION:

Students should acquire skill in the domain/inter disciplinary area from government/private training centers/industries /University for a minimum period of 15 calendar days. The training can be through off line, online or mixed mode. Students are supposed to prepare Technical skill report at the end of the training and submit the report along with the certificate in proof of the training, during the viva voce examination conducted by the examiners duly appointed by the head of the department

| COURS CODE: | SE | CC | OURSE SOFT | NAME: SKILL | I -Em | ployab | oility S | kills | Ty/L ETI | .b/ ./IЕ | L | Г/S. Lr | P/R | С |
|----------------------|-----------------|--|---|----------------------|--------------------|----------------------|----------------|---------------------------------------|-------------|-------------|------------|------------|---------|------|
| EBCC | 22106 | Pre | erequisit | e: Nil | | | | | I | £ | 0 | 0/0 | 2/0 | 1 |
| L : Lectu Ty/Lb/E | ure T ETL/IE | : Tutori E : Theo | ial S.L pry/Lab/ | r : Super Embedde | vised L ed Theo | earning ory and l | P : Pro Lab | oject R | : Resear | ch C: C | Credits | | | |
| OBJEC | TIVE | S: | | | | | | | | | | | | |
| The stu | dents | shoul | d be ma | ade to | | 1 • • . | <i>.</i> . | | • ,• | с сс | ,• , | 1 | .1 1. | |
| | Becor Devel | ne goo | d listene | ers to get | engage | d in inte | be lead | commu ers | nication | for effe | ective tea | im bu | ilding. | |
| • | Devel | op peer | r interac | tion for a | succes | sful life | elong lea | arning. | | | | | | |
| • | Learn | skills 1 | necessar | y for a co | ooperati | ve livin | ig in aca | idemic a | and profe | essiona | l environ | ments | 3 | |
| • | Use so | oft skill | ls for the | e purpose | s of res | earch a | nd follo | w ethics | s in socie | ety and | professi | on | | |
| COURS | SE OU | JTCON | MES (C | os) : Stuc | lents wi | ill be ab | ole to | | | | | | | |
| CO1 | Beco | ome go | od lister | ners to ge | t engag | ed in in | teractiv | e comm | unicatio | n for ef | ffective t | eam b | uilding | |
| CO2 | Deve | elop as | op assertive and adaptive behaviour to be leaders | | | | | | | | | | | |
| CO3 | Deve | elop pe | er intera | action for | a succe | essful li | felong l | earning. | | | | | | |
| Mappin | g of (| Course | Outcor | nes with | Progra | m Out | comes (| Pos) | | | | | | |
| Cos/Pos | 5 | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |) P(| 011 | PO12 |
| CO1 | | 3 | 3 | 3 | 1 | 2 | 2 | 1 | 2 | 3 | | | | |
| CO2 | | 3 | 3 | 3 | 1 | 2 | 2 | 1 | 2 | 3 | | | | |
| CO3 | | 3 | 3 | 3 | 1 | 2 | 2 | 1 | 2 | 3 | | | | |
| Cos /PS | Os | PS | 01 | | PSC | 02 | | | PSO3 | | | Р | SO4 | |
| CO1 | | | 3 | | 2 | | | | 2 | | | | 2 | |
| CO2 | | , | 2 | | 2 | | | | 2 | | | | 2 | |
| CO3 | | - | 3 | | 2 | | | 2 2 | | | | | 2 | |
| 3/2/1ind | licates | ates Strength of Correlation 3- High, 2- Medium, 1-Low | | | | | | | | | | | | |
| | | | | _ | | | | lary | | ent | | ect | | |
| | | nce | 50 | anc | | | ve | Proj | | | | | | |
| OIV | 5 | Scie | sring | ities cier | | ram /e | lecti | Disci | | Jom | | cal / | | |
| lteg | 0 | sic | inee | nani al S | gran | rog | йE | er L | | ill C | | actic | | |
| ٽ ا | 5 | Ba | Eng Scie | Hur soci | Prog | F | Ope | N N N N N N N N N N N N N N N N N N N | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

103 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|-------------------------------------|------------------|---|--------|-----|---|
| EBCC22I06 | SOFT SKILL I - Employability Skills | IE | 0 | 0/0 | 2/0 | 1 |

Prefatory Note

This paper aims to equip students with skills essential for work place and global environment to which they will move on from the university, once they complete the course. As such, this paper provides students with a set of ten interlinked soft skills: Listening, team work, emotional intelligence, assertiveness, learning to learn, problem solving, attending interviews, adaptability, non-verbal communication and written communication. Students will get engaged in pair work, group work, role play, discussion, presentation, storytelling, writing assignments etc.,

Unit -I

Listening, Speaking, Reading and Writing skills (LSRW)

Unit -II

Team work skills: adaptability, emotional intelligence, learning skills

Unit -III

Leadership Qualities: assertiveness, reasoning, compassion and compatibility

Unit -IV

Problem solving: willingness to learn, creative thinking, developing observation skills

Unit -V

Interview skills: employability skills, resume writing

Total Hours:30

Suggested reading

S.P. Dhanavel, English and Soft Skills, Vol. 1, Orient Blackswan Pvt. Ltd. 2010

SEMESTER - V

| Subject Code: | COU | RSE N | AME : | | | | | | | | | | | |
|--|--|---|-----------------------------------|----------------|----------------------|----------------|------------------------|----------------------------------|-------------|------|-------|--------|--------|----|
| EBCF22006 | | FU | UNDA | MEN | FALS (| OF | | Ty/Lb | /ETL | L | T/S.I | Lr I | P/R | С |
| | | INFO | RMA | TION | SECU | RITY | | | | | | | | |
| | Prerec | quisite: | NIL | | | | | T | y | 3 | 0/0 |) (|)/0 | 3 |
| L : Lecture T : 7 | Tutoria | l S.Lr | : Supe | rvised | Learnin | g P:P | roject F | R : Resea | arch C: | Cred | its | | | |
| Ty/Lb/ETL : Th | neory/L | ab/Emt | bedded | Theory | and La | ıb | | | | | | | | |
| OBJECTIVES : This paper on fundamentals of information security is intended to provide ● Basics of Information Security, Security Policies and Procedures along with its standards and guidelines ● An overview of risk analysis, risk management and access control and ● The importance of physical security and techniques involved in physical security. COURSE OUTCOMES (COs) : (3- 5) C01 Explain basic concepts and importance of information security | | | | | | | | | | | | | | |
| CO2 | Identi | Explain basic concepts and importance of information security | | | | | | | | | | | | |
| CO3 | Learn | Learn to prevent unauthorized access of information | | | | | | | | ures | | | | |
| CO4 | Analyse the requirements to secure information | | | | | | | | | | | | | |
| CO5 | Understand security metrics | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | | |
| COs/POs | PO 1 | PO 2 | PO3 | PO 4 | PO 5 | PO6 | PO7 | PO8 | PO9 | P | 010 | PO11 | P 2 | 01 |
| CO1 | 3 | 2 | 2 | | | 1 | | | | | | | | |
| CO2 | 3 | 3 | 3 | 3 | | 3 | | 3 | 2 | | 2 | 3 | | 2 |
| CO3 | 3 | 3 | 3 | | | 2 | | 3 | | | | 3 | | |
| CO4 | 3 | 3 | 3 | 3 | | 3 | | 3 | 2 | | 2 | 3 | | 3 |
| CO5 | 3 | 2 | Μ | | | 1 | | | | | | | | |
| Mapping of Co | ourse O | outcom | es (CO | s) with | Progra | am Spe | cific O | utcomes | (PSOs) |) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | ŀ | |
| CO1 | | 2 | | | | | | | | | | 2 | | |
| CO2 | | 3 | | | 2 | | | | | | | 2 | | |
| CO3 | | 3 | | | 3 | | | | | | | 3 | | |
| CO4 | | 3 | | | 2 | | | | | | | 3 | | |
| CO5 | | 2 | | | | | | | | | | 2 | | |
| 3/2/1 indicates | Streng | th of C | Correlat | tion 3 | 3- High | , 2- Me | dium, 1 | -Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | ✓ Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |

105 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| 2022 | Regul | lation |
|------|-------|--------|
| | | |

| Subject Code: EBCF22006 | COURSE NAME : | Ty/Lb/E TL | L | T/S.Lr | P/R | С |
|----------------------------|---|---------------|---|--------|-----|---|
| | FUNDAMENTALS OF INFORMATION SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Fundamental of Information Security

Definition - Information Security - Threats - Vulnerability - Risk - Business Requirements - Security Policies - Procedures - Standards- Guidelines, Retention and Disposal of Information Assets - Provide Authorization for Access – Owner, Custodian, User

UNIT II - Risk Analysis and Risk Management

Risk Analysis Process - Asset Definition - Threat Identification - Determine Probability of Occurrence -Risk Identification - Risk Assessment - Risk Control - Management Requirements for Information Security Risk - Risk Mitigation - Control Types/Categories - Cost/Benefit Analysis -

UNIT III - Access Control User

Identity and Access Management - Account Authorization - Operating Systems Access Controls -Monitoring Systems Access Controls - Intrusion Detection System - Event Logging - System Security concepts, Desktop & Server Security, Firewalls, Password cracking Techniques, Threats involved, Keylogger, viruses and worms, Malwares & Spy wares, Windows Registry. Anti Malware / AV/Anti Rootkit and other solutions

UNIT IV–Security Implementation

Information Security Project Management - Technical and Non-Technical aspect of implementation -Information Systems Security Certification and Accreditation- Positioning and Staffing the Security Function - Credentials for Information Security Professionals - Employment Policies and Practices -Security Considerations for Temporary Employees, Consultants and other workers - Security Management Maintenance Models

UNIT V- Information Security Management Metrics

Security Metrics Overview - Security Metrics - Current State of Security Metrics - Metrics Developments - Attributes of Good Metrics - Information Security Governance - Information Security Governance Metrics. - Information Security Management Metrics. - Metrics Classifications

TEXT BOOK:

- 1. Dhillon, G., "Principles of Information Systems Security: Text and Cases", John Wiley & Sons, 2007.
- 2. W. KragBrotby, "CISM, Information Security Management Metrics", CRC Press, 2007, ISBNr-13: 978-1-4200-5285-5
- 3. Michael E. Whitman, Herbert J. Mattord, "Principles of Information Security", Cengage Learning, 2018, ISBN: 978-1-337-10206-3

REFERENCES BOOKS:

- 1. Easttom, C., "Computer Security Fundamentals", 2ndEdition, Pearson Press, 2011.
- 2. Peltier, Thomas R., "Information Security Policies, Procedures, and Standards: Guidelines for Effective Information Security Management". Boca Raton, FL: Auerbach Publications, 2002, ISBN 0-8493-1137-3

B.Tech – Cyber Forensics and Information Security -2022 Regulation

9 Hrs

9Hrs

9Hrs

Total Hours: 45

9Hrs

9Hrs

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| EBCE22007 | | KSE N. ARAS | AME : E SEC | TIRIT | v | | | Ty/Lb/ | ETL | L | T/S.L | r P/R | . C | |
| | Prerec | quisite: | NIL | | • | | | Ту | , | 3 | 1/0 | 0/0 | 4 | |
| L : Lecture T : | Tutorial S.Lr : Supervised Learning P : Project R : Research C: Credits | | | | | | | | | | | | | |
| Ty/Lb/ETL : T | heory/I | Lab/Em | bedded | Theory | and La | ab | j | | | | | | | |
| | | | | | | | | | | | | | | |
| OBJECTIVES | 5: | | | _ | | | | | | | | | | |
| This paper deal | s with | the imp | ortance | of | | | | | | | | | | |
| Databa | se secu | rity life | cycle n | nanager | nent in | an orga | nization | al set-up | • | | | | | |
| Securit | y Mode | els, Use | r Accou | unt Mai | nageme | nt and l | Privilege | e Manage | ment. | | | | | |
| • Comm | on Data | abase se | curity v | vulnera | bilities | and cou | intermea | sures | | | | | | |
| Variou | s measu | ures of a | monitor | ring, co | ntrollin | g acces | s to data | and defe | ense str | ateg | ies | | | |
| Databa | se secu | rity ass | essmen | t and se | ecurity of | databas | e in clou | d enviro | nment | | | | | |
| | | | | | | | | | | | | | | |
| COURSE OU | ГСОМ | ES (CO | Os):(3 | 3- 5) | | | | | | | | | | |
| CO1 | Learn to protect corporate database from threats and risks | | | | | | | | | | | | | |
| CO2 | Understand and apply access controls and manage privileges | | | | | | | | | | | | | |
| CO3 | Acquire knowledge to handle database vulnerabilities | | | | | | | | | | | | | |
| CO4 | Learn to think about security when doing things | | | | | | | | | | | | | |
| CO5 | Asses | sing da | tabase s | security | in clou | ıd | | | | | | | | |
| Mapping of C | ourse (| Jutcom | es (CO | s0 with | n Progr | am Ou | tcomes | (POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | | PO10 | PO11 | PO12 | |
| CO1 | 3 | | 2 | | | | | | | | | | | |
| CO2 | 3 | | 3 | | | 2 | | | | | | | | |
| CO3 | 3 | | 3 | 2 | 2 | 3 | 1 | | 1 | | | | 2 | |
| CO4 | 3 | | 3 | | | 3 | 1 | 2 | 1 | | | 3 | 2 | |
| CO5 | 3 | 3 | | 2 | | | | | 1 | | | 1 | 2 | |
| Mapping of C | ourse (| Outcom | es (CO | s0 with | n Progr | am Sp | ecific O | utcomes | (PSOs |) | | | | |
| COs / PSOs | PSO1 | | PSO2 | | | PSO3 | | | PSO4 | | | | | |
| CO1 | 3 | | | | | | | | | | 3 | | | |
| CO2 | 3 | | | | | | | | | | 3 | | | |
| CO3 | 3 | | | | 2 | | | 2 | | | 3 | | | |
| <u>CO4</u> | 3 | | | | | | | | 3 | | | | | |
| CO5 | | 3 | | | | | | 2 | | | | 3 | | |
| 3/2/1 indicates | Streng | gth of C | Correla | tion 3 | 8- High | , 2- Me | dium, 1 | -Low | | | | | | |
| | Sč | | nd Ses | re | | Se | | II | | _ | | | | |
| | nce | ಟ | s al enc | Ĉ | | tive | | s/ Ski | | | | | | |
| tory | cie | erii | itie | В | es n | llec | al / | hip cal | ills | | | | | |
| iteg | ic S | ine | nan ial | gra | grai | пE | stica | rnsl hnic | Sk | | | | | |
| C | 3asi | Ing | Hun | ro | Prof Jec | Dpe | rac roj | nte [ec] | ofi | | | | | |
| | ш | ЦШN | N H | <u> </u> | | | | | | | | | | |
| | | | | v | | | | | | | | | | |
| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
|---------------|-------------------|-----------|---|--------|-----|---|
| EBCF22007 | DATABASE SECURITY | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I - Database Security Lifecycle

Overview of DB Security Lifecycle - Data Risk Assessment – Identifying & Analyzing data threats, risks & vulnerabilities – Understanding the need for database security architecture

UNIT II – Security Models & User Account Management

Access Matrix Models - Objects & Subjects - Types of Objects & Subjects - Access Modes (Static & Dynamic) - Access Levels – Data Holding Accounts – Data Access Accounts –Listing all Users & Roles – Listing Privileges Granted to Users - Profiles – Password & Account Parameters – Auditing Privileges – Cascading Privileges – Roles with Passwords & Default Roles

UNIT III – Common Database Security Vulnerabilities

Deployment Failures – Broken Databases – Data Leaks – Stolen Database Backups – Abuse of Database Features – Hopscotch – SQL Injections – Sub-standard Key Management – Database Inconsistencies

UNIT IV – Database Security Defence Strategy

Discovery & Assessment – User Rights Management – Monitoring & Blocking – Auditing – Data Protection – Non-technical Security – Social Engineering – Change Management.

UNIT V- Database Security Assessment & Security Cloud

Evaluating the security state of Oracle databases – Database Security Assessment Tool – DBSAT security assessment reports – Discovering sensitive data with DBSAT – Database Security Assessment using Oracle Data Safe – Enterprise level Monitoring and Assessment – Compliance Frameworks, Standards, and Rules – Threats unique to Cloud – Security in the Cloud – Shared responsibility – Guidelines to improve security in Cloud.

TEXT BOOK:

1. Basta, Zgola, "Database Security", Cengage, 2014

REFERENCE BOOKS:

- 1. United States Congress Senate Committee, "Database Security: Finding Out When Your Information Has Been Compromised", Bibliogov, 2011
- 2. SilvanaCastano, MariagraziFugini, Giancarlo Martella, PierangelaSamarati, "Database Security", Addison Wesley, 1994

12 Hrs

. .

12 Hrs

Total Hours: 60

12 Hrs

12 Hrs

| SubjectCode: | | | | | | | | | | | | | |
|---|---|---|-----------------------------------|---|---|-----------------------------------|---------------|--|-------------|--------|--|---------|---------------|
| EBCF22008 | COU CLO | RSE NA UD CO | ME : MPUT | ING A | ND SE | CURI | ТҮ | Ту | /Lb/ETI | LL | T/S.Lr | P/R | С |
| | Prerec | quisite: N | NIL | | | | | | Ту | 3 | 0/0 | 0/ 0 | 3 |
| L : Lecture T : Ty/Lb/ETL : T | Tutoria heory/L | l S.Lr Lab/Emb | : Superv edded T | vised Lea heory an | arning l nd Lab | P : Proj | ect R : | Resear | ch C: Cre | edits | | | |
| | | | | | | | | | | | | | |
| OBJECTIVES This paper helr | 5 : 5 studen | its to stre | enothen | their clo | ud skill | s like: | | | | | | | |
| • Cloud w | orkload | manage | ement | | | | | | | | | | |
| • Handling | g cloud | storage | efficient | ly | | | | | | | | | |
| • Secure c | loud sei | rvices ar | nd infras | tructure | | | | | | | | | |
| COURSE OU | тсом | ES (CO | s):(3- | 5) | | | | | | | | | |
| CO1 | Under | stands t | he conce | epts, cha | racterist | tics, del | ivery n | nodels a | and benef | its of | cloud co | mputi | ing |
| CO2 | Efficie | ently hai | Idle clou | id Servic | ces, Wo | rkload, | and St | orage | an Davia | a Mar | | 4 | |
| CO3 | Virtua | al Server | Manage | ement | ata Man | agemer | n, Ciol | la Stora | ge Devic | | lagemen | t and | |
| CO4 | Under | stands C | Cloud res | source m | nanagen | nent | | | | | | | |
| CO5 | Under | stands t | he key s | ecurity a | nd com | pliance | challe | nges of | cloud co | mputi | ıg | | |
| Mapping of Co | ourse C | Jutcome | es (COs) | with Pi | rogram | Outco | mes (P | 'Os) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PC | 012 |
| <u>CO1</u> | 3 | 2 | 3 | 2 | | 2 | | | | | | | |
| CO2 | 2 | | - | • | | - | | 2 | | | • | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 2 | | 3 | | | 3 | | 2 |
| CO3 | 3 | $\frac{3}{2}$ | 3 3 2 | 2 2 2 | 3 3 | 2 2 2 | | 3 | | | 3 3 2 | | 2 |
| CO3 CO4 | 3 3 3 | $\frac{3}{2}$ | 3 3 3 3 | 2 2 2 2 | 3 3 | 2 2 2 2 | | 3 | | | 3 3 3 | | $\frac{2}{2}$ |
| CO3 CO4 CO5 Manning of Co | 3 3 3 00000000000000000000000000000000 | 3 2 2 2 0utcome | 3 3 3 3 (COst | 2 2 2 2) with P | 3 3 | 2 2 2 2 Specif | ic Out | 3 3 comes (| (PSOs) | | 3 3 3 | | 2 2 2 |
| CO3 CO4 CO5 Mapping of C COs / PSOs | 3 3 3 ourse C | 2 2 2 Dutcome PSO1 | 3 3 3 es (COst | 2 2 2 0 with P | 3 3 rogram | 2 2 2 Specif | ic Out | 3 3 comes (PSO3 | (PSOs) | | 3 3 3 PSO | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of Co COs / PSOs | 3 3 3 ourse C | 3 2 2 2 2 0utcome PSO1 3 | 3 3 3 2s (COst | 2 2 2 0 with P | 3 3 rogram PSO2 | 2 2 2 2 Specif | ic Out | 3 3 comes (PSO3 | (PSOs) | | 3 3 3 PSO | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of C COs / PSOs CO1 CO2 | 3 3 3 0 urse (| 3 2 2 2 Dutcome PSO1 3 3 | 3 3 3 2 5 (COst | 2 2 2) with P | 3 3 rogram PSO2 | 2 2 2 Specif | ic Out | 3 3 comes (PSO3 1 2 | (PSOs) | | 3 3 3 PSO 3 3 | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of C COs / PSOs CO1 CO2 CO3 | 3 3 3 ourse C | 2 2 2 Dutcome PSO1 3 3 3 | 3 3 3 2s (COst | 2 2 2) with P | 3 3 rogram PSO2 | 2 2 2 Specif | ic Out | 3 3 comes (PSO3 1 2 | (PSOs) | | 3 3 3 980 3 3 3 3 | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of C COs / PSOs CO1 CO2 CO3 CO3 CO4 | 3 3 3 0 urse (| 2 2 2 Dutcome PSO1 3 3 3 3 3 | 3 3 3 es (COst | 2 2 2 0 with P | 3 3 rogram PSO2 | 2 2 2 Specif | ïc Out | 3 3 comes (PSO3 1 2 1 | (PSOs) | | 3 3 3 980 3 3 3 3 3 3 | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of Co COs / PSOs CO1 CO2 CO3 CO4 CO4 CO5 | 3 3 3 0 urse C | 2 2 2 Dutcome PSO1 3 3 3 3 3 3 3 | 3 3 3 2s (COst | 2 2 2 0 with P | 3 3 rogram PSO2 2 | 2 2 2 Specif | ic Out | 3 3 comes (PSO3 1 2 1 1 1 | (PSOs) | | 3 3 3 980 3 3 3 3 3 3 3 | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of C COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 indicates | 3 3 3 ourse C | 2 2 2 Dutcome PSO1 3 3 3 3 3 3 3 5 th of Ce | 3 3 3 ss (COst | 2 2 2 9 with P: | 3 3 rogram PSO2 2 High, 2- | 2 2 2 Specif | ic Out | 3 3 PSO3 1 2 1 1 2 Dow | (PSOs) | | 3 3 3 980 3 3 3 3 3 3 | 4 | 2 2 2 |
| CO3 CO4 CO5 Mapping of C COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 indicates | Basic Sciences | Engineering Sciences Sciences Sciences | Humanities and Social Sciences | 2 2 2 2 0 with P 0 0 0 0 0 3- H | J J J J J J J J J J J J J J J J J J J | 2 2 2 Specif | Practical / m | 3 comes PSO3 1 2 1 1 cow | Soft Skills | | 3 3 3 3 3 3 3 3 3 3 3 3 | 4 | 2 2 2 2 |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|------------------------------|-----------|---|--------|-----|---|
| EBCF22008 | CLOUD COMPUTING AND SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Introduction

9 Hrs

9 Hrs

Definition –Characteristics and benefits – Building Cloud Computing Environments – Virtualization – Characteristics of Virtual Environments – Taxonomy of Virtualization Techniques – Virtualization and Cloud Computing –Pros and Cons of Virtualization – Web services delivered form cloud – Types of Clouds – Security Threats in Cloud Computing – Privacy and Data Security - Cloud Applications

UNIT II – Service, Workload, Storage and Maintenance Management

Shared Resources – Workload Distribution – Dynamic Scalability – Service Load Balancing – Elastic Resource Capacity – Elastic Network Capacity – Elastic Disk Provisioning - Load Balanced Virtual Server and Virtual Switches – Service State Management – Storage Workload Management – Dynamic Data Normalization – Cross-Storage Device Vertical Tiering – Intra Storage Device Vertical Data Tiering – Memory Over Committing – Resource Pooling and Reservation – Hypervisor Clustering – Redundant Storage – Dynamic Failure Detection and Recovery – Multipath Resource Access – Redundant Physical Connection for Virtual Servers – Zero Downtime – Storage Maintenance Window – Virtual Server Auto Crash Recovery

UNIT III – Data & Server Connectivity Management Patterns

Direct I/O Access – Direct LUN Access – Single Root I/O Virtualization – Cloud Storage Data at Rest Encryption – Cloud Storage Data Lifecycle Management – Cloud Storage Data Management – Cloud Storage Data Placement Compliance Check – Cloud Storage Device Masking – Cloud Storage Device Performance Enforcement – Virtual Disk Splitting – RAID-Based Data Placement – IP Storage Isolation – Virtual Storage Folder Migration – Virtual Server Connectivity Isolation – Virtual Switch Isolation – Virtual Server NAT Connectivity – External Virtual Server Accessibility – Cross-Hypervisor Workload Mobility – Virtual Server-to-Host Affinity – Virtual Server-to-Virtual Server Antoi-Affinity – Statless Hypervisor

UNIT IV – Monitoring and Security Patterns

Usage Monitoring – Pay-as-You-Go – Real time Resource Availability – Rapid Provisioning – Platform Provisioning – Bare-Metal Provisioning – Automated Administration – Centralized Remote Administration – Resource Management – Self Provisioning – Power Consumption Reduction – Trusted Platform BIOS – Geotagging – Hypervisor Protection – Cloud VM Platform Encryption – Trusted Cloud Resource Pools – Secure Cloud Interfaces and APIs – Cloud Resource Access Control – Detecting and Mitigating User-Installed VMs – Mobile BYOD Security- Cloud Data Breach Protection – Permanent Data Loss Protection – In-Transit Cloud Data Encryption

UNIT V – Cloud Security

Data Asset Management and Protection – Cloud Asset Management and Protection – Identity and Assess Management – Security and Infrastructure as a Service – Security and Platform as a Service – Security and Software as a Service – Detecting, Responding to, and Recovering from Security Incidents

Total Hours: 45

9 Hrs

9 Hrs

TEXT BOOKS

- 1. Thomas Erl, Robert Cope, Amin Naserpour, "Cloud Computing Design Patterns", Prentice Hall, 2015, ISBN-13: 978-0-13-385856-3
- 2. RajkumarBuyya, Christian Vecchiola, S. ThamaraiSelvi, "Mastering Cloud Computing Foundations and Applications Programming", Elsevier, 2013, ISBN: 978-0-12-411454-8
- 3. Lee Newcombe ,"Securing Cloud Services: A Pragmatic Approach to Security Architecture in the Cloud", IT Governance Publishing, 2012, ISBN 978-1-84928-397-7
- 4. Chris Dotson, "Practical Cloud Security: A Guide for Secure Design and Deployment", O'Reilly Media. 2019

REFERENCE BOOKS

- 1. Vic (J.R.) Winkler, "Securing the Cloud: Cloud Computer Security Techniques and Tactics", Syngress is an imprint of Elsevier, 2011, ISBN: 978-1-59749-592-9
- 2. Dan C. Marinescu, "Cloud Computing Theory and Practice", Morgan Kaufmann Elsevier Inc, 2018, ISBN: 978-0-12-812810-7.
- 3. Ronald L. Krutz Russell Dean Vines, "Cloud Security A Comprehensive Guide to Secure Cloud Computing", Wiley Publishing, Inc, 2010, ISBN: 978-0-470-58987-8.

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.L r | P/R | С |
|----------------|---|------------------|---|------------|-----|---|
| EBOL22I01 | ONLINE COURSE (NPTEL/SWAYAM /Any MOOC approved by AICTE/UGC) | IE | 1 | 0/0 | 1/0 | 1 |

Students should register for the online course with a minimum course duration of 4weeks through the online portals such as NPTEL/SWAYAM/Any MOOC in the beginning of the semester. A mentor will be assigned by the department for monitoring the students.

Students are expected to attend the online classes regularly and submit the weekly assignments before the due dates. Students should appear for the online examination and submit the certificate at the end of the semester. Internal Examination will be conducted by the examiners duly appointed by the head of the department.

| Subject Code: EBCF22L05 | COU FUN | COURSE NAME : FUNDAMENTALS OF INFORMATI SECURITY LAB Prerequisite: NIL | | | | | | | b/ETL | L | T/S. | Lr | P/R | C |
|----------------------------|--|---|-----------|----------|----------|------------------------|----------------------------------|-------------|-----------------|------|------------|-----|------|-----|
| L. Lesture T. 7 | Freiet | <u>quisite:</u> | INIL | | | . D . D. | aia at D | | 40 arah Ci C | U | U/(| J | 3/0 | 1 |
| Tv/Lb/ETL · Th | eory/L: | S.Lf ah/Emh | : Super | Theory | and Lal | g P : PI h | oject k | : Rese | arch C. C | real | 18 | | | |
| 19/20/212.11 | | | cuucu | meory | und Du | 0 | | | | | | | | |
| OBJECTIVES | : | | | | | | | | | | | | | |
| This lab session | will gi | ve prac | tical tra | ining o | n: | | | | | | | | | |
| Understar | nd the I | nforma | tion sec | urity | | | | | | | | | | |
| Implement | nt secur | ity feat | ures in | window | WS | | | | | | | | | |
| Assess at | tacks ar | nd vulne | erability | / | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| COURSE OUT | COMI | ES (CO | os):(3- | - 5) | | | | | | | | | | |
| CO1 | Illustr | ate pass | sword n | nanagei | ment po | olicy | | | | | | | | |
| CO2 | Demo | nstrate | window | vs firew | vall and | config | uration | of rules | 5 | | | | | |
| CO3 | Use windows monitoring tools | | | | | | | | | | | | | |
| CO4 | Use vulnerability assessment and scanning tools | | | | | | | | | | | | | |
| CO5 | Analyze event log and its correlation with an incident | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcome | es (COs | s) with | Progra | m Out | comes (| (POs) | | -1 | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | D10 | PO | 11 P | 012 |
| CO1 | 3 | 3 | 2 | | | 3 | | | 1 | | | | | |
| CO2 | 3 | 3 | 1 | | | 3 | | | 1 | | | | | |
| CO3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | | 1 | | | 3 | | 2 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | | 1 | | | 3 | | 2 |
| CO5 | 3 | 3 | 3 | 3 | | 3 | 3 | | 1 | | 3 | | | |
| Mapping of Co | urse O | utcome | es (COs | s) with | Progra | m Spe | cific Ou | tcome | s (PSOs) | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO | 3 | | | PS(|)4 | |
| CO1 | | 3 | | | | | | | | | | | | |
| CO2 | | 3 | | | | | | | | | | | | |
| CO3 | | 3 | | | 3 | | | 3 | | | | 3 | | |
| CO4 | | 3 | | | 3 | | | 3 | | | | 3 | | |
| CO5 | | 3 | | | 3 | | | | | | | 3 | | |
| 3/2/1 indicates | Streng | th of C | orrelat | ion 3 | - High, | 2- Mee | lium, 1 | -Low | | | | | | |
| Category | Basic Sciences Engineering Sciences Humanities and Social Sciences Program Core Electives Open Electives | | | | | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | | |
| | | | | | | | v | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|---|-----------|---|--------|-----|---|
| EBCF22L05 | FUNDAMENTALS OF INFORMATION SECURITY LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. User identity and access management
- 2. User account controls and its authentications
- 3. Windows password management policy
- 4. Windows firewall and its configuration of rules
- 5. To make understand the importance of group policy
- 6. Windows monitoring tools
- 7. Vulnerability assessment and scanning
- 8. Event log and its correlation with an incident.
- 9. Importance of hashing
- 10. Rainbow attack
- 11. Installation of Rootkits and study variety of options
- 12. Demonstrate Intrusion Detection System using any tool

| $\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$ | Subject Code: EBCF22L06 | COURSE NAME : DATABASE SERUCITY LAB Ty/Lb/ETI | | | | | | | | | L T/ | S.Lr | P/R | C | | | |
|---|--|--|-------------------------|-----------------------------------|-------------------|----------------------|--|-----------------------------|----------------------------------|-------------|--------|------|-----|------|--|--|--|
| L: Lecture T: Tutorial S.Lr: Supervised Learning P: Project R: Research C: Credits OBJECTIVES: This lab deals in • Various steps to be taken in order to secure a database • Creating and managing users and also to grant and revoke privileges to such users • Various authentication modes, learn how to configure various policies and parameters COURSE OUTCOMES (COS) : (3-5) CO3 Managing users CO3 Administering privileges CO3 Manging of Course Outcomes (COs) with Program Outcomes (POs) CO4 CO4 CO3 Manping of Course Outcomes (COs) with Program Outcomes (POs) CO4 CO3 CO4 CO4 CO3 Marping of Course Outcomes (COs) with Program Specific Outcomes (POs) CO4 CO4 CO5 Secore Outcomes (COs) with Program Specific Outcomes (PSOs) CO4 Secore PSO3 | | Prerec | quisite: | NIL | | | | | L |) | 0 | 0/0 | 3/0 | 1 | | | |
| OBJECTIVES : This lab deals in Various steps to be taken in order to secure a database Creating and managing users and also to grant and revoke privileges to such users Various authentication modes, learn how to configure various policies and parameters COURSE OUTCOMES (COs) : (3-5) CO2 Administering privileges CO3 Managing users CO4 CO3 Managing services CO4 CO4 CO5 Mapping of Course Outcomes (COs) with Program Outcomes (POs) CO3 3 3 2 3 1 1 2 2 3 <li3< li=""> 2 3 2 <</li3<> | L : Lecture T : T Ty/Lb/ETL : Th | Futorial eory/L | S.Lr ab/Emb | : Super edded ' | vised L Theory | earning and La | g P:Pı b | roject R | : Resea | rch C: C | redits | | | | | | |
| COURSE OUTCOMES (COs) : (3-5) CO1 Managing users CO2 Administering privileges CO3 Managing users CO4 CO4 CO4 CO4 CO5 Mapping of Course Outcomes (COs) with Program Outcomes (POS) CO4 CO1 3 3 1 PO1 PO1 PO1 PO1 PO1 PO11 PO12 1 CO4 CO3 3 2 2 1 CO4 2 2 1 1 2 1 CO5 PO1 PO10 PO11 PO12 2 1 CO4 2 2 2 <th 2"2"2"2"2"2"2"2"2"2"2"2"2"2"2"2"2"2"<="" colspan="6" td=""><td colspan="11"> OBJECTIVES : This lab deals in Various steps to be taken in order to secure a database Creating and managing users and also to grant and revoke privileges to such users Various authentication modes, learn how to configure various policies and parameters COURSE OUTCOMES (COs) : (3- 5)</td></th> | <td colspan="11"> OBJECTIVES : This lab deals in Various steps to be taken in order to secure a database Creating and managing users and also to grant and revoke privileges to such users Various authentication modes, learn how to configure various policies and parameters COURSE OUTCOMES (COs) : (3- 5)</td> | | | | | | OBJECTIVES : This lab deals in Various steps to be taken in order to secure a database Creating and managing users and also to grant and revoke privileges to such users Various authentication modes, learn how to configure various policies and parameters COURSE OUTCOMES (COs) : (3- 5) | | | | | | | | | | |
| $ \begin{array}{ c c c c c c c c } \hline CO1 & Managing users & & & & & & & & & & & & & & & & & & &$ | COURSE OUT | COM | ES (CO | (3):(3) | - 5) | | | | | | | | | | | | |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | CO1 | Mana | ging us | ers | | | | | | | | | | | | | |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ | CO2 | Admi | nisterin | g privil | eges | | | | | | | | | | | | |
| $ \begin{array}{ c c c c c c c c } \hline CO4 & \hline CO5 & \hline Mapping of Course Outcomes (COs) with Program Outcomes (POs) \\ \hline Mapping of Course Outcomes (COs) with Program Outcomes (POs) \\ \hline COs/POs & PO1 & PO2 & PO3 & PO4 & PO5 & PO6 & PO7 & PO8 & PO9 & PO10 & PO11 & PO12 \\ \hline CO1 & 3 & 3 & 3 & 2 & 2 & 3 & 1 & 1 & 1 & 2 & 1 \\ \hline CO2 & 3 & 3 & 2 & 2 & 3 & 2 & 2 & 3 & 2 & 2$ | CO3 | Mana | ging ser | rvices | | | | | | | | | | | | | |
| COS Mapping of Course Outcomes (COs) with Program Outcomes (POs) COs/POs PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 COS/POs PO1 3 3 2 3 1 1 2 1 CO1 3 3 2 2 3 1 1 2 1 CO2 3 3 2 2 3 2 2 3 2 1 1 2 1 CO3 3 2 3 2 2 3 2 1 1 2 1 CO4 1 2 3 2 2 3 2 1 1 2 1 CO4 1 1 1 2 1 1 1 1 2 1 CO4 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 <td><u> </u></td> <td></td> | <u> </u> | | | | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Outcomes (POs) COs/Pos PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 CO1 3 3 3 2 3 1 1 2 1 CO2 3 3 2 2 3 2 2 1 CO3 3 2 3 2 1 1 2 1 CO4 1 2 1 1 2 1 1 2 1 CO4 1 1 2 1 1 1 2 1 CO4 1 | <u>CO5</u> | | | (00) | × •41 | <u> </u> | | | | | | | | | | | |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ | Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | ım Out | comes (| POs) | | | | | | | | |
| CO1 3 3 3 2 3 1 1 2 1 CO2 3 3 3 2 2 3 2 2 1 CO3 3 2 3 2 2 3 2 1 2 1 CO3 3 2 3 2 1 2 1 2 1 CO4 Image: Cost of the state of the | COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO | 11 | PO12 | | | |
| CO2 3 3 3 2 2 3 2 1 CO3 3 2 3 2 3 2 1 2 1 CO3 3 2 3 2 1 2 1 2 1 CO4 Image: Cost of the second | CO1 | 3 | 3 | 3 | 2 | | 3 | | 1 | | 1 | 2 | 2 | 1 | | | |
| CO3 3 2 3 2 1 2 1 CO4 I <thi< th=""> <thi< th=""> <thi< th=""></thi<></thi<></thi<> | CO2 | 3 | 3 | 3 | 2 | 2 | 3 | | 2 | | | 2 | 2 | 1 | | | |
| CO4 Image: CO4 Image: CO5 Image: CO2 Image: CO2 Image: CO3 Image: CO4 Image: CO5 Image: CO5 Image: CO5 Image: CO5 Image: CO5 Image: CO5 Image: CO3 Image: CO3 Image: CO3 Image: CO3 Image: CO3 Image: CO4 | CO3 | 3 | 2 | 3 | | 2 | | | | | | 2 | 2 | 1 | | | |
| CO5 Mapping of Course Outcomes (COs) with Program Specific Outcomes (PSOs) COs / PSOs PSO1 PSO2 PSO3 PSO4 CO1 3 3 3 3 CO2 3 3 3 3 CO3 3 3 3 3 CO4 3 3 3 3 CO5 9 9 9 9 9 9 9 J2/1 indicates Strength of Correlation 3- High, 2- Medium, 1-Low 1 | CO4 | | | | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Specific Outcomes (PSOs)COs / PSOsPSO1PSO2PSO3PSO4CO13333CO23333CO33333CO4CO533July 100 Strength of Correlation 3- High, 2- Medium, 1-LowVolta Strength of Correlation 3- High, 2- Medium, 1-LowVolta Strength of Correlation 3- High, 2- Medium, 1-LowSolt SkillsNote Strength of Correlation 3- High Strength Str | CO5 | | | | | | | | | | | | | | | | |
| COs / PSOsPSO1PSO2PSO3PSO4C0133333C0333333C0403333C0503333C0403333C05033333/2/1 indicates Strength of Correlation3- High, 2- Medium, 1-Low33/2/1 indicates Strength of Correlation3- High, 2- Medium, 1-LowSolit SkillsyyyJunctional SkillsyyJunctional SkillsyyJunctional SkillsyyJunctional SkillsyyJunctional SkillsyyJunctional SkillsyyJunctional SkillsyyJunctional SkillsyJunctional Skillsy | Mapping of Co | urse O | utcom | es (COs | s) with | Progra | ım Spe | cific Ou | tcomes | (PSOs) | 1 | | | | | | |
| CO1 3 3 CO2 3 3 CO3 3 3 CO3 3 3 CO4 3 3 CO4 3 3 CO5 3 3 CO5 3 3 J2/2/1 indicates Strength of Correlation 3- High, 2- Medium, 1-Low J2/2/1 indicates Strength of Core Social Sciences Social Sciences Solit Skills Deoject Internships / Deoject Internships / | COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | PS | 04 | | | | |
| CO2 3 3 CO3 3 3 CO4 3 3 CO4 2004 3 CO5 3 3 CO4 2004 3 CO5 3 3 J2/1 indicates Strength of Correlation 3- High, 2- Medium, 1-Low J2/2/1 indicates Strength of Correlation 3- High, 2- Medium, 1-Low Soft Skills Nogram Core Social Sciences Soft Skills Nogram Core Soft Skills Nogram Core | CO1 | | 3 | | | | | | | | | 3 | \$ | | | | |
| CO3 3 3 CO4 CO5 Co5 3/2/1 indicates Strength of Correlation 3- High, 2- Medium, 1-Low Jbrogram Coiences Basic Sciences Social Sciences Social Sciences Social Sciences Soft Skills Junantities and Anactical Anactical | CO2 | | 3 | | | | | | | | | 3 | 5 | | | | |
| CO4 CO4 CO2 Costegory CO2 Basic Sciences Basic Sciences Basic Sciences J/2/1 indicates Strength of Correlation 3- High' 5- Medium' 1- Fow Program Core Program Core Program Core Social Sciences Soft Skills Open Electives Soft Skills Soft Skills | CO3 | | 3 | | | | | | | | | 3 | \$ | | | | |
| CO3 Category Program Program Program Program Project Project Project Project Cote Project | <u>CO4</u> | | | | | | | | | | | | | | | | |
| 3/2/1 indicates Strength of Correlation 3- High, 5- Medium, 1-Fom Category Category Basic Sciences Basic Sciences Program Humanities and Program Program Core Social Sciences Soft Skills Anactical / | <u>CO5</u> | | | | | | | | | | | | | | | | |
| Category Basic Sciences Engineering Sciences Humanities and Social Sciences Program Electives Open Electives Open Electives Soft Skills Soft Skills | 3/2/1 indicates | Streng | th of C | orrelat | ion 3 | - High, | 2- Me | dium, 1 | -Low | | | | | | | | |
| | Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Project | Internships / Technical Skill | Soft Skills | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|-----------------------|-----------|---|--------|-----|---|
| EBCF22L06 | DATABASE SECURITY LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Managing Users
 - a. Creating Users
 - b. Check for Default Users
 - c. Modifying Users
 - d. Check or weak passwords
 - e. Lock & Remove Accounts
 - f. List of Logins
 - g. Pre-Defined Roles
- 2. Closing Unnecessary Services
- 3. Server Authentication Modes
- 4. Configuration Parameters
- 5. Database Links
- 6. Permission on Procedures
- 7. Linked Servers
- 8. Designing & Implementing Password Policies
- 9. Grant & Revoke User Privileges
- 10. Managing roles
- 11. Managing Views
- 12. Exceptional handling

| COUL COD EBCF2 | RSE DE: 22102 | | COURSE NAME: TECHNICAL SKILL II ETL/IE | | | | | | | | T/S.Lr | P/R | С |
|----------------------|---------------------|---------------------|--|----------------------------------|---------------------|---------------------|-------------------|--------------------|--------------|-----------------|----------|--------------------|------|
| | | Prere | equisite | e: Nil | | | | | IE | 0 | 0/0 | 2/0 | 1 |
| L : Lec Ty/Lb/I | ture T ETL/I | ' : Tuto E : The | orial S eory/La | Lr : Suj b/Embe | pervised dded Tł | d Learn neory ai | ing P : nd Lab | Proje | ect R : R | esearch | C: Credi | ts | |
| OBJE | CTIV | ES: | | | | | | | | | | | |
| The st | udent | s shou | uld be i | made to |) | | | - | | | | | |
| • | Tom | lake th | e stude | nts exper | rt in doi | main sp | ecific k | now | ledge. | ماييمو | | | |
| | Tof | cilitate | e the sti | idents w | vith eme | erging te | echnolo | ai ain | i morar v | alues. | | | |
| COUR | SE O | UTCO | MES (| (COs): S | Students | will be | e able to |) | | | | | |
| CO1 | Und | erstand | l the do | main sp | ecific k | nowled | ge. | | | | | | |
| CO2 | Able | e to app | oly idea | listic, pr | actical | and mo | oral valu | les. | | | | | |
| CO3 | Fam | iliarize | e with e | merging | techno | logy | | | | | | | |
| Mappi | ng of | Cours | e Outc | omes wi | th Prog | gram O | outcom | es (P | Os) | | | | |
| COs/P | Os | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO | 7 PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | 1 | 3 | 3 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 3 | 1 |
| CO | 2 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 1 |
| CO. | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | 3 | 1 |
| COs /PSOs | | PSO1 | | | PS | 02 | • | | PSO3 | • | | PSO4 | |
| CO | 1 | 2 | 3 | | 3 | | | | 1 | | | 1 | |
| CO | 2 | | 3 | | 3 | | | | 1 | | | 3 | |
| CO. | 3 | | 3 | | 3 | | | | 1 | | | 3 | |
| 3/2/1in | dicate | es Stre | ngth of | f Correl | ation | 3- Hig | h, 2- M | ediu | m, 1-Lov | V | | | |
| | Category | Basic Science | Engineering | Humanities and social Science | Program Core | Program elective | Open Elective | Inter Disciplinary | | Skill Component | | Practical /Project | |
| | | | | | | | | | | v | | | |

117 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|--------------------|------------------|---|--------|-----|---|
| EBCF22I02 | TECHNICAL SKILL II | IE | 0 | 0/0 | 2/0 | 1 |

OBJECTIVES:

- To make the students expert in domain specific knowledge.
- To develop professionals with idealistic, practical and moral values.
- To facilitate the students with emerging technology.

From the list of skill development courses declared by the department, the students are expected to acquire the skill and get certified. This will be evaluated at the end of the semester by the faculty.

DESCRIPTION:

Students should acquire skill in the domain/inter disciplinary area from government/private training centers/industries /University for a minimum period of 15 calendar days. The training can be through off line, online or mixed mode. Students are supposed to prepare Technical skill report at the end of the training and submit the report along with the certificate in proof of the training, during the viva voce examination conducted by the examiners duly appointed by the head of the department.

| COURSE | COU | RSE NA | ME: | | | | | ти | . / | | T | , | | |
|-----------------------------|---|---|-------------|-------------------|-------------|-----------------------|---|----------|-------------|--------|---------|-------|--------|----|
| CODE | | | | | | | | Ty/L | b/ | L | 1 | / | P/R | С |
| EBCS22ET5 | | USEI | R EXP | ERIEN | ICE DI | ESIGN | | ET | L/IE | | S.I | l'r | | Ũ |
| | Prereo | uisite: N | JIL | | | | | ETL | | 2 | 0/ | 0 | 2/0 | 3 |
| L : Lecture T : T | utorial | S.Lr : | Supervis | ed Learn | ing P:1 | Project I | R : Resea | rch C: C | redits | | | - | _, , | |
| Ty/Lb/ETL/IE : | Theory | /Lab/Em | ibedded ' | Theory a | nd Lab | 5 | | | | | | | | |
| OBJECTIVE | S: | | | | | | | | | | | | | |
| The students sh | nould t | be made | to | | | | | | | | | | | |
| Gain k | nowle | dge on t | he desir | able fea | tures of | good us | ser inter | faces an | d the des | sign p | roces | S | | |
| Ability | y to design effective screens, web interfaces, system menus and navigational schemes and to | | | | | | | | | | | | | |
| identif | y suita | ble inter | action o | levices. | | | | _ | | | | | | |
| Ability | to ide | ntify the | e Interna | ationaliz | ation as | spects of | User In | iterface | Design a | and ap | oply th | nem i | in | |
| practic | e. | | | | | | | | | | | | | |
| COURSE OU | TCON | AES (C | Os): Stu | idents w | vill be al | ole to | | | | | | | | |
| CO1 | Unde | Understand the many considerations involved in interface and screen design (L1) | | | | | | | | | | | | |
| CO2 | Learr | n the rati | ionale a | nd apply | the rul | es for a | n effecti | ve desig | n metho | dolog | y (L3 |) | | |
| CO3 | Design and organize screens and Web pages that encourage efficient, accurate comprehension | | | | | | | | | sion | | | | |
| | and e | and execution (L5) | | | | | | | | | | | | |
| CO4 | Identify the components of graphical and Web interfaces and screens — windows, menus, | | | | | | | | | | | | | |
| | and c | ontrols | (L2) | <u> </u> | | · · | 1 11 | | | | . 1 | | (1.5 | |
| CO5 | Perfo | rm the u | iser inte | erface de | esign pro | $\frac{1}{1}$ | cluding | interfac | e develo | pmen | it and | testu | ng (L5 |) |
| COs/POs | PO | PO2 | PO3 | ogram (PO4 | PO5 | <u>s (PUs)</u> PO6 | PO7 | PO8 | POQ | PC | 10 | PO1 | 1 P | 01 |
| | 1 | 102 | 105 | 104 | 105 | 100 | 10/ | 100 | 10) | 10 | /10 | 101 | 2 | 01 |
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | | 1 | | 1 | 1 | | |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | | | | 1 | 1 | | 1 |
| C03 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | | | | | 1 |
| C04 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | | | | | | |
| 05 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO | 3 | | | PSC | 04 | |
| CO1 | | 3 | | | 3 | | | 3 | | | | 2 | , | |
| CO2 | | 3 | | | 2 | | | 3 | | | | 2 | , | |
| CO3 | | 3 | | | 2 | | | 2 | | | | 2 | , | |
| CO4 | | 3 | | | 3 | | | 3 | | | | 2 | , | |
| CO5 | | 3 | | | 2 | | | 2 | | | | 2 | , | |
| 3/2/1 Indicates | Streng | th Of Co | orrelatio | n, 3 – H i | igh, 2- N | <u>Iedium,</u> | 1- Low | | | | | | | |
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| 080 | c S | eer | mit Sc | am | ive bive | Еľ | ilqi | Ŭ | tic: ect | | | | | |
| Cate | asi | gin Scie | uma cial | ogra Te | Prc | en | isc | kill | rac Proj | | | | | |
| | В | En g S | Hu | Pr(Co | e | Op | O I I I I I I I | | | | | | | |
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119 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
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| EBCS22ET5 | USER EXPERIENCE DESIGN | ETL | 2 | 0/0 | 2/0 | 3 |

UNIT-I INTRODUCTION TO USER INTERFACES

Importance of User Interface: Definition-Importance of good design-Benefits of good design Characteristics of Graphical and Web Interfaces: Interaction styles-The Graphical User Interfaces Popularity of graphics - The concept of direct manipulation - Advantages/Disadvantages of Graphical systems-Characteristics of GUI- The Web User Interface-Popularity and characteristics of Web Interface-Principles of User Interface Design.

UNIT-II USER INTERFACE DESIGN PROCESS

Designing for people-Seven Commandments-Common usability problems-measures of usability. Know your user (or) Client: Important Human Characteristics in design- Human Considerations in the design - Human Interaction Speeds-Performance versus preference. Understand the business function: Business definition and requirements analysis-determining basic business functions-Design Standards (or) Style Guides-Training and documentation needs.

UNIT-III INTERFACE AND SCREEN DESIGN

Interface Design Goals - Screen & Web page Meaning and purpose- Organizing Elements – consistency Starting point-Ordering Data and Content - Navigation and Flow - Visually Pleasing Composition - Distinctiveness- Focus and Emphasis - Technological considerations in Interface Design.

UNIT IV DEVELOP SYSTEM MENUS AND NAVIGATION SCHEMES

Structure of Menus: Single-Sequential Linear- Simultaneous-Hierarchical-Connected-Event Trapping Menus. Functions of Menus: Navigation-Execution-displaying information-parameter input. Contents of Menus: Menu context-Menu Title-Choice Descriptions-Completion Instructions. Formatting of Menus: Consistency-Display-Presentation-Organization-Complexity-Item arrangement- Ordering-Grouping-Selection support Menus. Phrasing the menus: Menu Titles -Menu Choice description-Menu Instruction-Intent Indicators-Keyboard short cuts.Web site Navigation Kinds of Graphical menus.

UNIT V WINDOWS AND INTERACTION DEVICES

Window Characteristics- Components of a Window-Window Presentation Styles-Types of Windows Organizing Window functions-The Web and the Browser. Input Devices-Characteristics-Selection of proper input device. Output Devices-Screens-Speakers International Considerations:-Localization-Cultural considerations-Words and Texts-Images and symbols- Colors, Sequence and functionality-Requirements determination and testing. Accessibility: Types of Disabilities-Accessibility Design.

TEXT BOOKS:

1.The Essential Guide to User Interface Design: An Introduction To GUI Design Principles and Techniques 3rd Edition, By Wilbert O. Galitz

2. User Interface Design and Evaluation 1st Edition - March 22, 2005 Debbie Stone, Caroline Jarrett, Mark Woodroffe, ShaileyMinocha

REFERENCE BOOKS:

Wilbert O Galitz, "The Essential Guide to User Interface Design", Wiley India Pvt., Ltd., Third Edition,
 Ben Shneidermann, "Designing the User Interface", Pearson Education Asia, Fifth Edition, 2013
 Alan Dix, Janet Finlay, G D Abowd and Russel Beale, "Human Computer Interaction", Pearson Education

120

12 Hrs

12 Hrs

12 Hrs

12 Hrs

12 Hrs

SEMESTER - VI

| Subject Code: EBCF22009 | COU ADV | RSE N. ANCE | AME : D INF | ORM | ATIO | N | | Ty/Lb/H | ETL | L | T/S.Lr | P/R | С |
|--|--------------------|-------------------------|-----------------------------------|--------------|----------------------|----------------|------------------------|----------------------------------|------------|-------|-------------|------|------|
| | SECU | URITY | ζ | | | | | | | | | | |
| | Prerec | quisite: | NIL | | | | | Ту | | 3 | 1/0 | 0/0 | 4 |
| L : Lecture T : $T_{V}/I b/FTI \cdot T$ | Tutoria heory/I | l S.Li | : : Supe | rvised | Learnin | g P:P | roject R | R : Researc | ch C: C | Credi | its | | |
| Ty/L0/L1L.1 | neor y/L | | Jeuueu | Theory | | 10 | | | | | | | |
| OBJECTIVES | 5: | | | | | | | | | | | | |
| The paper on A | dvance | d Infor | mation | Securit | y would | d apprai | ise a stud | dent on | | | | | |
| • Informat | ion sec | urity ne | ed and | practic | es | | | | | | | | |
| Need for | · securi | ng data | at rest a | and whe | en trans | mitting | | | | | | | |
| Secure in | nformat | ion from | n data l | loss | | 8 | | | | | | | |
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| | | | | | | | | | | | | | |
| COURSE OU | ТСОМ | ES (CO | \mathbf{Ds}):(3 | 8- 5) | | | | | | | | | |
| CO1 | Under | rstand i | informa | tion se | curity st | tandard | s practic | es, guidel | ines a | nd m | ethodolo | gies | |
| CO2 | Secur | e data a | t rest | | | | | | | | | | |
| CO3 | Secur | e netwo | ork for s | safety ti | ansmis | sion of | data | | | | | | |
| CO4 | Imple | ments s | ecurity | models | s efficie | ntly | | | | | | | |
| CO5 | Learn | s to pro | tect and | d recov | er data f | from di | saster | | | | | | |
| Mapping of C | ourse (| Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | - | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | | | | | | | | | | 1 |
| CO2 | 3 | 3 | 3 | | | 3 | | 3 | | | | | 2 |
| CO3 | 3 | 3 | 3 | | | 3 | | 3 | | | | 2 | 2 |
| CO4 | 3 | 3 | 3 | | | 3 | | 3 | 1 | | | 2 | |
| CO5 | 3 | 1 | 3 | | 3 | 2 | 3 | | | | | 3 | 3 |
| Mapping of C | ourse (| Outcom | es (CO | s) with | Progra | am Spe | cific Ou | itcomes (l | PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | | 3 | | | | | | | | | | 3 | |
| CO2 | | 3 | | | | | | | | | | 3 | |
| CO3 | | 3 | | | | | | | | | | 3 | |
| CO4 | | 3 | | | | | | 2 | | | | 3 | |
| CO5 | | 3 | | | | | | 2 | | | | 3 | |
| 3/2/1 indicates | Streng | gth of C | Correla | tion 3 | 8- High | , 2- Me | dium, 1 | -Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | SULAC 110C | | | | |
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121 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| Subject Code: | Subject Name | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22009 | ADVANCED INFORMATION SECURITY | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I - Introduction

Information Security Overview – Evolution of Information Security – Security Methodology – Building a Security Program - CIS Triad and Other Models - Defence Models - Best Practices for Network Defence - Security Policies - Security Standards - Security Procedures - Security Guidelines - Security Organization: Roles and Responsibilities - Security Services - Members

UNIT II – Data Security

Authentication - Authorization - Compliance with Standards -Securing Unstructured Data - Information Rights Management – Encryption – Storage Security – Database Security

UNIT III – Network Security

Secured Network Design - Security - Compliance with Standards - Network Device Security - Firewalls – IDS – VoIP and PBX Security

UNIT IV – Computer Security and Application Security

Operating System Models - Classic Security Models - Securing Infrastructure Services - Secure Development Lifecycle - Application Security Practices - Web Application Security - Client Application Security - Remote Administration Security - Controlling Application Behavior

UNIT V – Security Operations

Security Operations Management - Disaster Recovery Business Continuity, Backups and High Availability – Physical Security

TEXT BOOK:

1. Mark Rhodes-Ousley,"Information Security: The Complete Reference", McGraw Hill, 2013, ISBN: 978-0-07-178436-8.

REFERENCE BOOKS:

- 1. Rolf Oppliger, "Security Technologies for the World Wide Web", Artech House, 2000
- 2. Brent Chapman and Elizabeth Zwicky, "Building Internet Firewalls", O'Reilly and Associates. 1995

12 Hrs

12 Hrs

12 Hrs

Total Hours: 60

12 Hrs

| Subject Code: | COU | RSE N | AME : | | | | | Tv/Lb/ | ETL | L | T/S.L | r P/R | С |
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| Ty/L0/L1L.1 | neory/1 | | Deudeu | Theory | anu La | 10 | | | | | | | |
| OBJECTIVES | · · | | | | | | | | | | | | |
| This paper will | explaiı | 1 | | | | | | | | | | | |
| • princip | les of s | oftware | securit | v and to | estino n | nethodo | logies | | | | | | |
| about y | various | applica | tion tyr | es and | their vu | Inerabi | lities | | | | | | |
| overvie | ew of v | arious s | ecurity | models | pertine | ent to at | plicatio | ns | | | | | |
| | | | ••••• | | perente | | -p | | | | | | |
| | | | | | | | | | | | | | |
| COURSE OU | ГСОМ | ES (CO | \mathbf{Ds}):(3 | 3- 5) | | | | | | | | | |
| CO1 | Identi | fy web | applica | tion sec | urity co | ontrols | and risk | mitigatio | on tech | nique | es | | |
| <u>CO2</u> | Evalu | ate app | lication | securit | y vulne | rabilitie | es | | | | | | |
| <u> </u> | Learn | archite | cture of | t variou | s applic | cations | aatian | | | | | | |
| C04 | Devial | to eval | uale ine | e perior | mance (| of appli | | na mah k | acad a | mlia | ationa | | |
| COS Monning of C | | op a se | curity s | trategy | Drog | anon ic | | (\mathbf{PO}_{c}) | aseu aj | opiic | ations | | |
| Mapping of Co | ourse | Jutcom | les (CO | s) with | i r rogr | | icomes | (FUS) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | O10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | | 2 | | | | | | | |
| CO2 | 3 | 2 | 3 | 3 | | 2 | | | | | 2 | | |
| CO3 | 3 | 1 | 1 | 1 | | 1 | | | | | | | 1 |
| CO4 | 3 | 3 | 3 | 1 | | 2 | | | _ | | 3 | | |
| CO5 | 3 | 1 | 3 | 2 | _ | 2 | | 3 | 3 | | | 3 | 3 |
| Mapping of Co | ourse (| Jutcom | es (CO | s) with | Progra | am Spe | cific Ou | tcomes | (PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | | 3 | | | | | | | | | | 2 | |
| CO2 | | 3 | | | | | | 2 | | | | 2 | |
| CO3 | | 3 | | | | | | | | | | 1 | |
| CO4 | | 3 | | | | | | 2 | | | | 2 | |
| CO5 | | 3 | | | | | | | | | | 3 | |
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| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22010 | APPLICATION SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Fundamentals of Software Security

Software Security design principles - Pillars of Software Security - Fixing Bugs - Building Secure Software Systems - Software Security Best Practices -

UNIT II - Application Vulnerabilities

Buffer Overruns - Format String Problems - Integer Overflows - SQL Injection - Command Injection - Cross-Site Scripting - Weak Password-Based Systems - Information Leakage -Improper File Access – Race Conditions

UNIT III – Application Types and Testing

Client/Server Applications - Web Applications - Components of Web Application Architecture -Data Warehouse Applications - About DW Applications - Uses - Physical & Logical Architecture - Overview of Application Software Testing - Application Testing Methodologies - Software Test Plan – Application Testing Cycles – Application Testing Tools – Best Practices

UNIT IV – Application Security Models

Types of Models - Use Application Roles - Connect to DB as Proxy Server - Retrieve Application Role Name - Security Model based on Application Roles - Architecture - Implementation in SQL Server - Characteristics of Application Security Models

UNIT V – Building Secured Web Application

Web Application Firewall - Bot Management - Threat Intelligence - Backdoor Shell Protection -SSL / TLS - DDoS Protection - Advanced Persistent Threat (ATP) Protection - Access Management - Regulatory Compliance - Security Customization - SIEM Integration - Security the Network, Host and Application – Host Security – Securing your Application

Total Hours: 45

TEXT BOOK:

1. NareshChauhan (2014) Software Testing – Principles and Practices, Oxford University Press, ISBN: 978-0-1980618-47

REFERENCE BOOKS:

- 1. The Art of Software Testing 3rd Edition, Glenford J. Myers, Corey Sandler, Tom Badgett (2012) : John Wiley & Sons, Inc. - ISBN: 978-1-118-13315-6
- 2. Bryan Sullivan, Vincent Liu (2012) Web Application Security, ISBN: 978-0-07-177612-7

124

B.Tech – Cyber Forensics and Information Security -2022 Regulation

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| Subject Code: | COU CYB | RSE NA ER CF | AME : RIMIN | OLOG | GY AN | D CY | BER | T | y/Lb/ETL | L | T/S.Lr | P/R | C |
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| L · Lecture T · 7 | Tutoria | $\frac{1}{1}$ S Lr | · Super | vised I | earning | _Σ P · Pr | oiect R | · Rese | arch C: Cre | edits | 0/0 | 0/0 | 5 |
| Ty/Lb/ETL : Th | neory/L | ab/Emt | bedded ' | Theory | and La | b | 0,000 1 | | | | | | |
| OBJECTIVES This paper will • cybercrin • Forms of • Cybercrin | provide ne beha Cyber metheor | e a deta vior an Crimes ries and | iled kno d the co l agenci | owledge oncepts es | e on: of cybe | er crime | | | | | | | |
| COURSE OUT | ГСОМ | ES (CC | Ds):(3 | - 5) | | | | | | | | | |
| CO1 | Introd | uces Cy | yber Cri | ime and | l Cyber | Crimin | ology | | | | | | |
| CO2 | Explai | ins diffe | erent for | rms of | Cyber (| Crimes | | | | | | | |
| CO3 | Analy | sing the | e Crimi | inal Bel | naviour | | | | | | | | |
| CO4 | Learn | the Psy | cholog | y of Cri | iminals | | | | | | | | |
| CO5 | Provic agenci | les info ies | rmation | about | crimino | ological | theorie | s and fu | inctions of | variou | s crime jı | istice | |
| Mapping of Co | ourse O | utcom | es (COs | s) with | Progra | m Out | comes | (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO1 | 0 PO1 | .1 P | PO1 2 |
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| CO2 | 3 | | | 2 | | 1 | | | | | 1 | | |
| CO3 | 3 | 3 | | 2 | | 1 | | | | | 1 | | |
| CO4 | 3 | | | 2 | | 1 | | | | | 1 | | |
| CO5 | 3 | | | 1 | | 1 | | | | | 1 | | |
| Mapping of Co | ourse O | outcom | es (COs | s) with | Progra | im Spe | cific Ou | itcomes | <u>s (PSOs)</u> | | DGO | | |
| COs / PSOs | | <u>PSOI</u> | | | PSO2 | | | PSO . | 3 | | PSO 4 | • | |
| | | 3 | | | | | | | | | | | |
| <u>C02</u> | | 3 | | | 3 | | | 3 | | | | | |
| C04 | | 3 | | | 5 | | | 5 | | | | | |
| C04 | | 3 | | | | | | | | | | | |
| 3/2/1 indicates | Streng | th of C | orrelat | ion 3 | - High, | 2- Mee | lium, 1 | -Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--------------------------------------|-----------|---|--------|-----|---|
| EBCF22011 | CYBER CRIMINOLOGY AND CYBER CRIME | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I: Basic Concepts of Cyber Criminology

Definition - Crime, Tort, Elements of Crime, Cyber Crime, Cyber Criminology, Information Security- Uniqueness and challenges of Cybercrimes, Conventional Crimes Vs Cyber Crimes, Cyber Space, Penetration Testing, Incident Response, GRC- Causes and Extent of Cyber Crimes.

UNIT II: Forms of Cyber Crimes

Cyber Crimes Against Property, Person, Nation and Organizations – Phishing, Denial of Service, Distributed Denial of Service, Malwares, Cyber Bullying, Cyber Stalking, Cyber Pornography, Cyber Espionage, Cyber Defamation, Web Defacement, Hacking, Cracking, Cyber Terrorism, Cyber Warfare, Cyber Vandalism, Insider Threats, Cyber based Political Crimes, IPR related frauds, Social engineering,

UNIT III: Cyber Crime – Applicationof Criminological Theories

Criminological Theories and Cyber Crime – Routine Activity Theory, Social Learning Theory, Differential Association Theory, Differential Opportunity Theory and other related theories.

UNIT IV:Psychology of Cyber Criminals

Types of Cyber Criminals – Modus Operandi of Cyber Criminals – Profiling of Cyber Criminals ; Psychological theories relating to cyber criminals-Personality, Motivation, Learning and Intelligence.

UNIT V:Cyber Crime and Criminal Justice Agencies

F.I.R. - Charge sheet - Cognizable and Non-cognizable offences- Cyber Crime Investigation and Collection of digital evidences— Cyber crime cells – Cyber Appellate Court- Role of National and International agencies in the prevention of Cyber Crimes. **Total Hours: 45**

TEXT BOOK:

- 1. Prof .V Paranjape, "Criminology, Penology and Victimology", Central Law Publication, Paperback, 2017
- 2. Ram Ahuja, "Criminology", Rawat Publication, Reprinted 2015
- 3. Mohamed Chawki, Ashraf Darwish, Mohammad Ayoub Khan, SapnaTyagi, "Cybercrime, Digital Forensics

and Jurisdiction" Springer; 2015 Edition, ISBN-13: 978-3319151496

4. Chuck Easttom, "Computer Crime, Investigation, and the Law", Delmar Cengage Learning, 2010

5.

REFERENCE BOOKS:

- 1. Burke, Roger Hopkins, "Introduction to Criminological Theory", Willan Publishing; 4th New edition, 2013
- 2. Srivastava S S, "Criminology and Criminal Administration", Central Law Agency, New Delhi, Paperback, 2017

126

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| Subject Code: | COU | RSE NA | ME : | : | | | | Т | y/L | b/ETL | L | T/S.Lr | P/R | С |
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| | LAB | | | | | | | | | | | | | |
| | Prereq | uisite: I | NIL | | | | | | | Lb | 0 | 0/0 | 3/0 | 1 |
| L : Lecture T : | Tutoria | l S.L | r : Supe | rvised | Learnin | g P:P | roject | R : Re | esear | ch C: Cr | edits | | | |
| Ty/Lb/ETL : T | Theory/I | _ab/Em | bedded | Theory | and La | ab | | | | | | | | |
| OBJECTIVE | S : | | | | | | | | | | | | | |
| In this practica | l paper | the stuc | lents w | ill hand | s on ex | perienc | e on: | | | | | | | |
| • Under | standing | g access | s contro | ol syster | ns, fire | walls a | nd log s | securit | y | | | | | |
| • Learni | ng VA | techniq | ues | 1.6 | | | | | | | | | | |
| • Server | securit | y and M | lalware | defenc | e mech | anisms | | | | | | | | |
| COURSE OU | Vulna | ES(CC) | <u>JS):(:</u> Seenni | <u>5-5)</u> | | | | | | | | | | |
| | Vuinei | capiffin | Scanni | ng | | | | | | | | | | |
| CO2 | Creati | ng and | <u>g</u> Analuzi | ing Vir | 16 | | | | | | | | | |
| C03 | Weba | ng anu i | | | 15 | amont | | | | | | | | |
| C04 | web a | ppneau | on vun | leraoint | y asses | smem | | | | | | | | |
| Manning of C | 'ourse (| Jutcom | | s) with | Progr | am Au | tromes | (POs |) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 |) | PO9 | PO1 | 0 PO1 | | 2 |
| CO1 | 3 | 3 | 100 | 3 | 2 | 2 | 2 | 100 | | 1 | - 01 | 3 | | 2 |
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| CO3 | 3 | 3 | | 3 | 1 | 2 | | | | 2 | | 1 | | |
| CO4 | 3 | 3 | | 3 | 2 | 2 | 2 | | | 2 | 2 | 3 | 2 | , |
| CO5 | | | | | | | | | | | | | | |
| Mapping of C | Course (| Dutcom | es (CO | s) with | Progr | am Spe | ecific O | utcon | nes | (PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PS | 03 | | | PSO | D4 | |
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| CO3 | | 3 | | | 3 | | | 3 | 3 | | | 3 | | |
| CO4 | | 3 | | | 3 | | | 3 | 3 | | | 3 | | |
| CO5 | ~ | | | | | | | | | | | | | |
| 3/2/1 indicates | s Streng | gth of C | Correla | tion 3 | 8- High | <u>, 2- Me</u> | dium, i | 1-Low | V | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
| | | | | | | | \checkmark | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--------------------------------------|-----------|---|--------|-----|---|
| EBCF22L07 | ADVANCED INFORMATION SECURITY LAB | Lb | 0 | 0/0 | 3/0 | 3 |

LIST OF EXPERIMENTS:

- 1. Passive Reconnaissance using "Who is" and Online tools
- 2. UDP and Ping Scanning using "Advance Lan Scanner" and "Superscan"
- 3. Full Scan, Half Open Scan and Stealth scan using "nmap"
- 4. Packet crafting using "Colasoft Packet Builder" tool
- 5. Exploiting MS08-067 Microsoft Server Service Relative Path Stack Corruption
- 6. Creating and Analyzing Virus
- 7. OS password cracking
- 8. Network packet password sniffing
- 9. Web application vulnerability assessment for SQL injection
- 10. Web application vulnerability assessment for CSRF/ XSS
- 11. Web application penetration testing using burp suite
- 12. Vulnerability Scanning using OpenVAS / Nessus

| Subject Code: | COU | RSE N | AME : | | | | | Ty/Lb | /ETL | L | T/S. | Lr | P/R | C |
|-------------------|----------|-------------|----------------|----------|-------------|--------------|--------------|--------------|----------|-------|-------------|------------|-------|-----|
| EBCF22L08 | A | PPLIC | CATIC | ON SE | CURII | TY LA | B | | | | | | | |
| | Preree | quisite: | NIL | | | | | L | b | 0 | 0/0 |) | 3/0 | 1 |
| L : Lecture T : 7 | Futorial | l S.Lr | : Super | rvised I | Learning | g P:Pr | oject I | R : Rese | arch C: | Cred | its | | | |
| Ty/Lb/ETL : Th | neory/L | ab/Emb | bedded | Theory | and La | b | | | | | | | | |
| OBJECTIVES | : | | | | | | | | | | | | | |
| This lab would | explain | to stud | lents | | | | | | | | | | | |
| How to | create | and dro | op appli | cation r | oles and | d activa | ting th | e applic | ation | | | | | |
| • To imp | plement | SQL | Server | in the | e applic | cation, | creatin | g a da | tabase a | and o | connec | ting | it to | the |
| applica | tion; an | d | | | | | | | | | | | | |
| • Authen | tication | of user | rs by th | e applic | ation | | | | | | | | | |
| COURSE OUT | ГСОМ | ES (CC | Ds):(3 | - 5) | | | | | | | | | | |
| CO1 | Create | e applic | ation ro | oles and | assign | to users | 5 | | | | | | | |
| CO2 | Establ | lish con | nection | betwee | en datab | base and | l applic | ation | | | | | | |
| CO3 | Conne | ecting to | o Proxy | server | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | m Out | comes | (POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 |) P(| 010 | PO1 | 1 PC |)12 |
| CO1 | 3 | 2 | 2 | 1 | | 3 | | 3 | | | 1 | 3 | | |
| CO2 | 1 | | | | | 3 | | | | | | | | |
| CO3 | 1 | | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | m Spe | cific O | utcome | s (PSOs |) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO: | 3 | | | PSO | 4 | |
| <u>CO1</u> | | 1 | | | | | | | | | | 2 | | |
| CO2 | | 2 | | | | | | | | | | 3 | | |
| <u>CO3</u> | | 2 | | | | | | | | | | 1 | | |
| <u>CO4</u> | | | | | | | | | | | | | | |
| | C1 | | | · . | TT* 1 | <u> </u> | | (T | | | | | | |
| 3/2/1 indicates | Streng | th of C | orrelat | 10n 3 | - Hign, | 2- Me | lium, I | L-LOW | | | | | | |
| | seor | ac | s and | ore | | ives | | / Skill | | | | | | |
| ory | cier | srin | Scie | Ŭ | L S | ect | al / | iips al S | lls | | | | | |
| teg | c Sc | nee | ani al 1 | ran | ran ive | ΠEI | ti: | nsh nic | Ski | | | | | |
| Cat | asic | ngi Sier | um Scié | 00 | og. lect | per | rac eje | ter. sch | off | | | | | |
| | В | ыŇ | ΝΫ́Η | P1 | Ъ | O | l e e | In T | Š | | | | _ | |
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| Subject Code: | Subject Name | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--------------------------|-----------|---|--------|-----|---|
| EBCF22L08 | APPLICATION SECURITY LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Implementation in SQL Server
- 2. Use Application Roles
- 3. Create/Drop application roles using command line
- 4. Activating application
- 5. Connect to DB as Proxy Server
- 6. Retrieve Application Role Name
- 7. Activate the application role
- 8. Creating DB & connecting to application
- 9. Application authenticates users

| | | | | 20 | 22 Reg | ulatioi | <u>n</u> | | | | | |
|------------------------------|---------------|---------------------------------|------------------|------------------|--------------|----------|------------|--------------------|--------------|-----------|----------|--------------|
| COURSE CODE: EBCS22I07 | COURS SOFT | E NAME: SKILL – I QUANTII | I (QUA `ATIVI | LITAT E SKILI | TVE A LS) | ND | Ty/ | Lb/ `L/I] E | | /S.Lr | P/R | C |
| | Prerequi | site: Nil | | | | | I | E | 0 | 0/0 | 2/0 | 1 |
| L : Lecture T : | Tutorial | S.Lr : Supe | ervised | Learnin | g P:P | roject | R : R | esearch | C: Cred | lits | | 1 |
| T/L/ETL : The | ory/Lab/E | Embedded T | heory a | nd Lab | | | | | | | | |
| OBJECTIVE | : | | | | | | | | | | | |
| The students | should b | e made to | | | | | | | | | | |
| To brin | ng behavi | oural patterr | ns of stu | idents. | | | | | | | | |
| To trai | n them fo | r corporate | culture. | | | | | | | | | |
| • To cre | ate self-av | vareness. | | | | | | | | | | |
| To bui | ld confide | ence. | | | | | | | | | | |
| • To trai | n the stud | ents for faci | ing the | interviev | ws and | develo | op inte | rpersona | l relation | onship. | | |
| COURSE OU | ТСОМЕ | S (COs) :St | udents | will be a | ble to | | | | | | | |
| CO1 | Recogniz | ze and apply | <i>arithm</i> | etic kno | wledge | e in a v | variety | of conte | exts. | | | |
| CO2 | Ability t | o identify ar | nd critic | ally eva | luate p | hilosoj | phical | argume | nts and | defend th | nem fron | n criticism. |
| CO3 | Define d | ata and inter | rpret in | formatic | on from | graph | IS. | | | | | |
| Mapping of C | ourse Ou | tcomes wit | h Prog | ram Ou | tcomes | (POs |) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO 5 | PO6 | PO | 7 PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 3 |
| CO2 | 2 | 2 | 2 | 3 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 1 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 |
| COs / PSOs | I | PSO1 | P | SO2 | | P | SO3 | | | | PSO4 | |
| CO1 | | 1 | | 1 | | | 2 | | | | 1 | |
| CO2 | | 1 | | 2 | | | 1 | | | | 1 | |
| CO3 | | 1 | | 1 | | | 2 | | | | 1 | |
| 3/2/1 Indicate | s Strengtl | h Of Correl | ation, . | 3 – Higł | n, 2- M | edium | n, 1- L | OW | | | | |
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| | ce | 50 | ano | | ore | ecti | ive | lin | loq | roje | | |
| ory | ien | ring | ties cier | | Ŭ | ı ele | ecti | scip | om | I/P | | |
| teg | c Sc | nee | anii 1 Se | | ram | ram | ΙΞ | Dis | II C | ica | | |
| Cat | asic | ngi cier | um ocia | | rogi | ſgoī | per | iter | Ski | ract | | |
| | В | N E | H sc | | Ŀ | P | 0 | Ir | | P1 | | |
| | | | | | | | | | \checkmark | | | |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|-------------|---|------------------|---|--------|-----|---|
| EBCS22I07 | SOFT SKILLS II (QUALITATIVE AND QUANTITATIVE SKILLS) | IE | 0 | 0/0 | 2/0 | 1 |

(Common to all E&T courses)

UNIT I Logical Reasoning I 6Hrs Logical Statements - Arguments - Assumptions - Courses of Action. **UNIT II Logical Reasoning II 6Hrs** Logical conclusions – Deriving conclusions from passages – Theme detection. **UNIT III Arithmetical Reasoning I 6Hrs** Number system – H.C.F & L.C.M – Problem on ages – Percentage – Profit & Loss – Ratio & Proportion – Partnership. **6Hrs UNIT IV Arithmetical Reasoning II** Time & Work – Time & Distance – Clocks – Permutations & Combinations – Heights & Distances - Odd man out and Series. **UNIT V Data Interpretation 6Hrs** Tabulation – Bar graphs – Pie graphs – Line graphs. **Total Hours:30 Reference Book:** 1. R.S.Agarwal, A modern approach to Logical Reasoning, S.Chand& Co., (2017).

2. R.S.Agarwal, A modern approach to Verbal and Non verbal Reasoning, S.Chand& Co., (2017).

3. R.S.Agarwal, Quantitative Aptitude for Competitive Examinations, S.Chand& Co., (2017).

4. A.K.Gupta, Logical and Analytical Reasoning, Ramesh Publishing House, (2014).

5. B.S.Sijwali, Indusijwali, A new approach to Reasoning (Verbal and Non verbal), Arihant Publishers, (2014).

| 2022 Regulation | |
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| COURS CODE: | E | CC | OURSE N | AME: FECHN | ICAL | SKILL | III | | Ty/Lb ETL |)/ /IE | L | T/S. Lr | P/F | R C |
|----------------|--------|------------|--------------|----------------|---------------|-----------|----------|--------------|--------------|--------------|------|------------|------|------|
| EBCF | 22103 | Due | | NT:1 | | | | | | | 0 | 0/0 | 2/0 | 1 |
| I · Lootu | mo T . | Tutori | erequisite: | N11 Suparvi | and L or | mina I | D. Droio | ot D · D | lecorch | r C. Croc | U | 0/0 | 2/0 | |
| Ty/Lb/E | TL/IE | : Theor | ry/Lab/Er | nbedded | Theory | and La | ıb | CI K. K | esearen | | iits | | | |
| OBJEC | TIVE | S: | | | | | | | | | | | | |
| The stud | dents | should | d be mad | le to | | | | | | | | | | |
| • [| Го та | the the s | students e | xpert in | domain | specific | c knowl | edge. | | | | | | |
| • | To de | evelop p | rofession | als with | idealist | ic, pract | ical and | moral v | values. | | | | | |
| • - | Fo fac | cilitate t | he studen | ts with e | mergin | g techno | ology | | | | | | | |
| COURS | E OU | TCOM | IES (COs | s): Stude | ents will | be able | to | | | | | | | |
| CO1 | Und | anatand | the dome | in creat | Fig Imor | vladaa | | | | | | | | |
| | Una | erstand | the doma | In speci | | vieuge. | | | | | | | | |
| CO2 | Able | e to app | ly idealist | ic, pract | ical and | l moral | values. | | | | | | | |
| CO3 | Fam | iliarize | with eme | rging teo | chnolog | у | | | | | | | | |
| Mapping | g of C | Course | Outcome | s with P | rogran | n Outco | mes (PC | Os) | | | | | | |
| COs/PO | Os | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | 10 I | PO11 | PO12 |
| CO1 | | 3 | 3 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | | 3 | 1 |
| CO2 | | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | | 3 | 1 |
| CO3 | | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | | 3 | 1 |
| COs | | | 601 | | PS | 02 | | | PSO3 | | | | PSO4 | |
| /PSOs | /PSOs | | 2 | | , | 2 | | | 1 | | _ | | 1 | |
| COI | | • | 3 | | • | 3 | | | 1 | | | | 1 | |
| CO2 | | | 3 | | | 3 | | | 1 | | | | 3 | |
| CO3 | | | 3 | | | 3 | | | 1 | | | | 3 | |
| 3/2/1ind | icates | Streng | gth of Cor | rrelation | n 3- H | ligh, 2- | Mediur | n, 1-Lov | N | | | | | |
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| | | | | ial | | n | | | | | | | | |
| | | | | soc | | tive | | ary | | ant | | | sci | |
| × | | lce | | and | e | elec | /e | olin | | one | | • | Ő | |
| 108 |) | cier | ing | es | Col | m | ctiv | mp scij | | | | | | |
| ate | | c Sc | eeri | niti | am | gra | Ele | Di | | Co | | | lica | |
| | | asi | ıgin ienc | ima | 31gc | Prc |)en | nter | | kill | | | Tac | |
| | Ļ | В | En | Hu Sc | Pr(| | OF | P S S P | | | | | | |
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| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|-------------|---------------------|------------------|---|--------|-----|---|
| EBCF22I03 | TECHNICAL SKILL III | IE | 0 | 0/0 | 2/0 | 1 |

OBJECTIVES:

- To make the students expert in domain specific knowledge.
- To develop professionals with idealistic, practical and moral values.
- To facilitate the students with emerging technology.

From the list of skill development courses declared by the department, the students are expected to acquire the skill and get certified. This will be evaluated at the end of the semester by the faculty.

DESCRIPTION:

Students should acquire skill in the domain/inter disciplinary area from government/private training centers/industries /University for a minimum period of 15 calendar days. The training can be through off line, online or mixed mode. Students are supposed to prepare Technical skill report at the end of the training and submit the report along with the certificate in proof of the training, during the viva voce examination conducted by the examiners duly appointed by the head of the department.

| COURSE CODE: | COUR | RSE NA | ME : | | | | | | т /ті/ | | | | | |
|--------------------|---|------------------------|----------------------------------|-----------------|------------------|---------------|--------------------|-----------------|--------------------|----------|--------|--------|-------|-------|
| EBCF22I04 | coer | N | 11NI PR | OJEC | T /INTE | RNSHI | P | | I Y/Lb/ ETL/IE | L | T/S | .Lr | P/R | С |
| | Prereq | uisite : N | NIL | | | | | | IE | 0 | 0/ | /0 | 3/0 | 1 |
| L : Lecture T : Tu | torial | S.Lr:S | upervise | ed Lear | ning P: | Project | R : Res | earch C | : Credits | | | | | |
| T/L/ETL : Theory | /Lab/E | mbedde | d Theory | y and La | ab | | | | | | | | | |
| OBJECTIVE : | | | | | | | | | | | | | | |
| The students sho | ould be | e made | to | | | | | | | | | | | |
| • The main | objecti | ve of the | e Inplant | t trainin | g is to pr | ovide a | short-te | erm wor | k experien | ice in a | an Inc | dustry | / Com | pany/ |
| COURSE OUTC | OMES | G (COs) | :Student | ts will t | be able to | | | | | | | | | |
| CO1 | Aspire an insight of an industry / organization/company pertaining to the domain of study. | | | | | | | | | | | | | |
| CO2 | Construct skills and knowledge for a smooth transition into the career. | | | | | | | | | | | | | |
| CO3 | Support field experience and get linked with the professional network. | | | | | | | | | | | | | |
| CO4 | Fo equip the students with industry knowledge and understanding of various possible technologie | | | | | | | | | | | | zies. | |
| CO5 | To impart the knowledge of various technologies form the industry resources | | | | | | | | | | | | | 5 |
| Mapping of Cour | re outcomes with Program Outcomes (POs) | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | 10 | PO11 | PO |)12 |
| CO1 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | | 3 | 3 | | 3 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | | 3 | 3 | | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | | 3 | 3 | | 2 |
| CO4 | 2 | 1 | 3 | 1 | 3 | 3 | 2 | 2 | 2 | | 2 | 2 | | 2 |
| CO5 | 1 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | | 2 | 1 | | 2 |
| <u></u> | | DGG4 | | | | | | | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSG |)3 | | | PS | 04 | |
| CO1 | | 2 | | | 3 | | | 3 | | | | 3 | | |
| CO2 | | 3 | | | 2 | | | 3 | | | | 3 | | |
| CO3 | | 3 | | | 3 | | | 3 | | | | 3 | | |
| CO4 | | 2 | | | 3 | | | 2 | | | | 3 | | |
| CO5 | | 3 | | | 2 | | | 3 | | | | 2 | | |
| 3/2/1 Indicates St | rength | Of Col | relation | <u>1, 3 – H</u> | ligh, 2- N | ledium | <u>, 1- Lov</u> | v | | | | | | |
| Category | Basic Science | Engineering Science | Humanities and social Science | Program Core | Program elective | Open Elective | Inter Disciplinary | Skill Component | Practical /Project | | | | | |
| | | | | | | | | v | | | | | | |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|----------------|--------------------------|------------------|---|--------|-----|---|
| EBCF22I04 | MINI PROJECT /INTERNSHIP | IE | 0 | 0/0 | 3/0 | 1 |

OBJECTIVES :

• The main objective of the In-plant training is to provide a short-term work experience in an Industry/ Company/ Organization

DESCRIPTION:

• MINI PROJECT:

Students will have an opportunity to expose their knowledge and talent to make an innovative project. Students are supposed to do innovative projects useful to industries/society in the area of relevant Engineering, inter and multi-disciplinary areas, under the guidance of a staff member. They have to prepare a project report and submit to the department.

At the end of the semester Viva-Voce examination will be conducted by the internal Examiner duly appointed by the Head of the department and the students will be evaluated.

• INTERNSHIP

Students are supposed to undergo internship in related Industries for a minimum period of 30 days cumulatively during the semester. They have to prepare a report on the Internship with a certificate in proof from competent authority in the industry. At the end of the semester Viva-Voce examination will be conducted by the Examiners duly appointed by the Head of the department and the students will be evaluated.

SEMESTER - VII

| Subject Code: | COU | JRSE N JABASI | IAME | : IINIST | RATIO |)N | | Ty/Lb | /ETL | L | T/S.L | r P/R | С | |
|--|-----------------------------|--|-----------------------------------|--------------|----------------------|---------------------|------------------------|----------------------------------|-------------|-------|-------|-------|------|--|
| EDCF 22012 | Prere | auisite | NIL | | | J 1 1 | | Т | v | 3 | 1/0 | 0/0 | 4 | |
| L : Lecture T : T | utoria | l S.Lr | : Super | vised L | earning | $g P : P_1$ | oject R | : Resear | ch C: C | Credi | ts | | | |
| Ty/Lb/ETL : The | eory/L | ab/Emt | edded ' | Theory | and La | b | 5 | | | | | | | |
| OBJECTIVES : This paper objectives are: Is to introduce students the basic database management administration concepts and practice Help students to create users and administer database security to meet your business requirements Impart administering, monitoring, tuning and troubleshooting skills | | | | | | | | | | | | | | |
| COURSE OUT | COM | ES (CC | (3):(3 | - 5) | | | | | | | | | | |
| CO1 | Managing storage structures | | | | | | | | | | | | | |
| CO2 | Fine | tuning | databas | e perfo | rmance | | | | | | | | | |
| CO3 | Cont | rolling | databas | e and u | ser secu | urity | | | | | | | | |
| CO4 | Desi | gning D | atabase | e backu | p and re | ecovery | procedu | ires | | | | | | |
| CO5 | Build | Building software with necessary security controls | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | | |
| COs/POs | PO 1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | F | PO10 | PO11 | PO12 | |
| CO1 | 3 | 3 | 3 | 3 | | 2 | | | 2 | | | 2 | 1 | |
| CO2 | 3 | 3 | 3 | 3 | | 3 | | | 2 | | | 3 | 2 | |
| CO3 | 3 | 2 | 3 | 3 | | 3 | | 3 | 2 | | | 3 | 2 | |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | | | 2 | | | 3 | 2 | |
| CO5 | 3 | 3 | 3 | 3 | | 3 | | 3 | 2 | | | 3 | 2 | |
| Mapping of Co | urse O | outcom | es (CO | s) with | Progra | ım Spe | cific Ou | tcomes | (PSOs) | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | | |
| CO1 | | 3 | | | | | | | | | | 3 | | |
| CO2 | | 3 | | | | | | 2 | | | | 3 | | |
| CO3 | | 3 | | | | | | 2 | | | | 3 | | |
| CO4 | | 3 | | | 2 | | | 3 | | | | 3 | | |
| CO5 | | 3 | | | | | | 3 | | | | 3 | | |
| 3/2/1 indicates S | Streng | th of C | orrelat | ion 3 | - High, | 2- Me | dium, 1- | Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
| | | | | • | | | | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|-------------------------|-----------|---|--------|-----|---|
| EBCF22012 | DATABASE ADMINISTRATION | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I - Introduction

Database Administrator – Types of Database Administrator –Logical Model – Logical Model to Physical Model -Database Performance Design – Denormalization – Views – Transactions – Locking – Design Views and its types – Database Change Management Requirements – Types of Changes in Database Change Management –Impact of Changes of Database Structures

UNIT II – Database Performance Tuning

Availability – Cost of Downtime – Availability Problems – Ensuring Availability – Performance: Definition – Monitoring versus Management – Service Level Management – Types of Performance Tuning – Performance Tuning Tools – DBMS Performance Basics – DBMS Installation and Configuration Issues – Techniques of Optimizing Databases – Database Reorganization

UNIT III – Application Performance and Database Security

Relational Optimization – Additional Optimization Considerations – Reviewing Access Paths – SQL Coding and Tuning for Efficiency Application – Types of Integrity – Database Structure Integrity – Semantic Data Integrity – Data Breaches – Database Security Basics – Granting and Revoking Authority – Authorization Roles and Groups – Other Database Security Mechanisms – Encryption – Auditing – External Security - Metadata – Data Quality – Data Governance – Database Auditing Techniques - Data Access Tracking – Privileged User Auditing – Data Masking and Obfuscation – Database Archiving

UNIT IV – Database Backup and Recovery

Importance of Backup and Recovery – Backups – Recovery – Alternatives to Backup and Recovery – Risk and Recovery – General Disaster Recovery Guidelines – Back Up the Database for Disaster Recovery – Disaster Prevention – Storage Management Basics – Files and Data Sets – Space Management – Fragmentation and Storage – Storage Options – Loading and Unloading Data – EXPORT and IMPORT – Bulk Data Movement – DBA Tools

UNIT V – Defending Database Servers

Attacking Oracle – Securing Oracle – Attacking MySQL – Securing MySQL – Attacking SQL Server – Securing SQL Server –

Total Hours: 60

12 Hrs

TEXT BOOKS

 Craig S. Mullins, "Database Administration: A Complete Guide to DBA Practices and Procedures", Addison Wesley, 2015, ISBN 978-0-321-82294-9.

REFERENCE BOOKS

- 1. Darl Kuhn, "Pro Oracle Database 12c Administration", Apress, 2014, ISBN-13: 978-8132214236
- Ravinder Gupta, "Oracle Database 19c DBA By Examples", Independently Published, 2021, ISBN: 979-8469226970
- David Litchfield, Chris Anley, John Heasman, Bill Grindlay, "The Database Hacker's Handbook: Defending Database Servers," Wiley Publishing, Inc, 2005, ISBN 13: 978-0-7645-7801-4

12 Hrs

12 Hrs

12 Hrs

| Contraction Contraction Contraction Prerequisite: NIL T L : Lecture T : Tutorial S.Lr : Supervised Learning P : Project R : Researcy/Lb/ETL : Theory/Lab/Embedded Theory and Lab | y 3 arch C: Cr | 3 1/0 redits | 0/0 | 4 | | | | | | | | | | |
|--|--|----------------------------|----------------|-----------|--|--|--|--|--|--|--|--|--|--|
| L : Lecture T : Tutorial S.Lr : Supervised Learning P : Project R : Resea Ty/Lb/ETL : Theory/Lab/Embedded Theory and Lab | rch C: Cr | redits | 0/0 | • | | | | | | | | | | |
| Ty/Lb/ETL : Theory/Lab/Embedded Theory and Lab | | cuits | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| OBJECTIVES : The paper on Web Security would appraise a student on about the fundamentals of web security and some of the latest threat a deeper, technical understanding of the Internet's common techniques for addressing those vulnerabilities Current best practices to secure web applications COURSE OUTCOMES (COs) : (3-5) | ats and the and eme | eir defense: erging vul | s. nerabili | ties, and | | | | | | | | | | |
| Imparts knowledge about the underlying technology and t | Imparts knowledge about the underlying technology and the formats and standards the web is | | | | | | | | | | | | | |
| based upon. | based upon. | | | | | | | | | | | | | |
| CO2 Understand the exploit vulnerabilities present in webappli | Understand the exploit vulnerabilities present in webapplications | | | | | | | | | | | | | |
| CO3 Secure a large scale web application including front and b | Secure a large scale web application including front and back end components. | | | | | | | | | | | | | |
| CO4 Critically audit web applications for security flaws | Critically audit web applications for security flaws | | | | | | | | | | | | | |
| CO5 Building secure web applications | | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | 1 | | | | | | | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | PO9 | PO10 | PO11 | PO12 | | | | | | | | | | |
| CO1 3 1 3 | 1 | | | 2 | | | | | | | | | | |
| CO2 3 2 3 3 3 3 2 | 1 | | | 3 | | | | | | | | | | |
| CO3 3 2 1 3 | 3 | | | | | | | | | | | | | |
| CO4 3 3 3 3 3 | 3 | 3 | | | | | | | | | | | | |
| CO5 3 3 3 2 3 3 | 3 | | 3 | 2 | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Specific Outcomes | (PSOs) | 1 | | | | | | | | | | | | |
| COs / PSOs PSO1 PSO2 PSO3 | | | PSO4 | | | | | | | | | | | |
| CO1 3 | | | 2 | | | | | | | | | | | |
| CO2 3 2 | | | 2 | | | | | | | | | | | |
| CO3 3 2 | | | 2 | | | | | | | | | | | |
| CO4 3 3 | | | 2 | | | | | | | | | | | |
| COS 3 | 3 3 | | | | | | | | | | | | | |
| 3/2/1 indicates Strength of Correlation 3- High, 2- Medium, 1-Low | Strength of Correlation 3- High, 2- Medium, 1-Low | | | | | | | | | | | | | |
| Category Basic Sciences Basic Sciences Engineering Sciences Humanities and Social Sciences Program Program Core Program Electives Open Electives Project Internships / Technical Skill | Soft Skills | | | | | | | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|---------------|-----------|---|--------|-----|---|
| EBCF22013 | WEB SECURITY | Ту | 3 | 1/0 | 0/0 | 4 |

UNIT I - Web Technology

Architecture of World Wide Web – Cryptography Basics – Cryptography and the web – SSL and TLS – Digital Identifications: Passwords - Biometrics - Digital Signatures – Digital Certificates – CAs – PKI

UNIT II - Web Hacking

HTML Injection – HTTP Parameter Pollution – CRLF Injection – Cross-Site Request Forgery – Cross-Site Scripting Attacks – SQL Injection – Open Redirect Vulnerability – Sub Domain Takeover - Remote Code Execution – Template Injection – Server Side Request Forgery - Vulnerability Reports

UNIT III - Privacy and Security

Users: War on your Privacy – Privacy Protection Techniques – Privacy Protecting Technologies - Backups and Antitheft - Physical Security for Servers – Host Security for Servers – Securing Web Applications – Deploying SSL Server Certificates – Securing Web Service

UNIT I V- Web Security Testing

Security Testing Vs Functional Testing - Testing Strategies for Access Control Policies in Applications -Automatic Analysis of Web Applications for shielding and bypassing testing - MDE Process for specifying deploying and testing access control policies – Security Driven Based Dynamic Adaption

UNIT V- WebSecurityin Commerce

E-Commerce Basics – Building Blocks – System Components – Checking Security – Threats and Attacks -Digital Payments - Digital Money Security – Smart Card Security - Electronic Check Security – Credit Card based Systems - Blocking Software and Censorship Technology

Total Hours: 60

TEXT BOOK:

- 1. Peter Yaworski, "Web Hacking 101How to Make Money Hacking Ethically", Lean Publishing, 2017
- **2.** SimsonGarfinkel, "Web Security, Privacy and Commerce", 2nd Edition, O.Reilly Media, Inc, 2002, ISBN: 978-0-596-00045-5
- 3. VesnaHassler, Basta, Zgola, "Security Fundamentals for E-Commerce", Artech House Inc., 2001, ISBN 1-58053-406-6
- **4.** HadiNahari, Ronald L. Krutz, "Web Commerce Security Design and Development", Wiley Publishing, Inc., 2011, ISBN: 978-0-470-62446-

REFERENCE BOOKS:

- 1. HanqingWy and Liz Zhao, "Web Security A WhiteHat Perspective", CRC Press Taylor & Francis Group, 2015, ISBN-13: 978-1-4665-9262-9
- 2. Joel Scambray Mike Shema, "Hacking Exposed Web Applications", McGraw-Hill/Osborne, 2002
- 3. Ron Lepofsky, "The Manager's Guide to Web Application Security" Apress, ISBN 0-07-222438-X,
- 4. Ryan Barnett, "The Web Application Defender's Cookbook: Battling Hackers and Protecting Users", John Wiley & Sons, Inc., 2013, ISBN: 978-1-118-36218-1.

140

B.Tech – Cyber Forensics and Information Security -2022 Regulation

12 Hrs

12 Hrs

12 Hrs

12 Hrs

| Subject Code: | COU | RSE NA | AME : | | | | | Ty/L | b/ETL | L | T/S.L | r P | / R | С | |
|---------------------------------|---|--|------------|--------------|-----------|------------|------------|-------------------------|-----------|--------|------------|---------|------------|-----|--|
| EBCF22014 | | RESII | LIENC | E MA | NAGE | EMEN | Т | | | | | | | | |
| | Prerec | quisite: | NIL | | | | | | Ту | 3 | 0/0 |) 0 | /0 | 3 | |
| L : Lecture T : T | Tutorial | S.Lr | : Super | vised L | earning | P:Pr | oject R | : Rese | arch C: 0 | Credit | ts | | | | |
| Ty/Lb/ETL : Th | eory/La | ab/Emb | edded 7 | Theory | and Lat | 0 | - | | | | | | | | |
| OBJECTIVES | : | | | | | | | | | | | | | | |
| This paper intro | duces tl | he stude | ents to t | he | | | | | | | | | | | |
| Concept of | risk an | d its va | rious ty | pes fac | ed by a | n organ | ization | | | | | | | | |
| Involvement | nt of hu | man fao | ctor and | l the rea | action o | f people | e to risk | s being | g posed. | | | | | | |
| • Concepts o | f busin | ess con | tinuity, | manag | ging cris | sis and | the abil | ity of | an organ | izatic | on to o | overcon | ne si | uch | |
| crisis | $\overline{\text{COMES}\left(\text{CO}_{\text{S}}\right)\cdot\left(3,5\right)}$ | | | | | | | | | | | | | | |
| COURSE OUT | COMES (COs) : (3-5) | | | | | | | | | | | | | | |
| CO1 | To dea | al opera | ational r | isk | | | | | | | | | | | |
| CO2 | Apply risk management policies and strategies | | | | | | | | | | | | | | |
| CO3 | Desig | Design and implement environmental risk management system | | | | | | | | | | | | | |
| CO4 | Acqui | Acquire the knowledge to develop crisis management governance model | | | | | | | | | | | | | |
| COS | Case s | ase study helps people to manage stress, increase productivity and become high | | | | | | | | | | | | | |
| 005 | perfor | performing | | | | | | | | | | | | | |
| Mapping of Co | urse O | urse Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PC |)10 | PO11 | PC |)12 | |
| CO1 | 3 | 1 | 3 | | | | | | | | | | | | |
| CO2 | 3 | 2 | 3 | 2 | 3 | 3 | | 3 | 1 | | | 2 | | | |
| CO3 | 3 | 2 | 3 | 3 | 3 | 3 | | 3 | 1 | | | 2 | | | |
| CO4 | 3 | 1 | 3 | 3 | 2 | 3 | | | 1 | | | 2 | | 3 | |
| CO5 | 2 | 2 | 2 | 2 | 1 | 2 | | 3 | | | | 1 | | | |
| Mapping of Co | urse O | utcome | es (COs |) with | Progra | m Spec | rific Ou | tcome | s (PSOs) | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSC |)3 | | | PSO4 | | | |
| CO1 | | 3 | | | | | | | | | | 2 | | | |
| CO2 | | 3 | | | | | | | | | | 2 | | | |
| CO3 | | 3 | | | | | | | | | | 1 | | | |
| CO4 | | 3 | | | | | | | | | | 1 | | | |
| CO5 | | 3 | | | | | | | | | | 1 | | | |
| 3/2/1 indicates | Strengt | th of Co | orrelati | ion 3. | - High, | 2- Mec | lium, 1- | Low | | | | | 1 | | |
| | | | - s | | ves | | ect | , III | | | | | | | |
| | ces | | and | ore | cti | ves | roje | ps / Ski | | | | | | | |
| ory | enc | ing | es | Ŭ | Ele | ctiv | /P | shi cal | S | | | | | | |
| egu | Sci | eer | niti Se | am | m | Ele | cal | ern inid | kill | | | | | | |
| Cat | sic | gine | ma ial | lgr | gre | en | ctic | Int [,] ect | ît S | | | | | | |
| - | Bat | Eng | Hu Soc | Pr(| Prc | Op | Pra | Τ | Sof | | | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22014 | RESILIENCE MANAGEEMENT | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction

Introduction to operational risk, resilience, and resilience management - Definition, Nature and Scope

UNIT II – Strategic Risk and Behaviour

Risk Management in Organizations – Human Factors and People Skills in Risk Perception – Role of Individuals, teams and leaders – Implementation of Management Policies and Strategies.

UNIT III – Organizational and Environmental Risk

Theories of Environmental and Organizational Risk Management – Legislative provisions and Organizational Risk – Organizational Resilience Management – ISO 22316 – Attributes of Organizational Resilience.

UNIT IV – Crisis Management and Governance and Case Studies

Continuity and Crisis Planning – Challenges Facing Organizations – Various types and phases of Crisis – Successful case studies – Unsuccessful case studies.

UNIT V – Building Resilience into Business Operations

Determining your risk factors – Business-driven risks – Data-driven risks – Event-driven risks – Building resilience into Business operations – Smart Cloud Resilience – Infrastructure Recovery services – Benefits for Organizations from resilience management.

Total Hours: 45

9Hrs

9Hrs

9Hrs

9Hrs

9Hrs

TEXT BOOK:

 James J. Leflar, "Organizational Resilience: Managing the Risks of Disruptive Events - A Practitioner's Guide" 1stEdition, CRC Press, 2013

REFERENCE BOOKS:

- 1. Tierney, K. and Bruneau, M., "Conceptualizing and Measuring Resilience: A Key to Disaster Loss Reduction". TR News 250, May-June 2007
- 2. Manyena, S. B., 'The concept of resilience revisited', Disasters, 30(4): 433-450. Disasters Journal. Overseas Development Institute: London, 2006

| Subject Code: | COU | RSE NA | AME : CVI | RFRI | AW | | | Ty/Lb | /ETL | L | T/S | .Lr | P/R | C |
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| EBCF22015 | Prerec | misite: | NIL | | | | | 7 | ſv | 3 | 0/ | 0 | 0/0 | 3 |
| L : Lecture T : 7 | Futorial | S.Lr | : Supe | rvised] | Learnin | g P : P | roiect | R : Res | earch C: | Cred | lits | - | | |
| Ty/Lb/ETL : Th | eory/La | ab/Emb | edded 7 | Theory | and La | b | j | | | | | | | |
| OBJECTIVES This paper focus | : ses on | cyber i | uricoru | dence | | | | | | | | | | |
| • IT ACT | 2000 (| INDIA |) | uenee | | | | | | | | | | |
| Intellect | tual Pro | perty R | , ights. | | | | | | | | | | | |
| | | P • • • • • • | | | | | | | | | | | | |
| COURSE OUT | COMI | ES (CO | s):(3∙ | - 5) | | | | | | | | | | |
| CO1 | Under | stands | Cyber l | aw and | Cyber | Jurispe | ndence | | | | | | | |
| CO2 | Under | stands | Indian 1 | Informa | ation Te | chnolo | gy Act | 2000 a | nd amen | dmen | its | | | |
| CO3 | Learn | s Inforr | nation [| <u>Fechno</u> | logy Ac | t follov | ved in c | other co | ountries | | | | | |
| C04 | Acquire knowledge of Forensics | | | | | | | | | | | | | |
| CO5 Manning of Co | | | Global | Drogre | m Out | operty I | $(\mathbf{PO}_{\mathbf{r}})$ | | | | | | | |
| | | | | | | DOG | | DOO | DOG | D | 210 | DOI | | 010 |
| COs/POs | POI | PO2 | PO3 | PO4 | P05 | PO6 | PO/ | P08 | P09 | P | <u>J10</u> | POI | | 012 |
| | 3 | 2 | 2 | 2 | | 3 | | 3 | | | | | | |
| | 3 | <u> </u> | 2 | 1 | | 3 | | 3 | | | | | | 3 |
| C04 | 3 | 2 | 2 | 1 | | 5 | | 3 | | | | | | 5 |
| C05 | 3 | 1 | 2 | 1 | | 3 | | 3 | | | | | | |
| | - | | | | | - | | | | | | | | 3 |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSC | 03 | | | PSC | D4 | |
| CO1 | | 3 | | | | | | | | | | 1 | | |
| CO2 | | 3 | | | | | | | | | | 3 | | |
| CO3 | | 3 | | | | | | | | | | 1 | | |
| <u>CO4</u> | | 3 | | | | | | | | | | 2 | | |
| $\frac{CU5}{\frac{3}{2}}$ | Strong | 3 th of C | ornalat | ion 3 | Uiah | 2 Mar | lium 1 | Low | | | | 2 | | |
| 5/2/1 mulcates | Streng | | | | - nigii, | 2- Met | 11u111, 1 | -Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Science | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skil | Soft Skills | | | | | |
| | | | | \checkmark | | | | | | | | | | |
| Subject Code: | Subject Name | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--------------|-----------|---|--------|-----|---|
| EBCF22015 | CYBER LAW | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Cyber Law

Fundamentals of Cyber Law –Concepts of cyber law – cyber space – jurisprudence – cyber jurisprudence – jurisdiction – jurisdiction and cyber law

UNIT II – IT Act 2000

Introduction to Information Technology Act, 2000 and its international relations - Cyber law in India with special reference to Information Technology Act, 2000 – Amendments in IT Act, 2002 - 2008 - Information Technology Laws in United States, United Kingdom, Europe, Canada and Australia

UNIT III - Cyber Crimes

Classification of Cyber Crimes- Cyber Crime Investigation - Electronic evidence and its value - Role of Certifying Authority - Cyber Appellate Tribunal

UNIT IV- Cybercrimes and Forensics

Evidence collection - Evidence preservation - email tracking - email recovery - Deleted File Recovery : Swap Files, Temporary Files, Cache Files - Formatted Partition Recovery - CCTV Footage recovery.

UNIT V- Cyber Law and IPR

Intellectual Property Rights – Basics of IPR – Intellectual Property Rights – Copy Rights – Patents – Trade Marks – Importance of IPR – Role of IPR in a business – Role of IPR in Academics and Research - Infringements and Remedies of Copy Rights, Trademark, Trade Secrets and Patent Law - Intellectual Property Rights Global Scenario and Case Studies

Total Hours: 45

TEXT BOOK:

1. Saurabh Sharma, "Information Security and Cyber Law", Vikas publication, 2010

B R Sharma, "Forensic Science in Criminal Investigation and Trials", 6th Edition, Lexis Nexis,

REFERENCE BOOKS:

 Peggy E Chaudhary, "Protecting Your Intellectual Property Rights: Understanding the Role of Management, Governments, Consumers and Pirates", Springer, 2013
 Brain Craig, "Cyber Law: The Law of Internet and IT", Prentice Hall, 2012
 Barry A. J. Fisher, David R. Fisher, "Techniques of Crime Scene Investigation", 8thEdition,CRC Press, Available on Taylor & Francis eBooks

9 Hrs

9 Hrs

9 Hrs

9 Hrs

9 Hrs

Fotol Howard 45

| Subject Code: | COU | RSE N | AME : | | | | 4 D | Ty/Lt | /ETL | L | T/S | Lr | P/R | С |
|------------------------|--|-----------------|---------------------------|---|-------------|---------------|--------------------------|-------------------------|-----------------|-------|------------|------------------|--------------|-----|
| EBCF22L09 | DAT | ABAS | <u>SE AD</u> | MINIS | STRA | TION L | AB | | , | 0 | 0/ | 0 | 2/0 | 1 |
| | Preree | quisite: | NIL | | | | | L | b | 0 | 0/ | 0 | 3/0 | 1 |
| L : Lecture T : T | Futorial | S.Lr | : Super | rvised L | Learning | g P : Pro | oject F | R : Rese | arch C: C | Credi | its | | | |
| Ty/Lb/ETL : Th | heory/L | ab/Emt | bedded | Theory | and La | b | | | | | | | | |
| OBJECTIVES | • : | 40.04.1 | a | | | | | | | | | | | |
| | explain | to stud | base | | | | | | | | | | | |
| Create an To soour | u mana Aoto fi | ige data | | | | | | | | | | | | |
| Administ | er data n | storage | a 1088 | | | | | | | | | | | |
| COURSE OUT | ГСОМ | ES (CC | (3) | - 5) | | | | | | | | | | |
| CO1 | Imple | ment fa | st data | retrieva | l metho | ods | | | | | | | | |
| CO2 | Efficie | ently de | esign sto | orage st | ructure | S | | | | | | | | |
| CO3 | Learn | s data r | ecovery | proces | S | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | <u>m Outo</u> | comes | (POs) | | | | | | |
| COs/POs | PO1 PO2 PO3 | | | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | D10 | PO11 | . P (|)12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | | | 1 | | | | | 1 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | | | 1 | | | 2 | | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | | | 1 | | | 3 | | 2 |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | im Spec | ific Ou | itcome | <u>s (PSOs)</u> | 1 | | Dao | | |
| COs/PSOs | | PSO1 | | | PSO2 | | | PSO: | 3 | | | PSO ² | | |
| | | 3 | | | | | | 2 | | | | 3 | | |
| <u>CO2</u> | | 3 | | | | | | 2 | | | | 3 | | |
| C03 | | 3 | | | | | | | | - | | 3 | | |
| C04 | | | | | | | | | | | | | | |
| 3/2/1 indicates | Strong | th of C | orrolot | ion 3 | High | 2_ Mod | ium 1 | | | | | | | |
| 3/2/1 mulcates | Streng | | | 1011 3 | - 111gii, | 2- Micu | 1 u 111, 1 | -LUW | | | | | | |
| egory | s Sciences | neering Ices | anities and il Science | ram Core | ram ives | l Electives | tical / et | nships / nical Skill | Skills | | | | | |
| Cat | Basic S Engine Scienc Humar Social | | | Basic Engi Hum Hum Progi Progi Elect Progi Interr Interr Soft | | | | | | | | | | |
| | | | | | | | √ | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
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| EBCF22L09 | DATABASE ADMINISTRATION LAB | Lb | 0 | 0 | 3 | 1 |

LIST OF EXPERIMENTS:

- 1. Stored Procedure
- 2. Recursive Procedures
- 3. Managing Triggers
- 4. Cursors
- 5. User Management
- 6. Index Management
- 7. Partition
- 8. Materialized View
- 9. Import and Export
- 10. Table space Management
- 11. Backup and Recovery
- 12. Encryption and dencryption

Total Hours: 45

| Subject Code: | COU | COURSE NAME : WFR SECURITY LAB | | | | | | Ty/Ll |)/ETL | L | T/S | .Lr | P/R | C |
|---------------------------------|----------------|-----------------------------------|-----------------------------------|--------------|----------------------|----------------|-----------------------------------|----------------------------------|-------------|-------|--------|------------|---------|-----|
| | Prere | quisite: | ED SE NIL | CUNI | II LA | D | | I | b. | 0 | 0/ | /0 | 3/0 | 1 |
| L : Lecture T : 7 | Tutoria | I S.Lr | : Super | rvised I | earning | P:Pr | oiect 1 | R : Rese | earch C: | Cred | its | - | | |
| Ty/Lb/ETL : Th | neory/L | ab/Emt | bedded ' | Theory | and La | b | -j | | | | | | | |
| OBJECTIVES | : | | | | | | | | | | | | | |
| This lab would | | | | | | | | | | | | | | |
| prepare str | udents t | to prote | ct and c | lefend v | web thre | eats | | | | | | | | |
| Help stude | nts in io | dentify | web see | curity c | ontrols | | | | | | | | | |
| • Measure th | ne perfo | ormance | and tro | oublesh | oot | | | | | | | | | |
| COURSE OUT | ГСОМ | ES (CC | Ds):(3 | - 5) | | | | | | | | | | |
| CO1 | Evalu | ate web | applica | ation fo | r existe | nce of i | njectio | n attacl | (S | | | | | |
| CO2 | Evalu | ate web | applic | ation fo | r existe | nce of a | authoriz | zation a | nd authe | ntica | tion v | ulnera | abiliti | es |
| CO3 | Evalu | ate effe | ctivene | ss of bu | isiness l | logic | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | m Out | comes | (POs) | | -1 | | | | |
| COs/POs | PO1 | PO1 PO2 PO3 | | | PO5 | PO6 | PO7 | PO8 | PO9 | P | 010 | PO1 | 1 P | 012 |
| CO1 | 3 3 3 | | | 3 | 3 | 3 | | | 1 | | | | | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 3 | | | 1 | | | | | 2 |
| CO3 | 3 | 3 | 3 | 3 | | 3 | | | 1 | | | | | 1 |
| <u>CO4</u> | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |
| Mapping of Co | ourse O | utcom | es (CO | s) with | Progra | ım Spe | cific O | utcome | s (PSOs) |) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO | 3 | | | PSO | 4 | |
| C01 | | 3 | | | | | | 3 | | | | 3 | | |
| CO2 | | 3 | | | | | | 3 | | | | 3 | | |
| CO3 | | 3 | | | | | | 3 | | | | 3 | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | ~ | | | | | | | | | | | | | |
| 3/2/1 indicates | Streng | Strength of Correlat | | | - High, | 2- Me | lium, 1 | l-Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
| | | | | | | | \checkmark | | | | | | | |

| Subject Code: EBCF2 | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
|-------------------------------|------------------|-----------|---|--------|-----|---|
| 2L10 | WEB SECUTIRY LAB | Lb | 0 | 0/0 | 3/0 | 1 |

LIST OF EXPERIMENTS:

- 1. Test for SQL Injection attacks
- 2. Test for Cross-site Scripting attacks
- 3. Test for Cross-site request forgery attacks
- 4. Test for Clickjacking
- 5. Test for OS Command Injection attacks
- 6. Test for Access Control Vulnerabilities
- 7. Test for Authentication
- 8. Test for Web Cache Poisoning
- 9. Test for Information Disclosure
- 10. Test for Business Logic Vulnerabilities
- 11. Test upload Vulnerabilities

Total Hours: 45

| COURSE | COUR | SE NAN | ME: | | | | | Т | v/Lb/ | | | | | |
|--|---|---|--|---|---|--|---|---|--|--|--|-------------------------------------|-------------------------------|---------------|
| CODE: | | | PRO | JECT I | PHASE | - I | | F | TL/IE | L | T/S.L | r F | P/R | C |
| EBCF22I05 | Prerequ | isite [.] N | Π. | | | | | | IE IE | 0 | 0/0 | | 3/3 | 2 |
| L : Lecture T : | Tutoria | l S.Lr | : Superv | vised Lea | arning] | P : Proie | ct R : F | Research | C: Credi | ts | 0/0 | | | |
| T/L/ETL : The | ory/Lab | /Embed | ded The | ory and | Lab | . J | | | | | | | | |
| OBJECTIVE : | : | | | | | | | | | | | | | |
| The students | should | be mad | de to | | | | | | | | | | | |
| The ob- explore mentor acquire creativ | jective e a prob . The pr ed to rea ely, finc | of the M lem or is roject de il-world l an opti | lain Proj ssue , ad emonstra issues a mal solu | ect is to dress th tes the s nd probl ttion, ma | culmin rough fo tudent's lems. Th ake ethic | ate the a ocused a ability nis proje cal decis | cademic nd appli to synth ct affirm sions and | e study a ed resea esize an ns the st d to pres | nd provie rch unde d apply t udents to ent effec | de an r the he kr thin tivel | n oppor directi nowledg k critics y. | tunity on of ge and ally a | to a fact l skill nd | ulty ls |
| COURSE OU | тсом | ES (CO | s) :Stud | ents will | be able | e to | | | | | | | | |
| CO1 | Apply t issue. | he knov | vledge a | nd skill | s acquir | ed in th | e course | e of stuc | ly, addre | ssing | g a spec | cific p | roble | m or |
| CO2 | Design | the soft | ware sys | tem effe | ectively | | | | | | | | | |
| CO3 | Encoura solution | age stud 1. | ents to t | hink crit | ically a | nd creat | ively ab | out soci | etal issue | es and | d devel | op use | er frie | ndly |
| CO4 | Support | t the fiel | d experi | ence and | d get lin | ked witl | n the pro | fession | ıl networ | k. | | | | |
| CO5 | Equip tl | he stude | nts with | industry | y knowl | edge and | d unders | tanding | of variou | is po | ssible t | echno | logie | s. |
| Mapping of C | ourse O | outcome | es with I | Progran | 1 Outco | mes (P | Os) | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | 10 P | 011 | PO: | 12 |
| CO1 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | | 2 | 3 | | 3 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 2 | 3 | | 3 |
| CO3 | 3 | <u> </u> | 3 | 3 | <u> </u> | 3 | 3 | 2 | 2 | | 3 3 | 3 | | <u>3</u> |
| C04 C05 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | <u> </u> | | $\frac{3}{2}$ |
| 005 | 2 | | 2 | 4 | 4 | | 5 | | | | | _ | | |
| COs / PSOs | | PSO1 | l | | PSO2 | l | | PSO: | 3 | | | PSO ₂ | 1 | |
| CO1 | | 3 | | | 2 | | | 3 | | | | 3 | | |
| CO2 | | 3 | | | 3 | | | 3 | | | | 3 | | |
| CO3 | | 3 | | | 3 | | | 3 | | | | 3 | | |
| CO4 | | 2 | | | 2 | | | 2 | | | | 2 | | |
| CO5 | | 3 | | | 2 | | | 3 | | | | 2 | | |
| 3/2/1 Indicates | Strength Of Correlat | | | ion, 3 – | High, 2 | - Mediı | ım, 1- I | /OW | | | | | | |
| Category | Basic Science | Eng inee | Humanities and social | Prog ram | Progra m | Open Elective | Inter Disciplin | Skill Compone Dractical | /Project | | | | | |
| | | | | | | | | V | | | | | | |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|-------------|-------------------|------------------|---|--------|-----|---|
| EBCF22I05 | PROJECT PHASE – I | IE | | 0/0 | 3/3 | 2 |

OBJECTIVE:

B. Tech CFIS Project carries 12 credits of which, Phase I carries 2 credit.

In Phase I, Students are expected to

- i. Identify a Problem.
- ii. Have the feasibility explored.
- iii. Freeze the Requirement specification (both user and system).
- iv. Construct the architectural model (as many as required).
- v. Design the solution.
- vi. If possible, publish the Feasibility study as a survey paper

DESCRIPTION:

Students are expected to do the Project in a group of 3 to 4 students. They should identify the area/topic of the Project and should collect the literatures related to the project. Students intending to do Industrial projects will approach the industries with the support of the university, identify the industrial problem and finalize the project. In case of Industrial projects apart from Industry guide, a guide has to be appointed by the department. At the end of the Semester the students should submit their Project Phase - I report to the Department and Viva -Voce examination will be conducted by the examiners duly appointed by the Head of the department.

Total Hours:45

| COURSE CODE: EBFL22IXX | COUR | SE NAI | ME: F orei | GN LAI | NGUA | GE | | Ty/I E' | Lb/ TL/IE | L | T/S. | Lr I | P/R | С |
|---------------------------|---------------|------------------------|----------------------------------|--------------|------------------|---------------|--------------------|-----------------|--------------------|-------|--------|---------|-------|-----|
| | Prereq | uisite: N | ΠL | | | | | | IE | 1 | 0/0 | 1 | /0 | 1 |
| L : Lecture T : Tutoria | al S.Lr | : Super | vised L | earning | P:Pro | ject R : | Researc | h C: Cre | edits | | | | | |
| T/L/ETL : Theory/Lat | o/Embec | lded The | eory and | l Lab | | | | | | | | | | |
| OBJECTIVE: | | | | | | | | | | | | | | |
| The students shou | ıld be r | nade to | C | | | | | | | | | | | |
| To recognize | e the cul | ltural va | alues, p | ractice | s, and h | eritage | of the f | oreign | country, c | comi | munic | ate | | |
| effectively ir | n a forei | gn lang | guage a | nd inter | ract in a | a cultur | ally app | ropriat | e manner | with | nativ | ve spea | akers | 5 |
| of that langu | age. | 0 | | | | | • • • • | 1 | | | | • | | |
| COURSE OUTCO | MES (| COs): 5 | Student | s will b | e able t | to | | | | | | | | |
| | | , | | | | | | | | | | | | |
| CO1 | Achie | ve func | tional p | proficie | ncy in l | listenin | g, speak | ing, rea | ading, and | l wri | iting. | | | |
| CO2 | Devel | op an ii | nsight i | nto the | nature | of lang | uage its | elf, the | process o | f lar | nguage | e and | cultu | ıre |
| | acquis | ition. | | | | | | | | | | | | |
| CO3 | Decod | le, anal | yze, an | d interp | exts of c | lifferen | t genres. | | | | | | | |
| Mapping of Course (| Outcom | es with | Progra | m Outc | omes (I | | | U U | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | D10 | PO11 | PO | 012 |
| CO1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 3 | 2 | | 3 | 3 | | 1 |
| CO2 | 2 | 1 | 1 | 1 | 1 | 3 | 1 | 3 | 3 | | 3 | 3 | | 1 |
| CO3 | 1 | 1 | 2 | 2 | 1 | 3 | 2 | 3 | 2 | | 3 | 3 | | 1 |
| COs / PSOs | PS | 01 | PS | 02 | PS | 03 | PSO4 | | | | | | | |
| CO1 | 1 | l | 1 | 1 | 1 | 1 | 1 | | | | | | | |
| CO2 | 1 | L | 1 | L | 1 | 1 | 1 | | | | | | | |
| CO3 | 1 | L | 2 | 2 | 2 | 2 | 1 | | | | | | | |
| 3/2/1 Indicates Stren | gth Of (| Correla | tion, 3 - | - High, | 2- Med | ium, 1- | Low | | | | | | | |
| Category | Basic Science | Engineering Science | Humanities and social Science | Program Core | Program elective | Open Elective | Inter Disciplinary | Skill Component | Practical /Project | | | | | |
| | | | \checkmark | | | | | | | | | | | |

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|-------------|------------------|------------------|---|--------|-----|---|
| EBFL22IXX | FOREIGN LANGUAGE | IE | 1 | 0/0 | 1/0 | 1 |

OBJECTIVE:

To recognize the cultural values, practices, and heritage of the foreign country, communicate effectively in a foreign language and interact in a culturally appropriate manner with native speakers of that language

DESCRIPTION:

Foreign language is introduced in the curriculum to make the students globally employable. Students should select and register for any one of the foreign languages from the given list. At the end of the course students should be able to read, write and converse the language in the basic level. At the end of the semester the assessment will be done through internal examination by the examiner duly appointed by the head of the department.

| S.NO | COURSE CODE | COURSE NAME |
|------|-------------|-------------|
| 1 | EBFL22I01 | FRENCH |
| 2 | EBFL22I02 | GERMAN |
| 3 | EBFL22I03 | JAPANESH |
| 4 | EBFL22I04 | ARABIC |
| 5 | EBFL22I05 | CHINESE |
| 6 | EBFL22I06 | RUSSIAN |
| 7 | EBFL22I07 | SPANISH |

Total Hours:30

| COURSE | COUR | OURSE NAME: PRINCIPLES OF | | | | | | Ty/Lb/ | L | T/ | P/R | С |
|-------------------------------|----------------|--|------------|----------------|----------------------|------------|--------------|-------------|------------------|------------|------------|------|
| EBCC22ID2 | MANA | GEMEI | NI ANI | ј вен а | | KAL SU | IENCE | | | SLr | | |
| | Preree | quisite:] | Nil | | | | | Ту | 3 | 0/0 | 0/0 | 3 |
| L:LectureT:Tut | orial | SLr | :Superv | isedLea | rningP:l | ProjectR | :Researc | hC:Credits | | | | |
| T/L/ETL:Theor | y/Lab./E | Embedde | dTheor | yandLał |). | | | | | | | |
| OBJECTIVE: The students of | hould | ha mad | a ta | | | | | | | | | |
| The students s | | | | · | 1 | | 63.4 | | 1. | | | |
| | • Abou | t the evo | lution, 1 | unction | s and pr | inciples | of Manag | gement Stu | idies | | | |
| | • The a | | ons of th | e princi | pies in a | in organi | zation | onconizatio | | | | |
| COURSEOUTO | COMES | (COs):S | tudents | will he | able to | onuonn | ig in the o | organizatio | 011. | | | |
| CO1 | Clear ur | derstand | ding in j | olanning | , and ha | ve know | ledge in | aspect of N | Managem | ent Studie | s (Level 2 |) |
| | | | | | | _ | | | 0 | | | , |
| CO2 | Underst | anding t | he planı | ning pro | cess in t | he organ | nization. | (Level 2) | | | | |
| CO3 | Underst | anding t | he conc | ept of or | ganizat | ion. (Lev | vel 2) | | | | | |
| CO4 | Demons | strate the | ability | to direc | ting and | coordin | ating. (L | evel 3) | | | | |
| CO5 | Analyze | and for | mulate | the best | control | methods | . (Level 4 | 4) | | | | |
| | | | | | | | | , | | | | |
| MappingofCou | ırseOut | seOutcomes(COs)withProgramOutcomes(POs | | | | | | ogramSpe | <u>cificOutc</u> | omes(PS | Os) | 1 |
| COs/Pos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | P09 | PO10 | PO11 | PO12 |
| C01 | 3 | 2 | 2 | 3 | 100 | 2 | | 3 | 3 | 2 | 3 | 2 |
| | | | | - | | | | _ | _ | | | |
| CO2 | 3 | 2 | 2 | 3 | | 2 | | 3 | 2 | 3 | | 2 |
| CO3 | 3 | | | 2 | | | 3 | 2 | | 2 | 2 | 2 |
| CO4 | 3 | 3 | 3 | 3 | | 2 | | 2 | 2 | 2 | 2 | 2 |
| | | | | | | | | | | | | |
| CO5 | 2 | 3 | 3 | | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 |
| COs /PSOs |] | PSO1 |] | PSO2 | | PSO3 | PSO4 | | | | | |
| CO1 | | | 2 | 2 | | 3 | 3 | | | | | |
| CO2 | | | 4 | 2 | - | 3 | 3 | | | | | |
| CO3 | | | 4 | 2 | - | 3 | 3 | | | | | |
| CO4 | | | | 2 | | 3 | 3 | | | | | |
| | | | | | | <u> </u> | 2 | | | | | |
| C05 | | | 4 | 2 | - | 3 | 3 | | | | | |
| ory | nities cial | | 'am ve | e | nilo | uo | cal | | | | | |
| Iteg | asic | | nan soc | | rogr ecti | en ctiv | ter iscip | dill t | acti roje | | | |
| Ca | Bí Sc | En gin | Hun and | Pro gra | P ₁ el | Op(Ele | ar Di | en C. S. | Pr /P | | | |
| | | | | | | | | | | | | |
| | | | | | | 153 | \checkmark | | | | | |

B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE: | COURSE NAME: PRINCIPLES OF MANAGEMENT AND BEHAVIOURAL SCIENCE | Ty/Lb/ ETL/IE | L | T/SLr | P/R | C |
|-----------------|---|------------------|---|-------|-----|---|
| EBCC22ID2 | Prerequisite: Nil | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT-I INTRODUCTION

9 hours

Definition of Management - Science or Art - Manager Vs Entrepreneur - types of managers managerial roles and responsibilities - Evolution of Management -need and Importance of Organizational Behavior, Leadership styles – Theories – Leaders Vs Managers. **UNIT – II PLANNING & ORGANISING**

9 hours

Nature and purpose of planning – planning process – types of planning – Planning premises objectives -hierarchy of objectives, Management By Objectives (MBO)- Decision making process. Nature and purpose of Formal and informal organization structure- types - Line and staff authority-delegation of authority - centralization and decentralization.

UNIT-III STAFFING AND COORDINATING

9 hours

Human Resource Planning, Job Analysis, Recruitment, Selection, Training and Development, Performance Management, Career planning. Coordination -- Nature and purpose - Coordination at various levels: Top management, Middle management, Supervisory management and workers. Techniques for effective coordination

UNIT- IV DIRECTING AND CONTROLING

Direction: Principles of direction – Need and Importance for directing, process of controlling – budgetary and non-budgetary control techniques - use of technology. Recent Trends in Management controlling.

UNIT-V GROUP BEHAVIOUR AND MOTIVATION

Group Dynamics - How Groups Work, Stages of Group Development, Team building, Motivation - Theories of motivation Organizational Conflict - Causes - Types of Conflicts, Managing conflicts.

Reference Books:

- 1. Stephen A. Robbins & David A. Decenzo& Mary Coulter, "Fundamentals of Management" 7th Edition, Pearson Education, 2011.
- 2. Robert Kreitner Mamata Mohapatra, "Management", Biztantra, 2008.
- 3. Harold Koontz & Heinz Weihrich "Essentials of management" Tata Mc Graw Hill, 1998.
- 4. S.S. Khanka Organizational Behaviour S. Chand Ltd. 2006.
- 5. L.M.Prasad Organizational Behaviour. S. Chand Company 3rd edition 2004.

9 hours

9 hours

Total Hours: 45

| COURSE | COUR | SE NA | ME : | | | | | T | y/Lb/ | | т | T/S | Ir | D/D | |
|-----------------------|------------|--|---------------------------------|----------|------------------|------------------|---------------|------------|--------------|------------|-------|------------|--------|--------|--------|
| EBCF22L11 | |] | PROJE | CT PH | IASE – | Π | |] | ETL/ | IE | L | 1/5 | •L/I | I/N | |
| | Prerequ | uisite:Ni | 1 | | | | | | Lb | | 0 | 0/ | 0 | 12/1 | 2 8 |
| L : Lecture T | : Tutori | al S.L | r : Supe | rvised | Learnin | g P:P | roject R | : R | esearc | ch C: C | Cred | its | | | |
| 1/L/EIL: Ih | eory/La | b/Embe | dded TI | neory a | nd Lab | | | | | | | | | | |
| The students | s should | d be ma | ade to | | | | | | | | | | | | |
| • The o | biective | e of the l | Main Pr | oiect is | to culn | ninate f | he acade | mic | study | and p | rovi | de an | n opp | ortun | itv to |
| explor | re a pro | blem or | issue, | address | throug | h focus | ed and a | ppli | ed res | earch u | unde | er the | dire | ction | of a |
| facult | y mento | or. The p | project o | lemons | trates th | ne stude | nt's abili | ty to | o syntl | hesize | and | appl | y the | e knov | wledge |
| and sl | kills acq | uired to | real-w | orld iss | ues and | proble | ms. This | pro | ject af | firms | the | stude | nts to | o thin | k |
| | ally and | creative | $\frac{\partial y}{\partial x}$ | l an opt | imal so | $\frac{1}{2}$ | nake eth | ıcal | decis | ions ai | nd to | o pres | sent e | effect | ively. |
| COURSE OU | | | $\frac{(08)}{(08)}$ | | $\frac{1}{6}$ | | | | | | | | | | |
| $\frac{CO1}{CO2}$ | To exp | lain the | function | nality o | f the sy | stem | ologias | 2 | | | | | | | |
| | To exp. | nort the | | | | | ologies | | | | | | | | |
| CO3 | To sup | ort the societal problems | | | | | | | | | | | | | |
| CO4 CO5 | To suli | To validate the implementation of the software/H | | | | | | | e svste | em | | | | | |
| Mapping of (| Course | ourse Outcomes with Program Outcomes (PC | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | P | 08 | PO9 | PO | D10 | PO | 11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | | 1 | 2 | | 2 | 3 | | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 2 | 2 | | 2 | 3 | | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 2 | 2 | | 3 | 3 | | 3 |
| CO4 CO5 | 3 | 2 | 3 | 3 | 3 | 3 | $\frac{2}{2}$ | | 3 | 3 | | 3 | 3 | | 3 |
| 005 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | | 2 | 2 | | 2 | 1 | | 2 |
| COs / PSOs | | PSO1 | | | PSO2 | | | P | SO3 | | | | PS | 04 | |
| | | | | | | | | | | | | | | - | |
| CO1 | | 3 | | | 3 | | | | 2 | | | | | 3 | |
| CO2 | | 3 | | | 3 | | | | 3 | | | | | 3 | |
| CO3 | | 3 | | | 3 | | | | 3 | | | | | 3 | |
| CO4 CO5 | | $\frac{2}{2}$ | | | $\frac{2}{2}$ | | | | 2 | | | | | 2 | |
| CU5 3/2/1 Indicate | es Strer | J orth Of | Correl | ation ? | <u></u> NHigl | h 2. M | edium 1 | - T | 2 0W | | | | | 2 | |
| | | | | ation, . | / – 111gi | 1, <i>2</i> - 11 | | <u> </u> | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | ial | | | | | | | | | | | | |
| | | | soc | | tive | | ury | nt | ct | | | | | | |
| ory | ce | | pu | e | lect | e | line | one | roje | | | | | | |
| ego | ien | ng | es a | Cor | m e | ctiv | scip | mp | I/P | | | | | | |
| Cat | c Sc | eeri ce | niti Se | m | gra | Ele | Di | ů | ica | | | | | | |
| | asio | gin ienc | ima ienc | brgc | Pro | en | nter | kill | ract | | | | | | |
| | В | En Sci | Hu Sci | Pr(| | OF | Ir | S | Ъ | | | | | | |
| | | | | | | | | | \checkmark | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | 155 | | | | | | | | | |

B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE CODE | COURSE NAME | Ty/Lb/ ETL/IE | L | T/S.Lr | P/R | С |
|-------------|--------------------|------------------|---|--------|-------|---|
| EBCF22L11 | PROJECT PHASE – II | Lb | 0 | 0/0 | 12/12 | 8 |

OBJECTIVE:

Students are expected to carry out the following:

- (i) Implement the Design using suitable technologies.
- (ii) Generate the test cases.
- (iii) Demonstrate the solution with suitable user interface.
- (iv) Prepare a project report consolidating the phase-I and II activities.

DESCRIPTION:

To make the students to make use of the knowledge and skill developed during their four years of study and to apply them for making an innovative product/process for the development of society and industries.

Students are expected to do a Project work either in an Industry or at the University in the field of relevant Engineering /inter-disciplinary /multi-disciplinary area in a group of 3 or 4 students. The work to be carried out in Phase II should be continuation of Phase I. Each group will be allotted a guide based on the area of Project work. In case of industrial Project external guide has to be allotted from Industry. Inter disciplinary/multi-disciplinary project can be done with students of different disciplines as a group. Monthly reviews will be conducted during the semester to monitor the progress of the project by the project review committee. Students have to submit the Project thesis at the end of the semester and appear for the Project Viva-Voce examination conducted by the examiners duly appointed by the Controller of Examination. In case of industrial project certificate in proof has to be included in the report along with the bonofide certificate.

Total Hours:45

PROGRAM ELECTIVES

| Subject Code: EBCF22E01 | COU GEN | RSE N. ERAI | AME : / FORI | ENSI | CS | | | Ty/L | b/ET | L | T/S. | L | P/R | С |
|--|--|-------------------------|--------------------------|--------------|--------------|-------------------|------------------------|----------------------------|-------------|-----------|---------|-------|------------|------|
| | Preree | quisite: | NIL | | | | | ſ | 'y | 3 | 0/0 |) | 0/0 | 3 |
| L : Lecture T : | Tutoria | al S.L | r : Supe | ervised | Learnir | ng P:F | Project | R : Res | earch C | Cre | dits | | | |
| Ty/Lb/ETL : T | heory/l | Lab/Em | bedded | Theory | y and L | ab | 5 | | | | | | | |
| OBJECTIVES To gain To rece Demor Scienti To und to learn To und COURSE OU CO1 CO2 CO3 CO4 | TIVES : To gain a deep understanding of the concepts of Forensic Science, its history, and its development. To recognize and identify different types of Physical Evidence at a Crime Scene. Demonstrate the knowledge of the structure of Forensic Science Labs in India, Role of Forensic Scientists and Forensic Psychologists in Criminal Investigation. To understand the collection, preservation and analysis of Physical Evidence from a Crime Scene and to learn the basics of Document Examination. To understand the concepts and theories of Crime Scene Investigation. SE OUTCOMES (COs) : (3-5) 1 Understands Principles and practices of forensic science 2 Learns crime investigation and documentation 3 Learns to collect and document personal identifications 4 Properly document and Secure the collected evidences 5 Learns branches of forensic science, forensic scientist roles and forensic Psychologist | | | | | | | | | | | | | |
| C05 | Learn | s branc | hes of f | orensic | scienc | e foren | sic scie | ntist rol | es and f | oren | sic Psy | cholo | ogist | |
| Mapping of C | ourse (| Outcon | nes (CO | s) with | n Progr | am Ou | tcomes | (POs) | | | | | | |
| COs/POs | PO 1 | PO 2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO | | 2010 | PO | 011 | PO12 |
| CO1 | 3 | | | | 3 | | | | | | | | | 1 |
| CO2 | 3 | | | 3 | | | | | 2 | | 3 | | | 2 |
| CO3 | 3 | | | | | | | | | | | | | 2 |
| CO4 | 3 | 3 | | | 3 | | | | | | | | | 2 |
| CO5 | 3 | | | | | | | | | | | | | 2 |
| Mapping of C | ourse (| Outcon | nes (CO |) with | n Progr | am Sp | ecific O | utcom | es (PSO | <u>s)</u> | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO. | 3 | | | PS | 504 | |
| CO1 | | 3 | | | | | | | | | | | 3 | |
| CO2 | | 3 | | | 3 | | | | | | | | 3 | |
| CO3 | | 3 | | | 3 | | | 3 | | | | | 3 | |
| CO4 | | 3 | | | | | | 3 | | | | | 3 | |
| CO5 | | 3 | | | | | | 2 | | | | | 3 | |
| 3/2/1 indicates | Stren | gth of (| Correla | tion | 3- High | n, 2- Me | edium, 1 | 1-Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social | Program Core | Electives | Open Electives | Practical / Project | Internships / Technical | Soft Skills | | | | | |
| | | | | | \checkmark | | | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|-------------------|-----------|---|--------|-----|---|
| EBCF22E01 | GENERAL FORENSICS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction to Forensic Science

Forensic Science: Definition & Principles- Need and Scope of Forensic Science, Important terms, -Statutory recognition of Forensic Science: Indian Evidence Act and Code of Criminal Procedure – Importance of Forensic practices in Cyber Crime Cases.

UNIT II – Physical Evidence and Crime Scene Investigation

Physical Evidence: Information that physical evidence can reveal - Classification of physical evidence - stages in physical evidence analysis.

Crime Scene: Definition, Nature, and Types of Crime Scene. -Basic Concepts of Crime Scene Investigation, Importance of Crime Scene.

UNIT III – Personal Identification

Fingerprints - Foot Prints - Bite Marks - Voice Prints – Forensic Anthropology and Criminal Profiling - DNA Typing - Lie Detector.

UNIT IV – Documentation Examination

Questioned document examination - Different types of forgeries, alterations, and the methods for detecting them

UNIT V Forensic Science, Forensic Scientists and Forensic Psychologists

Branches of Forensic Sciences, Forensic Science in international perspectives (INTERPOL and FBI) and national perspectives. Duties of Forensic Scientists, Code of conduct for

Forensic Scientists.Qualifications of Forensic Scientists.Role of Forensic Scientists in the court of law, Aspects of the justice system.Aspects of Trials.

Definition, meaning and scope of Forensic Psychology- Role of Forensic Psychologist in investigating crimes.

Total Hours: 45

TEXT BOOK:

- 1. Brewester, F. (1932). Contested documents and forgeries. [On methods of testing documents in legal cases, with special reference to conditions in India. With plates.]. Calcutta: Book Co.
- 2. S.H. James and J.J. Nordby, Forensic Science: An Introduction to Scientific and Investigative Techniques, 2nd Edition, CRC Press, Boca Raton (2005).
- 3. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013).
- 4. A Hands-on Introduction to Forensic Science Cracking the Case, 2nd Edition 2020 By Mark M. Okuda.
- 5. Forensic Science an Introduction to Scientific and Investigate Techniques (Hb 2022) by Massey R, Kaufman Press.

REFERENCE BOOKS:

- 1. James, S. (2005). Forensic science: An introduction to scientific and investigative techniques (2nd ed.). Boca Raton, Florida: CRC Press.
- 2. Svensson, A., &Nicol, J. (1965). Techniques of crime scene investigation, by Arne Svensson and Otto Wendel (2d, rev. and expanded American ed.). New York: American Elsevier.
- 3. Introduction to Forensic Science and Criminalistics, Second Edition By Howard A. Harris, Henry C. Lee Copyright Year 2019.

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| Subject Code: | COU | RSE NA | AME : | | | | | Tv/Lb/ | ETL | L | T/S.L | r P/R | С |
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| EBCF22E02 | BUSI | INESS | CON' | l'INUI | TY PL | LAN | | | | | -1.2.1 | / | |
| | Prerec | juisite: | NIL | | | | | Ty | | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | I S.Li | :: Supe | rvised I | Learnin | g P : P | roject R | : Resear | ch C: 0 | Cred | its | | |
| IY/LD/EIL:I | heory/L | Lab/Em | bedded | Theory | and La | lD | | | | | | | |
| OBJECTIVES This paper deal • The va • The bu • Enablin | S: Is with lue of b siness c ng you t | ousiness continui co const | continu ty impl ruct, de | uity ma ementa eploy ai | nageme tion pro nd valid | ent to an ocess ar late rele | n organiz Id imple evant BC | zation mentatio CP | n planr | ning | | | |
| COURSE OU | гсом | ES (CO | (3) | 5 -5) | | | | | | | | | |
| CO1 | Explo place | res the for an c | role a E organiza | BCP pla | ys in r u restore | uninterr their bu | uptable usiness a | services after an u | and the | e mea | asures ti disruptio | hat need | to be in |
| CO2 | Risk assessment techniques and recovery strategies | | | | | | | | | | | | |
| CO3 | Formulating useful continuity plans and plans to recover services | | | | | | | | | | | | |
| CO4 | Validation of plans through appropriate exercising | | | | | | | | | | | | |
| CO5 | Disaster recovery strategy and the importance of disaster recovery planning | | | | | | | | | | | | |
| Mapping of Co | ourse (| Outcom | es (CO | s) with | Progra | am Out | tcomes (| (POs) | 1 | | | | -1 |
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| CO2 | 3 | 3 | 3 | 3 | 3 | 2 | | | 1 | | | 3 | 2 |
| CO3 | 3 | | 3 | | 3 | 2 | | 3 | 1 | | 1 | 3 | |
| CO4 | 3 | 3 | 3 | 3 | | | | | 1 | | | 3 | |
| CO5 | 3 | | 3 | | 3 | 2 | | | 1 | | 1 | 3 | 2 |
| Mapping of Co | ourse (| Outcom | es (CO | s) with | Progra | am Spe | cific Ou | tcomes | (PSOs) |) | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
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| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--------------------------|-----------|----|--------|-----|---|
| EBCF22E02 | BUSINESS CONTINUTIY PLAN | Ту | Ту | 3 | 0/0 | 3 |

UNIT I - Introduction

Justifying Business Continuity to the business – BCP Planning and the Systems Development Life Cycle -Emerging criteria for IT simplification and IT Business continuity strategy – Emerging criteria for IT Business Continuity solutions - Business Continuity Planning, Process, and execution - Tier Level of Business Continuity Solutions - Business Continuity Solution Selection Methodology

UNIT II - Risk Management

Man Made Risks - Natural Risks - Enterprise Risk Management - Operational Risk Management - Risk Assessment - Risk Evaluation and Control - Emergency Incident Assessment - Business Risk Assessment - Business Impact Analysis -

UNIT III -Business Continuity Plan

Business Continuity Planning - The effects of disasters on business - Phases of BCP - Conduct the Business Impact Analysis - Pre-planning steps to launch Business Continuity Planning - Parts of Business Continuity Planning - Build the Business Preparedness Plan - Strengthening and testing BCP - Maintaining a BCP

UNIT IV - Business Continuity Plan Testing and Maintenance

Testing, Auditing. And Training –Testing Business Preparedness Plan – Perform Process Improvement – Mitigation and Business Continuity Strategy – Orientation, Exercising and Testing - Continuous Improvement

UNIT V – Preventing Data Loss

IT Disaster Recovery – Business Recovery Process – IT Disaster Recovery Testing – Business Recovery Testing –Installing and Configuring vCenter Site Recovery Manager – Creating Protection Group and Recovery Plans – Testing and Performing a Failover and Failback – Deploying vSphere Replication 5.5 – Configuring and Using vSphere Replication 5.5

Total Hours: 45

9 Hrs

9 Hrs

9 Hrs

9 Hrs

TEXT BOOKS:

- 1. Charlotte Brooks Clem Leung AslamMirza Curtis Neal Yin Lei Qiu John Sing Francis TH Wong Ian R Wright, "IBM System Storage Business Continuity: Part 1 Planning Guide", International Business Machines Corporation 2, 2007
- 2. Andrew Hiles, ' The Definitive Handbook of Business Continuity Management", John Wiley & Sons, Inc, 2011
- **3.** Brenda D. Philips and Mark Landahl, "Business Continuity Planning: Increasing Workplace Resilience to Disasters", Butterworth-Heinemann Publications, 2021
- **4.** Eugene Tucker, "Business Continuity from Preparedness to Recovery A Standards-Based Approach" Butterworth-Heinemann Publications, 2015, ISBN: 978-0-12-420063-0
- 5. Jamie Watters. "Disaster Recovery, Crisis Response, & Business Continuity: A Management Desk Refereence", Apress Publication,

REFERNCE BOOKS:

- 1. Michael Blyth, "Business Continuity Management Building an Effective Incident Management Plan", John Wiley & Sons, Inc, 2009
- 2. Ralph l. Kliem, Gregg D. Riehie, "Business Continuity Planning: A Project Management Approach", CRC Press, 2016, isbn:13:978-1-4822-5179
- 3. John W. Rittinghouse, James F. Ransome, "Business Continuity and Disaster Recovery for InfoSec Managers", Elsevier Digital Press, 2005, ISBN-13: 978-1-55558-339-2
- 4. Susan Snedaker, "Business Continuity and Disaster Recovery Planning for IT Professionals", Syngress Publications, 2011, ISBN: 9780080553726
- 5. Abhilash GB, 'Disaster Recovery Using VMware vSphere Replication and vCenter Site Recovery Manager' Packt Publishing, 2014, ISBN 978-1-78217-644-2

| Subject Code: EBCF22E03 | COU ART SEC | RSE NA IFICA URITY | AME : L INT | ELLI | GENC | I | y/Lb/ET L | L | T/S.Lr | P/R | C | | |
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| | Prerec | quisite: | NIL | | | | | | Ту | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | l S.Lr | :: Supe | rvised I | Learnin | g P : P | roject R | : Rese | arch C: Cr | redits | | | |
| IY/LD/EIL:I | heory/L | ab/Em | beaaea | Theory | and La | iD | | | | | | | |
| OBJECTIVES • To provi | 5 : de stude | ents the | buildir | ng blocl | ts and c | compon | ents of a | artificia | l intelliger | ice | data | | |
| • To muot | studor | te to | | n teem | nques u | | toobniqu | | large anno | ability | of more | advar | hand |
| technique | es. | | select a | inu apj | jiy bas | AI | teenniqt | ies, ju | ige applie | aunity | of more | auvai | iceu |
| COURSE OU | гсом | ES (CC | Ds):(3 | 3- 5) | | | | | | | | | |
| CO1 | Demo | nstrate | fundam | nental u | ndersta | nding o | of artifici | al intel | ligence (A | I) and | expert sys | tems. | |
| CO2 | Understands AI driven search methods | | | | | | | | | | | | |
| CO3 | Apply AI techniques in problem solving | | | | | | | | | | | | |
| CO4 | Demonstrate proficiency in applying advanced AI | | | | | | Techni | ques | | | | | |
| CO5 | Demonstrate proficiency in applying AI Techniques in Cyber Security | | | | | | | | | | | | |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | | 1 | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO1 | 0 PO1 | 1 PC | 012 |
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| CO3 | 3 | 2 | 3 | | 3 | | | 2 | 1 | | | | 2 |
| CO4 | 3 | | | | 3 | | | | | | | | 1 |
| CO5 | 3 | | 2 | | 3 | | | | 1 | | | | 1 |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Spe | cific Ou | itcome | s (PSOs) | T | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO | 3 | | PSO | 4 | |
| CO1 | | 3 | | | | | | | | | 3 | | |
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| <u>CO4</u> | | 3 | | | | | | | | | 3 | | |
| <u>CO5</u> | | 3 | | | | | | 2 | | | 3 | | |
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| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
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| EBCF22E03 | ARTIFICIAL INTELLIGENCE AND SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction to Artificial Intelligence

History of Artificial Intelligence – Uses and Limitations – Simple and Advanced Search Methodologies – Rules and Expert Systems – Genetic Algorithm – Fuzzy Reasoning – Intelligent Agents

UNIT II - Search Methods

Goal-Driven search – Generate and Test – Depth First Search – Breadth First Search – Heuristic Search – Hill climbing – Identifying Optimal Paths – Local Search and Metaheuristics – Simulated Annealing Parallel Search

UNIT III - Artificial and Problem Solving

Missionaries and Cannibals Problem – 12 Coins Problem – Cryptarithms – 15 Puzzle Problem – Knight's Tour Problem – Rubik's Cube – Sudoku – Map Colouring - Cryptoggraphy

UNIT IV - Advanced Artificial Intelligence

Constraint Reasoning – Qualitative Learning - Probabilistic Reasoning – Support Vector Machine Learning – Reinforcement Learning – Rough set - Association Rules – Distributed Intelligence

UNIT V - Artificial Intelligence for Cyber Security

Detecting Spam: Perceptron – SVM – Naives Bayes; Phishing Detection with logistic regression and decision tree; Decision tree malware detectors – Detecting metamorphic malware with HMMs – Advanced Malware detection with Deep learning – Macnine Learning algorithms for Botnet Detection User Authentication with Keystroke recognition – Facial recognition – Credit Fraud Detection

Total Hours: 45

TEXT BOOKS:

- 1. D. Kopec, C;Pileggi, D.Ungar, S.Shetty,"Artificial Intelligence and Problem Solving", Mercury Learning and Information, 2017, ISBN: 978-1-944534-58-5
- ZhongshiShi"Advanced Artificial Intelligence", World Scientific Publishing Co Pvt Ltd, 2011, ISBN-13 978-981-4291-34-7
- **3.** Ben Coppin, "Artificial Intelligence Illuminated", John and Bartlett Publishers, 2004, ISBN 0-7637-3230-3
- **4.** Alessandro Parisi. "Hands-On Artificial Intelligence for Cybersecurity", Pack Publishing, 2019, ISBN: 9781789804027

REFERENCE BOOKS:

- 1. Stuart J. Russell and Peter Norvig, "Artificial Intelligence: A Modern Approach:, 3rd Edition, Pearson Education, Inc., 2010, ISBN-13: 978-0-13-604259-4
- 2. Michael Negnevitsky, "Artificial Intelligence: A Guide to Intelligent System", 2nd Edition, Addison Wesley, 2002, ISBN 0 321 20466 2

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| EBCF22E04 | COU MOE | RSE N. BILE S | AME : ECUF | RITY A | AND F | OREN | ISICS | Ty/Lb/ | ETL | L | T/S.Lı | P/R | C |
|---|--|--|-----------------------------------|---|---------------------------------------|--------------------------------|---------------------------------|--|----------------------|---------------|----------------------|--|---------------------|
| | Prerec | juisite: | NIL | | | | | Ту | | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | l S.L | r : Supe | ervised | Learnir | ng P:F | Project I | R : Resea | rch C: | Crec | lits | | |
| Ty/Lb/ETL : T | heory/I | .ab/Em | bedded | Theory | and L | ab | U | | | | | | |
| OBJECTIVES This paper help • To und • To gain • To mas | S: os stude lerstand n know ster the | nts l the Mo ledge a' Digital | obile Te bout M forensi | echnolo obile Pl ics tech | gy and hones a niques | securit nd diffe used in | y related erent OS mobile | l issues. used. phones. | | | | | |
| COURSE OU | тсом | ES (CO | Os):(3 | 3- 5) | | | | | | | | | |
| CO1 | Descr | ibe Fun | damen | tals of A | Android | 1 | | | | | | | |
| CO2 | Under Provid | stand Jers, Ai | Android | d secur Sandbo | ity in o xes App | data sto plicatio | orage, Inns, and I | nternal S Resource | torage, sharing | Ex | ternal S | torage, (| Content |
| CO3 | Practi mobil emula | ce Test e apps tors | ting life testing | ecycle , Diffe | of mot rentiate | bile app betwe | olication en testii | s, alterna ng on ph | tives o ysical | of te devi | sting er ces, clo | vironme ud devie | ents for ces and |
| CO4 | Disco | ver Dig | ital Evi | idences | found | in Mob | ile Phon | es | | | | | |
| CO5 | Demo | nstrate | Forens | ic Meth | odolog | y for M | lobile Fo | orensics | | | | | |
| Mapping of C | ourse (| Outcom | nes (CC |) with | n Progr | am Ou | tcomes | (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | 010 | PO11 | PO1 2 |
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| CO2 CO3 CO4 | 3 3 3 | 2 2 2 | 3 3 1 | 2 2 2 | 2 | | 2 2 | | | | | 1 | |
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Testing lifecycle of mobile applications, alternatives of testing environments for mobile apps testing, Differentiate between testing on physical devices, cloud devices and emulators, different test automation

tools for mobile applications, key features of monkey talk tool, installation and use of monkeytalk tool for a mobile application on emulator, installation and use of monkeytalk tool for a mobile application on PC connected device, installation and use of monkevtalk tool for a mobile web, installation and use of monkeytalk tool for a mobile application for cloud device

UNIT IV – Evidences

Type of Data present in Mobile Phones - Digital Evidences found in Mobile Phones - Storage Media Available (RAM, ROM, USB, External memory Card) – different Software's and Applications used in Smart Phones

UNITV – Forensic Procedure and Analysis

Forensic Methodology for Mobile Forensics - Best Practices while handling Mobile Devices from a Crime Scene - Seizure and Acquisition of Mobile Phones - Handling of Devices with Passcode for Mobile and Applications

Imaging Process - Mobile Device Analysis Tools and their features - Where to look for Evidence -Analysis Phase – Documentation

Total Hours: 45

Dr.M.G.R. Educational and Research Institute (Deemed to be University) Department of Computer Science and Engineering 2022 Regulation

| Subject Code: EBCF22E04 | COURSE NAME : | Ty/Lb/E TL | L | T/S.Lr | P/R | С |
|----------------------------|-------------------------------|---------------|---|--------|-----|---|
| | MOBILE SECURITY AND FORENSICS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Fundamentals of Android

Understand Android platform, File system, Virtual Machine Concept, User and Group permission, Google Play, Remote Application Management, Patch Process, SE Android, Apps and Native codes. Understand Application layer, Application framework, Android Runtime, Libraries and Linux Kernel. Understand Calls and Flows, Binder Call, Java Native Interface (JNI), Socket Call, Function call, Dynamic Load Call, Dalvik Virtual Machine, Application structure, Register Architecture, Constant pool structure, Control Flow Structure, Ambiguous primitive types, Null references, Comparison of object references, Storage of primitive types in arrays. Understand 'ded' Decompiler, Application retargeting, Type reference, Constant pool conversion, Method code retargeting. Understand Optimization and Decompilation, Source Code **Recovery Validation**

UNIT II – Security in Android

Understand Android security in data storage, Internal Storage, External Storage, Content Providers, Android Sandboxes Applications, and Resource sharing through permission, creating permission, Understand Input validation, handling Users data, web view, handling credentials, Cryptography, Inter Process Communication. Understand Binder and Messenger Interfaces, Broadcast Receivers, Dynamic Loading Codes, Secure Virtual machine and security in Native Code

UNIT III – Mobile Testing Tools

9 Hrs

9 Hrs

9 Hrs

9 Hrs

TEXT BOOKS:

- 1. Diego Torres Milano, "Android Application Testing Guide", 2010
- 2. Julian Harty, MahadevSatyanarayanan,"A Practical Guide to Testing Wireless Smartphone Applications", 2011
- 3. Iosif I. Androulidakis, "Mobile phone security and forensics: A practical approach", Springer publications, 2012

REFERNCE BOOKS:

- 1. Hung Q. Nguyen, Bob Johnson, Michael Hackett, "Testing Applications on the Web: Test Planning for Mobile and Internet-Based Systems", 2012
- 2. Andrew Hoog, "Android Forensics: Investigation, Analysis and Mobile Security for Google Android", Elsevier publications, 2011
- 3. EamonP.Doherty, "Digital Forensics for Handhelh Devices", CRC Press, 2012

| Subject Code: | COU | RSE NA | AME : | | | | | Tv/Lb/I | ETL | L | T/S.L | r P/R | С |
|-------------------|----------------|---|--------------------------|----------------------|----------------------|--------------------------------------|------------------------|----------------------------------|-------------|-------|-------|-------|----------|
| EBCF22E05 | INCI | DENT | <u>RESPC</u> | DNSE | | | | - , | | - | 0/0 | / - | <u> </u> |
| | Prerec | uisite: | NIL | | | | | Ту | | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : ' | Tutoria | I S.Lr | :: Supe | rvised I | Learning | $\mathbf{g} \mathbf{P} : \mathbf{P}$ | roject R | : Researc | ch C: C | redi | ts | | |
| Ty/Lb/EIL:II | heory/L | ab/Emt | bedded | Theory | and La | .b | | | | | | | |
| ODIECTIVES | | | | | | | | | | | | | |
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| COURSE OU | ГСОМ | ES (CC |) s) : (3 | 5) | | | | | | | | | |
| COL | Under | etand I | ncident | respons | e mana | aamen | + | | | | | | |
| $\frac{CO1}{CO2}$ | Descri | ihe type | es of inc | respons vidents : | and the | ir cateo | orization | <u> </u> | | | | | |
| CO3 | Explai | in the C | hallens | res in L | og Man | ageme | of and or | nerational | proces | ses | | | |
| CO4 | Under | stand th | ne impo | ortance of | of Incid | ent Res | sponse ir | Compute | er Fore | ensic | s | | |
| CO5 | Chief | Stanta ti | <u></u> | | | | pono e n | <u>r comput</u> | | | 5 | | |
| Mapping of Co | ourse C | urse Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | O10 | PO11 | PO 12 |
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| CO3 | 3 | 2 | 3 | 2 | | 3 | | | | | | | |
| CO4 | 3 | | 2 | 1 | | | | | | | | | 1 |
| CO5 | | | | | | | | | | | | | |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Spe | cific Ou | tcomes (l | PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | | 3 | | | | | | | | | | 1 | |
| CO2 | | 3 | | | | | | | | | | 1 | |
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| CO4 | | 3 | | | | | | | | | | 1 | |
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| 3/2/1 indicates | Streng | th of C | Correlat | tion 3 | - High, | , 2- Me | dium, 1- | Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | SILLAC LIOC | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
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| EBCF22E05 | INCIDENT RESPONSE | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Incident Management

Introduction – ITIL , COBIY and NIST SP800 – 61 perspectives – stages in IR $\,$ - Initial preparation – Need for incident response team - Roles and responsibilities of Incident response team.

UNIT II – Handling Incidents

Types of incidents and their categorization - Incident prioritization - Sources of incidents - Precursors - Indicators - End Users - Methods of identifying incidents - reporting and recovery - Incident containment eradication and recovery.

UNIT III – Log Management

The Basics of Computer Security Logs, Security Software, Usefulness of Logs, Need for Log Management, Challenges in Log Management- Log Generation and Storage, Log Protection, Log Analysis. Architecture, Functions, Syslog-Based Centralized Logging Software- Syslog Format & Syslog Security, Security Information and Event Management Software, Additional Types of Log Management Software

UNIT IV – Log Management Infrastructure & Log Management Planning 9 Hrs

Configure Log Sources- Log Generation, Log Storage and Disposal, Log Security. Analyze Log Data-Gaining an Understanding of Logs, Prioritizing Log Entries, Comparing System-Level and Infrastructure-Level Analysis, Respond to Identified Events, Manage Long-Term Log Data Storage, Provide Other Operational Support, Perform Testing and Validation

UNIT V – IR and Computer Forensics

Live Data collection of Microsoft Windows and Unix – Forensic Image Formats – Traditional Duplication – Live System Duplication – Duplication of Enterprise Assets – Access and Analyze Data –Investigating Windows Systems – Investigating Applications

Total Hours: 45

TEXT BOOKS:

- 1. Jason Luttgens, "Incident Response & Computer Forensics", , Edition, McGraw Hill Osborne Media, 2014
- Jason T. Luttgens, Matthew Pepe, Incident Response & Computer Forensics, McGraw-Hill Education, ISBN: 978-0-07-179869-3, 2014

REFERENCE BOOKS:

- 1. Leighton Jhonson, "Computer Incident Response and Forensics Team Management: Conducting a Successful Incident Response", First Edition, Syngress, 2013
- 2. Anton A. Chuvakin, "Logging and Log Management", Syngress, 2012

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9 Hrs

| Subject Code: | COU | RSE N | AME : | | | _ | Tv/Lb | /ETL | L | T/S.L | r P/ | R | С | |
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| I I I T | Prerec | juisite: | NIL | | · • | | | | y 1.0 | 3 | 0/0 | 0/ | 0 | 3 |
| L : Lecture T : Ty/Lb/ETL : T | Tutoria heory/L | l S.Li Lab/Eml | r : Supe bedded | rvised I Theory | Learnin and La | g P:P ib | roject R | : Resea | rch C: 0 | Cred | its | | | |
| OBJECTIVES • To lear • To ado | S: n about | t the Fo | rensic N es for Ir | Method | ology d tion. | uring Ir | nvestigat | tion. | | | | | | |
| Unders | standing | g Techn | ical and | l Legal | aspects | involv | ed in Di | gital For | rensics | | | | | |
| COURSE OU | гсом | ES (CO | Ds):(3 | 3- 5) | | | | | | | | | | |
| CO1 | Descr | ibe the | importa | ance of | digital t | forensic | s and pl | nases inv | volved | | | | | |
| CO2 | Expla approx | in the _l ach | process | of con | nputer f | forensic | investi | gation n | nodels a | and | cybercr | ime in | ves | tigation |
| CO3 | Descr | ibe chai | in of cu | stody | | | | | | | | | | |
| CO4 | Under | rstand a | uthenti | cation a | nd anal | lysis ph | ase | | | | | | | |
| CO5 | CO5 Explain the documentation procedure | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | | |
| COs/POs | PO1 | PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 | | | | | | | | | | | | |
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| CO3 | 3 | | | | | | | | | | | | | |
| CO4 | 3 | | 3 | 3 | | | | | | | | | | |
| CO5 | 3 | | | | | | | | | | | | | |
| Mapping of C | ourse (| Outcom | es (CO | s) with | Progra | am Spe | cific Ou | tcomes | (PSOs) |) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO | 4 | |
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| Category | Basic Sciences Engineering Sciences Humanities and Social Sciences Program Electives Open Electives Practical / Project Internships / Technical Skill Soft Skills | | | | | Soft Skills | | | | | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E06 | DIGITAL FORENSIC LIFESYCLE | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction

Digital Forensics: Importance and Objective – Overview of Digital Forensics Life Cycle, Phases involved in Digital Forensics Life Cycle – Incident Response

UNIT II – Digital Forensics Life Cycle

Different Computer Forensic Investigation Models, Cyber Crime Investigation approach – Crime Scene Investigation – Evidence: Digital Evidence - Evidence Handling

UNIT III – Seizure and Acquisition

Identification - Seizure Procedure – Acquisition Procedure – Best Practices for Seizure and Acquisition Procedure – Chain of Custody

UNIT IV – Authentication and Analysis

Authentication Phase – Analysis Phase – Precautions while performing Analysis – Evidence Interpretation

UNIT V – Reporting Documentation

Report Writing/Generation – Documentation Procedure – Expert Witness – Investigation of Networked Systems

Total Hours: 45

TEXT BOOK:

1. Angus McKenzie Marshall, "Digital Forensics: Digital Evidence in Criminal Investigations", Wiley-Blackwell, 2008

REFERENCE BOOKS:

- 1. John Sammons, "The Basics of Digital Forensics: The Primer for Getting Started in Digital Forensics", Syngress, 2014
- 2. Eoghan Casey, "Digital Evidence and Computer Crime Forensic science, Computers and Internet", Elsevier Academic Press, Third Edition, 2011

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| Subject Code: FBCF22F07 | COU IT R | RSE NA | AME : | ENT | NT | | | Ty/Lb | /ETL | L | T/S.L | r P/. | R | С |
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| Ty/Lb/ETL : T | heory/L | .ab/Eml | bedded | Theory | and La | lb | | | | | | | | |
| OBJECTIVES To help student In gain Implen Perform | S: ing kno nent Ris n Risk a | wledge sk mana assessm | about l agemen agent | Informa t proces | tion Ri | sk. | | | | | | | | |
| COURSE OU | OURSE OUTCOMES (COs) : (3- 5) | | | | | | | | | | | | | |
| CO1 | Under | Understand Elements and factors of risk | | | | | | | | | | | | |
| CO2 | Expla | Explain Risk Identification, Integration of Risk Management into SDLC | | | | | | | | | | | | |
| CO3 | Descr | Describe Risk Mitigation Options, Risk Mitigation Strategy, Control Categories | | | | | | | | | | | | |
| CO4 | Learn | Learns Information Security Risk Management Standards | | | | | | | | | | | | |
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| Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P | PO10 | PO11 | L | PO12 |
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| Mapping of Co | ourse C | Jutcom | es (CO | s) with | Progra | am Spe | cific Ou | itcomes | (PSOs |) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO ₄ | 1 | |
| CO1 | | 3 | | | | | | | | | | 3 | | |
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| <u>CO3</u> | | 3 | | | | | | | | | | 3 | | |
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| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E07 | IT RISK MANAGEMENT | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction to Risk

Risk and its Characteristics - Elements and factors of risk - Types of Risk , Importance of Risk Management

UNIT II – Overview of ITRM

Role of IT Risk Management - Scope of ITRM - Drivers of Key Risk (External & Internal) - Risk Planning - Risk Identification, Integration of Risk Management into SDLC..

UNIT III – Risk Assessment

Step 1: System Characterization- System-Related Information, Information-Gathering Techniques, Step 2: Threat Identification, Threat-Source Identification, Motivation and Threat Actions. Step 3: Vulnerability Identification, Vulnerability Sources, System Security Testing, Development of Security Requirements Checklist. Step 4: Control Analysis, Control Methods, Control Categories, Control Analysis Technique, Step 5: Likelihood Determination, Step 6: Impact Analysis, Step: Risk Determination

UNIT IV – Prioritizing Risk

Determining Risk Tolerance - Establishing & Evaluating Profitability - Decision Trees - Risks vs Opportunities, Risk Mitigation Options, Risk Mitigation Strategy, Control Categories- Technical Security Controls, Management Security Controls, Operational Security Controls

Strategies for Opportunities & Threats - Risk Acceptance - Risk Avoidance - Risk Transference - Risk Mitigation – Monitoring & Controlling Response - Contingency Planning – Reassessment – Documentation.

UNIT V – Information Security Risk Management Standards

ISO/IEC 13335 - ISO/IEC 17799 - ISO/IEC 27000 SERIES - NIST Standards - Information Security Risk Management Methods and Tools -COBIT - OCTAVE

TEXT BOOK:

- 1. David L. Cannon, "CISA Certified Information Systems Auditor Study Guide", SYBEX Publication. ISBN: 978-0-470-23152-4.
- 2. Jake Kouns, Daniel Minoli, Information Technology Risk Management in Enterprise Environments: A Review of Industry Practices and A Practical Guide to Risk Management Teams, John Wiley & Sons, Inc. All rights reserved, ISBN 978-0-471-76254-6, 2010

REFERENCE BOOKS:

- 1. Westerman, "IT Risk: Turning Business Threats Into Competitive Advantage", Harvard Business School Press. 2007
- 2. Manish Agarwal, "Information Security and IT Risk Management", John Wiley and Sons, 2014

9 Hrs

9 Hrs

Total Hours: 45

9 Hrs

9 Hrs

| Subject Code: | COU | RSE N | AME : | | | | | | | | | | |
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| How to | o do Ma | lware a | unalysis | | .j | | | | | | | | |
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| | Under | stand h | | f Malw | areand | Analysi | s in Virt | ual Mach | ines | | | | |
| CO2 | Descr | ibe beh | aviour A | Analysi | s of ma | lware | 5 111 1 110 | | | | | | |
| CO3 | Expla | xplain malware classification and clustering | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| Mapping of Course Outcomes(COs) with Program Outcomes (POs) | | | | | | | | | | | | | |
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| Manning of Co | ourse (| Dutcom | es (CO | s) with | Progr | am Sne | cific Or | itcomes | (PSOs) | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | un opt | | PSO3 | | , | | PSO4 | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
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| EBCF22E08 | MALWARE ANALYSIS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction

Basic Static Techniques, Malware Analysis in Virtual Machines, Basic Dynamic Analysis, Malware Analysis - VM infra creation for Malware Analysis

UNIT II – Debugging

Ring 3 Debugging and other methods - Decoding and self Extracting code segment - Tools for collecting Malware - Analyzing Malware, Malware Behavior, Covert Malware Launching, Data Encoding, Malware-Focused Network Signatures

UNIT III – Static Analysis

Behavior Analysis - PE introduction - Shell code and packages/unpackaged, Advanced Static Analysis, Packed and Obfuscated Malware, Portable Executable File Format, Static Analysis in Practice, The PE File Headers and Sections.

UNIT IV – Malware SANDBOX

Dynamic binary analysis - Analyzing Malware Websites, Virtualization, virtual box, sandbox network infrastructure, integrating virus total signature with VM, Using a Malware Sandbox

UNIT V – Malware Classification and Clustering

Evaluation of Automated Malware Analysis system - Evaluation of Automated Malware Analysis Tools., The Quick-and-Dirty Approach, Using a Malware Sandbox, Monitoring with Process Monitor

Total Hours: 45

TEXT BOOK:

1. Michael Sikorski, "Practical Malware Analysis: The Hands-On Guide to Dissecting Malicious Software", 1st Edition, No Starch Press, 2012

REFERENCE BOOKS:

- 1. Michael Ligh, "Malware Analyst's Cookbook and DVD: Tools and Techniques for Fighting Malicious Code", Wiley, 1st Edition, 2010
- 2. Christopher Elisan, "Advanced Malware Analysis", first edition, McGraw-Hill Education, 2015

9 Hrs

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| Subject Code: EBCF22E09 | COU | RSE NA CRITI SECUE | AME : ICAL I RITY A | NFRA | STRU(ANAG | CTURE EMEN' |) T | Ty/Ll |)/ETL | L | T/S.L | r P/R | C |
| | Prerec | quisite: | NIL | | | | - | Т | 'y | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | l S.Lı | : Supe | rvised | Learnin | g P : P | roject R | : Rese | arch C: | Cred | its | | |
| Ty/Lb/ETL : T | heory/L | _ab/Eml | bedded | Theory | and La | ib | U | | | | | | |
| OBJECTIVES This paper deal • ITIL-cor • ITIL star speaking | 5 : ls with the state of the s | the imp e tools o from a s ne tech | ortance offer be single v nical la | e of etter inte rendor c nguage | egration can help | a, intera o proces | ction and s integra | d comp ations g | atibility o seaml | glob essly | al partne and ens | ers ure all p | parties are |
| COURSE OU | тсом | ES (CO | Ds):(3 | 3- 5) | | | | | | | | | |
| CO1 | To understand the concepts of ITIL frameworks provide a homogenous IT environment and eases interactions with other global companies using similar preapproved tools. | | | | | | | | | | | | |
| CO2 | To ill tasks : | To illustrate services to customers and creating efficiencies for less money can be daunting tasks for any IT organization. | | | | | | | | | | | |
| CO3 | Interp | ret diffe | erent Se | ervice I | Design I | Lifecycl | e Stage | and Ma | nageme | nt Pr | ocesses | | |
| CO4 | Illustrate the Service Asset and Configuration Management Process, Knowledge Management. | | | | | | | | | | | | |
| CO5 Relate Service Operations and Continual Service Improvement | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs)with Program Outcomes (POs) | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO | | PO10 | PO11 | PO12 |
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| CO3 | 3 | 3 | 1 | | 1 | | 1 | | | | | 1 | |
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| CO5 | 3 | | 2 | | | | 161 0 | | | | | 1 | |
| Mapping of Co | ourse (| Jutcom | es (CO | s) with | Progra | am Spe | cific Ou | itcomes | (PSOs |) | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E09 | CRITICAL INFRASTRUCTURE SECURITY AND MANAGEMENT | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Overview and Service Strategy

ITIL History, Components of the ITIL Library, IT Service Management, Organizing for IT Service Management, Technology and Architecture, Overview of HPSM and OTRS as service management tool, Service Strategy: Service Strategy Lifecycle Stage, Service Portfolio Management, the Demand Management Process, the IT Financial Management Process, Introduction to ISO 20000 Standards.

UNIT II – Service Design

Service Design Lifecycle Stage, The Service Catalog Management Process, The Service Level Management Process, The Availability Management Process, The Capacity Management Process, The Information Security, Management Process, The IT Service Continuity, Management Process, The Supplier Management Process .

UNIT III – Service Transition

Service Transition Lifecycle Stage, the Change Management Process, the Release and Deployment Management Process, the Service Asset and Configuration Management Process, Knowledge Management.

UNIT IV – Service Operation

Service Operation Lifecycle Stage, The Service Desk Function, The Technical Management Function, The Application Management Function, The IT Operations Management Function Service Operation Processes :The Event Management Process, The Incident Management Process, The Request Fulfilment Process, The Access Management Process, The Problem Management Process.

UNIT V – Continual Service Improvement

Continual Service Improvement principles - CSI and organizational change, Ownership, Role definitions, External and internal drivers, Service Level Management, The Deming Cycle, Service measurement, Knowledge Management, Benchmarks, Governance, Frameworks, models, standards and quality systems Continual Service Improvement processes : 7step improvement process, Service reporting, Service management, return on in investment for CSI, business questions for CSI, Service level management

Total Hours: 45

TEXT BOOKS:

- 1. Introduction to ITIL, Jan van Bon Stationery Office Books, The Stationery Office, 2010HP operation Manual from HP, 2010
- 2. A Guide to Service Desk Concepts Donna Knapp From Cengage Learning, 2010

REFERENCE BOOKS:

- 1. The Shortcut Guide to Virtualization and Service Automation, Greg Shield Real-time Publishers, 2008
- 2. Service automation and dynamic provisioning techniques in IP/MPLS environments Christian Jacque net, Gilles Bourdon, Mohamed Boucadair John Wiley and Sons, 2008.

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B.Tech – Cyber Forensics and Information Security -2022 Regulation

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| Subject Code: | COU | DSE N | AME . | | | | | 1 | | | | | |
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| OBJECTIVES | 5: | | | | | | | | | | | | |
| This paper focu | ises on | | | | | | | | | | | | |
| • The co | ncepts (| of Virtu | alizatio | on and i | ts types | | | | | | | | |
| • The pu | irpose a | and vari | ious app | olication | ns of V | irtualiza | ation in o | differen | t enviroi | nmer | nts | | |
| Operat | ions of | virtual | machin | es and | the hard | lware re | equireme | ent | | | | | |
| Implen | nentatio | on of Vi | rtualiza | ation in | Forensi | ics | 1 | | | | | | |
| COURSE OU | OUTCOMES (COs) : (3- 5) | | | | | | | | | | | | |
| CO1 | Explain concepts of Virtualization and its types | | | | | | | | | | | | |
| CO2 | Descr | Describe the applications of Virtualization in different environments | | | | | | | | | | | |
| CO3 | Under | Jnderstand virtual machine operations | | | | | | | | | | | |
| CO4 | Learn | earns the need of Virtualization Forensics | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | |
| Mapping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | |
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| Mapping of Co | ourse (| Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO. | 3 | | | PSO4 | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E10 | FUMNDAMENTALS OF VIRTUALIZATION AND INFORMATION SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Fundamentals of Virtualization

Concept of Virtualization - Benefits of Virtualization - Understanding Cloud - Types of Virtualizations -Virtualization Technologies - Accomplishing Virtualization - Disadvantages - Virtual Machine - Key Properties of Virtual Machine - Virtual CPU - Virtual Memory - Virtual Storage - Virtual Networking -Virtual Graphic Processing – Choosing between SAN, NAS, local storage

UNIT II – Virtualization Purpose

More efficient utilization of hardware – Increasing availability – Disaster Recovery – Just-in-time delivery of resources – Saving Energy

UNIT III – Applications

Desktop Computers - Running Specific Program - Setting Test & Development Environments -Designing private cloud – utilizing public cloud

UNIT IV – Virtual Machine Operations

Cloning a Virtual Machine – Backing Up & Recovering a Virtual Machine – Converting Physical Server into a Virtual Server - Converting Virtual Server into a Physical Server

UNIT V Virtualization and Forensics

Investigating Dead Virtual Environments - Investigating Live Virtual Environments - Finding and Imaging Virtual Environments – Virtual Environments and Compliance – Virtualization Challenges

Total Hours: 45

TEXT BOOK:

- Michael Fox (2010), "Demystifying the Virtual Desktop: Starting With Desktop Virtualization: Volume 1"CreateSpace Independent Publishing Platform
- 2. Diane Barrett, Gregory Kipper, Virtualization and Forensics A Digital Forensic Investigator's Guide to Virtual Environments, Elsevier, ISBN: 978-1-59749-557-8, 2010

REFERENCE BOOKS:

- 1. Nelson Reust (2009), "Virtualization, A Beginner's Guide, McGraw-Hill Osborne
- 2. Uhlig, R. et al.; "Intel virtualization technology," Computer, vol.38, no.5, pp. 48-56, May 2005

9 Hrs

9 Hrs

9 Hrs

9 Hrs
| Subject Code: | COU | RSE NA | AME : | | | | | Ту/ГР | /FTI | т | T/SI | D/D | С |
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| | Prerec | quisite: | NIL | | | | | Т | 'y | 3 | 0/0 | 0/0 | 3 |
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| OBJECTIVES | ; | c | | | | | | | | | | | |
| • Discuss t | the sour | ces of o | cyber th | reats | | | | | | | | | |
| • To handl | e Cybe | r war | | | . 1 | | | | | | | | |
| • Create av | warenes | ss of So | cial eng | gineerin | g attack | KS . | | | | | | | |
| COURSE OU | ГСОМ | ES (CO | Os):(3 | 3- 5) | | | | | | | | | |
| CO1 | Descr | ibe abo | ut virus | and wo | orms | | | | | | | | |
| CO2 | Classi | fy malv | ware an | d its typ | bes | | | | | | | | |
| CO3 | Summ | Summarize Advanced Persistent Threats &Information Warfare | | | | | | | | | | | |
| CO4 | Demo | DemonstrateHuman and Computer based Social Engineering | | | | | | | | | | | |
| CO5 | Expla | Explain Threat Modelling and Management | | | | | | | | | | | |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Out | tcomes (| (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO |) I | PO10 | PO11 | PO12 |
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| CO3 | 1 | | | | | | | | | | | | |
| CO4 | 2 | 1 | 2 | | | | | | | | | 2 | |
| CO5 | 1 | 1 | 2 | | 2 | | 2 | | | | | 2 | 2 |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Out | comes (| (POs) | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | \$ | | | PSO4 | |
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| <u>CO4</u> | | 2 | | | | | | 2 | | | | 2 | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
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| EBCF22E11 | SECURITY THREAT INTELLIGENCE | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Viruses and Worms

Introduction to Viruses & Worms, the concept of how Viruses & Worms work, the various types of Viruses & Worms, the infection vectors of Viruses & Worms, managerial, technical & procedural controls to address Viruses & Worms, Anti-virus Techniques

UNIT II – Malware

Introduction to Malware & Botnets, the concept of how Malware, Trojans & Botnets work, the concept of honeynets and honeypots, Managerial, technical& procedural controls to address Malware, Trojans & Botnets, Introduction to Remote Access Trojans & Rootkits, concepts, their working methods , their security implications and the managerial , technical and procedural controls to address RATs

UNIT III – Cyber War

Introduction to Advanced Persistent Threats &Information Warfare, concepts, their working methods, their security implications and the managerial, technical and procedural controls to address these threats

UNIT IV – Social Engineering

Introduction, Human and Computer based Social Engineering, examples of Social Engineering Attacks, Counter measures

UNIT V – Threat Modelling and Management

Threat Modelling, STRIDE approach, attack trees, attack libraries, managing and addressing threats, defensive tactics and technologies, trade-offs

Total Hours: 45

TEXT BOOKS:

- 1. Future Crimes: Inside the Digital Underground and the Battle for Our Connected World by Marc Goodman, Corgi; Latest Edition edition (1 March 2016)
- 2. Threat Modeling: Designing for Security (MISL-WILEY) by Adam Shostack, Wiley, 2014
- 3. Cyber War: The Next Threat to National Security and What to Do About It by Richard A. Clarke, Robert Knake, Ecco; Reprint edition (10 April 2012)
- 4. Cyber Terrorism and Information Warfare by M. N. Sirohi, Alpha Editions; 1 edition (22 May 2015)

REFERENCE BOOKS:

- 1. Advanced Persistent Threat: Understanding the Danger and How to Protect Your Organization 1st , Kindle Edition by Eric Cole, Syngress; 1 edition (31 December 2012)
- 2. Advanced Persistent Threat Hacking: The Art and Science of Hacking Any Organization by Tyler Wrightson, McGraw-Hill Education (16 September 2014)

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| OBJECTIVES | S: | | | | | | | | | | | | |
| This paper deal | s with | _ | _ | | | | | | | | | | |
| • Basics of | f IoT, Io | oT secu | rity arc | hitectu | res and | IoT in l | Enterpris | ses | | | | | |
| • IoT syste | stem vulnerabilities, threats and their countermeas | | | | | | neasures | | | | | | |
| Cryptogi | graphy in IoT | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| COURSE OU | UTCOMES (COs) : (3- 5) | | | | | | | | | | | | |
| CO1 | Understand significance of the IoT, operations | | | | | | ions and | l busines | ss benef | its o | f an IoT | solution | 1 |
| CO2 | Understand IoT Communication layer based technologies | | | | | | | | | | | | |
| CO3 | Learn | s variou | is threa | ts to Se | curity a | and cour | ntermeas | sures to | address | ther | n | | |
| CO4 | Emplo | by cryp | tograph | ıy soluti | ions for | the Io7 | device | Security | У | | | | |
| CO5 | Under | rstands | the wor | king of | IoT ap | plicatio | ns | | | | | | |
| Mapping of C | ourse (| Outcom | es (CO | s) with | Progr | am Ou | tcomes (| (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO | | PO10 | PO11 | PO12 |
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| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | | | | | 2 | 2 |
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Dr.M.G.R. Educational and Research Institute (Deemed to be University)

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E12 | IoT SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Introduction

IoT Trends and Device Architecture – Need for IoT Security – Understand the Role of Cryptography – Choosing Right IoT Security Solutions – Ten IoT Security Best Practices – IoT System Architectures – IoT Devices – IoT Network Model – IoT Event Analysis – Security Testing IoT Systems

UNIT II – IoT Security Technologies

Standards – Security and Privacy – Cloud and Fog Computing; Communication Technologies: Information and Communication Technology Infrastructure - Physical Layer Technologies – Link Layer Technologies – Network Layer Technologies – Application/Data Layer Technologies

UNIT III – Securing IoT

Overview – Security Requirements in IoT – Security Requirements in IoT Architecture – Security Enabling Technologies – Security Concerns in IoT Applications – Insufficient Authentication and Authorization – Insecure Access Control – Threats toAccess Control, Privacy and Availability – Attacks Specific to IoT – Secrecy and Secret Key Capacity – Authentication/Authorisation for Smart Devices – Transport Encryption – Secure Cloud/Web Interface – Secure Software/Firmware – Physical Layer Security – Public-Key-Based Authentication – Identify-Based Authentication, Encryption, and Digital Signature – IP Connectivity – Lightweight Cryptography – Existing Security Schemes for IoT–Security in Identification and Tracking Technologies- Security in Integration of Wireless Sensor Network and RFID – Security in Communications – Security Protocols and Privacy Issues into 6LoWPAN – Data Security and Privacy – Data Confidentiality and Key Management - Blockchain-Based Security solutions for IoT Systems

UNIT IV – Implementing IoT Security

Threats, Vulnerabilities and Risks – Attacks and Countermeasures – Safety and Secure Design – Process and Agreements – Technology Selection; IoT Security Lifecycle: Implementation and Integration – Operations and Maintenance – Dispose; Cryptography for IoT Security: Encryption and Decryption – Hashes and Digital Signatures – Random number generation – Cryptographic Key Management Fundamentals – Examining Cryptographic Controls for IoT Protocols; Identity and Access Management for IoT: Identity Lifecycle – Authentication Credentials - IoT IAM Infrastructure – Authorization and Access Control – Privacy Challenges introduced by the IoT – Guide to Performing an IoT PIA – PbD Principles – Privacy engineering recommendations

UNIT V – IoT Applications

RFID in IoT – IoT and IT Auditing - Smart Cities – Smart Connected Homes – IoT for Renewable Energy - IoT in Health Care – Smart Ambulance and Emergency Medicine – IoT for Agriculture

Total Hours: 45

9 Hrs

9 Hrs

9 Hrs

9 Hrs

TEXT BOOKS:

- 1. Brain Russell, Drew Van Duren, "Practical Internet of Things Security", Packt Publishing Ltd, 2016, ISBN 978-1-78588-963-9
- 2. Shancang Li, Li Da Xu. "Securing the Internet of Things", Syngress, 2017, ISBN: 978-0-12-804458-2
- DimitriosSerpanos, "Marilyn Wolf, Internet of Things (IoT): Architectures, Algorithms, Methodologies", Springer International Publicising, 2018, ISBN 978-3-319-69714-7 ISBN 978-3-319-69715-4 (eBook)

REFERENCE BOOKS:

- 1. Lawrence Miller, "IoT Security for Dummies", John Eiley & Sons Ltd., 2016, ISBN 978-3-319-69714-7 ISBN 978-3-319-69715-4 (eBook)
- 2. Simone Cirani, Gianluigi Ferrari, Marco Picone, Luca Veltri, "Internet of Things: Architectures, Protocols and Standards", Wiley & Sons Ltd., 2019
- 3. UsamaMehboob, QasimSaib, ChaudhrtUsama, "Survey of IoT Communication Protocols", xFlow Research Inc, 2016
- 4. Qusay F. Hassan, "Internet of Things A To Z: Technologies and Applications", John Wilye& Sons, 2018, ISBN: 978-1-111-945674-2

| Subject Code: | COU | RSE N | AME : | ~~~~~ | | | | Tv/Lb | /ETL | L | T/S.I | r P/F | |
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| OBJECTIVES This paper deal | 5: | | | | | | | | | | | | |
| • Piometrie | Taahn | logias | | | | | | | | | | | |
| Biometric Omputati Biometric | tional Methods involved in the Biometric systems e security | | | | | | | | | | | | |
| COURSE OU | TCOMES (COs) : (3- 5) | | | | | | | | | | | | |
| CO1 | Evalu | ate bior | netric r | nulti-fa | ctor sys | tem des | signs and | d the eff | ects of | mult | i-biome | trics on | the user |
| CO2 | Descr | ibe vari | ous bic | metric | method | s and th | neir func | tional us | se in bi | omet | ric secu | rity env | ironments |
| CO3 | Illustr | ate the | workin | g proce | ss of Bi | ometric | c recogn | ition | | | | - | |
| CO4 | Under | rstands | the beh | avioura | l attribu | ites of l | oiometri | c system | l | | | | |
| CO5 | Exam | ine bio | metric a | applicat | ions for | · securit | y solutio | ons | | | | | |
| Mapping of C | ourse (| Outcom | es (CO | s) with | Progra | am Out | tcomes (| (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO | | PO10 | PO11 | PO12 |
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| CO4 | 3 | 1 | 3 | | | 2 | | | | | | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | | 2 | 3 | | 1 | | | 2 | 2 |
| Mapping of Co | ourse (| Outcom | es (CO | s) with | Progra | am Out | tcomes (| (POs) | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | 3 | | | | | | | 3 | | | | 3 | |
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| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E13 | BIOMETRICS SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Introduction

Overview of Biometrics – Biometric working Process – Authentication Methods –Authentication Protocols – Matching Biometric Samples - Hybrid Methods – Finger Print Recognition – Face Recognition – Speaker Recognition – Iris Recognition – Hand Geometry – Signature Verification – Additional Biometrics - Basic System Errors – Identification System Errors – Performance Testing – Selecting a Biometric

UNIT II – Working Process of Common Biometrics

Types of Biometric Technology and Verification Systems - Biometric Technology and Verification Systems Standards - Working of Eye Analysis – Iris Pattern Recognition – Working of Retina Pattern Recognition - Working of Facial Recognition Technology – Fingers scanning Verification and Recognition -

UNIT III – Working Process of Advanced Biometrics

Working of Facial Thermal Imaging in the Infrared Spectrum – Working of Hand Geometry Image Technology and Finger Geometry Technology – Working of Dynamic Signature Verification – Working of Voice Recognition, Ear-Shape analysis and Palm Print Pattern Recognition – Working of Vein Pattern Analysis, Body Odour/Scent Analysis Technology and DNA Measurement Technology - Working of Keystroke Dynamics Technology

UNIT IV – Behavioural Biometrics

Introduction – Keystroke Dynamics – Graphical Based Authentication Methods – Mouse Dynamics – Multimodal Biometrics System – The Feature of Behavioural Biometrics

UNIT V – Data Analysis

Biometric matching basis – Performance Testing and Reporting – Statistical Basis of Biometric system – Biometric Menagerie – Biometric for Data Mining - Proof Identity – Covert Surveillance System – Vulnerabilities

TEXT BOOKS

- 1. Ruud M. Bolle, Jonathan H. Connell, SharathPankanti, Nalini K. Ratha, Andrew W. Senior, "Guide to Biometrics", Springer, ISBN 978-1-4419-2305-9, 2004
- 2. John R. Vacca, "Biometric Technologies and Verification Systems", Elsevier, ISBN: 978-0-7506-7967-1, 2007
- **3.** Kenneth Revett, "Behavioral Biometrics", A John Wiley and Sons, Ltd., Publication, ISBN: 978-0-470-51883-0, 2008
- 4. Ted Dunstone, Neil Yager, "Biometric System and Data Analysis Design, Evaluation and Data Mining", Springer, ISBN-13: 978-0-387-77625-5, 2009

REFERENCE BOOKS

- 1. Peter Gregory, Michael A. Simon Biometrics For Dummies, Wiley Publishing, Inc., ISBN: 978-0-470-29288-4 2008
- **2.** Khalid Saeed, New Directions in Behavioral Biometrics, CRC Press a Taylor & Francis Group, ISBN-13: 978-1-4987-8462-7 (Hardback), 2017

B.Tech – Cyber Forensics and Information Security -2022 Regulation

9 Hrs

9 Hrs

9 Hrs

Total Hours: 45

9 Hrs

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| COURSE OU | ГСОМ | ES (CO | Os): (3) | 3- 5) | | | | | | | | | | |
| CO1 | Understands the Information System Audit and its types | | | | | | | | | | | | | |
| CO2 | Analy | Analysis and Design Information System Audit | | | | | | | | | | | | |
| CO3 | Learn | s the be | st pract | tices for | · IT con | nplianc | e and reg | gulatory | require | mer | nts | | | |
| CO4 | Audit | ors app | ly profe | essional | ethics | | | | | | | | | |
| CO5 | Plan a | ind perf | form IS | audit | | | | | | | | | | |
| Mapping of Co | ourse (| Outcom | es (CO | s) with | n Progr | am Ou | tcomes | (POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | | PO10 | PO11 | .] | PO12 |
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| CO3 | 3 | | | 3 | | | | | | | | | | 1 |
| CO4 | 3 | | 3 | 3 | | | | 2 | 3 | | | | | |
| CO5 | 3 | | 3 | 3 | 2 | | | 2 | 3 | | 3 | 2 | | 1 |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Out | tcomes (| POs) | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO ₂ | ŧ | |
| CO1 | | 3 | | | | | | | | | | 2 | | |
| CO2 | | 3 | | | | | | 2 | | | | 3 | | |
| CO3 | | 3 | | | | | | | | | | 2 | | |
| CO4 | | 3 | | | | | | 1 | | | | | | |
| CO5 | | 3 | | | | | | 2 | | | | | | |
| 3/2/1 indicates | es Strength of Correlation 3- High, 2- Medium, 1-Low | | | | | | | | | | | | | |
| | SS | | nd Ses | | | SS | | / jll | | | | | | |
| ~ | nce | 23 | s al enc | Ore | | tive | | ips | | | | | | |
| Cioty | cie | erir ss | itie Sci | n C | m es | llec | al / | nsh ica] | ills | | | | | |
| uteg | ic S | ine | nan al | grai | gra tiv | пЕ | tic | ter | Sk | | | | | |
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| Subject Code : | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
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| EBCF22E14 | INFORMATION SECURITY AUDITS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I Introduction

Nature and Scope of System Audit – Purpose and Value of IS Audits, Integration into the ISMS process, Different types of IS audits, Key aspects of the IS audit – Standards and Guidelines for IS Auditing

UNIT II Audit Planning

Basics and responsibilities, Planning individual IS audits, IS audit team, Call for tenders procedure, Audit Manual - Audit check lists - Audit Reports, Evaluating an IS audit – Auditing Categories – Auditing Architectures

UNIT III BEST PRACTICES FOR IT COMPLIANCE AND REGULATORY REQUIREMENTS 9 Hrs

IT Compliance requirements under clause 49 of SEBI Listing agreement - IT Compliance requirements under Sarbanes Oxley Act of USA - COBIT

UNIT IV IS Auditing

Risk Management of the IS Function – Audit Planning Process – Audit Management – Audit Evidence Process – Audit Reporting Follow-up – Audit and Development of Application Controls – Auditing E-Commerce System – Ethics and Standards for the IS Auditor

UNIT V PERFORMING AN IS AUDIT

Audit techniques, Evaluation scheme, Preparing the IS audit (Step 1), Creating the IS audit plan and screening documents (Step 2), Examining documents and updating the IS audit plan (Step 3), On-site examination (Step 4), Evaluating the on-site examination (Step 5), Producing the IS audit report (Step 6)

Total Hours: 45

TEXT BOOK:

1. Chris Davis, "IT Auditing Using Controls to Protect Information Assets, McGraw Hill, 2nd Edition, 2011

REFERENCE BOOKS:

- 1. Stephen D. Gantz, "The Basics of IT Audit: Purposes, Processes, and Practical Information" Syngress, 2013
- 2. CISA Certified Information Systems Auditor All-in-One Exam Guide, 2011

9 Hrs

9 Hrs

9 Hrs

| Subject Code: | COU | RSE N | AME : | | | | | | | | | | | |
|-----------------|--|--|--------------------|-------------------------------------|-----------|-----------------------|--------------|-------------|---------|-------|-------|------------------|---|------|
| EBCF22E15 | 000 | DATA PRIVACY | | | | | | |)/ETL | L | T/S.I | <i>r</i> P/. | R | С |
| | Prerec | uisite: | NIL | | | | | Т | v | 3 | 0/0 | 0/ | 0 | 3 |
| L : Lecture T : | Tutoria | 1 S.Lı | :: Supe | rvised l | Learnin | g P:P | roiect R | : Resea | arch C: | Cred | its | | | |
| Ty/Lb/ETL : T | heory/L | .ab/Eml | bedded | Theory | and La | ιb | 5 | | | | | | | |
| | | | | | | | | | | | | | | |
| OBJECTIVES | 5: | | | | | | | | | | | | | |
| Data Privacy pa | aper giv | ves an o | verviev | v on: | | | | | | | | | | |
| Import | ance of | privacy | of our | person | al infor | mation | | | | | | | | |
| • Elemen | nts of da | ata priv | acy and | l data pi | rotectio | n. | | | | | | | | |
| • Legal a | spects | as well | as data | privacy | and da | ata prot | ection la | WS | | | | | | |
| | | | | | | | | | | | | | | |
| COURSE OU | тсом | ES (CO | Ds):(3 | 3- 5) | | | | | | | | | | |
| CO1 | To ex | plain th | e conce | pt of d | ata priv | acy and | data pro | otection | | | | | | |
| CO2 | To int | introduce to issues and practices in handling personal information | | | | | | | | | | | | |
| CO3 | To ela | borate | the prac | ctices fo | ollowed | in prot | ecting p | ersonal | informa | ation | | | | |
| CO4 | To ed | ucate th | e cause | es for va | arious s | ecurity | breache | s | | | | | | |
| CO5 | To pro | ovide th | ie know | ledge o | on Data | Protect | ion Law | 7 | | | | | | |
| Mapping of C | oping of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO | | PO10 | PO11 | L | PO12 |
| CO1 | 2 | | 2 | 2 | | | | | | | | 2 | | 1 |
| CO2 | 3 | | 2 | 2 | | | | 3 | | | | 2 | | 2 |
| CO3 | 3 | | 2 | 2 | | | | 3 | | | | | | 1 |
| CO4 | 3 | | 1 | 2 | | | | | | | | 2 | | 1 |
| <u>CO5</u> | 3 | | 1 | | | 3 | | 3 | | | | 2 | | 1 |
| Mapping of Co | ourse (| Jutcom | es (CO | s) with | Progra | am Out | tcomes (| (POs) | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | ; | | | PSO ₄ | 1 | |
| CO1 | | 3 | | | | | | | | | | 2 | | |
| CO2 | | 3 | | | | | | | | | | 2 | | |
| CO3 | | 3 | | | | | | | | | | 1 | | |
| <u>CO4</u> | | 3 | | | | | | | | | | 2 | | |
| CO5 | | 3 | | | | | | | | | | 1 | | |
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| | es | | and | ė | | es | | s/ kill | | | | | | |
| X | enc | gu | es <i>t</i> ien | Cor | | ctiv | | ul S | s | | | | | |
| got | Scie | es. | Sc | m | am ves | E G | al / | msh nica | kill | | | | | |
| ate | ic | gine | mai | gra | ctiv | en l | ctic jec1 | nteı chr | t SI | | | | | |
| C | Bas | En£ Sci(| Hur Soc | Sof Le Li Li Di Di O Di Chi I Di Co | | | | | | | | | | |
| | | | | | | | | | | | | | | |

University Press. 2014 2. Terence Craig, "Privacy and Big Data", O'Reilly Media, First Edition, 2011

1. Graham Greenleaf, "Asian Data Privacy Laws: Trade and Human Rights Perspective", Oxford

1. Timothy, "Understanding Privacy and Data Protection", Thomson Reuters, 2014

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Dr.M.G.R. Educational and Research Institute (Deemed to be University) Department of Computer Science and Engineering 2022 Regulation

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
|---------------|---------------|-----------|---|--------|-----|---|
| EBCF22E15 | DATA PRIVACY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction

Data, Data Privacy and Data Protection. Data Protection and the Value of Privacy, The Evolution of Privacy Principles, Comparative Approaches to Data Protection, Data Protection in India

UNIT II – Understanding Personal Information

Issues and International Practices, Information or data?, Information about/relating an individual, Identified or Identifiable Individual., Pseudo anonymisation and Anonymisation, Sensitive Information - Corporate Information – Corporate Intelligence, Collection and processing of data with prior consent.

UNIT III – Fair Information Practices

Data Quality Principle, Purpose Specification Principle, Use Limitation Principle, Security Safeguards Principle, Individual Participation Principle Day-to-Day Roles in Protecting the Privacy of Personal Information - Recognizing and Responding to Social Engineering

UNIT IV – Data Protections

TEXT BOOK:

REFERENCE BOOKS:

Protection Procedures - Classification of Protection Procedures - Users Privacy - Privacy Models and Disclosure Risk Measures -

UNIT V – Data Privacy Protection Laws

International Publishing 978-3-319-57356-4, 2017

Legal Provisions - India and other countries, Financial Sector, Health Sector, Information Technology and Telecommunications Sector - Masking Methods - Information Loss Evaluation and Measures

2. ViecncTorra, Data Privacy: Foundations, New Developments and the Big Data Challenge, ISBN, Springer

Total Hours: 45

9 Hrs

9 Hrs

9 Hrs

9 Hrs

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| Subject Code: | | COURSE NAME : PROFESSIONAL ETHICS | | | | | | | /ETL | L | T/S.L | r P/ | R | С |
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| Ty/Lb/ETL : T | heory/L | .ab/Eml | bedded | Theory | and La | ıb | 10,000 1 | | | 0100 | | | | |
| OBJECTIVES This paper help • Unders • Unders • Gaining | S: os stude tanding tanding g know | nts in g of mor g organi ing abo | ral valu zationa ut the C | es and o l and so Comput | ethics. ocial iss er ethic | sues rela s and p | ated to I rofession | Г securit nal respo | y and E onsibilit | Ethic: ies. | s. | | | |
| COURSE OU | гсом | ES (CO | (3) | 3- 5) | | | | | | | | | | |
| CO1 | Expla | in mora | ls valu | les and | ethics | | | | | | | | | |
| CO2 | Provid | ie knov | vledge o | on engi | neering | ethics | | | | | | | | |
| CO3 | Elabo | Elaborate the rights and duties in the constitution of India | | | | | | | | | | | | |
| CO4 | Share | the bes | t ethica | l practi | ces in i | nformat | tion secu | irity | | | | | | |
| CO5 | Expla | Explain the Code of ethics | | | | | | | | | | | | |
| Mapping of Co | of Course Outcomes (COs) with Program Outcomes (POs) | | | | | | | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | I | PO10 | PO1 | 1 | PO12 |
| CO1 | | | 1 | | | | | 3 | | | | | | |
| CO2 | | | 2 | | | | | 3 | | | | | | |
| CO3 | | | 2 | | | 2 | | 1 | | | | | | |
| CO4 | | | 1 | | | | | 3 | | | | | | |
| CO5 | | | 2 | | | | | 3 | | | | | | |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Out | tcomes (| (POs) | | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO | 4 | |
| CO1 | | 3 | | | | | | | | | | | | |
| CO2 | | 3 | | | | | | | | | | 1 | | |
| <u>CO3</u> | | 3 | | | | | | | | | | 1 | | |
| <u>CO4</u> | | 3 | | | | | | | | _ | | 1 | | |
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| 3/2/1 indicates | Streng | gth of C | Correla | tion 3 | - High | , 2- Me | dium, 1 | -Low | | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | C |
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| EBCF22E16 | PROFESSIONAL ETHICS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I **HUMAN VALUES**

Morals, Values and Ethics - Integrity - Work Ethic - Honesty - Courage - Empathy - Self-Confidence Character

UNIT II **ENGINEERING ETHICS**

Senses of 'Engineering Ethics' - variety of moral issues - types of inquiry - moral dilemmas moral autonomy - Theories about right action - Self-interest - customs and religion - uses of ethical theories.

UNIT III

Rights and Duties as enshrined in the Constitution of India

UNIT IV

Ethical Practices in Information Security - Collection, preservation and dissemination of digital evidence – Data Protection and Privacy Ethics

UNIT V

Code of Ethics to Information Security Professional, Digital Forensic Experts and Information Security Auditors.

TEXT BOOK:

1. Terrell Ward Bynum, "Computer Ethics and Professional responsibilities", Willey-Blackwell, First Edition, 2003

REFERENCE BOOKS:

- 1. Marian Quigley, "Encyclopedia of Information Ethics and Security", IGI Global, First Edition, 2007
- 2. Marian Quigley, "Information Security and Ethics: Social and Organizational Issues", *IrmPr. 2004*

9 Hrs

9 Hrs

9 Hrs

Total Hours: 45

9 Hrs

| Subject Code: | COU | RSE N | AME : | | | | | T (1) | | Ŧ | | D/D | G |
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| EBCF22E17 | INTE | ELLEC | CTUA | L PRO | PERT | Y RIC | GHTS | Ty/Lb | /ETL | L | 1/S.L | r P/R | C |
| | Prerec | quisite: | NIL | | | | | T | y | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | l S.Lı | : Supe | rvised l | Learnin | g P:P | roject R | : Resea | rch C: | Cred | its | | |
| Ty/Lb/ETL : T | heory/L | .ab/Eml | bedded | Theory | and La | ab | | | | | | | |
| OBJECTIVES | 5: | | | | | | | | | | | | |
| End of this cours | se the stu | idents w | vill be ab | le to un | derstand | l the | | | | | | | |
| Concep | t of intel | llectual | Property | and the | need fo | or protec | tion | | | | | | |
| • Salient | features | of Pater | nts and T | Frade M | ark | | | | | | | | |
| • The Co | pyright A | Act (195 | 57) and r | recent ar | nendme | nts | | | | | | | |
| • Industri | al Desig | gns | | | | | | | | | | | |
| COURSE OU | ГСОМ | ES (CO | Ds):(3 | 3- 5) | | | | | | | | | |
| CO1 | Under | stands | Intellec | tual Pro | operty | | | | | | | | |
| CO2 | Under | rstands | Patents | Act | | | | | | | | | |
| CO3 | Under | rstands | Trade N | Marks | | | | | | | | | |
| CO4 | Under | rstands | Copyri | ght | | | | | | | | | |
| CO5 | Under | stands | Industri | ial Desi | gns | | | | | | | | |
| Mapping of C | ourse (| Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO | | PO10 | PO11 | PO12 |
| CO1 | 3 | | | | | 3 | | | | | | | 1 |
| CO2 | 3 | | | | | 3 | | | | | | | 1 |
| CO3 | 3 | | | | | 3 | | | _ | | | | 1 |
| CO4 | 3 | | - | | | 3 | | | | | | | 1 |
| CO5 | 3 | | 3 | | | | 3 | | | | | | 3 |
| Mapping of C | ourse (| Jutcom | les (CO | s) with | Progra | am Ou | tcomes (| (POs) | | | | | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | | 3 | | | | | | | | | | 1 | |
| CO2 | | 3 | | | | | | | | | | 1 | |
| CO3 | | 3 | | | | | | | | | | 1 | |
| CO4 | | 3 | | | | | | | | | | 1 | |
| <u> </u> | | 3 | | | | | | | | | | 1 | |
| 3/2/1 indicates | Streng | gth of C | Correla | tion 3 | 8- High | , 2- Me | dium, 1 | -Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |
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| Subject Code: EBCF22E17 | COURSE NAME : | Ty/Lb/E TL | L | T/S.Lr | P/R | С |
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| | INTELLECTUAL PROPERTY RIGHTS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I- Intellectual Property

Meaning and concept of intellectual Property and the need for protection - The world Intellectual property Organisation (WIPO) Convention - Origin andfunctions of World Trade Organisation (WTO) - Trade Related Intellectual property Rights (TRIPS) Agreement of WTO and its effects on Intellectual Property law in India; Dispute Settlement Mechanism.

UNIT II – Patents

The Patents Act O(1970), object definitions, salient features, patentable and non- patentable inventions, product and process patents –Patent applicants, provisional and complete specifications, priority dates, of claims, opposition to grant of patent, anticipation, provisions for secrecy of certain inventions - Patent office and power of Controller - Grant and sealing of patents, rights of patentees, rights of co-owners of patents, term of patent, patents of addition, assignment and transmission, register of patents - Amendment of applications and specifications, restoration of lapsed patents, rights of patentees of lapsed patents, surrender and revocation of patents - Compulsory licences, exclusive marketing rights, licences of right, use of invocation of patents purposes of government, acquisition of inventions by Central Government - Remedies for infringement of patents - Patent agents, scientific advisers, international arrangements - Right of plant breeders and farmers - National Law on **Biological Diversity**

UNIT III – Trade Marks

The Trade Mark Act (1999), object, definitions, salient features, marks registrable and non – registrable, conditions for registration, absolute and relative grounds for refusal of registration, procedure for and duration of registration, effects of registration - Powers and functions of Registrar - Distinctiveness, deceptive similarity, concurrent registration, rectification and correction of register - Assignment and transmission - Use of trademarks and registered users, collective marks, registration of certification marks, trade mark agents - Appellate board -Infringement action, passing off action - International treaties.

UNIT IV – Copyright

The Copyright Act (1957) and recent amendments: works in which copyright subsists - meaning of copyright; ownership and rights of the owner; assignment; term of copyright - Registration of copyright; compulsory licences - copyright societies - Rights of broadcasting organisations and of performers -International copyright -Acts constituting & not constituting infringement; remedies for infringement

UNIT V – Industrial Desin

The designs Act, 2000 - definitions, registration of designs, copyright in registered designs, piracy of registered designs, remedies, powers and duties of Controller, International Law - Semi conductor integrated circuit layout -Design Act – 2000

REFERENCE BOOKS:

- 1. Law relating to patents, trademarks, copyright, design and geographical indications by Dr. B.L. Wadehra, 5th edition, Universal law Publication, 2012
- 2. Law of Intellectual Property by Dr. S.R. Myneni, 6th Edition, Asia Law House Publication, 01 Jan 2013
- 3. International Property by David I. Bainbridge, 9th Edition, Pearson Education Publication, 24 May 2012
- 4. Intellectual Property, Patents, Copyright, trademarks and allied rights by W.R. Cornish, D Llewelyn, 6th Edition, sweet and Maxwell Publication, 18 June 2007

9 Hrs

9 Hrs

9 Hrs

Total Hours: 45

9 Hrs

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B.Tech – Cyber Forensics and Information Security -2022 Regulation

| Subject Code: | COU | RSE NA | AME : | ~~~~ | | | | Tv/Lh | /ETL | L | T/S.L | r P/F | |
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| EBCF22E18 | BFSI | AND | TELE | COM | FRAU | DS | | 19720 | | | | | |
| | Prerec | juisite: | NIL | | | | | T | y | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : Ty/Lb/ETL : T | Tutoria heory/L | I S.Lı .ab/Eml | r : Supe bedded | rvised I Theory | Learnin | g P:P ab | roject R | R : Resea | rch C: | Cred | its | | |
| OBJECTIVES | 5: | | | | | | | | | | | | |
| This paper give | es an ov | erview | of: | | | | | | | | | | |
| • The ba | nking c | oncepts | s and co | ore bank | ting sys | tems | | | | | | | |
| Vulner | able are | eas in co | ore ban | king | υ. | | | | | | | | |
| Teleco | m fraud | ls and s | ecurity | control | s | | | | | | | | |
| | | | | | | | | | | | | | |
| COURSE OU' | ГСОМ | ES (CO | Ds):(3 | 3- 5) | | | | | | | | | |
| CO1 | Educa | ting the | e basic | concept | s of ba | nking s | vstems a | nd Anti | Money | Lau | ndering | | |
| CO2 | Devel | oping c | ore ban | king so | olutions | | , | | | | 0 | | |
| CO3 | Provid | le the k | nowled | ge of v | ulnerab | le areas | s in Core | Bankin | g Syste | m | | | |
| CO4 | Do ca | se study | y of var | ious Te | lecom | frauds | | | | | | | |
| CO5 | Helps | in usin | g appro | priate s | security | control | ls | | | | | | |
| Mapping of Co | ourse C | Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO |) | PO10 | PO11 | PO1 2 |
| CO1 | 3 | 1 | 1 | | | | | | | | | | |
| CO2 | 3 | 3 | 3 | | 3 | | 2 | | | | | | |
| CO3 | 3 | 1 | 2 | 3 | | | | | | | | | |
| CO4 | 1 | 1 | 1 | | | | | | | | | | |
| CO5 | 2 | 3 | 3 | 3 | <u>3</u> | | 2 | | | | | | 3 |
| Mapping of Co | ourse C | Dutcom | es (CO | s) with | Progra | am Ou | tcomes (| (POS) | | | | 7001 | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| C01 | | 3 | | | | | | | | | | 1 | |
| <u>CO2</u> | | 3 | | | | | | | | | | 3 | |
| <u>CO3</u> | | 3 | | | | | | | | _ | | 2 | |
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| ý | enc | gui | es a | Col | _ | ctiv | | hip. al S | S | | | | |
| 10g | Sci | een ces | niti S | am | am | Ele | cal | rns nice | kill | | | | |
| Cate | sic | gin ienc | uma cial |)gr; | ogr ecti | en | acti | Inte ech: | ft S | | | | |
| | Ba | En Sci | HuSo | Pr(| ų T T | OF | Pr; Pr(| ΤĽ | So | | | | |
| | | | | | \checkmark | | | | | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--------------------------------|-----------|---|--------|-----|---|
| EBCF22E18 | BFSI AND TELECOM FRAUDS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I - Introduction

Banking Concepts - Broad features of Deposit and Loan Products - Types of banks: Retail, Corporate, Investment, Development, Private, etc. - Ancillary services like Trade Finance, Remittances - Anti Money Laundering and KYC concepts – ATM Frauds

UNIT II – Computerized Operations of Banks

Evolution of computerization in banks - Core Banking Solution - Infrastructure requirements - Broad software features - Various methods

UNIT III – Vulnerable Areas in CBS and their Exploitations

Application related - Parameters and freedom available to users - Empowerment of users - Access to -organization -wide data - Direct access to database and records

UNIT IV – Telecom Fraud

Definition – Classification of Telecom Frauds – Frauds in Fixed Network – Frauds using 2G/3G/4G networks – Telecom Fraud Risk Management

UNIT V – Security Controls

Log of User activities in the application - Change management procedures - Internal data consistency checks - Account related frauds - Internet Banking related - Social Engineering, Phishing tactics

Total Hours: 45

TEXT BOOK:

1. Retail Banking by Raghu Palat

REFERENCE BOOKS:

- 1. Information System for Banks Indian Institute of Banking & Finance
- 2. Core Banking Solution Evaluation of Security & Controls by M RevathySriram, P K Ramanan and R Chandrasekhar

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| Subject Code: EBCF22E19 | COU BIG | RSE N. DATA | AME : SECU | JRITY | 7 | | | Ty/Lb/l | ETL | L | T/S.L | r P/R | С |
|-----------------------------|-----------------------|----------------|---------------|----------|--------------|----------------|----------|--------------------|--------|------|-------|-------|-----|
| | Prerec | quisite: | NIL | | | | | Ту | | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | l S.Lı | : Supe | rvised l | Learnin | g P:P | roject R | : Resear | ch C: | Cred | its | | |
| Ty/Lb/ETL : T | heory/L | Lab/Em | bedded | Theory | and La | ıb | | | | | | | |
| ODIECTIVES | z . | | | | | | | | | | | | |
| • To deli | y . ver the | basic o | oncept | of Big [| Data | | | | | | | | |
| re den | | 04510 0 | oncept | 01 010 0 | Jutu | | | | | | | | |
| To deli | ver diff | erent ty | /pes of | Data | | | | | | | | | |
| To deli | ver arcl | hitectur | e of Ha | doop a | nd YAR | N | | | | | | | |
| re den | ver arei | inceetai | 01114 | acopa | | | | | | | | | |
| To deli | ver abo | out Proc | essing | and Sto | rage La | yer of H | Hadoop | | | | | | |
| To deli | ver inte | ernal co | ncent o | of MapR | Reduce | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| COURSE OU | тсом | ES (CO | (3) | 8- 5) | | | | | | | | | |
| CO1 | Under | rstand t | he conc | ept of | BigData | a | | | | | | | |
| CO2 | Under | rstand the e | he conc | ept of | Hadoop |) an an d n | mooosir | | fllade | | | | |
| CO3 | Expla | in the c | oncept | or stor | age laye | duce ar | d VAR | ig layer o. N | | юр | | | |
| CO4 | Descr | ibe the | differer | nt mode | es and d | istribut | ion of H | adoop | | | | | |
| Mapping of C | ourse (| Dutcom | es (CO | s) with | Progr | am Ou | tcomes | (POs) | | | | | |
| | | | | | | | | | | | | | PO1 |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | | 2010 | PO11 | 2 |
| CO1 | 3 | 1 | | | | | | | | | | 1 | |
| CO2 | 3 | 1 | | | | | | | | | | 1 | |
| <u>CO3</u> | 3 | 1 | | | | | | | | | | 1 | |
| C04 | 3 | 1 | | | | | | | | _ | | 1 | |
| Mapping of Co | ourse (| Jutcom | es (CO | s) with | Progra | am Out | tcomes (| POs) | | | | 1 | |
| COs / PSOs | | PSO1 | | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | | 3 | | | | | | | | | | 2 | |
| CO2 | | 3 | | | | | | | | | | 1 | |
| CO3 | | 3 | | | | | | | | | | 2 | |
| CO4 | | 3 | | | | | | | | | | 1 | |
| CO5 | | 3 | | | | | | | | | | 1 | |
| 3/2/1 indicates | Streng | gth of C | Correla | tion 3 | 8- High | , 2- Me | dium, 1 | -Low | | | | | |
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| 108 | Sci | eeri | Sc | m | am ves | Ele | cal | rns] nica | KIII | | | | |
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| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|-------------------|-----------|---|--------|-----|---|
| EBCF22E19 | BIG DATA SECURITY | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT 1 - UnderstandingBigData

Defining Data - Types of Data - Structured Data - Semi Structured Data - Unstructured Data - How data being Generated -, Different source of Data Generation- Rate at which Data is being generated - Different V's - Volume, Variety, Velocity, Veracity, Value - How single person is contributing towards BigData, Significance for BigData - Reason for BigData - Understanding RDBMS and why it is failing to store BigData - Future of BigData - BigData use cases for major IT Industries.

UNIT II – Introduction to Hadoop

What is Hadoop -Apache Community - Cluster, Node - Commodity Hardware - Rack Awareness - History of Hadoop - Need for Hadoop - How is Hadoop Important - Apache Hadoop Ecosystem - Different Hadoop offering -Hadoop 1.x Architecture - Apache Hadoop Framework - Master - Slave Architecture - Advantages of Hadoop

UNIT III – Storage Unit

Hadoop Distributed File System - Design of HDFS, HDFS Concept - How files are stored in HDFS -Hadoop File system - Replication factor - Name Node - Secondary Name Node - Job Tracker - Task tracker - Data Node - FS Image - Edit-logs - Check-pointing Concept - HDFS federation, HDFS High availability

Architectural description for Hadoop Cluster- When to use or not to use HDFS - Block Allocation in Hadoop Cluster - Read operation in HDFS -Write operation in HDFS -, Hadoop Archives - Data Integrity in HDFS - Compression & Input Splits.

UNIT IV – Processing Unit

What is MapReduce - History of MapReduce - How does MapReduce works - Input files - Input Format types Output Format Types, Text Input Format, Key Value Input Format, Sequence File Input Format, Input split, Record Reader, MapReduce overview, Mapper Phase - Reducer Phase - Sort and Shuffle Phase - Importance of MapReduce

Data Flow, Counters, Combiner Function - Partition Function - Joins, Map Side Join, Reduce Side Join, MapReduce Web UI - Job Scheduling - Task Scheduling - Fault Tolerance - Writing MapReduce Application - Driver Class, Mapper Class - Reducer Class, Serialization - File Based Data Structure - Writing a simple MapReduce program to Count Number of words -MapReduce Work Flows.

UNIT V – Understanding Privacy

Social Aspects of Privacy - Legal Aspects of Privacy and Privacy Regulations - Effect of Database and Data Mining technologies on privacy- Privacy challenges raised by new emerging technologies such RFID - biometrics. **Total Hours: 45**

TEXT BOOKS:

- 1. Hadoop: The Definitive Guide, By: Tom White, O'REILLY
- Hadoop for Dummies, By: Dirk deRoos, Paul C. Zikopoulos, Bruce Brown, Rafael Coss, and Roman B. Melnyk, A Wiley brand

REFERENCE BOOK:

1. Hadoop in Action, Writer: Chuck Lam Published By: Manning Publications

198

B.Tech – Cyber Forensics and Information Security -2022 Regulation

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| Subject Code: EBCF22E20 | COU | RSE NA /IGILA SEC | AME : ANCE A | AND IN 7 MAN | NFORN AGEM | IATIO IENT | N | Ty/Lb | /ETL | L | T/S.L | r P/R | С |
|---|--|---|--|---|--|--------------------------------|-------------------------------|----------------------------------|-------------------|----------------|-----------|------------|----------|
| | Prerec | uisite: | NIL | | | | | T | y | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T : | Tutoria | l S.Lı | : : Supe | rvised I | earnin | g P:P | roject R | R : Resea | rch C: | Cred | its | | |
| Ty/Lb/ETL : T | heory/L | .ab/Eml | bedded | Theory | and La | ıb | | | | | | | |
| OBJECTIVES This paper deal • The fra • Vigilar • Storag • Plan, i techno COURSE OU | S: ls with aud cont nce and e techno mpleme logy ass TCOM | trol whi Securit ologies, ent, and sets. ES (CC | ch cont y needs advanc monite Ds) : (3 | ributes / stand ed cond or cyber | signific ards. cepts an | cantly t nd prod ty mecl | o the gro ucts. nanisms | owth of t to help | he busi ensure | ness. the p | protectic | on of info | ormation |
| CO1 S | Student | gains th | ne skills | s of Sec | urity, S | afety a | nd Vigila | ance Ma | nageme | ent ir | n Corpoi | ate | |
| CO2 I | Be comp | petent to | o handl | e the Se | curity a | and Vig | gilance re | elated O | peratio | nal a | nd Adm | inistrativ | ve tasks |
| CO3 1 | Student oss or tl | design heft | data sec | curity, r | network | securit | ty, acces | s contro | l to offi | ces a | and prev | ent info | mation |
| CO4 I | Learns t | he role | of data | privacy | concer | rn to pu | blic and | private | organiz | ation | ns as we | ll as ind | viduals. |
| CO5 I | Fill the l | knowled c and v | dge gap irtual ei | in und ivironn | erstandi nents. | ing vari | ied comp | ponents | of infor | mati | on stora | geinfrast | ructure |
| Mapping of C | ourse C | Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | POg | | PO10 | PO11 | PO12 |
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| <u> </u> | 3 | 2 | 3 | | | 2 | | | | _ | | 2 | 2 |
| C04 | 3 | <u>_</u> | 2 | | 3 | <u> </u> | | | | _ | | 2 | |
| Mapping of C | ourse C | Outcom | es (CO | s) with | Progra | am Ou | tcomes (| (POs) | | | | | |
| COs / PSOs | | PSO1 | × · | | PSO2 | | | PSO3 | | | | PSO4 | |
| CO1 | | 3 | | | | | | | | | | 2 | |
| CO2 | | 3 | | | | | | | | | | 3 | |
| <u>CO3</u> | | 3 | | | | | | | | | | 3 | |
| C04 | | 3 | | | | | | | | _ | | Z | |
| 3/2/1 indicates | Streng | gth of C | orrela | tion 3 | - High | , 2- Me | dium, 1 | -Low | | | | | |
| Category | Basic Sciences | Engineering Sciences | Humanities and Social Sciences | Program Core | Program Electives | Open Electives | Practical / Project | Internships / Technical Skill | Soft Skills | | | | |

| Subject Code: | COURSE NAME : | Ty/Lb/ETL | L | T/S.Lr | P/R | С |
|---------------|--|-----------|---|--------|-----|---|
| EBCF22E20 | VIGILANCE AND INFORMATION SECURITY MANAGEMENT | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I – Introduction

9 Hrs

Introduction – Evolution of Vigilance Administration – Administrative Vigilance Division – CBI – Disciplinary authority – Supervisor officers – Jurisdiction of Central Vigilance Commission – Jurisdiction over other categories in special cases – Functions and Powers of Central Vigilance Commission – Appointments in eD, and CBI – Structure and functions of commission – Appointment of CVOs – Duties and functions of CVO – Complaint – Source of complaints – Complaint handling policy in the commission – actions taken on complaints in the commission – Actions taken against various departments and officials – withdrawal of complaints – Whistle Blowers Act – PIDPI Resolution – Handling of complaints received under pIDpI resolution – Protection to Whistle Blowers - Agencies for conducting Preliminary Enquiry / Investigation – Consultation with CBI – Parallel investigation by Departmental Agency and CBI – Referring matter for investigation – competency to refer matter to CBI – Enquiry against officers – Jurisdiction of CBI vis-à-vis state police – Superintendence and Administration of CBI – Forwarding copies of Fir / pe – Action on CBI report

UNIT II – Frauds

Vigilance angle in Public Sector Banks - Consultation with the Commission in respect of retired officers of public Sector Banks - Determination of Vigilance angle in Public Sector Banks - Role of CVO of public Sector Banks - Vigilance administration in regional rural Banks – Frauds - Loan Frauds - Cyber Crimes and Frauds in the banking sector - Credit Card fraud - Preventive measures to check cybercrimes and frauds - Enhancing security of card transactions - Technology related fraud prevention - Preventive Vigilance in Banks – Know your customer, employee and partner – Reporting fraud cases – Reporting to CBI/Police – Fraud reporting to commission – Forensic scrutiny of irregularities – Forensic audit and vigilance investigations in banks - right to Information Act, 2005 - International Cooperation against Corruption - United Nations Convention Against Corruption (UNCAC) - International Criminal Police Organization (INTERPOL) - CoSP (Conference of States Parties) to the UNCAC - Implementation Review Group (IRG) - Implementation Review Mechanism (IRM) of UNCaC - G20 ACWG (anti-Corruption Working Group) - BRICS WGAC (Working Group on anti-Corruption Cooperation)

UNIT III – Information Security

Information Security Manager – Organizational Security – Information Security Implementation – Protection of Information – Protection of Premises – Protection of Systems – Cloud Computing Security – Secure Systems Development

UNIT IV – Data Privacy

Antivirus and other Security Solutions – Password Creation – Securing Online Browsing – E-mail Security – Social Engineering – Securing Home Wi-Fi Settings – Best Practices when using Social Networking Sites – Track Yourself Online – Physical Security Threats and Countermeasures – Harden OS – Data Destruction Techniques – Windows 10 Security – Additional Security Measures – Anonymous Networks – Darknet – Anonymous OS – Secure File Sharing – VPN – Proxy Servers –

200

9 Hrs

9 Hrs

Secure Search Engine – Web Browser Privacy Configuration – Anonymous Payment – Cryptographic Algorithm Selection Criteria – Create a Cryptographic Key Pair Using Gpg4Win – Disk Encryption using Windows BitLocker and Open Source Tools –Multitask Encryption Tools – Attacking Cryptographic Systems and Countermeasures against it – Securing Data in Transmit

UNIT V – Storage Security

9 Hrs

RAID – Intelligent Storage Systems – Business Continuity – Backup and Archive –Local Replication – Remote Replication – Securing the Storage Infrastructure – Manage the Storage Infrastructure

Total Hours: 45

TEXT BOOKS:

- 1. Vigilance Manual Eighth Edition by Central Vigilance Commission
- 2. Tony Campbell ,"Practical Information Security Management: A Complete Guide to Planning and Implementation", 2019, ISBN-13 (pbk): 978-1-4842-1684-2
- 3. SomasundaramGnanasundaram, AlokShrivastava "Information Storage and Management: Storing, Managing, and Protecting Digital Information in Classic, Virtualized, and Cloud Environments", y John Wiley & Sons, Inc, ISBN: 978-1-118-09483-9
- 4. Nihad A. Hassan, Rami Hijazi, "Digital Privacy and Security using Windows: A Practical Guide", Apress, 2017, ISBN-13 (pbk): 978-1-4842-2798-5

5.

REFERENCE BOOKS:

- 1. Denny Cherry, "The Basics of Digital Privacy: Simple Tools to Protect your Personal Information and Your Identity Online", Syngress
- 2. Daehee Kim, Sejun Song, Baek-Young Choi, "Data Deduplication for Data Optimization for Storage and Network Systems", Springer, 2017, ISBN 978-3-319-42278-7
- 3. Michael E. Whitman, HerbertJ. Mattord, "Management of Information Security", Cengage Learning, Inc, 2019, ISBN: 978-1-337-40571-3

| | | Ope | n Elect | tives (| Offere | ed to (| Other | De | epar | tment | S | | | |
|---------------|------------|--------------|------------|-------------|-------------|-------------|--------------|-------|--------|---------------------|-----------|-----------|------------|-----|
| COURSE | C | OURSE | NAME | : | | | | Ту | /Lb/ | | L | Τ/ | P / | С |
| CODE: | | CYBI | ER SECU | URITY | & FOR | RENSIC | CS | ЕТ | rL/II | Ŧ | | S.Lr | R | |
| EBCS22OE1 | l P | rerequisi | te: Nil | | | | | Ту | 7 | | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T | : Tuto | orial S.I | Lr : Supe | rvised I | Learning | g P:Pr | oject F | : R | lesea | rch C: C | redits | | | |
| T/L/ETL : Th | eory/I | Lab/Emb | edded Th | eory ar | nd Lab | | · · | | | | | | | |
| OBJECTIVI | E: | | | | | | | | | | | | | |
| The students | should | l be made | e to | | | | | | | | | | | |
| • | То | learn the | Basics o | t cyber | crime. | c | | • / | | | | | | |
| • | 10 T- | Understa | and the in | frastruc | cture, in | formati | on secu | rity. | • | | | | | |
| • | 10 To | Iearn on | now to n | lanage | the risk. | | | | | | | | | |
| • | 10 To | obility to | mu the o | th digit | of con | iputer s | formati | on a | 01100 | tion and | linform | otion pro | tootic | 'n |
| • | 10 | ability it | WOIK W | un urgn | | ence, m | loimati | JII C | onec | | | ation pro | | ш. |
| COURSE O | UTCO | OMES (C | COs): Stu | dents v | will be a | able to | | | | | | | | |
| CO1 | | Understa | nd the fu | ndamer | ntal of C | Cybercri | me[L2] | | | | | | | |
| CO2 | | Understa | nd the in | frastruc | cture and | d inforn | nation s | ecur | rity[I | _2] | | | | |
| CO3 | | Analyze | and mana | age the | risk[L4 |] | | | | | | | | |
| CO4 | | Understa | nd about | the cor | nputer s | security | and ho | w to | acc | ess on it | [L2] | | | |
| CO5 | | Apply di | gital evid | lence, ii | nformat | ion coll | ection a | und i | infor | mation _l | protectio | on conce | ots[L3 | 3] |
| Mapping of | Cours | e Outco | mes with | Progra | am Out | tcomes | (POs) | | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PC |)8 | PO9 | PO10 | PO11 | PC |)12 |
| CO1 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | | | 1 | 2 | 1 | 1 | |
| CO2 | 3 | 3 | 1 | 3 | 2 | 1 | 1 | | | 1 | 2 | 1 | 1 | |
| CO3 | 3 | 3 | 1 | 3 | 2 | 1 | 1 | | | 2 | 2 | 1 | 2 | |
| CO4 | 3 | 2 | 1 | 2 | 3 | 1 | 1 | | | 3 | 2 | 1 | 2 | |
| CO5 | 3 | 3 | 1 | 3 | 2 | 1 | 1 | | | 1 | 2 | 1 | 1 | |
| COs /PSOs | P | SO1 | PSC | 02 | PS | 03 | PS | 04 | | PS | 05 | I | SO6 | |
| CO1 | 3 | | 2 | | 1 | | 2 | | | 1 | | 1 | | |
| CO2 | 3 | | 1 | | 1 | | 1 | | | 1 | | 1 | | |
| CO3 | 3 | | 2 | | 1 | | 1 | | | 1 | | 1 | | |
| CO4 | 3 | | 3 | | 1 | | 2 | | | 2 | | 2 | | |
| CO5 | 3 | | 3 | | 1 | | 1 | | | 1 | | 1 | | |
| H/M/L indic | ates S | trength | of Corre | lation | H- Hi | gh, M- | Mediu | n, L | L-Lo | W | 1 | | | |
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| Course Code | Course Title | Ty/Lb/ ETL/IE | L | T / S.Lr | P/ R | С |
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| EBCS22OE1 | CYBER SECURITY& FORENSICS | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I: Cyber Crime and Computer Crime

Cybercrime - Computer Intrusions and Attacks (Unauthorized Access) Computer Viruses, Time Bombs, Trojans, Malicious Code (Malware), Online Fraud and Identity Theft; introduction to internet crimes, hacking and cracking, credit card and ATM frauds, web technology, cryptography, emerging digital crimesand modules.

UNIT II: Information security

Information Security- The SDLC, The Security SDLC; Risk Management

UNIT III: SECURITY INVESTIGATION

Need for Security, Business Needs, Threats, Attacks, Legal, Ethical and Professional Issues - An Overview of Computer Security - Access Control Matrix, Policy-Security policies, Confidentiality policies, Integrity policies and Hybrid policies

UNIT IV: Information Welfare

Information Warfare, Cyber terrorism, and Hacktivism, Terrorism, Radicalization, and The War of Ideas, Trade Secret Theft and Economic Espionage, National Security.

UNIT V: Data Prevention

Desktop Security, Data and file Security, Network resources Security, Firewall, Mobile data Security.

Total Hours: 45

Text Books

- 1. David J. Loundy, COMPUTER CRIME, INFORMATION WARFARE, AND ECONOMIC ESPIONAGE, Carolina Academic Press (2003) (ISBN:0890891109).
- 2. Jack Balkin, et al. eds., CYBERCRIME: Digital Cops in a Networked World (NYU Press 2007) (ISBN:0814799833).
- 3. Michael E Whitman and Herbert J Mattord, —Principles of Information Security, Vikas Publishing House, New Delhi, 2003

Reference books

- 1. Hacking for Dummies by by Kevin Beaver Published by Wiley Publishing, Inc.2004
- 2. Kenneth C.Brancik "Insider Computer Fraud" Auerbach Publications Taylor & Francis Group-2008.
- 3. AnkitFadia" Ethical Hacking" second edition Macmillan India Ltd, 2006

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| COURSE CODE: EBCS22OE2 | 2 C | OURSE AR | C NAME TIFICI | : AL INT | TELLI | GENCI | E | Ty/I ETI | Ъ/ ./IE | | Γ/ S.Lr | P/ R | C |
|------------------------------|---------|-------------|------------------|---------------------|----------|--------------|-----------|-------------|------------|---------------|------------|---------|---------------|
| | Pr | erequisi | te: Nil | | | | | Ту | | 3 | 0/0 | 0/0 | 3 |
| L : Lecture T | : Tuto | rial S. | Lr : Sup | ervised | Learni | ng P:1 | Project | R : R | esearch C | : Credits | | | - |
| T/L/ETL : Th | neory/I | Lab/Emb | bedded T | heory a | ind Lab | | | | | | | | |
| OBJECTIV | E: | | | | | | | | | | | | |
| The students | should | be mad | le to | | T 11 | | | | | | | | |
| • 5 | ourn f | he conce | epts of A | rtificial | Intelli | gence. | Artifici | iol Inte | lliganca | | | | |
| • 1 | To kno | w the va | rious or so | nving p plicatio | ns of A | s using I | Attille | | ingence. | | | | |
| COURSE O | UTCO | MES (| COs): St | udents | will be | able to | | | | | | | |
| CO1 | τ | Jndersta | ind conce | ept of A | rtificia | l Intelli | gence[I | [_2] | | | | | |
| CO2 | τ | Jndersta | and and a | nalyze | the pro | blem aı | nd find | a solu | ion using | Artificia | al | | |
| | Ι | ntellige | nce[L2] | 2 | Å | | | | C | | | | |
| CO3 | τ | Jndersta | nd basic | knowle | edge co | ncepts | of mach | nine le | arning[L2 | 2] | | | |
| CO4 | A | Apply ba | asic princ | ciples of | f AI in | solution | ns that r | require | problem | solving, | inferenc | e, | |
| | r | erceptio | on, know | ledge r | epresen | tation, | and lear | rning[] | L3] | | | | |
| CO5 | | Create so | oftware | agents | to solve | a prob | lem[L4 | ŀJ | | | | | |
| Mapping of | Cours | e Outco | mes wit | h Prog | ram O | itcome | s (POs) |) | | DOIN | DO11 | | |
| COS/POs | 2 | PO2 | PO3 | PO4 | P05 | PO6 | PO7 | PO8 | PO9 | 2010 | | PO | 12 |
| | 3 3 | 2 | <u> </u> | 1 | 1 | 1 | 1 | | 1 | 2 | 1 | | 1 |
| C02 | 3 | 3 | 1 | 3 | <u> </u> | 1 | 1 | | 1 | $\frac{2}{2}$ | 1 | | <u>1</u> 1 |
| CO4 | 2 | 1 | 3 | 2 | 1 | 1 | 1 | | 1 | 2 | 1 | | <u>1</u> 1 |
| C04 | 1 | 2 | 3 | 2 | 1 | 2 | 2 | | 2 | 2 | 2 | | <u>1</u> |
| COs /PSOs | - | PSO1 | U | - | PSO2 | - | - | PSO | 3 | - | PSO4 | | |
| CO1 | | 3 | - | | 2 | | | 1 | - | | 2 | | |
| CO2 | | 3 | | | 1 | | | 1 | | | 1 | | |
| CO3 | | 3 | | | 2 | | | 1 | | | 2 | | |
| CO4 | | 1 | | | 2 | | | 3 | | | 2 | | |
| CO5 | | 3 | | | 2 | | | 3 | | | 1 | | |
| H/M/L indic | ates S | trength | of Corr | elation | H- H | ligh, M | - Medi | um, L | -Low | | | | |
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| egc | snce | ខ្ល | es a | Core | lec | stive | ipli | C | Pro. | | | | |
| Cat | Scie | eri | nitie e | m (| me | Щес | Disc | kill | al / | | | | |
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204 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| Course Code | Course Title | Ty/Lb/ ETL/IE | L | T / S.Lr | P/ R | С |
|-------------|-------------------------|------------------|---|-------------|------|---|
| EBCS22OE2 | ARTIFICIAL INTELLIGENCE | Ту | 3 | 0/0 | 0/0 | 3 |

UNIT I PROBLEM SOLVING

Introduction – Agents – Problem formulation – uninformed search strategies – heuristics – informed search strategies –hill climbing– constraint satisfaction-pruning

UNIT IIPROBLEM SOLVING METHODS

Problem solving Methods - Search Strategies- Uninformed - Informed - Heuristics - Local Search Algorithms and Optimization Problems - Searching with Partial Observations - Constraint Satisfaction Problems – Constraint Propagation - Backtracking Search - Game Playing - Optimal Decisions in Games – Alpha - Beta Pruning - Stochastic Games

UNIT III KNOWLEDGE INFERENCE

Knowledge representation -Production based system, Frame based system. Inference - Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory.

UNIT IV PLANNING AND MACHINE LEARNING

Basic plan generation systems - Strips -Advanced plan generation systems - K strips -Strategic explanations -Why, Why not and how explanations. Learning- Machine learning, adaptive Learning.

UNIT VAPPLICATIONS

AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing - Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning – Moving

Total Hours: 45

TEXT BOOK:

- 1. S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approach", Prentice Hall, Third Edition, 2009.
- 2. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", McGraw Hill- 2008.
- 3. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007.
- 4. I. Bratko, —Prolog: Programming for Artificial Intelligencell, Fourth edition, Addison-Wesley Educational Publishers Inc., 2011

REFERENCES:

- 1. David Poole, Alan Mackworth, Randy Goebel, "Computational Intelligence : a logical approach", Oxford University Press, 2004.
- 2. G. Luger, "Artificial Intelligence: Structures and Strategies for complex problem solving", Fourth Edition, Pearson Education, 2002. 3. J. Nilsson, "Artificial Intelligence: A new Synthesis", Elsevier Publishers, 1998.
- 3. David L. Poole and Alan K. Mackworth, —Artificial Intelligence: Foundations of Computational Agents^{II}, Cambridge University Press, 2010.

4.Gerhard Weiss, —Multi Agent Systems, Second Edition, MIT Press, 2013.

205

B.Tech – Cyber Forensics and Information Security -2022 Regulation

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| 2022 | Regulation | |
|------|------------|--|
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| COURSE | С | OURSE | NAME | : | | | | Ty/L | .b/ | L ' | Γ/ | P / | С |
|---------------|--------------|--|-------------|---------|----------|------------|---------|--------------|----------|---------|--------|------------|-----|
| CODE: | |] | DATA B | ASE C | ONCE | PTS | | ETL | /IE | 5 | S.Lr | R | |
| EBCS22OE3 | 3 | | | | | | | | | | | | |
| | Pr | rerequisi | te: Nil | | | | | Ту | | 3 |)/0 | 0/0 | 3 |
| L : Lecture T | : Tuto | rial S. | Lr : Sup | ervised | Learni | ng P:l | Project | t R : Re | search C | Credits | | | |
| T/L/ETL : Th | neory/I | _ab/Emt | edded T | heory a | nd Lab | | | | | | | | |
| OBJECTIV | Е: | | | | | | | | | | | | |
| The students | should | l be mad | e to | | | | | | | | | | |
| • | То | learn the | e Basics | of DBN | IS cond | cepts. | _ | _ | | | | | |
| • | о То | To Understand the DDL, DML and SQL Procedures. | | | | | | | | | | | |
| | 0 10 UTCC | To learn the working of the Database software. | | | | | | | | | | | |
| COURSE O | | COMES (COs) : Students will be able to Understand the basics of various file system[L2] | | | | | | | | | | | |
| CO2 | | Analyze the various data models in DBMS[L24 | | | | | | | | | | | |
| CO3 | I | Understand the concept of relational database[L2] | | | | | | | | | | | |
| CO4 | τ | Understand the concept of Query language[L2] | | | | | | | | | | | |
| CO5 | A | apply the various control structures and procedures[L3] | | | | | | | | | | | |
| Mapping of | Cours | e Outco | mes wit | h Prog | ram Ou | itcome | s (POs | s) | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO | PO8 | PO9 | PO10 | PO11 | PO | 012 |
| | | | | | | | 7 | | | | | | |
| CO1 | 3 | 3 | 3 | 1 | 1 | 2 | 2 | | 2 | 1 | 3 | _ | 3 |
| CO2 | 2 | 3 | 2 | 3 | 3 | 1 | 1 | | 2 | 3 | 2 | | 1 |
| CO3 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | | 1 | 2 | 1 | | 1 |
| CO4 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | | 2 | 1 | 3 | | 3 |
| CO5 | 2 | 2 | 2 | 3 | 3 | 1 | 2 | | 2 | 2 | 2 | | 1 |
| COs / | | PSO1 | | | PSO2 | | | PSO. | 3 | | PSO4 | ļ | |
| PSOs | | | | | | | | | | | | | |
| CO1 | | 3 | | | 3 | | | 2 | | | 3 | | |
| CO2 | | 3 | | | 3 | | | 2 | | | 2 | | |
| CO3 | | 2 | | | 3 | | | 2 | | | 1 1 | | |
| C04 | | 1 | | | 2 | | | 3 | | | 1 | | |
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| C | c S | ine | nan | gran | gran | nΕ | ĹĎ | Ski) tica | | | | | |
| | 3asi | ng | Hun Scie | Prof | Prof | Ope | nte | rac | | | | | |
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Unit I: Fundamentals of Database

DBMS Definition, Characteristics of DBMS ,Application and advantages of DBMS, Instances, Schemas and Database States, Three Levels of Architecture, Data Independence, DBMS languages, Data Dictionary, Database Users, Data Administrators.

Unit II: ER Model

Data Models, types and their comparison, Entity Relationship Model, Entity Sets, Attributes and its types, Constraints, Keys, E-R Diagram, Weak Entity Sets, Extended E-R Features.

Unit III: Relational Model

Structure of Relational Databases, Relational Algebra (selection, projection, union, intersection, Cartesian product, Different types of join like natural join, outer join), Functional Dependencies, Good & Bad Decomposition, Anomalies as a database: A consequences of bad design, Normalization and its types.

Unit IV: SQL

Introduction to SQL, DDL, DML, and DCL statements, Creating Tables, Adding Constraints, Altering Tables, Update, Insert, Delete & various Form of SELECT- Simple, Using Special Operators for Data Access. Aggregate functions, Nested Sub queries, Modification of the Database.

Unit V: PL / SQL

Introduction to PL/SQL (blocks of PL/SQL, Variables, constants), Control Structure, Introduction to Stored Procedures, Functions, Cursor and Triggers.

Text Book:

1. H. F. Korth&AbrahamSilverschatz, Database Concepts, Tata McGraw Hill, New Delhi

References:

1. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.

2. Ivan Bayross, SQL, PL/SQL, The programming language of Oracle.

Dr.M.G.R. Educational and Research Institute (Deemed to be University) Department of Computer Science and Engineering

2022 Regulation

Course Title Course Code Tv/Lb/ LT/ P/R С ETL/IE S.Lr 3 0/0 Ty 3 0/0 DATA BASE CONCEPTS EBCS22OE3

Total Hours: 45

9 Hrs

9 Hrs

9 Hrs

9 Hrs

| COURSE CODE: | CC | OURSE | NAME | : DE EN | CINFI | TDINC | | Ty | y/Lb | / TE | L J | [/] | P/ P | С |
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| CODE: FRCS220F4 | | 30 | | | GINE | LING | | E. | 1L/1 | Ŀ | | | N | |
| EDC0220E4 | Pre | reauisit | te: Nil | | | | | T | v | | 3 0 |)/0 | 0/0 | 3 |
| L : Lecture T : | : Tutori | al S.L | r : Super | vised L | earning | P:Pro | ject I | R : Re | sear | ch C: Cr | edits | | | |
| T/L/ETL : The | eory/La | b/Embe | edded Th | eory and | d Lab | | | | | | | | | |
| OBJECTIVE | : | | | | | | | | | | | | | |
| The students s | hould b | be made | to | | | | | | | | | | | |
| • .To lea | arn soft | ware an | nd system | challer | iges wit | th a con | iprehe | nsive | set o | of skills | 1 | | . 1 | 1 |
| • To Un | iderstar | nd the o | ethical pr | rinciples | s in the | applicat | 10n of | comp | outin | ig-based | solutions | s to socie | tal an | d |
| | v to wo | o work with diverse team and organizational | | | | | | | | | | | | |
| | JTCON | COMES (COs) : Students will be able to | | | | | | | | | | | | |
| CO1 | Unde | Inderstand the system development lifecycle[L2] | | | | | | | | | | | | |
| CO2 | Apply | the kn | , owledge | gained | to moc | , lel obje | ct-orie | nted | soft | ware sys | tems[L3 |] | | |
| CO3 | Analy | zeand | construc | t CASE t | ools an | d applic | ation | softw | are[| L4] | | - | | |
| CO4 | Analy | ze syste | ems in te | rms of و | general | quality | attribu | utes a | nd p | ossible t | rade-off | s present | ed wi | thin |
| | the g | iven pro | blem[L4 | .] | | | | | | | | | | |
| CO5 | Effect | tively pa | articipate | in tean | n-based | l activiti | es[L2 |] | | | | | | |
| Mapping of C | Course | Outcon | nes with | Progra | m Out | comes (| POs) | | | | | 1 | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO 7 | PO8 | 3 | PO9 | PO10 | PO11 | PO | 12 |
| CO1 | 3 | 3 | 3 | 1 | 1 | 2 | 2 | | | 2 | 1 | 3 | | 3 |
| CO2 | 2 | 3 | 2 | 3 | 3 | 1 | 1 | | | 2 | 3 | 2 | | 1 |
| CO3 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | | | 1 | 2 | 1 | | 1 |
| CO4 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | | | 2 | 1 | 3 | | 3 |
| CO5 | 2 | 2 | 2 | 3 | 3 | 1 | 2 | | | 2 | 2 | | | 1 |
| COs /PSOs | | PS01 | | | PSO2 | | | PS | <u>503</u> | | | PSO | 4 | |
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| CO2 | | 1 | | | 1 | | | | 2 | | | <u> </u> | | |
| C03 | | <u></u> | | | 1 | | | | <u> </u> | | | 1 | | |
| C04 | | 3 | | | 2 | | | | 1 1 | | | 1 | | |
| H/M/L indica | tes Str | enoth o | of Correl | ation | | h M. N | Aediu | m L. | Lov | v | | 4 | | |
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| Category | Basic Science | Engineering Science | Humanities and social Science | Program Core | Program elective | Open Elective | Inter Disciplinary | Skill Component | | Practical /Project | | | | |
| | | | | | | ~ | | | | | | | | |

2022 Regulation

| COURSE CODE: | Course Title | Ty/Lb/ ETL/IE | L | T / S.Lr | P/ R | C |
|-----------------|------------------------|------------------|---|-------------|------|---|
| EBCS22OF | 4 SOFTWARE ENGINEERING | Ту | 3 | 0/0 | 0/0 | 3 |

Unit I Software Life Cycle Models

Software Process Introduction - S/W Engineering Paradigm - life cycle models: waterfall, incremental, spiral, win-win spiral, Agile, evolutionary, prototyping - Object-Oriented life cycle models-system engineering – computer-based system – life cycle process – development process.

Unit II Software Requirements

Requirements: Functional & non-functional - user-system requirement engineering process - feasibility studies – elicitation – validation & management – software prototyping – S/W documentation – Analysis and modelling – Case Tools.

Unit III Design Concepts

Design and Principles Modular design - design heuristic - Software architecture - data design architectural design - transform & transaction mapping -Introduction to SCM process - Software Configuration Items.

Unit IV Software Testing

Testing Taxonomy of Software testing – levels – black box testing – testing boundary conditions – structural testing - regression testing- Software testing strategies - unit testing - integration testing validation testing – system testing and debugging – Traceability matrix.

Unit V Software Project Management

Software cost estimation - Function point models - COCOMO model - Project Scheduling-Delphi method - Software challenges - Software Maintenance-Reliability - Reliability and availability models

Total Hours: 45

Text Books

- 1. R.S.Pressman, "Software Engineering A practitioners approach", Eighth Edition, McGraw Hill International editions, 2014. REFERENCE BOOKS
- 2. Ian Somerville, "Software Engineering", Tenth Edition, Pearson Education, 2015.

Reference Books

1. Hans van Vliet, "Software Engineering: Principles and Practice", Third Edition. John Wiley & Sons, 2008.

2. Stephen R. Schach, "Object-oriented and classical software Engineering", Fourth Edition, McGraw Hill, 2002.

9Hrs

9Hrs

9Hrs

9Hrs

Open Labs Offered to Other Departments

| COURSE | C | OURS | E NAN | AE: | | | | | Ty/Lb/ | L | T/SLr | P/R | С |
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| CODE: | | | | | | | | | ETL/IE | | | | |
| EBCS22OL | 1 Al | RTIFI | CIAL | INTE | LLIGI | ENCE | LAB | | | | | | |
| | Pre | erequisi | ite: Nil | | | | | | Lb | 0 | 0/0 | 3/0 | 1 |
| L : Lecture | T : Tut | orial | SLr: S | Supervi | ised Le | earning | P : I | Proje | ct R : Re | search | C: Cree | lits | |
| T/L/ETL : T | heory/ | Lab/Eı | nbedd | ed The | ory and | d Lab | | | | | | | |
| OBJECTIV | ES: | | | | | | | | | | | | |
| The students | should | be mad | le to | | | | | | | | | | |
| • To st | udy and | y and familiarize with Prolog by implementing simple AI Solutions | | | | | | | | | | | |
| • To fa | amiliari | iliarize with LISP by implementing simple AI Solutions | | | | | | | | | | | |
| COURSE O | | TCOMES (COs): Students will be able to | | | | | | | | | | | |
| CO1 | Unde | Understand the concepts of Prolog[L2] | | | | | | | | | | | |
| CO2 | write | write code for AI based problems[L2] | | | | | | | | | | | |
| CO3 | Apply | Apply the knowledge to give solution AI based problems[L3] | | | | | | | | | | | |
| CO4 | Abilit | y to ide | entify so | olution | constru | icts in A | AI bas | ed pi | roblems[L3 |] | | | |
| CO5 | Analy | ze the | solution | n constr | ucts to | solve A | AI pro | blem | s[L4] | | | | |
| Mapping of | Course | Outco | mes wi | ith Pro | gram (| Outcom | es (P | Os) | | | | | |
| | DO1 | DO1 | DOI | DO 4 | DO5 | DOC | р | DO | | | DO1 | | 1 |
| COS/POS | POI | PO2 | POS | PO4 | P05 | PO6 | P 07 | PO | 8 PO9 | POIO | | | 2 |
| CO1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | | 1 | 1 | 1 | | 1 |
| CO2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | | 1 | 1 | 1 | | 1 |
| CO3 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | | 1 | 1 | 1 | | 1 |
| CO4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 2 | 2 | | 2 |
| CO5 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | | 1 | 1 | 1 | | 1 |
| COs /PSOs | PS | 01 | PS | 02 | PS | 03 | P | SO4 | | | | | |
| CO1 | | 1 | | 1 | | 2 | | 1 | | | | | |
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| CO3 | | 1 | 1 | 1 | | 2 | | 1 | | | | | |
| CO4 | | 2 | 2 | 2 | | 1 | | 2 | | | | | |
| CO5 | | 1 | 1 | 1 | | 1 | | 1 | | | | | |
| 3/2/1 indicat | es Stre | ngth of | f Corre | lation | 3- Hi | gh, 2- N | Mediu | ım, 1 | -Low | - | | | |
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210 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE | COURSE NAME: | Ty/Lb/ | L | T/SL | P/R | С |
|-----------|-----------------------------|--------|---|------|-----|---|
| CODE: | ARTIFICIAL INTELLIGENCE LAB | ETL/IE | | r | | |
| EBCS22OL1 | Prerequisite: NIL | Lb | 0 | 0/0 | 3/0 | 1 |

List of Experiments :

- 1. Study of Prolog.
- 2. Write simple fact for the statements using PROLOG.

3. Write predicates for the one that converts centigrade temperatures to Fahrenheit, the other checks if a temperature is below freezing.

4. Write a program to solve the Monkey Banana problem.

5. Write a programin turbo prolog for medical diagnosis and show the advantage and disadvantage of green and red cuts.

- 6. Write a program to implement factorial, Fibonacci of a given number.
- 7. Write a program to solve 4-Queen problem.
- 8. Write a program to solve traveling salesman problem.
- 9. Write a program to solve water jug problem using LISP

Total Hours: 45

| COURSE | COU | RSE N | NAME | : | | | | Ty | /Lb/ | L | T/SLr | P/R | C |
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| EBCS22OL2 | Prerec | misite. | Nil | | UNAN | | JLAD | , | Lb | 0 | 0/0 | 3/ | 0 1 |
| | 110100 | luisite. | 1 (11 | | | | | | 10 | U | 0/0 | 5/ | 0 1 |
| L : Lecture T : | Tutoria | l S.L | r : Supe | rvised | Learnir | ng P:P | Project | R : Resea | arch C: | Cred | its | | |
| Ty/Lb/ETL/IE | : Theor | y/Lab/l | Embedo | led The | ory and | d Lab | | | | | | | |
| OBJECTIVES |): | | 4.0 | | | | | | | | | | |
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| COURSE OU | Under | stand t | he requ | irement | and de | evelop t | he web | site. [L2] | | | | | |
| CO2 | Apply | the kn | owledg | e todes | ign bac | k-end c | onnecti | vity for c | lata stor | age [| [L3] | | |
| CO3 | Apply | Apply the knowledge & understanding of database analysis and design[L3] | | | | | | | | | | | |
| CO4 | Apply | the pro | ogramm | ning ski | ll and t | echniau | ies to w | rite prog | rams us | ing S | OL IL3 | 1 | |
| | rr J | | 0 | | | | | 1.0 | | 0 | | | |
| CO5 | Apply | Apply the set operations and aggregate function[L3] | | | | | | | | | | | |
| Mapping of C | ourse (| Outcom | nes with | n Progr | am Ou | tcomes | s (POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO | D10 P | 011 | PO12 |
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| CO5 | 2 1 | 1 2 1 | 2 1 2 | 1 3 1 | 2 1 2 1 | 1 1 1 1 | 1 1 2 1 | | 1 1 2 1 | | 1 | 1 2 2 1 | 1 2 1 2 |
| CO5 | 2 1 | 1 2 1 | 2 1 2 | 1 3 1 | 2 1 2 1 | 1 1 1 1 | 1 1 2 1 | | 1 1 2 1 | | 1 1 1 | 1 2 2 1 | 1 2 1 2 |
| CO5 COs / PSOs | 2 1 | 1 2 1 PSO1 | 2 1 2 | 1 3 1 | 2 1 2 1 PSO2 | 1 1 1 | 1 1 2 1 | PSO3 | 1 1 2 1 | | 1 | 1 2 2 1 PSO ² | 1 2 1 2 |
| CO5 COs / PSOs CO1 | 2 1 | 1 2 1 PSO1 2 | 2 1 2 | <u> </u> | 2 1 2 1 PSO2 2 | 1 1 1 | 1 1 2 1 | PSO3 | 1 1 2 1 | | 1 | $\frac{1}{2}$ $\frac{1}{1}$ PSO^{2} $\frac{1}{1}$ | 1 2 1 2 |
| CO5 COs / PSOs CO1 CO2 | 2 1 | 1 2 1 PSO1 2 1 | 2 1 2 | | 2 1 2 1 PSO2 2 1 | 1 1 1 | 1 1 2 1 | PSO3 | 1 1 2 1 | | 1 | $\frac{1}{2}$ $\frac{1}{1}$ PSO^{2} $\frac{1}{1}$ | 1 2 1 2 |
| CO5 COs / PSOs CO1 CO2 CO3 | 2 1 | 1 2 1 PSO1 2 1 2 | 2 1 2 | | 2 1 2 1 PSO2 2 1 2 | 1 1 1 | 1 1 2 1 | PSO3 | | | 1 | $\frac{1}{2}$ $\frac{1}{1}$ $\frac{1}{1}$ | 1 2 1 2 |
| CO5 COs / PSOs CO1 CO2 CO3 CO4 | 2 1 | 1 2 1 PSO1 2 1 2 1 | 2 1 2 | | 2 1 2 1 PSO2 2 1 2 1 | | | PSO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | | $\frac{1}{2}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ | 1 2 1 2 |
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| CO5 COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 Indicates | 2 1 | 1 2 1 PSO1 2 1 2 1 2 gth Of | 2 1 2 Correl | 1 3 1 | 2 1 2 1 PSO2 2 1 2 1 2 3 - Higg | 1 1 1 | 1 1 2 1 | PSO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | | 1 2 1 PSO4 1 1 1 1 1 1 | 1 2 1 2 |
| CO5 COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 Indicates | 2 1 | 1 2 1 PSO1 2 1 2 1 2 gth Of | 2 1 2 Correla | 1 3 1 ation, 3 | 2 1 2 1 2 1 2 1 2 1 2 3 - Hig | h, 2- M | 1 1 1 edium, | PSO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 1 2 1 | | | 1 2 1 PSO4 1 1 1 1 1 1 | |
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| CO5 COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 Indicates | 2 1 S Streng | 1 2 1 PSO1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 3th Of | 2 1 2 Science and Correli | Stam Core | 2 1 2 1 PSO2 2 1 2 1 2 3 - Hig | h, 2- M | r ciplinary | PSO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ctical /Project | | | 1 2 1 PSO4 1 1 1 1 1 | |
| CO5 COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 Indicates | 2 1 Streng | Engineering Engine | Humanities and Correling Social Science | Logram Core | Lugarant electrice Program ele | Den Elective | Inter | Skill Component 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Lactical /Project | | | 1 2 1 PSO4 1 1 1 1 1 | |
| CO5 COs / PSOs CO1 CO2 CO3 CO4 CO5 3/2/1 Indicates | 2 1 SStrence | Engineering Science | 2 1 2 Bencies and Social Science | Program Core | Longitude Level 1 | I 1 1 1 1 h, 2- M | 1 1 2 1 2 1 <td>Skill Component Skill Component 1 1 1 1 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1</td> <td>Lactical /Project</td> <td></td> <td></td> <td>1 2 1 PSO4 1 1 1 1 1</td> <td></td> | Skill Component Skill Component 1 1 1 1 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 | Lactical /Project | | | 1 2 1 PSO4 1 1 1 1 1 | |

| Course Code | Course Title | Ty/Lb/ | L | T/SL | P/R | С |
|-------------|-----------------------------|--------|---|------|-----|---|
| Course Code | Course The | ETL/IE | | r | | |
| | | Lb | 0 | 0/0 | 3/0 | 1 |
| EBCS22OL2 | PHP / MySQL PROGRAMMING LAB | | | | | |

List of Experiments :

- 1. Implement the Select statements for queries.
- 2. Perform the Nested queries using SQL.
- 3. Implement the Update operations using SQL.
- 4. Perform the Built in functions in SQL.
- 5. Implement of Use of index, creating views and querying in views.
- 6. Create a PHP webpage and print "hello world".
- 7. Write a PHP program to swap two numbers.
- 8. Develop a PHP program to find maximum of three numbers.
- 9. Create a PHP program to find odd or even number from given number.
- 10. Write a PHP Program to demonstrate the variable function: Gettype():
- 11. Develop a PHP Program to demonstrate the variable unction: Settype():
- 12. Write a PHP program to drop table using MySQL. Write a PHP program that demonstrate passing variable using URL.
- 13. Create a student Registration in PHP and Save and Display the student Records.

Total Hours: 45

| | (| COURS | E NAMI | E: | | | | Ty/Lb/ | L | T/SLr | P/R | С |
|----------------------------|---------|------------|--|------------|------------|--------------|-------------|------------|--------------|------------|----------|--------|
| COURSE | | | | | | | | ETL/IE | 1 | | | |
| CODE: | | | DA | TABAS | SE LAE | 8 | | | | | | |
| FRCS22OL3 | F | Prerequisi | te: Nil | | | | | Lb | 0 | 0/0 | 3/0 | 1 |
| L : Lecture T : T | Tutoria | l SLr : Su | pervised | Learnin | g P:Prc | viect R : | Research | C: Credit | ts T/L/E | TL: | | |
| Theory/Lab/En | nbedde | ed Theory | and Lab | | 6 | | | | | | | |
| OBJECTIVE | : | , | | | | | | | | | | |
| The students sh | nould b | e made to |) | | | | | | | | | |
| To get | et kno | wledge | in SQL | toStor | e, Mod | ify and | Retriev | val of da | ata fro | m the a | ppropri | ate |
| datab | ase | | | | | | | | | | | |
| COURSE OUTC | OMES | (COs): St | udents w | ill be abl | le to | | | | | | | |
| CO1 | | Understa | Inderstand the programming and theoretical concept of SOL commands[L2] | | | | | | | | | |
| CO2 | | Analyze | the probl | em and a | apply the | syntact | ical struct | ture of qu | ery [L4 |] | | |
| CO3 | | Apply th | e knowled | dge to st | ore data | in the c | latabase, | using SQ | L and Pl | L/SQL[L | 3] | |
| CO4 | | Apply th | e knowled | dge to re | etrieve th | ne data s | stored in | the datab | ase, Us | ing SQL ar | d PL / S | QL[L3] |
| CO5 | | Create a | database | and que | ry it usin | g SQL a | nd PL / S | SQL[L4] | | | | |
| Mapping of Co | ourse C | outcomes | with Pro | gram Oı | utcomes | (POs) | | | | | | |
| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 2 | 1 | 1 | 3 | 2 | | 2 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 2 | 1 | 2 | 1 | | 1 | 1 | 2 | 2 |
| CO3 | 2 | 2 | 3 | 2 | 2 | 3 | 1 | | 1 | 1 | 2 | 3 |
| CO4 | 2 | 2 | 3 | 2 | 2 | 3 | 1 | | 1 | 1 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 1 | 3 | 2 | | 2 | 1 | 3 | 3 |
| COs / PSOs | P | SO1 | PSC | 02 | PS | 03 | PSC | 04 | | | | |
| CO1 | | 2 | 3 | | 3 | 3 | 3 | ; | | | | |
| CO2 | | 3 | 3 | | 3 | 3 | 3 | ; | | | | |
| CO3 | | 2 | 3 | | 3 | 3 | 2 | 2 | | | | |
| CO4 | | 2 | 3 | | 3 | 3 | 2 | 2 | | | | |
| CO5 | | 2 | 3 | | 3 | 3 | 3 | 5 | | | | |
| 1/2/3 indicate | s Strer | igth of Co | rrelation | 3- Hig | h, 2- Me | dium, 1 | -Low | | 1 | | | |
| | | | - | | | | | | | | | |
| | | cience | l socia | | /e | | ıry | ment | ct | | | |
| ory | ce | Š | anc | ore | sctiv | ve | lina | npc | roje | | | |
| eg(| ien | ring | ties | С | ı elt | ecti | scip | Col | 1/P. | | | |
| Cat | Sc | nee | ani 1ce | ram | ram | ΠEI | Di | kill | ical | | | |
| | asic | ngi | lum cier | rog | rog | per | nter | SI | ract | | | |
| | В | Щ | ΝĂ | P | d' | 0 | Ir | | <u>d</u> | | | |
| | | | | | | \checkmark | | | \checkmark | | | |

214 B.Tech – Cyber Forensics and Information Security -2022 Regulation

| COURSE | DATABASE | LAB | Ty/Lb/ | L | T/SLr | P/R | С |
|-----------|-------------------|-----|--------|---|-------|-----|---|
| CODE: | | | ETL/IE | | | | |
| EBCS22OL3 | Prerequisite: Nil | | Lb | 0 | 0/0 | 3/0 | 1 |
| | | | | | | | |

List of Experiments :

I. PROGRAM TO LEARN SQL COMMANDS

- 1. Execution of DDL Commands
- 2. Execution of DML Commands
- 3. Insert Command
- 4. Select, From and Where Clause
- 5. Set Operation [Union, Intersection, Except]
- 6. Nested Queries
- 7. Join Operation
- 8. Modification of the Database

II. PL / SQL programs

- 11. Control statements (for loop)
- 12. Control statements (while loop)
- 13. Control statements (for reverse loop)
- 14. Control statements (loop end loop)
- 15. Series generation
- 16. Implementation of sub-program
- 17. Control statement (if-else end if)

Total Hours: 45