

Dr. M.G.R
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY

(Declared U/S 3 of UGC Act 1956)
Maduravoyal, Chennai – 600 095.



DEPT. OF BIOTECHNOLOGY
B.Sc – BIOTECHNOLOGY
CURRICULUM & SYLLABUS
2017 REGULATIONS



Dr. M.G.R
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
DEPT. OF BIOTECHNOLOGY
B.Sc - BIOTECHNOLOGY COURSE – 2017

CREDIT DISTRIBUTION

| | |
|--------------|----|
| I semester | 20 |
| II semester | 20 |
| III semester | 24 |
| IV semester | 22 |
| V semester | 23 |
| VI semester | 21 |

TOTAL 130

Dr. M.G.R.
Educational and Research Institute
UNIVERSITY
Department of Biotechnology
B.Sc Biotechnology
Curriculum and Syllabus

I SEMESTER

| Sub Code | Subjects | L | T | P | C |
|----------------------------|--|---|---|---|---|
| Theory | | | | | |
| HBTA17001 | Part-I : Tamil /Hindi/French – Paper-I | 3 | 0 | 0 | 3 |
| HBEN17001 | Part-II : English - Paper I | 3 | 0 | 0 | 3 |
| HBBT17A01 | Allied I : Biochemistry - I | 3 | 1 | 0 | 4 |
| HBBT17G01 | Cell Biology | 3 | 1 | 0 | 4 |
| HBBT17G02 | Genetics | 3 | 1 | 0 | 4 |
| Laboratory/Practice | | | | | |
| HBBT17L01 | Biochemistry Lab | 0 | 0 | 3 | 2 |
| Total credits 20 | | | | | |

II SEMESTER

| Sub Code | Subjects | L | T | P | C |
|----------------------------|--|---|---|---|---|
| Theory | | | | | |
| HBTA17002 | Part-I : Tamil/Hindi/French - Paper II | 3 | 0 | 0 | 3 |
| HBEN17002 | Part -II: English – Paper II | 3 | 0 | 0 | 3 |
| HBBT17A02 | Allied II : Biochemistry-II | 3 | 1 | 0 | 4 |
| HBBT17G03 | Microbiology | 3 | 1 | 0 | 4 |
| HBBT17G04 | Enzymology | 3 | 1 | 0 | 4 |
| Laboratory/Practice | | | | | |
| HBBT17L02 | Microbiology Lab | 0 | 0 | 3 | 2 |
| Total credits 20 | | | | | |

III SEMESTER

| Sub Code | Subjects | L | T | P | C |
|----------------------------|--|---|---|---|---|
| Theory | | | | | |
| HBBT17G05 | Instrumentation methods and Biophysics | 3 | 1 | 0 | 4 |
| HBBT17G06 | Industrial Microbiology | 3 | 1 | 0 | 4 |
| HBBT17A03 | Allied III :Bio- Statistics-I | 3 | 1 | 0 | 4 |
| HBBT17G07 | Molecular Biology | 3 | 1 | 0 | 4 |
| HBBT17G08 | Basic Pharmaceutical sciences | 3 | 1 | 0 | 4 |
| HBMG17L01 | Soft skill-I | 1 | 0 | 2 | 2 |
| Laboratory/Practice | | | | | |
| HBBT17L03 | Instrumentation methods and Analysis Lab | 0 | 0 | 3 | 2 |
| Total credits 24 | | | | | |

IV SEMESTER

| Sub Code | Subjects | L | T | P | C |
|----------------------------|--------------------------------|-----------|---|---|---|
| Theory | | | | | |
| HBBT17G09 | Plant Biotechnology | 3 | 1 | 0 | 4 |
| HBBT17G10 | Basic Bioinformatics | 3 | 1 | 0 | 4 |
| HBBT17G11 | Recombinant DNA Technology | 3 | 1 | 0 | 4 |
| HBBT17A04 | Allied IV :Bio- Statistics-II | 3 | 1 | 0 | 4 |
| HBMG17L02 | Softskill -II | 1 | 0 | 2 | 2 |
| Laboratory/Practice | | | | | |
| HBBT17L04 | Recombinant DNA Technology Lab | 0 | 0 | 3 | 2 |
| HBBT17L05 | Bioinformatics Lab | 0 | 0 | 3 | 2 |
| Total credits | | 22 | | | |

V SEMESTER

| Sub Code | Subjects | L | T | P | C |
|----------------------------|--|-----------|---|---|---|
| Theory | | | | | |
| HBBT17G12 | Bioprocess Technology | 3 | 1 | 0 | 4 |
| HBBT17G13 | Animal cell culture and Animal Biotechnology | 3 | 1 | 0 | 4 |
| HBBT17G14 | Immunology | 3 | 1 | 0 | 4 |
| HBCS17G09 | Data Base Management | 3 | 1 | 0 | 4 |
| HBMG17001 | Environmental Studies | 3 | 0 | 0 | 3 |
| Laboratory/Practice | | | | | |
| HBBT17L06 | Immunology Lab | 0 | 0 | 3 | 2 |
| HBBT17L07 | Tissue culture Lab | 0 | 0 | 3 | 2 |
| Total credits | | 23 | | | |

VI SEMESTER

| Sub Code | Subjects | L | T | P | C |
|----------------------------|-------------------------------------|-----------|---|----|----|
| Theory | | | | | |
| HBBT17G15 | Food processing Technology | 3 | 1 | 0 | 4 |
| HBBT17G16 | Legal aspects of Biotechnology | 3 | 1 | 0 | 4 |
| HBMG17G01 | Entrepreneurial Development | 3 | 0 | 0 | 3 |
| Laboratory/Practice | | | | | |
| HBBT17P01 | Project work & Viva-voce | 3 | 0 | 24 | 10 |
| Total credits | | 21 | | | |

I SEMESTER



Dr.M.G.R
EDUCATIONAL & RESEARCH INSTITUTE
UNIVERSITY

(Declared U/S 3 of the UGC Act 1956)

B.B.A., BCA., B.Sc., B.Com முதல் பருவம்

நோக்கம்:

- வாய்மொழி இலக்கியத்தையும் செய்யுள் இலக்கியத்தையும் அறிந்து கொள்ளல்
- சிறுகதை மரபினைப்பற்றித் தெரிந்து கொள்ளல்
- பிழைஇன்றித்தமிழ் எழுதுவதற்கு அடிப்படை இலக்கணத்தைப்பயிற்றுவித்தல்
- கவிதை மரபினையும் சிறுகதை மரபினையும் வரலாற்று நிலையிலிருந்து விளக்குதல்

தமிழ் - தாள் I

அலகு - 1

1. தாலாட்டு
2. காதல்
3. ஒப்பாரி
4. காணிநிலம் வேண்டும் - பாரதி
5. நல்லதோர் வினை - பாரதி
6. தமிழ்க்காதல் - பாரதிதாசன்
7. தமிழ்வளர்ச்சி - பாரதிதாசன்
8. எந்நாளோ? - பாரதிதாசன்
9. ஆறு தன் வரலாறு கூறுதல் - கவிமணி தேசிய விநாயகம் பிள்ளை

அலகு - 2

1. வழித்துணை - ந.பிச்சுமூர்த்தி
2. குருடர்களின் யானை - அப்துல் ரகுமான்
3. முள் முள் முள் - சிற்பி

அலகு - 3 புதுமைப்பித்தன் கதைகள்

1. கடவுளும் கந்தசாமிப் பிள்ளையும்
2. செல்லம்மாள்
3. துன்பக்கேணி
4. ஆற்றங்கரைப் பிள்ளையார்
5. ஒருநாள் கழிந்தது

அலகு - 4

1. பெயர், வினை, இடை, உரிச்சொற்களின் பொது இலக்கணம், வலிமிகும் இடங்கள், வலிமிகா இடங்கள்.

அலகு - 5

1. தமிழ்க் கவிதையின் தோற்றமும் வளர்ச்சியும் (மரபுக்கவிதை, புதுக்கவிதை)
2. தமிழ்ச்சிறுகதையின் தோற்றமும் வளர்ச்சியும் (மரபுத் தொடர்கள், பொருந்தியசொல் தருதல் கலைச் சொற்கள், நோக்காணல்)

மேற்பார்வை நூல்கள்:

Vice Chancellor
Dr. M.G. சென்னைப் பல்கலைக்கழக வெளியீடு - 2013

EDUCATIONAL AND RESEARCH INSTITUTE

UNIVERSITY

(Declared U/S 3 of the UGC Act 1956)
Periyar E.V.R. High Road,

துணைவேந்தர் சீர்திருத்தக்

சீனாப்பம்புக்கொடி

Dr. S. Dinakaran

Prof. Dr. S. DINAKARAN

JOINT REGISTRAR

Dr. M.G.R.

Educational and Research Institute
University

(Decl. u/s.3 of UGC Act, 1956)

Periyar E.V.R. High Road

Maduravoyal, Chennai-600 095

தமிழ்த்துறைத் தலைவர்

டாக்டர் எம்.ஜி.ஆர்.

கல்வி மற்றும் ஆராய்ச்சி நிறுவனம்

பல்கலைக்கழகம்

மதுரவாயல், சென்னை - 600 095



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UNIVERSITY**

(Decl. US 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

BH113001

HINDI - I

3 0 0 3

Prose, Administrative Hindi and Grammar.

UNIT I

9 Hrs

1. Sabhyata kaa rahasya - lesson and annotations, Questions & answers,
2. Administrative terms (Prayojan mulak Hindi)

UNIT II

9 Hrs

1. Mitratha ka rahasya - lesson and annotations questions and answers
2. Patra lekhan, definitions, correspondence in hindi

UNIT III

9 Hrs

1. Paramanu oorja evam and kadhya sunrakshan (lesson) annotations and answers,
2. Technical terms and words, letter writing

UNIT IV

9 Hrs

1. Yuvavon se (lesson), annotations, essay and questions and answers
2. Types of official correspondence, technical terms
3. Grammer(Change of voice, correcting the sentences)

UNIT V

9 Hrs

1. Yogyata aur vyavasay ka chunav (Lesson) essay, questions and answers
2. Letter writing
3. grammer & technical terms

Total no of Hrs: 45

REFERENCES

- ❖ Dr. Syed Rahmatullah & Poornima Prakashan, *Hindi gadhya maala*
- ❖ Dr. Syed Rahmatullah & Poornima Prakashan, *Prayojanmulak Hindi*
- ❖ Dakshin Bharat Hindi Prachara Sabha, T.Nagar, *Saral Hindi Vyakaran-2*

Sam

Syllabus for French

Semester I – French - I

Unit 1

Découvrir la langue française

- Se présenter, dire si on comprend, présenter une personne, nommer les choses, savoir vivre, comprendre la grammaire

Unit 2

Faire connaissance

- Donner des informations sur une personne, demander, exprimer ses préférences, parler de son travail, parler de ses activités, parler de son pays, de sa ville

Unit 3

Organiser son temps

- Dire la date, dire l'heure, donner des informations sur un emploi du temps, proposer-accepter-refuser, interroger-répondre, faire un programme d'activités

Unit 4

Découvrir son environnement

- S'orienter, Situer, Se loger, Exprimer la possession, Connaître les rythmes de vie, Fixer des règles

Unit 5

S'informer

- Dire ce qu'on fait, S'informer sur un emploi du temps passé, Expliquer, Exprimer la doute ou la certitude, Découvrir les relations entre les mots, Savoir s'informer

Recommended book :

Campus 1 – méthode de française by Jacky Girardet, Jacques Pécheur

S. Mani
13/06/2017
S. MANI/NEŞALAI



Dr. M.G.R.
Educational and Research Institute
University
(Declared as Deemed to be university u/s.3 of UGC Act 1956)
Maduravoyal, Chennai - 95
(An ISO 9001 : 2008 Certified Institution)



Faculty of Humanities and Science
Department of English
Syllabus for English
Semester I Paper I

Common to All UG Courses (H&S)

(i.e. B.B.A., B.C.A.(General), B.C.A.(Animation & Multimedia), B.Com. (General), B.Com. (A&F), B.Com. (C.S), B.Sc. (Comp. Sci.), B.Sc. (I.Sc.& Cyber Forensics), B.Sc.Comp.,(Science & Networking), B.Sc. (Electronics), B.Sc. (Media & Vis. Com.), B.Sc. (Bio.Tech), B.Sc. (Maths), B.Sc. (Physics), B.Sc. (Chemistry) etc)

Proposed for implementation from the Academic Year 2017-2018

Code: HBEN15001

L T P C

3 0 0 3

UNIT I

Prose: Literary ~~method~~ *method* (Orient Black Swan)

UNIT II

Poetry: Literary ~~method~~ *method* (Orient Black Swan)

UNIT III

Short Stories: Literary ~~method~~ *method* (Orient Black Swan)

UNIT IV

One Act Plays: Literary ~~method~~ *method* (Orient Black Swan)

UNIT V

Functional English

Total:

45 Periods

R. R. Mahala

HEAD, DEPARTMENT OF ENGLISH
DR. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE
MADURAVOYAL, CHENNAI - 95
ENGLISH - HBEN15001

SEMESTER I
From the Academic Year 2017-2018

COURSE OBJECTIVES:

1. to prepare students for attaining a comprehensive knowledge of the communication skills
2. to make them understand the nuances of the language and use its vocabulary in appropriate contexts
3. to develop in students a knowledge of the various techniques in language use
4. to develop in them analytical and interpretative skills
5. to train learners in organized academic and business writing

Unit I-PROSE- For Detailed Study

- | | |
|-------------------------------|-----------------|
| 1. On Running After One's Hat | G.K. Chesterton |
| 2. The Unexpected | Robert Lynd |
| 3. How to be a Doctor | Stephen Leacock |

Unit II- POETRY- For Detailed Study

- | | |
|------------------------------------|---------------------|
| 1. Ulysses | Lord Tennyson |
| 2. If | Rudyard Kipling |
| 3. Leave this Chanting and Singing | Rabindranath Tagore |

Unit III- SHORT STORY

- | | |
|----------------------------|--------------|
| 1. A Retrieved Reformation | O'Henry |
| 2. Engine Trouble | R.K. Narayan |

Unit IV – GLIMPSES FROM GREAT MINDS


- | | |
|------------------------|---------------------|
| 1. I lived with words | R.L. Stevenson |
| 2. My Vision for India | Dr. APJ Abdul Kalam |

Unit V - FUNCTIONAL ENGLISH

Enhancing LSRW Skills through Tasks

Note: Each lesson to be followed by text-based Vocabulary, Grammar, and Usage Exercises

Synonyms, Antonyms- Affixes (prefixes & Suffixes)-Noun- Adjectives, Verb, Tense, Adverb, Preposition, 'if' clause, Articles, discourse markers, Reported and Direct speech- Voice, Degrees of comparison, Interrogatives
Comprehension, Précis writing


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TAMIL NADU UNIVERSITY
CHENNAI - 600 005

COURSE LEARNING OUTCOME:

Students completing the General English course

1. will be able to attain comprehensive knowledge of the four skills of communication viz. LSRW
2. will be able to understand the nuances of English Language as use its vocabulary in appropriate contexts
3. will have acquired the knowledge of the various techniques in language usage
4. will have acquired proficiency in analytical and interpretative skills
5. will be trained in organized and academic and business writing

Text Prescribed: Pushkala R, Padmasani Kannan, Chandrasena Rajeswaran, Anuradha V
Literary Landscapes, Orient Black Swan, 2017

Text Books, Reference Books and Web Resources

1. Pushkala R, P.A.Sarada, El Dorado: A Textbook of Communication Skills, Orient Blackswan, 2014
2. Padmasani Kannan.S., Pushkala.R. : Functional English
3. Hancock, Mark, English Pronunciation in Use; Cambridge Univ. Press, 2013
4. McCarthy, Michael et.al., English Vocabulary in Use, Advanced, Cambridge Univ. Press, 2011
5. Wren and Martin: Grammar and Composition, Chand & Co, 2006
6. Part I & Part II from Spring Board by Orient Black Swan Pvt. Ltd.
7. <https://learnenglish.britishcouncil.org>
8. www.englishpage.com
9. www.writingcentre.uottawa.ca/hypergrammar/preposit.html
10. www.better-english.com/grammar/preposition.html
11. <http://www.e-grammar.org/infinite-gerund/>
12. www.idiomsite.com/



HEAD, DEPARTMENT OF ENGLISH
HIGHER EDUCATION, TAMIL NADU
UNIVERSITY
Chennai - 600 005

BIOCHEMISTRY – I**L T P C**
3 1 0 4

UNIT - I: CARBOHYDRATES**9 Hrs**

Introduction and classification, Structure and properties of mono, di and Polysaccharides with examples

UNIT - II: PROTEINS**9 Hrs**

Structure and properties of amino acids, classification and properties of proteins, structure and organization of proteins-primary, secondary, tertiary and quaternary structure.

UNIT- III: NUCLEIC ACIDS**9 Hrs**

Nucleic acids- Structure of purines, pyrimidines, nucleosides and nucleotides. Structure, types and biological role of RNA and DNA.

UNIT- IV: LIPIDS**9 Hrs**

Structure and classification of lipids, Distribution and biological importance of fats and fatty acids. Structure and function of triacylglycerols, phospholipids, glycolipids, sphingolipids, steroids

UNIT- V: VITAMINS AND MINERALS**9 Hrs**

Structure and Biological functions of Vitamins and Minerals

Total = 45 Hours**TEXT BOOKS**

1. A.C. Deb (2001) *Fundamentals of Biochemistry*, (7th Ed) Aggarwal Book Company

REFERENCE BOOKS

1. Nelson, L. D. and M. M Cox, (2002), *Lehninger's Principle of Biochemistry*: (3rd Ed) Macmillan, Worth Publication Inc.

CELL BIOLOGY

L T P C
3 1 0 4

UNIT - I: CELLS AND ORGANELLES

9 Hrs

Introduction to different types of cells and Organelles Cell division in prokaryotes and eukaryotes (mitosis and meiosis),

UNIT - II: CELL MEMBRANES

9 Hrs

Functions of membranes, models of membrane architecture, transport across membranes

UNIT- III: ENDOPLASMIC RETICULUM AND GOLGI COMPLEX

9 Hrs

Structure of ER and golgi complex; Role of ER and golgi complex in protein glycosylation, secretory pathways, protein trafficking, exocytosis, endocytosis, coated vesicles in cellular transport processes

UNIT- IV: LYSOSOMES

9 Hrs

Lysosomes and cellular digestion. Role of plant vacuole and peroxisomes.

UNIT- V: CELL SIGNALING

9 Hrs

Signal transduction through messengers and receptors. Chemical signals and cellular receptors'- Protein linked receptors, hormonal signaling

Total = 45 Hours

TEXT BOOKS

1. Cell Biology, De Roberties & De Roberties, Blaze publishers & Distributors Pvt. Ltd., New Delhi, 2001

REFERENCE BOOKS

1. Jeff Hardin, Gregory Paul Bertoni, Lewis J. Kleinsmith (2011) Becker's World of the Cell (8th Ed) Pearson Publ.

GENETICS

| L | T | P | C |
|---|---|---|---|
| 3 | 1 | 0 | 4 |

UNIT - I: INTRODUCTION

9 Hrs

Nature of genetic material, Mendelian laws of inheritance, law of segregation and laws of independent assortment. Dominance and lethal genes

UNIT - II: CHROMOSOME STRUCTURE AND ORGANIZATION

9 Hrs

Chromosome morphology, composition of chromatin, Prokaryotic and Eukaryotic organization, heterochromatin. Different types of (polytene and lamp brush chromosome, giant chromosomes)

UNIT- III: SEX CHROMOSOMES IN PLANTS AND ANIMALS

9 Hrs

Sex determination in plants and animals Autosomal dominant disorders, sex linked inheritance, non-disjunction of X chromosomes, linkage and crossing over.

UNIT-IV: SEX LINKED GENETIC DISORDERS

9 Hrs

Hemoglobinopathies, disorders of coagulation, colour blindness, hemophilia Multiple alleles ABO blood groups, Rh group system

UNIT- V: POPULATION GENETICS

9 Hrs

Principles of Hardy Weinberg law-Gene frequency, genotype frequency, Hardy Weinberg equilibrium and application, factors affecting gene frequencies. Polymorphism and characteristic features.

Total = 45 Hours

TEXT BOOKS

1. Gardner (2006) *Principles of Genetics* (8th Ed) Wiley edition,
2. B.D.Singh (1999) *Fundamentals of Genetics* (3th Ed) Kalyani Publishers, New Delhi.

REFERENCE BOOKS

1. Good enough (1984) *Genetics* Saunders College Pub.
2. Singer and P.Berg (1991) *Genes and Genomes* University Science Books
3. Griffith (2000) *Genetics* W. H. Freeman

1. Laboratory Safety and Hygiene: Standard Operating Procedures, Units and Measurements, Use of Instruments, Concept of pH and Buffers
2. Basic calculations in Biochemistry - Normality, Molarity, Molality, percent solutions (v/v, w/v), calculation of working solution from stock.
3. Qualitative analysis of Monosaccharide
4. Qualitative analysis of Disaccharide
5. Qualitative analysis of Polysaccharide
6. Qualitative analysis of Proteins
7. Estimation of proteins – Lowry and Biuret Method
8. Biological Preparations: Isolation of casein and starch

TEXT BOOKS AND REFERENCES

1. Practical Biochemistry by Keith Wilson and John walker 2005
2. An introduction to practical biochemistry Plummer, Tata-mcgraw Hill 1987

II SEMESTER

PART-II : TAMIL/HINDI/FRENCH -PAPER II

L T P C
3 0 0 3



பாக்டர். எம்.ஜி.ஆர்.
கல்வி மற்றும் ஆராய்ச்சி நிறுவனம்
பல்கலைக்கழகம்
அனுமாமபட்டு, சென்னை - 600 095.

FORM NO. 2/EP E & T /0'2 Rev.00 (Date 01.01.2014)

தமிழ்த்துறை
இரண்டாம் பருவம் - தமிழ்த்தாள்-II
பாடப்பகுதிகள்

அலகு-I

1. சிற்றிலக்கிய வரலாறு
2. கிரித்தவ இலக்கிய வரலாறு
3. இசுலாமிய இலக்கிய வரலாறு

அலகு-II

4. நந்திக் கலம்பகம்
5. முத்தொள்ளாயிரம்
6. தமிழ்விரு தாது

அலகு-III

7. திருக்குறளால் குறவஞ்சி
8. முக்கடற்பள்ளு
9. இயேசுரான் பிள்ளைத்தமிழ்

அலகு-IV

10. நளவெண்பா
11. சிறப்புராணம்

அலகு-V

மொழிப்பயிற்சி : பண்புத்தொகை, வினைத்தொகை, உம்மைத்தொகை, உருவகம், உவமைத்தொகை, வேற்றுமைத்தொகை, அன்மொழித்தொகை, இருபெயரொட்டுப் பண்புத்தொகை.

ஒரு பொருள் குறித்த பலசொல், பல பொருள் குறித்த ஒரு சொல், அகரவரிசைப்படுத்துதல், ஒருமை, பன்மை மயக்கம், பிறமொழிச் சொற்களை நீக்குதல்.

பார்க்கை நூல்கள் :

1. சென்னைப் பல்கலைக்கழக வெளியீடு-2013
2. பொது இலக்கணம்

சுயாதீன உரைக்கல் பகுதி

தமிழ்த்துறை
Vice Chancellor
Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY

பொதுவெண்பா பிப்பாதுகல்

பாடப்பகுதிகள்.

சென்னை

Prof. Dr. S. DIVAKARAN
JOINT REGISTRAR
Dr. M.G.R.
Educational and Research Institute
University
(Decl. u/s.3 of UGC Act, 1956)
Periyar E.V.R. High Road
Madhavoyal, Chennai-600 095

தமிழ்த்துறைத் தலைவர்
பாக்டர் எம்.ஜி.ஆர்.
கல்வி மற்றும் ஆராய்ச்சி நிறுவனம்
பல்கலைக்கழகம்
மதுவாயல், சென்னை - 600 095

Dr. M.G.R
Educational and Research Institute
University

New Syllabus

Hindi – Semester II – Paper – II (Poetry, Hindi Computing, Alankar)

Unit – I

1. Poetry – VirPooja, Kaidi aur Kokila – Kavi Parichay, Annotation, Summary
Makhanlal Chaturvedi

2. Poetry – Kabirdass – Sakhi – Kantasth 01 – 10 (Doha)

3. Alankar – Aupras and Upama only.

Unit – II

1. Poetry – Aansu, Shradha ka saundarya Annotation, Kavi Parichay, Summary

2. Poetry – Surdas – Two Padhya

Unit – III

1. Poetry – Subramaniya Bharathi – Nachenge – Hum Annotation, Kavi Parichay, Summary

2. Kaam Kaji Hindi Concept of Official Language and Hindi computing theory.

Unit – IV

1. Poetry – Galiv – Chunin da ser – Annotation, Summary, Kavi Parichay

2. Computer Internet in Hindi Latest tools and Packages

Unit – V

1. Kavi parichay, Jaishan kar Prasad, Subramaniya Bharathi and Mirzagalib, Makhanlalchaturvedi

2. Slesha Alankar

Dr. M.G.R
(RACHA RAMAKRISHNAN)

Syllabus for French

Semester II – French - II

Unit 1

Cultiver ses relations

- Recevoir, Communiquer, Parler des personnes, Donner des informations, écrire, être à l'aise avec les autres

Unit 2

Découvrir le passé

- Parler du passé, raconter les moments d'une vie, parler de la famille, préciser le moment de la durée, parler des habitudes et des changements, connaître quelques repères de l'histoire

Unit 3

Entreprendre

- Parler d'une entreprise, Exprimer un besoin, Parler du futur, Présenter les étapes d'une réalisation, Rapporter des paroles, Faire un projet de réalisation

Unit 4

Prendre des décisions

- Comparer des qualités, Comparer des quantités et des actions, Exprimer la ressemblance ou la différence, Faire des suppositions, Comparer des lieux, Parler de la télévision

Unit 5

Faire face aux problèmes

- Poser un problème, Caractériser une action, Parler de la sante, Interdire-Autoriser, Connaître la vie politique

Recommended book : Campus 1 – méthode de française by Jacky Girardet,
Jacques Pécheur

S. MANINEGALAI
13/06/2017



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Educational and Research Institute
University
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Maduravoyal, Chennai - 95
(An ISO 9001 : 2008 Certified Institution)



Faculty of Humanities and science
Department of English
Syllabus for English
Semester II Paper II
Common to All UG Courses (H&S)

(i.e. B.B.A., B.C.A.(General), B.C.A.(Animation & Multimedia), B.Com. (General), B.Com. (A&F), B.Com. (C.S), B.Sc. (Comp. Sci.), B.Sc. (I.Sc.& Cyber Forensics), B.Sc.Comp.,(Science & Networking), B.Sc. (Electronics), B.Sc. (Media & Vis. Com.), B.Sc. (Bio.Tech), B.Sc. (Maths), B.Sc. (Physics), B.Sc. (Chemistry) etc)

Proposed for implementation from the Academic Year 2017-2018

Code: HBEN14002

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UNIT I

Prose: Literary *methodology* (Orient Black Swan)

UNIT II

Poetry: Literary *methodology* (Orient Black Swan)

UNIT III

Short Stories: Literary *methodology* (Orient Black Swan)

UNIT IV

One Act Plays: Literary *methodology* (Orient Black Swan)

UNIT V

Functional English

R. Pruthi

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M.G.R. UNIVERSITY
MADURAVOYAL, CHENNAI - 600 095
CONTACT NO. 044-26101111

Total:

45 Periods

SEMESTER II
FROM THE ACADEMIC YEAR 2017-2018

COURSE OBJECTIVES:

1. to prepare students to attain a comprehensive knowledge of the communication skills
2. to make them understand the nuances of the English language and use the vocabulary in appropriate contexts
3. to develop in students a knowledge of the various techniques in language usage
4. to develop in them analytical and interpretative skills
5. to train learners in organized, academic and business writing

Unit I- PROSE- For Detailed Study

- | | |
|------------------------------|---------------|
| 1. Spoon Feeding | W.R. Inge |
| 2. Disaster Management | B.M. Hegde |
| 3. If You are Wrong Admit it | Dale Carnegie |

Unit II - POETRY- For Detailed Study

- | | |
|----------------------------|-----------------|
| 1. Psalm of Life | H.W. Longfellow |
| 2. Anthem for Doomed Youth | Wilfred Owen |
| 3. Street Cries | Sarojini Naidu |

Unit III - SHORT STORY

- | | |
|-----------------------------------|------------------|
| 1. How Much Land does a Man Need? | Leo Tolstoy |
| 2. Uncle Podger Hangs the Picture | Jerome K. Jerome |


Unit IV - DRAMA

- | | |
|---|---------------------|
| 1. Excerpts from The Merchant of Venice | William Shakespeare |
| 2. Monkey's Paw | W.W. Jacob |

Unit V - FUNCTIONAL ENGLISH

Enhancing LSRW Skills through Tasks

Note: Each lesson to be followed by text-based Vocabulary, Grammar, and Usage Exercises


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& EDUCATIONAL RESEARCH INT.
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Synonym and Antonym, Phrasal Verb- Idioms and Phrases, Collocation, Gerund and infinitives, Auxiliaries: Primary and Modals, Use of 'as soon as', 'No soonerthan', 'Hardly had-when', 'Scarcely had-when', 'too.....to', 'so...that'- Subject- Verb Agreement

Comprehension, note- making from an unknown passage, Expanding Hints into a meaningful paragraph, Essay writing

COURSE LEARNING OUTCOME:

Students completing the general English course

1. will attain advanced comprehensive knowledge of the four skills of communication viz.

LSRW

2. will understand the nuances of English language as use its vocabulary in appropriate contexts

3. will acquire the advanced knowledge of the various techniques in language usage

4. will acquire advanced proficiency in analytical and interpretative skills

5. will get trained in organized academic and business writing

Text Prescribed: Pushkala R, Padmasani Kannan, Chandrasena Rajeswaran, Anuradha V

Literary Landscapes, Orient Black Swan, 2017

Text Books, Reference Books and Web Resources

1. Pushkala R, P.A.Sarada, El Dorado: A Textbook of Communication Skills, Orient Blackswan, 2014
2. Padmasani Kannan.S., Pushkala.R. : Functional English
3. Hancock, Mark, English Pronunciation in Use; Cambridge Univ. Press, 2013
4. McCarthy, Michael et.al., English Vocabulary in Use, Advanced, Cambridge Univ. Press, 2011
5. Wren and Martin: Grammar and Composition, Chand & Co, 2006
6. Part I& Part II from Spring Board by Orient Black Swan Pvt. Ltd.
7. <https://learnenglish.britishcouncil.org>
8. www.englishpage.com
9. www.writingcentre.uottawa.ca/hypergrammar/preposit.html
10. www.better-english.com/grammar/preposition.html
11. <http://www.e-grammar.org/infinitive-gerund/>
12. www.idiomsite.com/



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OR EDUCATION & RESEARCH INST
DEEPAK UNIVERSITY
Chennai - 600 095

UNIT - I: CARBOHYDRATE METABOLISM**9 Hrs**

Glycolysis, TCA cycle, Glycogenesis, glycogenolysis, Gluconeogenesis, and physiological significance of pentose phosphate pathway. Diseases associated with Carbohydrate metabolism - Diabetes mellitus and Glycogen storage diseases .

UNIT - II: BIOENERGETICS**9 Hrs**

Basic Concepts and Design. Electron transport chain and oxidative phosphorylation: Structure of mitochondria, the mitochondrial respiratory chain, ATP production, inhibitors and uncouplers of electron transport chain

UNIT- III: PROTEIN METABOLISM**9 Hrs**

Degradation of proteins, Oxidative, Non- Oxidative deamination ,transamination and trans deamination of amino acids and Urea Cycle. Diseases of protein metabolism, inborn errors of amino acid metabolism(Phenylketonuria and Alkaptonuria) .

UNIT-IV: LIPID METABOLISM**9 Hrs**

Uptake of lipids in animals, transport and hydrolysis of triglycerides, transport of fatty acids into mitochondria, Fatty acid oxidation: β -oxidation of saturated unsaturated fatty acids Ketone bodies formation, Biosynthesis and degradation of cholesterol, Lipids and lipoproteins in diseases.

UNIT- V: NUCLEIC ACID METABOLISM**9 Hrs**

Biosynthesis and degradation of purine and pyrimidine . Diseases associated with purine and pyrimidine metabolism.

Total = 45 Hours**TEXT BOOKS**

1. A.C. Deb (2001) *Fundamentals of Biochemistry* , (7th Ed) Aggarwal Book Company

REFERENCE BOOKS

1. Nelson, L. D. and M. M Cox, (2002), *Lehninger's Principle of Biochemistry*: (3rd Ed) Macmillan, Worth Publication Inc.

MICROBIOLOGY

L T P C
3 1 0 4

Unit - I: HISTORY OF MICROBIOLOGY

9 Hrs

Pasteur's contribution and Koch's contribution, Classification-systemic and numerical classification. Microscopy, Principle of different staining techniques –Simple staining, Gram staining, acid fast and capsule staining, Structure of prokaryotic cell morphology and structure.

Unit - II: BACTERIAL NUTRITION

9 Hrs

Nutritional requirements of bacteria and different media used for bacterial culture; Bacterial Growth – Bacterial growth curve, factors effecting bacteria growth

Unit- III: FUNGI

9 Hrs

Classification of fungi, antifungal and sterilization, Study of Yeasts – morphology, reproduction and industrial application

Unit-IV: VIRUS

9 Hrs

Structure of virus, Classification of viruses based on genetic material, host and capsid material.

Unit- V: CONTROL OF MICROORGANISMS

9 Hrs

Physical and chemical control of microorganisms; host-microbe interactions; anti-bacterial, anti-fungal and anti-viral agents, mode of action and resistance to antibiotics; clinically important microorganisms

Total = 45 Hours

TEXT BOOKS

1. Michael J. Peleazar, J.R.E.C.S Chan, Noel R. Erieg, 2005, "Microbiology " TATA McGraw Hill, 5th Edition
2. Anantha Narayan, C.K. Jayaram Paniker, 2009, "Text Book of Microbiology" Orient Blackswan, 7th. Edition
3. Joanne Willey, 2010. Prescott.s Microbiology, eighth edition, McGraw Hill, Newyork.

ENZYMOLOGY

L T P C

3 1 0 4

UNIT I: INTRODUCTION

9 Hrs

Introduction to enzymes, Classification, nomenclature and general properties like effects of pH, substrate and temperature on enzyme catalyzed reactions, Mechanism of enzyme reaction

UNIT II: ENZYME KINETICS

9 Hrs

Enzyme kinetics (steady state), Michaelis-Menten Kinetics and Line weaver Burke plot determination of K_m value and V_{max} .

UNIT III: ENZYME SPECIFICITY AND INHIBITION

9 Hrs

Enzyme Specificity, Enzyme inhibition - competitive, Non competitive, Uncompetitive (Concepts with example), Co enzymes, isoenzymes

UNIT IV: ENZYME REGULATION

9 Hrs

General mechanisms of enzyme regulation, Allosteric enzymes, Symmetric and sequential modes for action of allosteric enzymes. Reversible and irreversible covalent modification of enzymes, cascade systems

UNIT V: ENZYME APPLICATIONS

9 Hrs

Clinical and industrial applications of enzymes Enzyme immobilization and its uses.

Total no of Hours: 45

Text Books

1. Fundamentals of Enzymes, Treur Palmer, Prentice Hall Publications.

Reference

1. Enzymes by Dixon and Webb Immobilized Enzymes, Messing 1988.

MICROBIOLOGY LAB

L T P C
0 0 3 2

1. Sterilization techniques-Autoclave, Hot air oven, Filter sterilization (lecture/demonstrations).
2. Preparation of culture media (a) broth (b) Agar.
3. Culturing of Microorganisms: Pure culture techniques: Streak plate, pour plate, spread plate method
4. Differential media and selective media of bacteria.
5. Enumeration of micro-organisms- Serial dilution plating
6. Identification of microorganisms. (a) Staining techniques – Simple staining, Gram staining, Capsule staining, Endospore staining
7. Motility of bacteria by Hanging drop method.

TEXT BOOKS

1. Monica Chessbrough(1999) *Laboratory Manual in Microbiology(Vol I & II)*Cambridge University Press

REFERENCE BOOKS

1. Cappucino (1999) *Microbiology - A laboratory Manual* Benjamin Cummings

III SEMESTER

INSTRUMENTATION METHODS AND BIOPHYSICS

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UNIT I: SPECTROSCOPY

9 Hrs

Introduction to principles and applications of spectroscopic methods - UV-Vis, IR, Fluorescence & Phosphorescence

UNIT II: CENTRIFUGATION

9 Hrs

Centrifugation: Preparative and Analytical Centrifuges, Sedimentation analysis RCF, Density Gradient Centrifugation.

UNIT III: CHROMATOGRAPHY

9 Hrs

Chromatography Techniques: Theory and Application of Paper Chromatography, TLC, Gel Filtration, Ion Exchange, Affinity Chromatography.

UNIT IV: COLLOIDS

9 Hrs

Properties of colloids (surface tension, viscosity, surface absorption, detergent action, electrical, optical and kinetic properties). Phenomenon of osmosis and osmo regulation in the body. Electro osmosis, Donnan membrane equilibrium, its applications - artificial kidney (dialysis of blood).

UNIT V: BIOPHYSICS OF GASEOUS EXCHANGE

9 Hrs

Biophysical basis for gaseous exchange in lungs and tissues, partial pressure of CO₂ (pCO₂) and O₂(pO₂). Influence of O₂ and CO₂ in RBC and body fluids during respiration. Physiological curve of formation and dissociation of oxy hemoglobin (HbO₂) and carbon dioxide hemoglobin (HbCO₂). Various physiological factors in these curves.

Total no of Hours : 45

REFERENCES

1. Chatwal GR (1998), *Instrumental Methods of Chemical Analysis*, (5th Ed) Himalaya Publishing House
2. Sharma BK (1994) *Instrumental Methods of Chemical Analysis*, (5th Ed) Krishna Prakashan Media Pvt Ltd 1961)
3. Edward Staunton West, Wilbert R.Todd (1961) *Textbook Of Biochemistry* (3th Ed) MacMillan Co, Publishers.

INDUSTRIAL MICROBIOLOGY

L T P C

3 1 0 4

UNIT I: MICROBIAL METABOLITES

9 Hrs

Production of microbial enzymes and its applications, microbial production of antibiotics, production of single cell proteins – Commercially available forms of single cell protein for food and feed

UNIT II: : MICROBIAL METABOLITES

9 Hrs

Industrially important microorganisms: screening techniques - detection & assay of fermentation products.

UNIT III: STRAIN IMPROVEMENT

9Hrs

Strain improvements - mutations, protoplast fusion and rDNA techniques for strain development

UNIT IV: ROLE OF MICROBES

9 Hrs

Role of microorganisms for industrial, agricultural and environmental use. Beer and wine production in industries. Large-scale production of microbial inoculants for agriculture - microbial fertilizers and microbial pesticides .

UNIT V: PRODUCTION OF COMMERCIAL PRODUCTS

9 Hrs

Production of primary metabolites, organic acids (citric acid, itaconic acid, acetic acid, gluconic acid), Amino acids (glutamic acid, lysine, aspartic acid, phenylalanine), alcohols (Ethanol, 2,3-butanediol).

Total no of Hours : 45

TEXT BOOKS

1. Michael J. Pelezar, J.R.E.C.S Chan, Noel R. Erieg(2005), “*Microbiology* (5th Ed).TATA McGraw Hill.

REFERENCE BOOKS

1. Anantha Narayan, C.K. Jayaram Paniker,(2009). *Text Book of Microbiology*” (7th Ed).Orient Blackswan,
2. Prescott and Dunn,(2006) *Industrial Microbiology*” CBS Publishers

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| | ALLIED BIO STATISTICS I | L T P C |
| | (1 yr. / 1 Sem. B.Sc Bio Technology (Full Time)) | 3 1 0 4 |

Course Outcomes:

- To understand the Basic concepts in Statistics
- To understand the Basic concepts in Measures of Central Tendency
- To understand the Basic concepts in Correlation
- To understand the Basic concepts in Probability
- To understand the Basic concepts in Discrete probability distributions

UNIT I INTRODUCTION TO STATISTICS

Statistics – Definition of Statistics – Importance and Scope of Statistics – Limitations of Statistics – Diagrammatic representation of Data – Bar diagrams – Pie diagrams – Histogram – Frequency polygon and Frequency curve – Pictogram.

UNIT II MEASURES OF CENTRAL TENDENCY

Mean – Median & Mode – Geometric mean & Harmonic Mean – Weighted Arithmetic Mean – Measures of dispersion – Range – Quartile Deviation – Mean Deviation – Standard Deviation – Coefficient of Variation.

UNIT III CORRELATION

(12 hrs)

Concept of linear correlation between two variables - Scatter diagram - Karl Pearson's formula for correlation coefficient - Spearman's rank correlation - Calculation of correlation coefficient from ungrouped data (Simple problems).

UNIT IV PROBABILITY

(12 hrs)

Definition of Random Experiment - Sample Space – Events: Mutually exclusive events - Exhaustive events - Dependent events and Independent events - Mathematical and Statistical definition of probability - Theorems of addition and multiplication laws of Probability (Without proof) - Conditional probability (Simple problems).

UNIT V PROBABILITY DISTRIBUTIONS I

(12 hrs)

Concept of probability mass function and probability density function: Binomial distribution - Poisson distribution - Mean and variance - Properties (Without proof) (Simple problem)

Total no. of hrs: 60

Reference Books:

- 1) Gupta S.C., Kapoor V.K., *Fundamentals of Mathematical Statistics*, S.Chand & Co., (2007).
- 2) Robert M. Leekley., *Applied Statistics for Business and Economics*, Taylor & Francis, S.Chand Publishing Co., (2015).
- 3) Arora P.N., *Business Statistics*, S.Chand & Co., (2007).
- 4) Sharma J.K., *Business Statistics*, Vikas Publishing., (2016).
- 5) Veerarajan T., *Probability, Statistics and, Random Processes*, Tata McGraw Hill Publishing Co., (2008).
- 6) Singaravelu, *Probability and Random Processes*, Meenakshi Agency, (2017).

T. John
(HOD / Maths)
19-5-17

MOLECULAR BIOLOGY

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UNIT I: INTRODUCTION

9 Hrs

DNA structure, RNA structure, organization of the Prokaryotic and eukaryotic chromosome, Mechanisms of Prokaryotic and eukaryotic replication.

UNIT II: MUTATION, REPAIR AND RECOMBINATION

9 Hrs

Replication errors and their repair, mismatch repair, Mutagens, photo reactivation, base excision repair, homologous recombination.

UNIT III: TRANSCRIPTION AND SPLICING

9 Hrs

Mechanism of Prokaryotic and Eukaryotic transcription , mechanism of splicing in brief, inhibitors of transcription

UNIT IV: TRANSLATION AND GENETIC CODE

9 Hrs

Mechanism of Prokaryotic and Eukaryotic translation Degeneracy of the Genetic Code, Wobble base pairing, inhibitors of translation

UNIT V: GENE REGULATION

9 Hrs

Prokaryotes – activators and repressors, Lac operon, trp operon , Eukaryotes – leucine zipper motifs, helix – loop helix

Total no of Hours: 45

TEXT BOOK

1. Molecular Biology of the Gene, 5th Edition, Watson et al., Pearson Education.
2. Molecular biology by David freifelder

REFERENCE BOOKS

1. Molecular biology- Baltimore
2. Molecular biology- Lodish

BASIC PHARMACEUTICAL SCIENCES**L T P C**
3 1 0 4

UNIT I: INTRODUCTION**9 Hrs**

Introduction to Pharmaceutical Industry, Regulatory aspects, Routes of Administration of Drugs and types of therapeutic agents.

UNIT II: PHARMACOKINETICS**9 Hrs**

Basic aspects of Pharmacokinetics. Absorption, Distribution, Biotransformation and Excretion. Factors affecting pharmacokinetics.

UNIT III: PHARMACODYNAMICS**9 Hrs**

Basic aspects of Pharmacodynamics. Mechanism of drug action

UNIT IV: NEW DRUG DISCOVERY**9 Hrs**

Steps involved in new drug discovery. Preclinical and clinical trials.

UNIT V: PHARMACEUTICAL PATENTS

Introduction about the Patents related to Pharmaceutical Products

Total no of Hours: 45**References:**

- Gareth Thomas. *Medicinal Chemistry. An introduction.* John Wiley. 2000.
- Katzung B.G. *Basic and Clinical Pharmacology, Prentice Hall of Intl.* 1995.

SOFT SKILLS-I

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FACULTY OF HUMANITIES AND SCIENCE
DEPARTMENT OF ENGLISH
CAREER AND CONFIDENCE BUILDING
SYLLABUS (2017- 2018)

HBMG14L01

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CURRICULUM
SOFT SKILL-I

Common to All UG Courses (H&S) (50+ 50)

(i.e. B.B.A., B.C.A.(General), B.C.A.(Animation & Multimedia), B.Com. (General), B.Com. (A&F), B.Com. (C.S), B.Sc. (Comp. Sci.), B.Sc. (I.Sc.& Cyber Forensics), B.Sc.Comp.,(Science & Networking), B.Sc. (Electronics), B.Sc. (Media & Vis. Com.), B.Sc. (Bio.Tech), B.Sc. (Maths), B.Sc. (Physics), B.Sc. (Chemistry) etc)

COURSE OBJECTIVES:

1. to diagnose the strength and weakness of the student in Functional English
2. to develop the functional grammar
3. to prepare them to use Functional English through LSRW
4. to make them learn through practice and activity
5. to use English Language as a life skill

Prelude

Diagnostic Test- Articles, Forms of 'be' verbs, Tense, Preposition, Gerunds & Infinitives, Reported Speech, Active & Passive Voice, Letter Writing

Unit I

6 hours

Job and career- three types- Govt.,pvt and public sector-Bank, govt.offices, navy, defense, govt.institutions-IT and,BPo and corporate-semi govt like ISRO etc- requirements- advt- skills needed (download the details)

Delivery

Audio and video cassettes

Unit II

6 hours

Technical skill- Communication skill especially in English- strengthening communicative English-Listening, Reading, speaking and writing- Listening- sounds of vowels and consonants and writing them-functional English –difference between functional and theoretical English

R. Murthala

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Unit III

6 hours

Listening and writing

Activity based exercises on articles, modals, prepositions and infinitives

The above topics are chosen as we don't find equivalents in LI

Unit IV

6 hours

Reading and writing

Vocabulary-synonym, antonym, collocations, confused words, homonym, odd man out, words with correct spelling, avoid redundancy –Inferential comprehension (based on BEC and Blog on Soft Skills BY me)-browsing , skimming and scanning note- making

Unit V

6 hours

Speaking

Introducing yourself (giving questions)- collecting information in pairs and presenting it for 2 minutes – story telling through picture- interpretation of psychometric pictures through question and answer – PPT preparation and presentation-developing the story in pairs as game

Total:

30 Periods

Text Book , Reference Books and Web Resources:

1. Soft Skill for Everyone-Jeff Butterfield,Part-1; Unit-D&E
2. EFA (English For All)- Dr. Padmasanni Kannan, Libin Roy Thomas
3. English for Competitive Exam- R.P. Bhatnagar,Rajul Bhargava
4. Soft Skill Blog
5. Jobsearch.about.com
6. www.exsearch.in/interview.html

COURSE LEARNING OUTCOME:

Students completing the course Soft Skill-I will be able to

1. know their weakness in the use of English Language.
2. understand the functionality of the language in simple context.
3. improve their communication skill through LSRW.
4. improve the functional grammar through practice and activity.
5. understand the necessity of English Language.



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Chennai - 600 095

1. Qualitative analysis: `Normal & abnormal urine
2. Titrimetric analysis:
Estimation of titrable acidity and ammonia content of urine.
3. Colorimetric analysis:
Estimation of blood urea by Dam method.
- 4 .Spectrophometric analysis:
Estimation of protein by Bradford method.
5. Centrifugation technique:
Separation of serum and Plasma from blood
7. Chromatographic technique
Separation of amino acids by paper chromatography

REFERENCE BOOK:

1. Harold Varley (1967) *Practical biochemistry* (4th Ed) Heinemann Medical,

IV SEMESTER

PLANT BIOTECHNOLOGY

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UNIT I: PLANT GENOME

9 Hrs

An overview of nuclear and organelle gene structure, function, and expression. Development of Arabidopsis as a model for molecular genetic studies in plant biology.

UNIT II: GENETIC TRANSFORMATION

9 Hrs

Direct gene transfer techniques, Agro bacterium mediated gene transfer, Plant vectors, Ri , Ti Plasmids and Viral vectors (Gemini virus, cauliflower mosaic virus) and their uses

UNIT III: PLANT DISEASE RESISTANCE

9 Hrs

Types of pathogen and their mode of action, Plant defense system, Constitutive and inducible defence, Genetic basis of plant pathogen interaction, Role of Salicylic and ethylene in plant defence.

UNIT IV: PLANT STRESS RESPONSE

9 Hrs

Abiotic and biotic stress, Osmotic adjustment and its role in drought and salinity tolerance, genetically modified plants -Golden rice, Bt. Cotton.

UNIT V: PLANT TISSUE CULTURE

9 Hrs

Plasticity and Totipotency, Plant Cell culture media, Plant growth regulators and function, Culture types- Callus, Cell-suspension culture, Protoplast culture, Somaclonal variation, Somatic Embryogenesis, Polyploidy.

Total no of Hours: 45

TEXT BOOKS

1. Westhoff et al. 1998. *Molecular Plant Development: From gene to plant*. Oxford University Press, Oxford. Selected parts available for purchase at the UBC Bookstore.
2. Buchanan et al. 2000. *Biochemistry & Molecular Biology of Plants*. American Society of Plant Physiologists, Rockville MD
3. Heldt HW. *Plant Biochemistry and Molecular Biology* Oxford University Press. 1997.

UNIT I: BIOLOGICAL DATABASES AND DATA RETRIEVAL**9 Hrs**

Nucleotide databases (Genbank, EMBL), Sequence submission Methods and tools (Sequin, Sakura), Sequence retrieval systems (Entrez), Protein (Swiss-Prot, Tr-EMBL, Expasy), Genome (NCBI, EBI, TIGR), Metabolic Pathway DB (KEGG)

UNIT II: PAIRWISE SEQUENCE ALIGNMENT**9 Hrs**

Similarity, Identity and Homology, Global Alignment, Local Alignment, Database Search methods & tools, Scoring Matrices,

UNIT III: MULTIPLE SEQUENCE ALIGNMENT**9 Hrs**

Significance of MSA, Scoring of MSA, PSI/PHI-BLAST.

UNIT IV: GENE PREDICTION**9 Hrs**

Structure in Prokaryotes and Eukaryotes, Gene prediction methods, Neural Networks, Pattern Discrimination methods, Signal sites Predictions (Promoter, Splice, UTR, CpG-islands) Methods of Construction of Phylogenetic trees

UNIT V: NUTRIGENOMICS

Introduction to Nutrigenomics and Nutraceuticals

Total no of Hours: 45**REFERENCES**

1. Introduction to Bioinformatics - A. Lesk 2002, Oxford University Press
2. Fundamental concepts of Bioinformatics by D.E. Krane and M.L Raymer, Pearson Education 2003 ISBN 81-297-0044-1
3. Current Protocols in Bioinformatics, Edited by A.D. Baxevanis et. al., Wiley Publishers 2005
4. Introduction to Computational Molecular Biology by Joao Carlos Setubal, Joao

RECOMBINANT DNA TECHNOLOGY

L T P C
3 1 0 4

UNIT I: ENZYMES IN RECOMBINANT DNA TECHNOLOGY

9 Hrs

Restriction Endonucleases, Cohesive and blunt end ligation, linkers and adaptors, homopolymer tailing, Klenow enzyme, T4 DNA polymerase, Polynucleotide kinase, alkaline phosphatase.

UNIT II: CLONING VECTORS

9 Hrs

Plasmid vectors: PBR 322 and PUC19, Bacteriophage vectors, Cosmids, Expression vectors, Transformation, Selection of recombinants, alpha complementation, replica plating.

UNIT III: EXPRESSION VECTORS

9 Hrs

YAC and BAC vectors, Construction of Genomic and cDNA Libraries, synthesis of cDNA from mRNA, Characterization of plasmid clones.

UNIT IV: DNA SEQUENCING TECHNIQUES

9 Hrs

Principles of DNA Sequencing: Sanger's method, Maxam and Gilbert method. Automated DNA sequencing, PCR, Types of PCR: multiplex, RT-PCR, nested, touch-down, Applications of PCR, Principle of SiRNA technology.

UNIT V: APPLICATIONS

9 Hrs

Recombinant Proteins- Insulin, Human Growth Hormone, Hepatitis B viral vaccine

Total no of Hours: 45

TEXT BOOK:

1. Principles of Gene Manipulation. S.B. Primrose, R.M. Twyman and R.W.Old; 6th Edition, S.B.University Press, 2001.
2. Gene Cloning by T.A Brown.
3. From Genes to Genomes- Concepts and Applications of DNA Technology Dale JW and von Schantz M
4. Recombinant DNA, Third Edition, Watson, Caudy, Myers, Witowski.

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| | ALLIED BIO STATISTICS II | L T P C |
| | (1 yr. / II Sem. B.Sc Bio Technology (Full Time)) | 3 1 0 4 |

Course Outcomes:

- To understand the Basic concepts in Continuous Distributions
- To understand the Basic concepts in Sampling theory
- To understand the Basic concepts in Design of Experiments
- To understand the Basic concepts in Index number
- To understand the Basic concepts in Time Series

UNIT I PROBABILITY DISTRIBUTIONS II

(12 hrs)

Uniform - Exponential - Normal distributions - Mean and variance - Properties (Without proof) (Simple problems).

UNIT II TESTING OF HYPOTHESIS

(12 hrs)

Tests of Significance - Large Sample Tests - Mean - Proportions - Small Sample Tests - t, F, Chi-square Tests: Independence of Attributes, Goodness of Fit.

UNIT III DESIGN OF EXPERIMENTS

(12 hrs)

Analysis of Variance: One Way & Two-Way Classification - Design of Experiments - Randomized Block Design - Completely Randomized Block Design - Latin Square Design.

UNIT IV INDEX NUMBER

(12 hrs)

Definition - Limitations and uses of Index numbers - Construction of index number by aggregate expenditure method and family budget method using Laspeyre's - Paasche's and Fisher's Formula.

UNIT V TIME SERIES

(12 hrs)

Meaning of Time series - Various components of Time series: Trend, Seasonal, Cyclic and Random components - Methods of measuring Trend by (a) Graphical method (b) Moving average method. (Simple problems).

Total no. of hrs: 60

Reference Books:

- 1) Gupta S.C., Kapoor V.K., *Fundamentals of Mathematical Statistics*, S.Chand & Co., (2007).
- 2) Robert M. Leekley., *Applied Statistics for Business and Economics*, Taylor & Francis, S.Chand Publishing Co., (2015).
- 3) Arora P.N., *Business Statistics*, S.Chand & Co., (2007).
- 4) Sharma J.K., *Business Statistics*, Vikas Publishing., (2016).
- 5) Veerarajan T., *Probability, Statistics and, Random Processes*, Tata McGraw Hill Publishing Co., (2008).
- 6) Singaravelu, *Probability and Random Processes*, Meenakshi Agency, (2017).

F. John
(HOD/Maths)
19-5-17.

SOFT SKILLS-II



Dr. M.G.R.
Educational and Research Institute
University
(Declared as Deemed to be university w/e.d of UGC Act 1956)
Maduravoyal, Chennai - 95
(An ISO 9001 : 2008 Certified Institution)



FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ENGLISH
QUALITATIVE AND QUANTITATIVE SKILLS
SYLLABUS – 2017 – 2018

HBMG14L02

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CURRICULUM
SOFT SKILL-II

COURSES: B.Tech

(50+50)

COURSE OBJECTIVES:

1. to strengthen the students with the needed vocabulary
2. to infer information from the given passage through reasoning
3. to train them in attending Group Discussion
4. to face the Technical and HR interview of the corporate
5. to raise communication proficiency to global standards

HBMG14L02

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Unit 1

6 hours

Preparation of resume-functional resume with objective according to different advts.-how to have interview file—how to send it by email-concept of writing email-practice through BEC method(questions and answer)

Unit 2

6 hours

Writing secretarial letters like intra-mail and inter-mail, agenda, memo and business reports-introducing GD through video-conduct of GD on a topic and also case studies

Unit 3

6 hours

Body language-grooming –Interview skill- Do's and Don'ts- mock interview –exchange of interviewer and interviewee practical session

Unit 4

6 hours

Number system – H.C.F & L.C.M – Problem on ages – Percentage – Profit & Loss – Ratio & Proportion – Partnership.

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Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE
MADURAVOYAL, CHENNAI - 95

Unit 5

6 hours

Time & Work – Time & Distance – Clocks – Permutations & Combinations – Heights & Distances
– Odd man out and Series.

Total:

30 Periods

TEXT BOOKS, REFERENCE BOOKS AND WEB RESOURCES:

1. Soft Skill for Everyone-Jeff Butterfield,Part-1; Unit-D&E
2. EFA (English For All)- Dr. Padmasanni Kannan, Libin Roy Thomas
3. English for Competitive Exam- R.P. Bhatnagar,Rajul Bhargava
4. Placement Interview- S.Anandamurugan,Chapter-2&3
5. Alex K, Soft Skills ; S. Chand & Company Pvt Ltd, 2009
6. Rizvi Ashraf M, Effective Technical Communication ; Tata McGraw – Hill ; 2005
7. Thorpe, Edgar, Course in Mental Ability and Quantitative Aptitude : Tata McGraw – Hill, 2003
8. Agarwal, R.S, A Modern Approach to Verbal and Non-verbal Reasoning, S. Chand & Co ;2004
9. R.S.Agarwal, Quantitative Aptitude for Competitive Examinations, S.Chand & Co., (2017)
10. Jobsearch.about.com
11. www.exsearch.in/interview.html

COURSE LEARNING OUTCOME:

Students completing the course Soft Skill-II will

1. be strengthened in the vocabulary
2. improve their reasoning and finding a logical sequence in the passage given
3. be prepared to face Group Discussion
4. know the nuances of the interview of the corporate
5. raise communication proficiency to global standards



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RAJAGURU ENGINEERING & TECHNOLOGY INSTITUTE
CITY
Chennai - 600 035

RECOMBINANT DNA TECHNOLOGY LAB**L T P C**
0 0 3 2

1. Isolation of Plasmid DNA
2. Competent Cell preparation and transformation
3. Quantization of DNA by agarose gel electrophoresis and spectroscopy
4. Isolation of Plant cell and / or genomic DNA
5. Restriction Enzyme Digestion
6. PCR

REFERENCE :

1. Molecular Cloning by Sambrook, Frisch and Maniatis, Vol I, II and III.

1. Demonstration of Entrez and SRS
2. Pairwise Sequence Alignment - EMBOSS
3. BLAST P
4. Multiple sequence Alignment- CLUSTAL OMEGA
5. PSI- BLAST
6. Primer BLAST
7. Phylogenetic analysis

References

1. *Bioinformatics for Dummies* by Claverie and Notredame, 2003, Wiley Publishing
2. Bioinformatics – Sequence and Genome Analysis : David W. Mount
3. Bioinformatics - A practical guide to the analysis of genes and proteins - 2nd Edition, Andreas E. Baxevanis, B.F. Francis Oullette. 2001.

V SEMESTER

BIOPROCESS TECHNOLOGY

L T P C

3 1 0 4

UNIT I: INTRODUCTION TO INDUSTRIAL BIOPROCESS

9 Hrs

A brief survey of organisms, processes, products relating to modern biotechnology, General requirements of fermentation process

UNIT II: RAW MATERIALS AND MEDIA DESIGN FOR FERMENTATION PROCESS

9 Hrs

Medium requirements for fermentation processes, Media optimization, simple and complex media, design of various commercial media for industrial fermentation

UNIT III: DESIGN OF A FERMENTOR

9 Hrs

Basic functions of a fermentor for microbial or animal cell culture, Bioreactors: Batch, fed batch reactor, continuous stirred tank reactors, residence time distribution.

UNIT IV: STERILIZATION KINETICS

9 Hrs

Thermal death kinetics of microorganisms, batch and continuous heat sterilization, filter sterilization, air sterilization and design of sterilization equipment for batch and continuous.

UNIT V: APPLICATIONS

9 Hrs

Production of Industrially important enzymes(Cellulase and Protease) and Antibiotics(Penicillin and Streptomycin)

Total no of Hours: 45

TEXT BOOKS

1. Peter F. Stanbury, Stephen J. Hall & A. Whitaker, Principles of Fermentation Technology, Science & Technology Books.

REFERENCES:

1. Bailey and Ollis, "Biochemical Engineering Fundamentals", McGraw Hill (2nd Ed.), 1986.
2. Shule and Kargi, "Bioprocess Engineering", Prentice Hall, 1992.
3. Harvey W. Blanch, Douglas S. Clark, Biochemical Engineering, Marcel Dekker, Inc.

ANIMAL CELL CULTURE ANIMAL BIOTECHNOLOGY**L T P C****3 0 1 4**

UNIT I: ANIMAL CELL CULTURE**9 Hours**

Introduction to basic tissue culture techniques; role of serum in cell culture, chemically defined media and serum free media; Various Types of culturevarious types of cultures: Primary culture, cell line, suspension cultures, Tissue and organ culture. Cryopreservation and thawing of cells, cell cultures as a source of valuable products.

UNIT II: ASSISTED REPRODUCTIVE TECHNOLOGY (ART)**9 Hours**

Causes of male and female infertility Embryo transfer technology, Techniques used in Assisted Reproductive Technology: ICSI, ZIFT, GIFT; artificial insemination,

UNIT III: MICROMANIPULATION TECHNOLOGY**9 Hours**

Concepts of transgenic animal technology; strategies for the production of transgenic animals using DNA microinjection, Nuclear transfer, Applications of transgenic livestock

UNIT V: THERAPY FOR ANIMAL DISEASES**9 Hours**

Recombinant cytokines and their use in the treatment; Principle and types of gene therapy, Advantages and disadvantages of viral vectors used in gene transfer; Non viral vector systems for gene therapy.

Total no of Hours : 45**TEXT BOOKS**

1. Ramadass P, Animal Biotechnology. Recent Concepts and Developments.MJP Publishers,2008.
2. Ranga M.M. Animal Biotechnology. Agrobios India Limited, 2002
3. Sudha Gangal. Principle and Practice of Animal Tissue Culture, Universities Press, 2007.
4. Wilson Aruni A and Ramadass P, Animal Tissue Culture, MJP Publishers, 2011.

REFERENCE

- ❖ Ian Freshney R, Culture of Animal Cells: A manual of basic Technique. WILEY-LISS Publication, 2005.

IMMUNOLOGY

L T P C

3 1 0 4

UNIT I: INTRODUCTION

9 Hours

Components of innate and acquired immunity; Organs and cells of the immune system - primary and secondary lymphoid organs; antigens: chemical and molecular nature; haptens; adjuvants; types of immune responses; theory of clonal selection.

UNIT II: CELLULAR RESPONSES

9 Hours

Development, maturation, activation and differentiation of T-cells and B-cells; T-Cell receptors; Functional T-cell subsets; Immunoglobulins: basic structure, classes, and functions; Generation of antibody diversity; Antigen processing and presentation: Monoclonal antibodies: Principle and Applications

UNIT III: INFECTION AND IMMUNITY

9 Hours

Injury and inflammation; Immune responses to infections: Immune response to infectious agents: Viruses, bacteria, fungi and parasites; Cytokines secreted by Th1 and Th2 subsets; Complement ; Immunosuppression, tolerance,

UNIT IV: IMMUNE DISORDERS AND IMMUNIZATION METHODS

9 Hours

Hypersensitivity (Type I to IV); AIDS and Immunodeficiencies; Immunisation; Vaccines and types: Common vaccines for humans

UNIT V: TRANSPLANTATION, TUMOR IMMUNOLOGY & AUTO IMMUNITY

9 Hours

Transplantation: Different types of transplants; Mechanism of graft rejection; Tumor immunology : Tumor antigens, Immune response to tumors and tumor evasion; Autoimmunity, Autoimmune disorders and diagnosis

Total no of Hours : 45

REFERENCES/TEXT BOOKS

- ❖ Roitt's Essential Immunology, 12th Edition, Wiley-Blackwell., 2011.
- ❖ Kuby J, Immunology, 5th edition, WH Freeman & Co., New York., 2003.
- ❖ Janeway CA, Travers P, Walport M, and Shlomchik M. Immunobiology, 6th edition, Garland Science., 2001.
- ❖ Animated pictures & Videos : www.roitt.com

DATA BASE MANAGEMENT

L T P C
3 1 0 4

UNIT I: PURPOSE OF DATABASE

9 Hrs

Overall System Structure - Entity Relationship Model - Mapping Constraints - Keys - E-R Diagrams - **Relational Model** - Structure

UNIT II: STRUCTURED QUERY LANGUAGE

9 Hrs

Basic Structure - Set Operations - Aggregate Functions - Date, Numeric, and Character Functions - Nested Sub queries -Modification Of Databases - Joined Relations-DDL - Embedded SQL.

UNIT III: RELATIONAL DATABASE DESIGN

9 Hrs

Pitfalls - Normalization Using Functional Dependencies - First Normal Form-Second Normal Form-Third Normal Form-Fourth Normal Form And BCNF.

NIT IV: INDEXING & HASHING

9 Hrs

File and system structure – overall system structure file transaction – data dictionary – indexing and hashing basic concepts. static and dynamic hash functions
Transaction Management

UNIT V: TRANSACTIONS

9 Hrs

Transaction Concept- Properties of a Transaction- A Simple Transaction Mode- Concurrent Executions- Schedules- Serial and Non Serial types-Serialization of schedules and views-locks based protocols-time based protocols.

Total Hours: 45 Hrs

TEXT BOOK:

1. Abraham Silberschatz, H.F.Korth and S.Sudarshan-Database System Concepts McGraw Hill Publication.
2. Singh-Database systems: Concepts, Design & applications, Pearson Education.

REFERENCE BOOK:

1. Gerald V.Post - DBMS-Designing and Business Applications - McGraw Hill Publications
2. Michael Abbey and Michael.J.Corey-Oracle- A Beginners guide TMH

| ENVIRONMENTAL STUDIES | L | T | P | C |
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UNIT I ENVIRONMENT AND ECOSYSTEMS

9 Hrs

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 ENVIRONMENTAL POLLUTION

9 Hrs

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

9 Hrs

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.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

9 Hrs

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

9 Hrs

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

Total no of Hours : 45

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).

IMMUNOLOGY LAB**L T P C**
0 0 3 2

1. Identification of cells in a blood smear
2. Identification of blood group
3. Immuno diffusion
4. Immunoelectrophoresis
5. Testing for typhoid antigens by Widal test
6. Isolation of monocytes from blood

TISSUE CULTURE LAB**L T P C****0 0 3 2**

Any Five Experiments from Tissue Culture and 5 from Plant Tissue Culture will be offered

1. Preparation of media, sterilization by filtration
2. Preparation of single cell suspension by Homogenization method
3. Single cell suspension by Enzymatic digestion
4. Cell counting using haemocytometer,
5. cell viability using Trypan blue
6. Cryopreservation and thawing of cells.
7. Isolation of DNA from animal cell culture

REFERENCE

1. Text Book of Animal Tissue culture By Freshney

VI SEMESTER

FOOD PROCESSING TECHNOLOGY

L T P C
3 0 0 3

UNIT I: INTRODUCTION

9 Hours

History and Scope of Food Biotechnology, Nutritive value of food, Role of microbes in food biotechnology – bacteria, fungi and yeast. Fermented foods – Types, Changes during Fermentation, Nutritive value of fermented foods.

UNIT II: FOOD MICROBIOLOGY

9 Hours

Primary Sources of Microorganisms in food. Food borne bacteria, Molds and Yeasts. Intrinsic and Extrinsic Parameters of food affecting microbial count. Detection of Microorganisms in food - SPC, Membrane filters, Dry films. Bacterial Toxin - Botulism and Staphylococcal toxin. Fungal Toxins - Aflatoxin.

UNIT III: DAIRY BIOTECHNOLOGY

9 Hours

Milk - Definition, Composition and Types. Fermented milk products - Butter, Yoghurt and Cheese. Preservation of milk by heat treatment - Pasteurization and Ultra High Temperature. Physiochemical characterization of milk. Milk Tests - Dye Reduction (MBRT and Resazurin).

UNIT IV: FOOD PRODUCTION

9 Hours

Food safety - HACCP System to food protection, Responsibility for food safety. Food Additives - Definition, Types and Functional characteristics. Natural Colors -Types, Applications, Advantages of natural colours. Sweeteners - Types and Applications.

UNIT V: FOOD SPOILAGE AND PRESERVATION

9 Hours

Causes of Food Spoilage, Spoilage of Fruits, Vegetables, Meat, Soft Drinks, Eggs, Dairy products. Food Preservation through chemicals - Acids, Salts, Sugars, Antibiotics, Ethylene oxide, Antioxidants. Other Methods of Food Preservation -Radiations, Low and High temperature and Drying.

Total no of Hours : 45

TEXT BOOKS:

Adam, M.R. and Moss, M.O., 2003. Food Microbiology, New Age International Pub. New Delhi, India.

Frazier, W.C. and Westhoff, D.C., 2005. Food Microbiology, IV Ed., Tata Mc Graw Hill Pub. Company Ltd. New Delhi, India.

REFERENCES:

Harrigan, W. F., 1998. Laboratory methods in Food Microbiology, III Ed. Academic Press, New York, USA.

Jay, J.M., 1992. Modern Food Microbiology, IV Ed. Chapman and Hall, New York, USA.

LEGAL ASPECTS OF BIOTECHNOLOGY

L T P C
3 1 0 4

UNIT I: INTRODUCTION TO INTELLECTUAL PROPERTY

9 Hrs

Types of IP: Patents, Trademarks, Copyright & Related Rights, Industrial Design Protection of GMOs, IP as a factor relevance to Biotechnology and few Case Studies;

UNIT II: AMENDMENTS AND AGREEMENT

9 Hrs

History of GATT & TRIPS Agreement; Madrid Agreement; Hague, Agreement; WIPO Treaties; Budapest Treaty; PCT; Indian Patent, Act 1970 & recent amendments.

UNIT III: PATENT FILING PROCEDURES

9 Hrs

National & PCT filing procedure; Time frame and cost; Status of the patent applications filed; Precautions while patenting

UNIT IV: BIOSAFETY

9 Hrs

Introduction to Biological Safety Cabinets; Primary Containment for Biohazards; Biosafety Levels; Biosafety Levels of Specific Microorganisms; Recommended Biosafety Levels for Infectious Agents and Infected Animals.

UNIT V: BIOETHICS

9 Hrs

Human genome project and its ethical issues. Gene testing, prenatal diagnosis, genetic manipulations, germline therapy, genetic studies on ethnic races.

Total no of Hours: 45

TEXTS/REFERENCES

1. BAREACT, (2007) *Indian Patent Act 1970 Acts & Rules*, Universal Law Publishing Co. Pvt. Ltd.,
2. Kankanala C.(2007) *Genetic Patent Law & Strategy*, (1st Ed), Manupatra Information Solution Pvt. Ltd.,

IMPORTANT LINKS:

1. <http://www.w3.org/IPR/>
2. <http://www.wipo.int/portal/index.html.en>
3. http://www.ipr.co.uk/IP_conventions/patent_cooperation_treaty.html
4. www.patentoffice.nic.in

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| | ENTREPRENEURIAL DEVELOPMENT | L T P C |
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Unit – I Concept of Entrepreneurship

Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneur – Factors influencing Entrepreneurship – Functions of Entrepreneurships.

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Unit – II Entrepreneurial Development Agencies

Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organisation – Small Industries Service Institute, All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI.

Unit – III Project Management

Business idea generation techniques – Identification of Business Opportunities – Feasibility study – Marketing, Finance, Technology and Legal Formalities – Preparation of project report – Tools of Appraisal.

Unit – IV Entrepreneurial Development Programmes

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Role of Government in organising EDPs – Critical Evaluation.

Unit – V Economic Development and Entrepreneurial Growth

Role of Entrepreneurs in Economic Growth – Strategic approaches in the changing Economic scenario for small scale Entrepreneurs – Networking, Niche play, Geographic Concentration, Franchising / Dealership – Development of Women Entrepreneurship.

Books:

1. Dr. V. Balu – ENTREPRENEURIAL DEVELOPMENT
2. Dr. P.T. Vijayashree & Dr. M. Alagammai – ENTREPRENEURIAL DEVELOPMENT

C.B. Sen
5/6/13

PROJECT WORK

Individual or a group comprising of 4 or 5 students were expected to choose a research problem and execute it with proper data. They will explain their research project to a committee of faculty members.