



**DEPARTMENT OF COMPUTER APPLICATIONS**  
**BCA(Digital Technology)-Full Time**  
**Curriculum & Syllabus**  
**2018 Regulations**

<b>I SEMESTER</b>						
<b>S.NO</b>	<b>Sub.Code</b>	<b>Title of the Subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.	HBTA18001 HBHI18001 HBFR18001	Tamil/Hindi/French – I	3	0	0	3
2.	HBEN18001	English – I	3	0	0	3
3.	HBMA18A01	Allied Paper Mathematics I	3	1	0	4
4.	HBCA18D01	Logic Building And Effective Problem Solving	3	1	0	4
5.	HBCA18D02	Programming in Java	3	1	0	4
6.	HBCA18DL01	Programming in Java Laboratory	0	0	2	2
<b>Total</b>			<b>15</b>	<b>3</b>	<b>2</b>	<b>20</b>

<b>II SEMESTER</b>						
<b>S.NO</b>	<b>Sub.Code</b>	<b>Title of the Subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.	HBTA18002 HBHI18002 HBFR18002	Tamil/Hindi/French – II	3	0	0	3
2.	HBEN18002	English – II	3	0	0	3
3.	HBMA18A02	Allied Paper Mathematics II	3	1	0	4
4.	HBCA18D03	Introduction to RDBMS	3	1	0	4
5.	HBCA18D04	Database Programming with Mysql	2	0	2	4
6.	HBCA18DL02	Professional Skills – I	0	0	2	2
<b>Total</b>			<b>15</b>	<b>3</b>	<b>2</b>	<b>20</b>



**DEPARTMENT OF COMPUTER APPLICATIONS**

III SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBCA18D05	HTML5	3	1	0	4
2.	HBCA18D06	Data Structures and Algorithms	3	1	0	4
3.	HBCA18D07	Web Page Designing	3	1	0	4
4.	HBCA18D08	Operating Systems	3	1	0	4
5.	HBMG18DL01	Soft Skills I	2	0	0	2
6.	HBCA18DL03	Data Structures and algorithms using Python Laboratory	0	0	2	2
7.	HBCA18DL04	HTML5 Laboratory	0	0	2	2
Total			14	4	4	22

IV SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBCA18D09	Responsive web design using HTML5 and JQuery	3	1	0	4
2.	HBCA18D10	Mobile Application for Android	3	1	0	4
3.	HBCA18D11	Networking Concepts	3	1	0	4
4.	HBCA18D12	Software Engineering	3	1	0	4
5.	HBMG18DL02	Soft Skills II	2	0	0	2
6.	HBCA18DL05	Mobile Application for Android Laboratory	0	0	2	2
7.	HBCA18DL06	HTML5 and JQuery Laboratory	0	0	2	2
Total			14	4	4	22



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V SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBMG18001	Environment Studies	3	0	0	3
2.	HBCA18D13	Implementing JSF,Hibernet and Spring in Java EEE	3	1	0	4
3.	HBCA18D14	Web Applications using Servlets and JSP	3	1	0	4
4.	HBCA18D15	Visual Programming	3	1	0	4
5.	HBCA18D16	Computer Graphics and Multimedia Systems	3	1	0	4
6.	HBCA18DL07	Web Applications using Servlet and JSP Laboratory	0	0	2	2
7.	HBCA18DL08	Visual Programming Laboratory	0	0	2	2
Total			15	4	4	23

VI SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBMG18D01	Enterpreneurial Development	3	0	0	3
2.	HBCA18D17	Linux Operating System	3	1	0	4
3.	HBCA18DE01	ECommerce	3	1	0	4
4.	HBCA18DL09	Professional Skills- II	0	0	2	2
5.	HBCA18DL10	JavaDevop PROJECT WORK	0	0	10	10
Total			9	2	12	23

**Summary of Credits**

**1<sup>st</sup> Semester – 20**

**2<sup>nd</sup> Semester – 20**

**3<sup>rd</sup> Semester – 22**

**4<sup>th</sup> Semester – 22**

**5<sup>th</sup> Semester – 23**

**6<sup>th</sup> Semester – 23**

**Total - 130**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBTA18001**

**TAMIL**

**3 0 0 3**

**நோக்கம்:**

- வாய்மொழி இலக்கியத்தையும் செய்யுள் இலக்கியத்தையும் அறிந்துகொள்ளல்.
- சிறுகதை மரபினைப் புரிந்துகொள்ளல்.
- பிழையின்றித் தமிழ் எழுதுவதற்கு அடிப்படை இலக்கணத்தைப் பயிற்றுவித்தல்.
- கவிதை மரபினையும் சிறுகதை மரபினையும் வரலாற்று நிலையிலிருந்து விளக்குதல்.

**முதல் பருவம் – தமிழ்த்தாள் 1**

**அலகு – 1**

செய்யுள் திரட்டு வாய்மொழி இலக்கியம்: நாட்டுப்புறப்பாடல்கள்

1. தாலாட்டு
2. காதல்
3. ஒப்பாரி
4. காணிநிலம் வேண்டும் – பாரதியார்
5. நல்லதோர் வீணை – பாரதியார்
6. தமிழ்க்காதல் – பாரதிதாசன்
7. தமிழ் வளர்ச்சி – பாரதிதாசன்
8. எந்நாளோ? – பாரதிதாசன்
9. ஆறுதன் வரலாறு கூறுதல் – கவிமணி தேசிக விநாயகம்பிள்ளை

**அலகு – 2**

1. வழித்துணை – ந. பிச்சமூர்த்தி
2. குருடர்களின் யானை – அப்துல் ரகுமான்
3. முள் முள் முள் – சிற்பி

**அலகு – 3 (புதுமைப்பித்தன் கதைகள்)**

1. கடவுளும் கந்தசாமிப்பிள்ளையும்
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. தமிழ்க்கவிதையின் தோற்றமும் வளர்ச்சியும்  
(மரபுக்கவிதை, புதுக்கவிதை)
2. தமிழ்ச்சிறுகதையின் தோற்றமும் வளர்ச்சியும்
3. மரபுத்தொடர்கள், பொருந்திய சொல் தருதல், கலைச்சொற்கள், நேர்காணல்

**மேற்பார்வை நூல்கள்:**

1. சென்னைப்பல்கலைக் கழக வெளியீடு – 2013
2. பொது இலக்கணம்

**Total No of Hrs : 45**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBHI18001**

**HINDI – I**

**3 0 0 3**

**OBJECTIVES:**

- Special emphasis on creative writing with phrases and quotes.
- Essays of eminent authors have been selected
- Administrative terms prescribed by official language department is taught

Prose, Administrative Hindi and Grammar.

**UNIT I**

**9 Hrs**

1. Sabhyatakaarahasya – lesson and annotations ,Questions & answers,
2. Administrative terms ( Prayojanmulak Hindi)

**UNIT II**

**9 Hrs**

1. Mitrathakarahasya - lesson and annotations questions and answers
2. Patralekhan, definitions, correspondence in hindi

**UNIT III**

**9 Hrs**

1. Paramanuoorjaevam and kadhyasanrakshan (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. Grammar(Change of voice, correcting the sentences)

**UNIT V**

**9 Hrs**

1. Yogyataaurvyavasaykachunav (Lesson) essay, questions and answers
2. Letter writing
3. grammar& technical terms

**Total no of Hrs: 45**

**TEXT BOOK:**

1. Dr. Syed Rahmatullah&PoornimaPrakashan, Hindi gadhyamaala

**REFERENCES:**

1. Dr. Syed Rahmatullah&PoornimaPrakashan, *Prayojanmulak Hindi*
2. Dakshin Bharat Hindi Prachara Sabha, T.Nagar,*Saral Hindi Vyakaran-2*





**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBEN18001**

**ENGLISH - I**

**3 0 0 3**

**COURSE OBJECTIVES:**

- To prepare students for attaining a comprehensive knowledge of the communication skills.
- To make them understand the nuances of the language and use its vocabulary in appropriate contexts.
- To develop in students a knowledge of the various techniques in language use.
- To develop in them analytical and interpretative skills.
- 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

**Text Books, Reference Books and Web Resources**

1. Quest: A Textbook of Communication Skills, Orient Blackswan,
2. Pushkala R, P.A.Sarada, El Dorado: A Textbook of Communication Skills, Orient Blackswan, 2014
3. Padmasani Kannan.S., Pushkala.R. : Functional English
4. <https://learnenglish.britishcouncil.org>
5. [www.englishpage.com](http://www.englishpage.com)
6. [www.writingcentre.uottawa.ca/hypergrammar/preposit.html](http://www.writingcentre.uottawa.ca/hypergrammar/preposit.html)

**Total No of Hrs : 45**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBMA18A01**

**MATHEMATICS I**

**3 1 0 4**

**OBJECTIVES:**

- Engage students in sound mathematical thinking and reasoning.
- Analyze the structure of real world problems and plan solution strategies.
- Solve the Problems using appropriate tools.

**UNIT I**

**12 Hrs**

ALGEBRA: Binomial, Exponential, Logarithmic Series (without proof of theorems) –Problemson Summation, Approximation and Coefficients.

**UNIT II**

**12 Hrs**

MATRICES: Characteristic equation –Eigen values and Eigen vectors of a real matrix–Properties of Eigen values–Cayley-Hamilton theorem (withoutproof)–Orthogonal reduction of asymmetric matrix to Diagonal form.

**UNIT III**

**12 Hrs**

TRIGONOMETRY: Expansion of  $\sin n\theta$ ,  $\cos n\theta$  in powers of  $\sin\theta$  and  $\cos\theta$ –Expansion of  $\tan n\theta$ –Expansion of  $\sin^n \theta$  and  $\cos^n \theta$  in terms of Sines and Conines of multiples of  $\theta$ –Hyperbolic functions–Separation into real and imaginary parts.

**UNIT IV**

**12 Hrs**

DIFFERENTIATION: Basicconcepts of Differentiation–Elementary differentiation methods –Parametric functions–Implicitfunction –Leibnitz theorem(without proof)–Maxima and Minima– Points of inflection.

**UNIT V**

**12 Hrs**

FUNCTIONSOF SEVERAL VARIABLES : Partial derivatives– Total differential–Differentiation of implicitfunctions–Taylor'sexpansion-Maxima and Minima by Lagrange'sMethod of undeterminedmultipliers– Jacobians.

**Total No of Hrs:60**

**TEXT BOOK:**

1. Kreyszig,E(2001)*AdvancedEngineeringMathematics*(8<sup>th</sup>ed.),JohnWileyandSons(Asia)Pvt.Ltd., Singapore.

**REFERENCES:**

- 1.Grewal,B.S(2000) *Higher Engineering Mathematics*(3<sup>5th</sup>ed.), Khanna Publishers, Delhi, 2.JohnBird(2010) *BasicEngineeringMathematics*(5<sup>th</sup>ed.),ElsevierLtd.
- 3.Veerarajan(2002) *,EngineeringMathematicsforIYr.*TataMcGrawHillPublishingCo.,NewDelhi.
4. Kandasamy, P&Thilagavathy,K&Gunavathy, K(2000) *Engineering Mathematics*(4<sup>th</sup>Revised ed.),S.Chand& Co., Publishers, New Delhi.





**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D01    LOGIC BUILDING AND EFFECTIVE PROBLEM SOLVING    3    1    0    4**

**OBJECTIVE:**

- This subject, will increase capabilities to think problem logically. How to understand and get it reached to the requirement. This will make students capable to understand basic component of any programming that is data type and how it can be used precisely.
- Login building is understanding of user interaction with application based on their credibility and their specific roles in case required.

**UNIT I** **12 Hrs**

**Problem Solving.:** Delivery Methodology, Session Overview, Introduction Presentation, Input, Process, and Output, Programs and Programming Languages, Tools Used in Problem Solving, Problem Solving Using Flowcharts, Cloud Components and E-learning.

**UNIT II** **12 Hrs**

Representing Decision and Repetitive Processes in a Flowchart, Cloud Components and E-learning. Problem Solving Using Pseudocode, Cloud Components and E-learning. Variables and Constants, Data Types, Using Operators, Scratch, Using Operators, Conditional Execution.

**UNIT III** **12 Hrs**

Conditional Execution, Implementing Iterative Processes.

**UNIT IV** **12 Hrs**

Implementing Iterative Processes, The repeat...until Loop, Dividing Program into Modules Types of Modules.

**UNIT V** **12 Hrs**

Modular Approach to Programming, Working with Arrays, Manipulating Arrays Using Loops.

**Total No of Hrs : 60**

**Text Books:**

1. *A Professional's Guide to Problem Solving with Decision Science*, Authors: Frank Tillman, Deandre Cassona, Publisher: Pioneering Partnerships LLC; 2 edition



**DEPARTMENT OF COMPUTER APPLICATIONS**  
**PROGRAMMING IN JAVA**

**HBCA18D02**

**3 1 0 4**

**OBJECTIVE:**

- It is required to understand Object Oriented Programming concept to develop any good application. Also Java itself run with various technology stack to build robust application which fulfills industry requirement in various ways.
- All application development support is available with java like web, mobile and stand alone. Platform independent feature and its secure API make it first choice of development.

**UNIT I**

**12 Hrs**

**Implementation classes and introduction to Regular Expressions:**Regular Inner Class, Static Inner Class, Method-local Inner Class, Anonymous Inner Class, Type Casting Primitive Data Types, Type Casting Object, Working with the Pattern and Matcher Classes, Working with Character Classes, Working with Quantifiers, Localizing Date, Localizing Currency, Localizing Text.

**UNIT II**

**12 Hrs**

**Java Collections and Generics:**Working with the HashSet Class, Working with the TreeSet Class, Working with the ArrayList Class, Working with the LinkedList Class, Working with the Vector Class, Working with the HashMap Class, Working with the TreeMap Class, Working with the Hashtable Class, Working with the ArrayDeque Class, Using the Comparable Interface, Using the Comparator Interface.

**UNIT III**

**12 Hrs**

**Java Thread:**The Basic Concept of Multithreading, Advantages and Disadvantages of Multithreading, The Thread Class, The Life Cycle of a Thread, Creating a Thread by Extending the Thread Class, Creating a Thread by Implementing the Runnable Interface, Creating Multiple Threads, Identifying the Thread Priorities, Synchronizing Threads, Implementing Inter-threaded Communication, Implementing Atomic Variables and Locks, Identifying Concurrency Synchronizers, Identifying Concurrency Collections, Implementing ExecutorService, Implementing Fork/Join Framework.

**UNIT IV**

**12 Hrs**

**Working with Streams:**Using the FileInputStream Class, Using the BufferedInputStream Class, Using the FileReader Class, Using the BufferedReader Class, Using the FileOutputStream Class, Using the BufferedOutputStream Class, Using the BufferedWriter Class, Using the FileWriter Class. Using the Path Interface and the Paths Class, Manipulating Files and Directories, Implementing Watch Service, Reading a File, Writing to a File.

**UNIT V**

**12 Hrs**

**JDBC:**JDBC Architecture, The JDBC-ODBC Bridge Driver, The Native-API Driver, The Network Protocol Driver, The Native Protocol Driver, Loading a Driver, Connecting to a Database, Creating and Executing JDBC Statements, Creating and Executing JDBC Statements, Handling SQL Exceptions, Types of Result Sets, Methods of the ResultSet Interface, Methods of the PreparedStatement Interface, Retrieving Rows, Inserting Rows, Updating and Deleting Rows, Committing a Transaction, Exception Handling in Batch Updates, Creating Stored Procedures, Calling a Stored Procedure Without Parameters, Calling a Stored Procedure with Parameters, Using the DatabaseMetaData Interface, Using the ResultSetMetaData Interface

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Head First Java, Kathy Sierra, O'Reilly Media
2. Java 2- The Complete Reference, Publisher - McGraw-Hill/Osborne
3. Java: A Beginner's Guide, Publisher - McGraw Hill Education

**REFERENCES:**

1. Marty Hall and Larry Brown, —Core Servlets And Javasever Pagesl, Second Edition
2. Bryan Basham, Kathy Siegra, Bert Bates, —Head First Servlets and JSPl, Second Edition
3. Uttam K Roy, —Web Technologiesl, Oxford University Press, 2011.



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL01**

**PROGRAMMING IN JAVA LABORATORY**

**0 0 2 2**

1. Write Java program to implement the concept of
  - a. Inheritance
  - b. Polymorphism.
  - c. Abstraction
  - d. Encapsulation.
  
2. Write Java program for implementing and manipulation with below mentioned Objects
  - a. String Class.
  - b. StringBuffer Class
  - c. StringBuilder.
  
3. Write Java code for Exception Handlin
  - a. Pre defined Exception
  - b. Custom Exception
  
4. Write Java Program for implementing the concept of Java Data Structure with Collections.
  - a. List
  - b. Set
  - c. Map
  - d. Write code based on Generics.
  
5. Write Java Program Multithreading and Concurrency API.
  - a. Write code for Thread creation
  - b. Write code for multithreading
  - c. Write code based on java Concurrency API.
  
6. Regular Expression.
  - a. Write code for taking string object and use of regular expression to extract information out of it.
  - b. Use case of regular Expressions.
  
7. Java Memory Management.
  - a. Write java code to avoid memory leak.
  - b. Understanding String and String Buffer with memory perspective.

**Total No of Hrs : 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D03**

**INTRODUCTION TO RDBMS**

**3 1 0 4**

**OBJECTIVES :**

- To Understand basic database concepts, including the structure and operation of the relational data model.
- To Construct simple and moderately advanced database queries using Structured Query Language (SQL)

**UNIT I**

**12 Hrs**

**Introduction and Basic Concepts:** Structure of DBMS - Advantages and Disadvantages of DBMS - Relational Database: attributes & domains, tuples, relations and their schemes - Integrity rules - Relational Algebra: basic operations.

**UNIT II**

**12 Hrs**

**SQL Language Basics :** Oracle & Client-Server Technology - types of SQL Declarations – DDL - DML - SELECT command - data types - Expressions and Operators- Types of Operators - Precedence of Operators-.

**UNIT III**

**12 Hrs**

**More on SQL:** Data Integrity : types of integrity , integrity constraints , NOT NULL, UNIQUE, Primary KEY, CHECK Constraints - Oracle Dual Table - Oracle Built in Function - Union, Intersect, Minus,

**UNIT IV**

**12 Hrs**

**SQL Performance Tuning:** Indexes : creating indexes, changing an index, eliminating an Index –Views : properties and privileges of view, creating view, deleting a view – Sequences : creating, changing, deleting sequence, synonyms : creating, renaming, removing a synonyms

**UNIT V**

**12 Hrs**

**Introduction to PL/SQL:**Introduction -The Generic PL/SQL Block - How PL/SQL works-control structures, Stored Procedures and Functions - Database Triggers- types of triggers - creating, modifying and deleting a trigger - Introduction to Cursor

**Total No of Hrs : 60**

**TEXT BOOK:**

Jose A Ramalho(2000), *Oracle 8i*, BPB Publications

**REFERENCES:**

1. Bipin C. Desai (1997), *An Introduction To Database Systems*, West Publishing Company.
2. Ivan Bayross Sql, *Pl/Sql The Programming Language Of Oracle*(2<sup>nd</sup> ed.) , Bpb Publications



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D04**

**DATABASE PROGRAMMING WITH MYSQL**

**2 0 2 4**

**OBJECTIVE:**

- Every application works on data and data can be managed effectively by various ways. One of the good way to manage data for your application is to store your application data into database.
- SQL Server, solve all the required purposes with respect to application data. It would be storage of data, security to data, and availability of data, querying the data precisely, and viewing the data based on different requirement.

**UNIT I**

**12 Hrs**

**Overview of SQL Server:** Introduction to SQL Server, Role of a Database Server, SQL Server Components, SQL Server Integration with the .NET Framework, Features of SQL Server, SQL, Identifying SQL Server Tools, SQL Server Management Studio, SQL Server Business Intelligence Development Studio, Database Engine Tuning Advisor, SQL Server Configuration Manager, SQL Server Profiler. Querying Data, Retrieving Data, Identifying Data Types, Retrieving Specific Attributes, Retrieving Selected Rows, Using Functions to Customize the Result Set, Using String Functions, Using Date Functions, Using Mathematical Functions, Using Ranking Functions, Using System Functions.

**UNIT II**

**12 Hrs**

**Querying Data by Using Joins and Subqueries:** Querying Data by Using Joins, Using an Inner Join, Using an Outer Join, Using a Cross Join, Using an Equi Join, Using a Self-Join. Querying Data by Using Subqueries, Using the IN and EXISTS Keywords, Using Modified Comparison Operators, Using Aggregate Functions, Using Nested Subqueries, Using Correlated Subqueries, Using the APPLY Operator, Managing Result Sets, Combining Result Sets, Working with Temporary Result Sets.

**UNIT III**

**12 Hrs**

**Managing Databases and Tables:** Managing Databases, Identifying System Databases in SQL Server, Identifying the Database Files, Creating a User-Defined Database, Renaming a User-Defined Database, Dropping a User-Defined Database, Managing Tables, Creating a Table, Implementing Data Integrity, Creating a Partitioned Table, Modifying a Table, Renaming a Table, Dropping a Table.

Manipulating Data in Tables, Manipulating Data by Using DML Statements, Storing Data in a Table, Updating Data in a Table, Deleting Data from a Table, Retrieving the Modified Data, Comparing and Updating Data, Manipulating XML Data, Storing XML Data in a Table, Retrieving Table Data into XML Format, Modifying XML Data.

Implementing Indexes, Views, and Full-Text Search, Creating and Managing Indexes, Identifying the Types of Indexes, Creating Indexes, Creating XML Indexes, Creating Partitioned Indexes, Managing Indexes, Displaying Execution Plan, Controlling Execution Plan, Creating and Managing Views,

Creating Views, Managing Views, Indexing Views, Creating Distributed Partitioned Views, Understanding Catalog Views. Implementing a Full-Text Search, Configuring Full-Text Search, Searching Data by Using a Full-Text Search.

**UNIT IV**

**12 Hrs**

**Implementing Stored Procedures and Functions:** Implementing Batches, Creating Batches, Using Constructs, Handling Errors and Exceptions, Implementing Stored Procedures, Creating Stored Procedures, Creating Parameterized Stored Procedures, Returning Values from Stored Procedures, Calling a Procedure from Another Procedure, Implementing Functions, Creating UDFs.

Working with Triggers and Transactions, Implementing Triggers, Identifying Types of Triggers, Creating Triggers, Managing Triggers, Implementing Transactions, Creating Transactions, Reverting Transactions, Implementing Transactional Integrity, Resolving Deadlocks.

**UNIT V**

**12 Hrs**

**Implementing Managed Code:** Understanding Managed Code, Introduction to SQL Server CLR Integration, Identifying the Need for Managed Code, Implementing Managed Database Objects, Importing and Configuring Assemblies, Creating Managed Database Objects.

Implementing Services for Message-Based Communication, Introduction to Service Broker, Introduction to Service Broker Conversation Process, Implementing Service Broker, Creating Messages, Creating Queues, Creating Contracts, Creating Services, Beginning a Conversation, Sending and Receiving Messages.

**Total No of Hrs : 60**

**Text Books:**

1. *Beginning Microsoft SQL Server 2012 Programming*, Authors: Paul Atkinson, Robert Viera, Publisher: Wrox; 1 edition
2. *Microsoft SQL Server 2012 Step by Step*, Authors: Petricl LeBlanc, Publisher: Microsoft Press; 1 edition
3. *Professional Microsoft SQL Server 2008 Programming*, Authors: Robert Viera, Publisher: Wrox; 1 edition

**References:**

1. SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S.Deshpande, Dream Tech.



## DEPARTMENT OF COMPUTER APPLICATIONS

**HBCA18DL02**

## PROFESSIONAL SKILLS I

**0 0 2 2**

## UNIT I

**9 Hrs**

Communication Skills: Understanding how communications work, Oral speaking capability, Written, Presenting, Listening

## UNIT II

**9 Hrs**

Improve self-presentation skills: Oral speaking capability, Written, Presenting, Listening

## UNIT III

**9 Hrs**

Work effectively in a team environment: Team Building Skills, Goals, Roles and Processes, The Leaders Role, Definitions, What Teams Need, Your Best and Worst Experiences, Team Building Stages, Team Requirements, Team Connections, Team Roles and Resources, Ground Rules, Utilizing Team Resources, Team Building Process, Symptoms of Team Stress, The Five Dysfunctions of Teams, Team Meetings, Facilitation Skills, Decision Strategies, Goal Setting and Problem Solving, Team Assessment.

## UNIT IV

**9 Hrs**

Demonstrate critical thinking

## UNIT V

**9 Hrs**

## Understand the need for values and ethics at the workplace

**Total No of Hrs : 45**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D05**

**HTML5**

**3 1 0 4**

**OBJECTIVE:**

- Any web application required interface to interact with user. Interaction with user is not the only requirement. That interface is capable enough to interact with user but also gives you the capability to run faster, having compatibility with different platform and API.
- Also gives you more feature like offline browsing, fast data processing with respect to application requirement. It gives you high compatibility with browsers.
- It supports mobile devices, it lets you do things previously impossible. Html 5 code is much clear and clean than before html code, it come up with improved video and audio support.
- It gives you robust feature, which not only makes your application robust and fast but also reduce the development time using HTML 5.

**UNIT I**

**12 Hrs**

**HTML Understanding:**Introducing HTML, Text Editor, Graphic Editor, Identifying the Basic Structure of an HTML Page, Exploring the <HEAD>Tag, Exploring the <BODY>Tag, Identifying the Syntax of CSS, Identifying the Types of Style Sheets, Applying Multiple Style Sheets, Identifying CSS Selectors, Styling HTML Elements, Grouping and Nesting Styles, Controlling the Visibility of Elements, Positioning HTML Elements, Applying Transitions, Applying Animations, Applying Transformations, Identifying the Basic Structure of a Table, Enhancing Tables,

**UNIT II**

**12 Hrs**

**Creating Web Pages:**Creating Web Pages Using Frames, Styling Frames, Types of Scripting, Identifying the Benefits of JavaScript, Embedding a Script into a Web Page, Creating and Using an External File, Identifying Rules and Conventions Used in JavaScript, Defining Variables, Using Operators, Using Conditional Constructs, Using Loop Constructs, Break and Continue Statements,

**UNIT III**

**12 Hrs**

**Functions:**Introducing Functions, Creating Functions, Accessing Functions. Designing an HTML Form, Creating Forms, Exploring Form Elements, Working with Browser Objects, Working with Form Objects.

**UNIT IV**

**12 Hrs**

**Working with Graphics:**Creating a Canvas, Working with Color, Shapes, and Styles, Working with Path, Text, and Images, Transforming Canvas Elements, Animating Canvas Elements. Manipulating HTML Elements by Using jQuery, Handling jQuery Events, Implementing Hide Effect, Implementing Show Effect, Implementing Toggle Effect, Implementing Slide Effect, Implementing Fade Effect, Implementing Animate Effect, Creating Image Rollover, Creating Backward Compatible Rollover, Preloading Images, Using Color box Plugin, Using Galleria Plugin.

**UNIT V**

**12 Hrs**

**Introducing Geolocation and Offline Support for Data:**Implementing the Geolocation API, Handling Errors, Implementing Client-side Storage, Implementing Application Cache.

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. HTML5 for Masterminds, Authors: J D Gauchat, Publisher: CreateSpace Independent Publishing Platform; 3 edition
2. Head First HTML5 Programming: Building Web Apps, Authors: Eric Freeman, Elisabeth Robson Publisher: O'Reilly Media; 1 edition
3. HTML5 Pocket Reference: Quick, Comprehensive, Indispensable, Authors: Jennifer Robbins, Publisher: O'Reilly Media; 5 edition

**REFERENCES:**

1. GottapuSasibhushana Rao, "Mobile Cellular Communication", Pearson, 2012.
2. R. Kelly Rainer , Casey G. Cegielski , Brad Prince, Introduction to Information Systems, Fifth Edition, Wiley Publication, 2014.





**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D06**

**DATA STRUCTURE AND ALGORITHMS**

**3 1 0 4**

**OBJECTIVES:**

- Data Structure plays very important role while implementing any programming concept precisely with respect to user requirement.
- In any application data is being used in application in various way. It is the data which actually confirm your application robustness, application features and all about your application.
- So developing application, how will you deal with your application data, data structure is the components which actually do the needful for your application data according to application requirement.
- Understanding data structure means, understanding ways to deal with data in various ways according to application requirement.

**UNIT I**

**12 Hrs**

**Introducing Algorithms and Data Structures:** Problem Solving, Role of Algorithms, Role of Data Structures, Types of Data Structures. Designing Algorithms and Measuring Their Efficiency, Identifying Techniques for Designing Algorithms, Designing Algorithms Using Recursion, Determining the Efficiency of an Algorithm.

**UNIT II**

**12 Hrs**

**Implementing Sorting Algorithms:** Sorting Data, Selecting a Sorting Algorithm, Types of Sorting Algorithms, Sorting Data by Using Bubble Sort, Implementing the Bubble Sort Algorithm, Determining the Efficiency of the Bubble Sort Algorithm, Sorting Data by Using Insertion Sort, Implementing the Insertion Sort Algorithm, Determining the Efficiency of the Insertion Sort Algorithm. Sorting Data by Using Quick Sort, Implementing the Quick Sort Algorithm, Determining the Efficiency of the Quick Sort Algorithm.

**UNIT III**

**12 Hrs**

**Implementing Searching Algorithms:** Performing Linear Search, Implementing Linear Search, Determining the Efficiency of Linear Search, Performing Binary Search, Implementing Binary Search, Determining the Efficiency of Binary Search. Implementing Hashing, Defining Hashing, Limitations of Hashing, Resolving Collision, Determining the Efficiency of Hashing.

**UNIT IV**

**12 Hrs**

**Solving Programming Problems Using Linked Lists:** Introduction to Linked Lists, Dynamic Memory Allocation, Defining Linked Lists, Identifying Different Types of Linked Lists, Implementing Singly-Linked Lists, Representing a Singly-Linked List, Traversing a Singly-Linked List, Inserting a Node in a Singly-Linked List, Deleting a Node from a Singly-Linked List. Implementing a Doubly-Linked List, Representing a Doubly-Linked List, Traversing a Doubly-Linked List, Inserting a Node in a Doubly-Linked List, Deleting Nodes from a Doubly-Linked List.

**UNIT V**

**12 Hrs**

**Solving Programming Problems Using Stacks and Queues :** Solving Programming Problems by Using Stacks, Defining a Stack, Identifying the Operations on Stacks, Implementing a Stack, Solving Programming Problems by Using Queues, Defining Queues, Identifying the Various Operations on Queues, Implementing a Queue. Solving Programming Problems Using Trees, Storing Data in a Tree, Defining Trees, Tree Terminology, Implementing a Binary Tree, Defining Binary Trees, Representing a Binary Tree, Traversing a Binary Tree, Implementing a Binary Search Tree, Defining a Binary Search Tree, Searching a Node in a Binary Search Tree, Inserting Nodes in a Binary Search Tree, Deleting Nodes from a Binary Search Tree.

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. *Data Structures and Algorithms 1st Edition*, Authors: Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman, Publisher: Pearson; 1st edition
2. *Advanced Data Structures*, Authors: Peter Brass, Publisher: Cambridge University Press; 1 edition
3. *Data Structures and Algorithms Made Easy, Fifth Edition*, Authors: Narsimha Karumanchi, Publisher: CareerMonk Publications; 5 edition

**REFERENCES:**

1. Jean-Paul Tremblay and Paul G. Sorenson, *An Introduction to Data Structures with Applications*, Second Edition, Tata McGraw-Hill, New Delhi, 1991.
2. Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman, *Data Structures and Algorithms*, Pearson Education, New Delhi, 2006.





**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D07**

**WEB PAGE DESIGNING**

**3 1 0 4**

**OBJECTIVES:**

- Understand the importance of the web as a medium of communication.
- Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.
- Learn the language of the web: HTML and CSS.

**UNIT I**

**12 Hrs**

**Web Publishing:** Web browser – WWW - Web design process: Implementation, Maintenance Phases of Website - Web Publishing - HTML Documents: Overview, rules guidelines, structure of HTML documents, document types.

**UNIT II**

**12 Hrs**

**HTML Tags:** <HTML> - <HEAD> - <TITLE> , <BODY>,<Marquee> - Paragraphs - Lists - Text Formatting, <Font>, Text Styles - Adding Graphics to HTML Documents- Linking Documents

**UNIT III**

**12Hrs**

**Tables, Frame and Forms:** Table tag and its Attributes - Frame: Overview of frame, Frameset - Simple frame, Frame targeting - Forms: Form objects and Methods.

**UNIT IV**

**12 Hrs**

**DHTML:** Introduction to Dynamic HTML – CSS – Addition Style to a Document : Linking to a Style Sheet - Embedding and Importing Style Sheet

**UNIT V**

**12 Hrs**

**Introduction to PHP :** Including PHP in a page - Data types - Arrays -Regular expressions - Functions- Managing Cookies - Maintaining Sessions

**Total No of Hrs: 60**

**TEXT BOOK:**

1.Thomas A. Powell(1999), *HTML: The Complete Reference*(2nd. ed.), Bpb Publication.

**REFERENCES:**

1. Ed. Wilson (2006), *Microsoft VBScript: Step by Step*, Microsoft Press
2. Sterling Hughes(2001) *PHP:Developers's Cook book*,BPB publications
3. Ivan N Bayross(2000), *Web Enabled Commercial Applications Development Using, HTML, DHTML, Java Script, Perl CGI*(2<sup>nd</sup> ed.), BPB Publications



**DEPARTMENT OF COMPUTER APPLICATIONS**  
**OPERATING SYSTEMS**

HBCA18D08

3 1 0 4

**OBJECTIVES:**

- Student will learn the functioning of modern computers
- Student will learn the purpose, structure and functions of operating systems
- Student will learn the illustration of key OS aspects by example

**UNIT I**

**12 Hrs**

**Introduction:** What is an operating system? - Mainframe, desktop, multiprocessor, distributed, clustered, real - time and handheld systems - Operating System Structures - System components - operating system services - system calls - systems programs - system structure - virtual machines.

**UNIT II**

**12 Hrs**

**Process:** Process concept - process scheduling - operations on processes - cooperating processes - Inter process communication - CPU Scheduling: Basic concepts, scheduling criteria, scheduling algorithms.

**UNIT III**

**12 Hrs**

**Process Synchronization:** The critical section problem – semaphores - classical problems of synchronization - Deadlocks: Deadlock characterization, methods for handling deadlocks, Deadlock prevention, avoidance and detection, Recovery from deadlocks.

**UNIT IV**

**12 Hrs**

**Memory Management:** Swapping - contiguous memory allocation – paging – segmentation - segmentation with paging - Virtual Memory - Demand paging - page replacement - location of frames - thrashing.

**UNIT V**

**12 Hrs**

**Storage Management:** Introduction- File Concept – File Attributes- File Operations - File Types – Access Methods: Sequential and Direct - Directory Structure: Storage Structure , Directory Overview

**Total No of Hrs: 60**

**TEXTBOOK :**

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne(2006), *Operating System Principles*(7<sup>th</sup> ed.) , John Wiley & Sons(Asia) Pte Ltd.

**REFERENCES:**

1. Thomas Anderson & Michael Dahlin (2014) , *Operating Systems: Principles and Practice* (2<sup>nd</sup> ed.)
2. H.M. Deitel(1990), *An Introduction to Operating System*, 2<sup>nd</sup> ed. Addison Wesley.
3. Andrew S. Tanenbaum , *Modern Operating Systems* (4<sup>th</sup> ed.)
4. Stallings, *Operating systems*(6<sup>th</sup> ed.), Prentice Hall.



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBMG18DL01**

**SOFT SKILL-I**

**0 1 1 2**

**OBJECTIVES:**

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

**Prelude**

Diagnostic Test- Articles, Forms of 'be' verbs, Tense, Preposition, Gerund & 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.

**UNIT-III**

**6 hours**

Listening and Writing

Activity based exercise on articles, modals, preposition and infinitives.

The above topics are chosen as we don't find equivalents' in L1.

**UNIT-IV**

**6 hours**

Reading and Writing

Vocabulary-synonyms, antonyms, 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)

**UNIT-V**

**6 hours**

Speaking

Introducing yourself (giving questions)-collecting information in pairs and presenting it for 2 minute-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**

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

**Reference Books:**

1. Soft Skill Blog
2. Jobsearch.about.com
3. www.exsearch.in/interview.html



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL03 DATA STRUCTURES AND ALGORITHMS USING PYTHON LABORATORY 0 0 2 2**

1. Lab Exercise based on OOPS Concepts.
  - Goals, Principles, and Patterns
  - Software Development
  - Class Definitions
  - Inheritance
  - Namespaces and Object-Orientation
  - Shallow and Deep Copying
2. Lab Exercise based on Algorithm Analysis
  - Experimental Studies
  - Moving Beyond Experimental Analysis
  - Asymptotic Analysis
  - Simple Justification Techniques
3. Lab Exercise based on Recursion
  - Illustrative Examples
  - Analyzing Recursive Algorithms
  - Designing Recursive Algorithms
  - Eliminating Tail Recursion
4. Lab Exercise based on Array-Based Sequences
  - Python's Sequence Types
  - Low-Level Arrays
  - Dynamic Arrays and Amortization
  - Efficiency of Python's Sequence Types
  - Using Array-Based Sequences
  - Multidimensional Data Sets
5. Lab Exercise based on Stacks, Queues, and Deques.
  - Stacks
  - Queues
  - Double-Ended Queues
6. Lab Exercise based on Linked List
  - Singly Linked Lists
  - Circularly Linked Lists
  - Doubly Linked Lists
  - the Positional List ADT
  - Sorting a Positional List
  - Case Study: Maintaining Access Frequencies
  - Link-Based vs Array-Based Sequences
7. Lab Exercise based on Trees
  - General Trees
  - Binary Trees
  - Implementing Trees
  - Tree Traversal Algorithms
  - an Expression Tree
8. Lab Exercise based on Priority Queues
  - The Priority Queue Abstract Data Type
  - Heaps.
  - Sorting with a Priority Queue
  - Adaptable Priority Queues
9. Lab Exercise based on Maps, Hash Tables, and Skip Lists
  - Maps and Dictionaries
  - Hash Tables
  - Sorted Maps
  - Skip Lists
  - Sets, Multisets, and Multimaps

**Total No of Hrs : 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL04**

**HTML5 LABORATORY**

**0 0 2 2**

1. Create a Web page for the following
  - a. Basic
  - b. Element
  - c. Attribute.
  - d. Image
  - e. Table
  - f. List, Block
  - g. Classes
2. Create a Web page for the following HTML Forms
  - a. Form
  - b. Form Elements
  - c. Input Types
3. Create a Web page for the following
  - a. HTML 5 support
  - b. New Elements
  - c. Semantics
  - d. Migration.
4. Create a Web page for HTML Graphics.
5. Create a Web page for HTML Media

**Total No of Hrs : 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D09    RESPONSIVE WEB DESIGN USING HTML5 AND JQUERY    3    1    0    4**

**OBJECTIVE:**

- Developing web application, user interface is one part which is actually interacting with user. This user interface needs to have various functionalities to get user interface running properly based on requirement of application like designing user interface.
- Implementing user actions with server like form based interaction, using tags which interact with server etc. It gives you browser functionality like offline browsing.
- HTML 5 and JQuery confirms these functionalities and their working.

**UNIT I**

**12 Hrs**

**HTML Understanding:**Introducing HTML, Text Editor, Graphic Editor, Identifying the Basic Structure of an HTML Page, Exploring the <HEAD>Tag, Exploring the <BODY>Tag, Identifying the Syntax of CSS, Identifying the Types of Style Sheets, Applying Multiple Style Sheets, Identifying CSS Selectors, Styling HTML Elements, Grouping and Nesting Styles, Controlling the Visibility of Elements, Positioning HTML Elements, Applying Transitions, Applying Animations, Applying Transformations, Identifying the Basic Structure of a Table, Enhancing Tables, Creating Web Pages Using Frames, Styling Frames, Types of Scripting, Identifying the Benefits of JavaScript, Embedding a Script into a Web Page, Creating and Using an External File, Identifying Rules and Conventions Used in JavaScript, Defining Variables, Using Operators, Using Conditional Constructs, Using Loop Constructs, Break and Continue Statements, Introducing Functions, Creating Functions, Accessing Functions. Designing an HTML Form, Creating Forms, Exploring Form Elements, Working with Browser Objects, Working with Form Objects.

**UNIT II**

**12 Hrs**

**Working with Graphics:**Creating a Canvas,Working with Color, Shapes, and Styles,Working with Path, Text, and Images,Transforming Canvas Elements,Animating Canvas Elements.Manipulating HTML Elements by Using jQuery, Handling jQuery Events,Implementing Hide Effect,Implementing Show Effect,Implementing Toggle Effect,Implementing Slide Effect,Implementing Fade Effect,Implementing Animate Effect, Creating Image Rollover, Creating Backward Compatible Rollover, Preloading Images, Using Color box Plugin, Using Galleria Plugin. Implementing the Geolocation API, Handling Errors, Implementing Client-side Storage, Implementing Application Cache.

**UNIT III**

**12 Hrs**

**Introduction to Responsive Web Design:**Identifying Web Designing Techniques, AWD, RWD, Building Blocks of RWD, Architecture of RWD, Identifying IDEs, Identifying Web Browser/Mobile Simulator, Applying Styles to Selective Elements, Element Selectors, Attribute Selectors, Making Images and Text Translucent, Using Images as Border(s),

Accessing the Font File from an External Website, Copying the Font File to Your own Website, Introducing Media Queries, Exploring Media Types, Creating Media Queries, Using Breakpoints in Media Queries, Understanding Fluid Grids,Setting the Page Layout, Using Fluid Images, Using Fluid Grids with Media Query.

**UNIT IV**

**12 Hrs**

**Introduction to JavaScript Libraries:**Using AngularJS, Directives, Expressions, Implementing One-Way Data Binding, Implementing Two-Way Data Binding. Manipulating HTML Elements, Using Attribute Values, Using Element Names, Traversing the DOM, Ancestors, Descendants, Siblings, Filtering. Implementing jQuery Events, jQuery Event Object, Understanding AJAX, Implementing AJAX with jQuery, Advantages of Bootstrap, Getting Started with Bootstrap, Creating a Basic Bootstrap Web Page, Understanding Grid System, Adding Built-in Components to Web Pages. Creating a jQuery Mobile Application, Identifying Features of jQuery Mobile, Getting Started with jQuery Mobile, Creating a Basic jQuery Mobile Application, Working with Headers and Footers, Using Navigation Bars, Using Buttons, Using Form Input Controls, Positioning Form Input Controls, Applying Themes and Swatches, Customizing Page Backgrounds and Font Styles.

**UNIT V**

**12 Hrs**

**Creating Advance jQuery Mobile Pages:**Working with Listviews, Creating Listviews, Displaying Additional Information in a Listview, Adding Icons and Thumbnail Images in a Listview, Using Themes in a Listview, Adding Form Elements to a Listview. Using Touch Events, Using Scroll Events, Using Web Workers in Web Pages, Understanding the Basics of Web Workers, Creating Web Workers, Handling Errors, Loading Scripts.

**Total No of Hrs : 60**

**Text Books:**

1. HTML and CSS: Design and Build Websites, by Jon Duckett, Published by – John Wiley & Sons. Inc
2. JavaScript and JQuery: Interactive Front-End Web Development, by Jon Duckett, Published by – John Wiley & Sons. Inc
3. Learning jQuery – Third Edition, Jonathan Chaffer and Karl Swedberg – PACKT Publishing



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D10**

**MOBILE APPLICATION FOR ANDROID**

**3 1 0 4**

**OBJECTIVE:**

- Here android API full fill the requirement of mobile development, which is light weight and full of features that can be available on mobile with robustness and high availability.
- Mobile development is keep on moving day by day as web development is moving. So people are using both parallel. We cannot survive with web based solution only.
- So mobile based solution is also necessary to see user perspective and requirement. Keeping this thing in mind Android development would be best choice here to start with.

**UNIT I**

**12 Hrs**

**Introduction to Mobile App Development:** Fundamentals of Mobile App Development, Types of Mobile Apps, Mobile Apps: Usage Scenarios, Considerations for Mobile App Development. Identifying Various Mobile Platforms, iOS, BlackBerry, Windows Mobile, Android, Symbian. Identifying Various Mobile Development Environments, Symbian Development Environment, Android Development Environment, BlackBerry Development Environment, Apple Development Environment, Windows Development Environment. Exploring the Android Platform.

**UNIT II**

**12 Hrs**

**Getting Started with Android App Development:** Exploring the Android Platform, Key Features of the Android Platform, Android Versions, Android APIs, Exploring the Android Architecture, Linux Kernel, Libraries and Android Runtime, Application Framework, Applications, Identifying the Building Blocks of an Android App, Activities, Services, Content Providers, Broadcast Receivers, Software Requirements for Developing Android Apps, Structure of an Android Project

Building the User Interface, Designing the UI, Using Views, Using View Groups, Viewing the UI on a Device, Creating an Activity, Associating the UI with the Activity, Registering the Activity, Exploring Activities, The Activity Lifecycle, Lifecycle Methods, Handling UI Events in the Activity Class, Using Event Handlers, Using Event Listeners, Activating App Components, Components of an Intent, Types of Intents, Using Intents to Pass Data Between App Components, Debugging Android Apps, Identifying Android Debugging Tools, Generating and Examining Logs, The Debug Perspective, The DDMS Perspective, ADB Commands, Shell Commands, Debugging Tips.

**UNIT III**

**12 Hrs**

**Handling Data in Android Apps:** Identifying Data Storage Mechanisms, SQLite Database, Internal Storage, External Storage, Shared Preferences, Network Connection, Using an SQLite Database for Data Storage, Creating a Database, Storing and Retrieving Data, Using Content Providers for Data Access, Using Custom Content Providers, Using Native Content Providers.

Using Internal Data Storage, Storing Data in Files, Retrieving Data from Files, Using Static Files as Resources, Using External Data Storage, Checking Availability of External Storage, Reading/Writing Data to an External Storage, Using Shared Preferences, Creating Shared Preferences, Retrieving Shared Preferences.

**UNIT IV**

**12 Hrs**





### DEPARTMENT OF COMPUTER APPLICATIONS

**Working with Services and Broadcast Receivers:** Working with Services, Forms of Services, Lifecycle of a Service, Creating a Service, Registering a Service, Working with Broadcast Receivers, Types of Broadcasts, Creating a Broadcast Receiver, Registering a Broadcast Receiver.

Enhancing the UI, Creating Menus, Creating an Options, Context and Popup Menu, Creating Tabs, Creating a Tabbed UI, Implementing Tabs, Applying Styles and Themes, Creating Styles, Customizing Views, Creating Compound Views, Creating Custom Views.

Notifying the User, Creating Toast Notifications, Creating Dialog Notifications, Creating One-time Alarms, Creating Repeating Alarms. Using Location-based Services, Identifying Location-based Services, GPS, Cell Tower Triangulation, Public Wi-Fi Hotspots, Working with Location-based Services, Accessing Location-based Services, Selecting a Location Provider, Searching for Location Providers, Implementing Location-based Services in an Emulator, Using DDMS to Simulate GPS Hardware, Using Sensor Simulators, Using the Map Fragment Class, Creating a Map-based Activity.

#### UNIT V

**12 Hrs**

**Communicating via Android Apps.:** Sending Messages, Receiving Messages, Making Telephonic Calls, Monitoring Phone State, Accessing Phone Properties. Working with Graphics, Identifying Graphics Fundamentals, Drawing 2D Graphics, Media Player Class. Securing Android Apps, Identifying the Security Model of the Android Platform, Implementing the Kernel-level Security, App Signing, User IDs, Using Permissions for Specific Operations, Applying Permissions, Declaring Permissions, URI Permissions.

Testing and Deploying an Android App, Identifying Testing Considerations, Testing an App Using Junit, Creating a Test Project, Creating a Test Case Class, Deploying an Android App, Identifying Deployment Considerations, Publishing an Android App.

**Total No of Hrs : 60**

#### TEXT BOOKS:

1. Beginning Android Programming with Android Studio, Authors: Jerome DiMarzio, Publisher: Wrox; 4 edition
2. Android Programming: The Big Nerd Ranch Guide (3rd Edition), Authors: Bill Phillips, Chris Stewart, Kristin Marsicano, Publisher: Big Nerd Ranch Guides; 3 edition (February 9, 2017)
3. Head First Android Development: A Brain-Friendly Guide, Authors: Dawn Griffiths, David Griffiths, Publisher: O'Reilly Media; 2 edition

#### REFERENCES:

1. Professional mobile Application Development paperback, 2012 Jeff Mcherter (Author), Scott Gowell (Author), Wiley India Private Limited
2. Reto Meier, Wrox Wiley, —Professional Android 2 Application Developmentl, 2010.
3. Alasdair Allan, —iPhone Programmingl, O'Reilly, 2010.
4. Wei-Meng Lee, —Beginning iPhone SDK Programming with Objective-Cl, Wrox Wiley, 2010.
5. Stefan Poslad, —Ubiquitous Computing: Smart Devices, Environments and interactionsl, Wiley, 2009.





**DEPARTMENT OF COMPUTER APPLICATIONS**  
**NETWORKING CONCEPTS**

**HBCA18D11**

**3 1 0 4**

**OBJECTIVES:**

- ✓ To introduce the students the functions of different layers
- ✓ To understand the layering concepts in computer networks
- ✓ Be exposed to the required functionality at each layer
- ✓ To have knowledge in different applications that use computer networks

**UNIT I**

**12 Hrs**

Basics of Computer Network Computer Network: Definition, Goals, Structure; Broadcast and Point-To-Point Networks; Network Topology and their various Types; Types of Network: LAN, MAN, WAN; Server Based LANs & Peer-to-Peer LANs; Communications Types: Synchronous, Asynchronous; Modes of Communication: Simplex, Half Duplex, Full Duplex; Protocols and Standards

**UNIT II**

**12 Hrs**

Network Models Design Issues of the Layer, Protocol Hierarchy, ISO-OSI Reference Model : Functions of each Layer, Various Terminology used in Computer Network, Connection-Oriented & Connectionless Services, Internet (TCP/IP) Reference Model, Comparison of ISO-OSI and TCP/IP Model

**UNIT III**

**12 Hrs**

Transmission Media Transmission Media, Guided Media (Wired) : Coaxial Cable: Physical Structure, Standards, BNC Connector, Applications, Twisted Pair : Physical Structure, UTP vs STP, Connectors, Applications, Fiber Optics Cable: Physical Structure, Propagation Modes (Single Mode & Multimode), Fiber Sizes, Connectors , Applications , Advantages & Disadvantages; Unguided Media(Wireless): Electromagnetic Spectrum for Wireless Communication, Propagation Methods, (Ground, Sky, Line-of-Sight); Wireless Transmission: Radio Waves, Infrared, Micro-wave; Wireless LANs (IEEE 802.11), Architecture, MAC Sub Layer, Frame Format, Frame Types; Bluetooth, Architecture ( Piconet, Scatternet, Bluetooth, Layers), Applications

**UNIT IV**

**12 Hrs**

Network Connectivity Devices Categories of Connectivity Devices, Passive and Active Hubs, Repeaters, Bridges, Switches ,Routers, Gateways, Network Security Devices (Firewalls, Proxy Servers)

**UNIT V**

**12 Hrs**

Internet Basics Internet:Growth, Architecture, Accessing, Internet Service Providers(ISP), Internet Addressing System:IP Address, DNS, URL; World Wide Web( WWW): Web Servers,Web Browsers, Search Engine; Concept of Intranet & Extranet.

**Total No of Hrs : 60**

**TEXT BOOK :**

1. Behrouz and Forouzan(2001), “ Data Communication and Networks”, (2<sup>nd</sup> ed), TMH.
2. Tanenbaum A.S (2003 ), “Computer Networks”,(4<sup>th</sup> ed),PHI
3. Norton Peter, Complete Guide To Networking

**REFERENCES:**

1. Jean Wairand (1998), “ *Communication Networks (A first Course)* “ , (2<sup>nd</sup> ed.), WCB/ McGraw Hill8.
2. Olivier Bonaventure(2011), “*Computer Networking : Principles, Protocols and Practice*”, The Saylor Foundation .
3. Iresh A. Dhotre, Vilas S. Bagad (2013), “*Computer Networks An Illustrated Guide to Computer Networking*”, Technical Publications.



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D12**

**SOFTWARE ENGINEERING**

**3 1 0 4**

**OBJECTIVE:**

To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.

**UNIT I**

**12Hrs**

**Introduction to Software Engineering:** Planning a Software Project: Planning the Development Process – Planning an Organizational Structure. Definitions – Size Factors – Quality and Productivity Factors. Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs.

**UNIT II**

**12Hrs**

**Design Notations & Techniques:** Software Requirements Definition: The Software Requirements specification – Formal Specification Techniques. Software Design: Fundamental Design Concepts – Modules and Modularization Criteria. Implementation Issues: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.

**UNIT III**

**12Hrs**

**Testiing Environment And Test Processes:** Overview of Software Testing Process - Organizing for Testing : Requirement Specifications – Static & Dynamic Testing : Verification & Validation - Analyzing and Reporting Test Results – Post Implementation Analysis. Software Testing Life Cycle: SDLC & STLC , Stages - Test case Templates– Traceability Matrix - Defect Tracking Templates – Postmortem Report.

**UNIT IV**

**12Hrs**

**Types, Techniques And Levels Of Testing:** Developing the Test Plan - Using White Box Approach –Using Black Box Approaches to Test Case Design – Random Testing – Requirements based testing –Decision tables – State-based testing – Cause-effect graphing – Error guessing – Compatibility testing – Levels of Testing - Functionality Testing - Performance Testing - Compatibility Testing - Case study

**UNIT V**

**12Hrs**

**Quality Assurance:** Walkthroughs and Inspections - Static Analysis - Symbolic Execution - Unit Testing and Debugging - System Testing - Formal Verification: Enhancing Maintainability during Development - Managerial Aspects of Software Maintenance - Source Code Metrics

**Total No of Hrs : 60**

**TEXT BOOK:**

Pressman,R,S(1997) *Software Engineering*(4<sup>th</sup> ed.) , McGraw Hill.

**REFERENCES:**

1. Fairley,R(1997) *Software Engineering Concepts*, Tata McGraw-Hill.
- 2., Jeff Tian, *Software Quality Engineering*, Student Edition, 2006, Wiley India



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBMG18DL02**

**SOFT SKILL-II**

**0 1 1 2**

**OBJECTIVES:**

- To strengthen the students with the needed vocabulary.
- To infer information from the given passage through reasoning.
- To train them in attending group discussion.
- To face the technical and hr interview of the corporate.
- To raise communication proficiency to global standards

**UNIT-I**

**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- practise through BEC method (questions and answer)

**UNIT-II**

**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-III**

**6 hours**

Body language-grooming- Interview skill- Dos and Donts- mock interview- exchange of interviewee practical session

**UNIT-IV (Department of Mathematics)6 hours**

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

**UNIT-V**

**6 hours**

Time& work-Time& Distance- Clocks – Permutation &Combibnations- Heights &Distancea- Odd man out and Series.

**Total:**

**30 Periods**

**Text Book**

1. Soft Skill for Everyone-Jeff Butterfield,Part-1; Unit-D&E
2. EFA (English For All)- Dr. PadmasanniKannan, Libin Roy Thomas
3. English for Competitive Exam- R.P. Bhatnagar,RajulBhargava
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)

**Reference Books:**

1. Jobsearch.about.com
2. www.exsearch.in/interview.html



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL05 MOBILE APPLICATION FOR ANDROID LABORATORY**

**0 0 2 2**

1. Lab Exercise based on Getting Started with Android App Development
2. Lab Exercise based on Building the User Interface
3. Lab Exercise based on Adding Functionality to a UI
4. Lab Exercise based on Debugging
5. Lab Exercise based on Handling Data in Android Apps.
6. Lab Exercise based on Working with Services and Broadcast Receivers
7. Lab Exercise based on Enhancing the UI
8. Lab Exercise based on Notifying the User
9. Lab Exercise based on Using Location-based Services
10. Lab Exercise based on Communication via Android App
11. Lab Exercise based on Enhancing App with Graphics and Multimedia.
12. Lab Exercise based on Securing Android App.

**Total no. of Hrs.: 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL06**

**HTML5 AND JQUERY LABORATORY**

**0 0 2 2**

1. Create a Web page for Geolocation using HTML APIs
2. Create a Web page for Drag/Drop using HTML APIs
3. Design a Web page for Web Store using HTML APIs
4. Lab exercise for Web Worker.
5. Lab Exercise for JQuery Effects
6. Lab Exercise for JQuery HTML
7. Lab Exercise for JQuery Traversing.
8. Lab Exercise for JQuery AJAX.
9. Lab Exercise for JQuery no Conflict()
10. Lab Exercise for JQuery Filters

**Total no. of Hrs. needed to complete the Lab : 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**  
**ENVIRONMENTAL STUDIES**

**HBMG18001**

**3 0 0 3**

**OBJECTIVES:**

- To gain a variety of experiences and acquire a basic understanding and knowledge.
- To develop a world in which persons are aware of and concerned about environment.
- To acquire an attitude of concern for the environment.
- To acquire the skills for identifying and solving environmental problems.
- To participate in improvement and protection of environment.
- To develop the ability to evaluate measures for the improvement and protection of environment.

**UNIT-I ENVIRONMENT AND ECOSYSTEMS**

**9 Hours**

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 level – India.

**UNIT-II ENVIRONMENTAL POLLUTION**

**9 Hours**

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 Hours**

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 Hours**

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 Hours**

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 Hrs : 45**

**TEXT BOOKS**

1. Gilbert McMasters, 'Introduction to Environmental Engineering and Science', 2nd edition, Pearson Education (2004).
2. Benny Joseph, 'Environmental Science and Engineering', Tata McGraw-Hill, New Delhi, (2006).



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D13**

**JSF, HIBERNATE AND SPRING**

**3 1 0 4**

**OBJECTIVE:**

- Both spring and JSF, will take you through web application perspective. It gives user full tested API which is responsible for doing all the required functionalities based on Spring and JSF specification.
- Spring as container does various task, which your application needs to run properly as application. These features is fully tested and we can use these features based on requirement we have in our requirement. It also gives you feature like MVC, to develop web based application using spring MVC.
- On the other hand JSF gives you solution for building web interface as a whole.

**UNIT I**

**12 Hrs**

**Overview of JSF:** Introduction to JSF, Role of JSF in an Enterprise Application, Design Goals of JSF, Advantages of JSF, Comparing JSF with Struts, Exploring the JSF Framework, Overview of JSF Architecture, Life Cycle of a JSF Page, Components of a JSF Application. Exploring JSF Tag Libraries, The HTML Tag Library The Core Tag Library. Creating a JSF Page, Creating a JSF Page Using JSP, Creating a JSF Page Using Facelets. Managing User Input, Defining Managed Beans, Identifying Managed Bean Scope, Configuring Managed Beans, Binding Managed Beans with UI Components, Introducing Converters, Introducing Validators, Managing Page Flow in a Web Application, Introducing the Navigation Model, Identifying Types of Navigation, Implementing Navigation, Understanding Request Dispatch Mechanism, Creating a Global Navigation Rule, Creating a Conditional Navigation.

Handling Events, Introducing the JSF Event Model, Identifying Event Classes and Event Listeners, Implementing Event Handler, Attaching the Event Listener, Working with Styles, Using Inline Styles, Using an Embedded Style Sheet, Using an External Style Sheet, Creating a Template File, Creating a Template Client. Introduction to Composite Components, Exploring the Composite Tag Library, Referring to a Composite Component, Creating a Composite Component, Adding Behavior to a Composite Component, Using a Composite Component.

Exploring AJAX, Defining AJAX, Working of an AJAX-enabled Web Page, Application Areas of AJAX, Advantages and Limitations of AJAX, Exploring the <f:ajax> Tag, Attaching AJAX Behavior to a Component.

**UNIT II**

**12 Hrs**

**Introduction to Hibernate:** Introducing ORM, Features of Hibernate, Comparing Hibernate with EJB, Overview of Hibernate Architecture, Configuring Hibernate, Creating a Hibernate Session.

Mapping Classes with Relational Database, Hibernate Types, Identifying Various Mapping Elements, Mapping Value Type Objects, Mapping Collections, Mapping Entity Associations, Mapping Class Inheritance, Implementing Query Languages, Using HQL, Using Native SQL, Building a Criteria Query, Adding Restrictions, Persisting Objects, Identifying the Object States, The Transient State, The Persistent State, The Detached State, Persisting Objects, Retrieving Objects, Updating Objects, Deleting Objects.

Implementing Transactions and Concurrency, Properties of a Transaction, States of a Transaction, Configuring Transactions, Identifying the Concurrency Issues, Controlling the Concurrency Issues.



**DEPARTMENT OF COMPUTER APPLICATIONS**

**UNIT III**

**12 Hrs**

**Overview of Spring:** Features of Spring, Comparing Spring with Struts and EJB, Core, DAO, ORM, AOP, MVC, Application Context, Web Context. Managing Application Objects, Introducing Bean Factory, Introducing Application Context, Injecting Application Objects, Applying Explicit Wiring, Applying Autowiring.

**UNIT IV**

**12 Hrs**

**Integrating Spring with Web Layer:** Configuring Transactions Introducing AOP, Features of AOP, Describing Aspects, Creating Advice, Defining Point cut, Creating Proxy.

**UNIT V**

**12 Hrs**

**Integrating Spring with Business and Presentation Layers:** Integrating Spring with JSF, Resolving JSF Beans, Adding the Spring Framework, Resolving Spring Beans, Integrating Spring with Hibernate, Introducing ORM, Implementing ORM, Managing Transactions, Introducing Transactions, Features of Transactions, Identifying Transaction Attributes, Defining a Transaction Manager, Configuring Transactions.

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Spring and Hibernate, Authors: Mr. Santosh Kumar K, Publisher: McGraw Hill Education (India) Private Limited; 2 edition (June 6, 2013)
2. Core JavaServer Faces (3rd Edition), Authors: David Geary, Cay S. Horstmann, Publisher: Prentice Hall; 3 edition (June 6, 2010)
3. Spring Persistence with Hibernate, Authors: Paul Fisher, Brian D. Murphy, Publisher: Apress; 2nd ed. edition (June 1, 2016)

**REFERENCES:**

1. Ed Roman, Rima Patel Sriganesh, Gerald Brose, Mastering Enterprise JavaBeans, 3rd Edition, WILEY publication, 2005.
2. Jim Keogh, J2EE: The Complete Reference, TATA Mc-Graw Hill, 2002





**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D14**

**WEB APPLICATIONS USING SERVLET AND JSP**

**3 1 0 4**

**OBJECTIVE:**

- We are working on web based application now a days. Developing web application we need to have server components which perform the basic feature and functionality of any web application.
- Servlet API is one which helps you to develop server components which can be deployed on any server and also give you feature of platform independence.
- JSTL as name specified, standard tag library to do specific functionalities, which is tested and approved by corresponding API.

**UNIT I**

**12 Hrs**

**Web Application Development and Servlet API:**Identifying the Components of the Web Architecture, Understanding the HTTP Protocol, Identifying the Various Web Application Architectures, Identifying the Various Web Application Technologies, The Servlet API, Understanding the Web Container, Life Cycle of a Servlet, Processing of a Servlet Request, Creating a Servlet, Configuring a Servlet, Compiling and Packaging a Servlet, Deploying a Servlet, Accessing the Servlet from a Browser, Dispatching a Request, Transferring Data, Introduction to Filters, Implementing Filters, Application Areas of Filters, Managing Sessions Using Hidden Form Fields, Managing Sessions Using Cookies, Managing Sessions Using the HttpSession API, Managing Sessions Using URL Rewriting, Server Cluster, Session Migration Techniques.

**UNIT II**

**12 Hrs**

**Exploring Java Server Pages Technologies:**Identifying the Components of a JSP Page, Lifecycle of a JSP Page, Processing of a JSP Page, Working with JSTL and EL, Identifying the Tag Library, Implementing EL, Creating Custom Tags, Using Custom Tags

**UNIT III**

**12 Hrs**

**Developing MVC-Based Web Applications Using the Struts Framework:**Introducing MVC,the Model,the View,the Controller,Introducing the Struts Framework, Exploring the Struts Architecture,Implementing the Struts Framework.

**UNIT IV**

**12 Hrs**

**Storing and Manipulating Data in a Web Application:**Storing and Manipulating Data Using JDBC, the JDBC API,the DataSource Object,Storing and Manipulating Data Using JPA,Object-Relational Mapping,JPA

**UNIT V**

**12 Hrs**

**Developing Asynchronous Web Applications and Web Application Security:**Exploring AJAX,Defining AJAX,Working of an AJAX-enabled Web Page,Application Areas of AJAX,Advantages and Limitations of AJAX,The AsyncContext Object, Identifying Security Threats,Identifying Security Techniques,Implementing Authentication Using JAAS,Implementing Authorization Using JAAS.

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Head First Servlet and JSP, Kathy Sierra – O'Reilly Media
2. Murach's Java Servlets and JSP, 3rd Edition, Publisher - Mike Murach& Associates; 2 edition
3. Servlet & JSP: A Tutorial, Second Edition, Budi Kumiawan, Brainy Software; 2 edition



**HBCA18D15**

**DEPARTMENT OF COMPUTER APPLICATIONS**  
**VISUAL PROGRAMMING**

**3 1 0 4**

**OBJECTIVES:**

- ✓ Identify the differences between the procedural languages and event driven languages
- ✓ Define and modify the properties and methods associated with an object
- ✓ Define and implement form objects, including data arrays, control arrays, text boxes, message boxes, dialog boxes, labels, pull down menus, and combo boxes.
- ✓ Design of application using visual data manager

**UNIT I**

**12 Hrs**

**Customizing a Form :** Writing Simple Programs - Toolbox - Creating Controls - Name Property - Command Button - Access Keys - Image Controls - Text Boxes - Labels - Message Boxes - Grid - Editing Tools - Variables - Data Types - String - Numbers.

**UNIT II**

**12 Hrs**

**Loops and Functions:** Displaying Information - Determinate Loops - Indeterminate Loops - Conditionals - Built-in Functions - Functions and Procedures .

**UNIT III**

**12 Hrs**

**Arrays:** Lists - Arrays - Sorting and Searching - Records - Control Arrays - Combo Boxes - Grid Control - Projects with Multiple forms - Do Events and Sub Main - Error Trapping.

**UNIT IV**

**12 Hrs**

**VB Objects:** Dialog Boxes - Common Controls - Menus - MDI Forms - Testing, Debugging and Optimization - Working with Graphics.

**UNIT V**

**12 Hrs**

**Database programming with VB:** Record set – Data control-Using the visual data manager – Entering data – Validating data – Accessing fields and record sets – using SQL statements - ADO objects.

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Gary Cornell(1999) *Visual Basic 6 from the Ground up* , Tata McGraw Hill.(I – IV Units)
2. Gary Bronson, Introduction to programming Using Visual Basic 6, Dreamtech publications, II Edition(V<sup>th</sup> Unit)

**REFERENCES:**

1. Noel Jerke (1999) *Visual Basic 6 The Complete Reference* Tata McGraw Hill .



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D16    COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS**

**3    1    0    4**

**OBJECTIVES:**

- ✓ Gain knowledge about graphics hardware devices and software used.
- ✓ Understand the two and three dimensional graphics and their transformations.
- ✓ Be familiar with understand clipping techniques and Appreciate illumination and color models
- ✓ Introduce students to the design issues related to multimedia systems.
- ✓ Explain the interaction problems introduced by multimedia(e.g. Compression and synchronization)
- ✓ Students will be able to handle image files and can also create animations

**UNIT I**

**12 Hrs**

**Introduction to computer Graphics :** Video display devices- Raster scan Systems -Random Scan Systems - Output primitives - line drawing algorithms - - circle Generating algorithms- Attributes of output Primitives - line attributes

**UNIT II**

**12 Hrs**

**Two dimensional transformation :** Basic transformation - Composite transformation - Matrix representation - Two - dimensional viewing - window- to view port co-ordinate transformation - clipping algorithms - Interactive input methods-

**UNIT III**

**12 Hrs**

**Three dimensional concepts :** parallel Projection - Perspective Projection - Three dimensional transformation- -Three - dimensional concepts - Visible line and surface identification – Three dimensional viewing - Projection - Viewing transformation .

**UNIT IV**

**12 Hrs**

**Multimedia System**-Elements,- Application,- System Architecture - Data Compression and Need -Types Of Data Compression- Image and Graphics -Principles Of Raster Graphic- ,Computer Visual Display Concept-Resolution Color – Palettes - Refresh Rates - Digital Image Representation and Formats-Image Scanner -File Formats

**UNIT V**

**12 Hrs**

**Animation principle :** Special Effects - Survey Of Animation Tools- Video Technologies: Analog Video - Ccd Camera, Broadcasting - Recording Formats - Storage Principle and Retrieval Technologies - Magnetic Media Technologies and Storage Devices

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Hearn, D & Baker, M,P (1997) *Computer Graphics* - Prentice Hall of India(I-III Units)
2. Naleigh & Kiran Thakrar, P, K *Multimedia System Design* (IV,V Units)

**REFERENCES:**

1. Newman, M, W & RF.Sproull (1979) ,” *Principles of Interactive Computer Graphics*”, McGraw Hill International Edition.
2. Scott Fisher, “ *Multimediaauthoring Building &Developing Documents*”
3. Ralf Steinmetz, & Klara Nashtedt , “*Multimedia Computing Communication &Application* “
4. John F.Koegel Buford,” *Multimedia System*”
5. S.Gokul , “*Multimedia Magic*”, Bpb Publications



**Dr. M.G.R.**  
**EDUCATIONAL AND RESEARCH INSTITUTE**  
(Deemed to be University)  
Maduravoyal, Chennai - 600 095, Tamilnadu, India.  
(An ISO 9001 : 2015 Certified Institution)



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL07 WEB APPLICATIONS USING SERVLET AND JSP LABORATORY 0 0 2 2**

1. Write a program for understanding Web Application.
2. Write a program for understanding Web Server and Installation of web server and configuration.
3. Write a program for understanding web server directory and how to deploy application on web server.
4. Write a program for understanding Server Components.
5. Write a program for understanding Java Servlet API.
6. Write a program for understanding Java Server Pages.
7. Write a program to deploy web application using java server components.
8. Building complete web based login utility using servlet and JSP.

**Total no. of Hrs. needed to complete the Lab : 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL08**

**VISUAL PROGRAMMING LABORATORY**

**0 0 2 2**

1. Building simple application using form object.
2. Working with intrinsic controls.
3. Application with menus.
4. Application with MDI.
5. Create a simple Calculator using windows common controls.
6. PL/SQL Block for function
7. Pay -roll system
8. Inventory Processing System
9. Railway / Airway Reservation System.
10. Library Management System.

**Total no. of Hrs. needed to complete the Lab : 30**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBMG17G01**

**ENTREPRENEURSHIP DEVELOPMENT**

**3 0 0 3**

**OBJECTIVES:**

- To motivate a person for entrepreneurial career.
- To make him capable of perceiving and exploiting successfully opportunities for enterprises.
- To enable the participants internalize the concept and process of entrepreneurial motivation training.
- To adapt to varying audience and situation.
- To internalize the concept of achievement syndrome and its application with performance.

**UNIT-I Concept of Entrepreneurship**

**9 Hours**

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

**UNIT-II Entrepreneurial Developments Agencies**

**9 Hours**

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

**UNIT-III Project Management**

**9 Hours**

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**

**9 Hours**

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

**UNIT-V Economic Development and Entrepreneurial Growth**

**9 Hours**

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

**Total No of Hrs : 45**

**TEXT BOOKS**

1. Dr.V.balu – ENTREPRENEURIAL DEVELOPMENT
2. Dr. P.T.Vijayashree & Dr.M.Alagammal – ENTREPRENEURIAL DEVELOPMENT



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18D17**

**LINUX OPERATING SYSTEM**

**3 1 0 4**

**OBJECTIVES:**

- ✓ To be aware of the evolution of the Operating System
- ✓ To have an exposure to Linux
- ✓ To enable the students to install and use Linux distribution
- ✓ To train the students in the Linux environment, administration and configuration
- ✓ To train shell programming in Linux

**UNIT I**

**12 Hrs**

**Linux Introduction: Introduction to OS:** What is Linux OS-Comparison of various operating systems- Pros and Cons of Linux-Flavours of Linux-Linux Loader-Linux kernel-Linux Installation notes - File System :File System concept-Types of File Systems. File System Related Commands: mount, umount, mkfs, fsck, fdisk, dd, du, df, fsconf. Files: What is a File - Sorts of Files.

**UNIT II**

**12 Hrs**

**Linux commands and Utilities:** alias, at, atrm. File Manipulation commands: Files-Creating, Moving, Copying and Deleting Files -Viewing File and its properties. Directory related commands: cd, mkdir, rm, rmdir,ls, pwd, mv, tree. Filters: cat, grep, cut, wc, sort, more, pipe examples. Tools and utilites: find, locate, date, cal, gzip, gunzip, zcat, man, tar. Vi editor: Using Vim Editor-Basic Commands.

**UNIT III**

**12 Hrs**

**System Administration:** Security: File Security. Communication commands :- write, wall, talk, mesg, motd,Pre-login Message. Managing software with RPM:- Installing, Uninstalling, Upgrading. Managing users and Groups: Adding users, changing password, removing users, Adding groups, changing user group , removing groups. Administrative Commands: who, whoami, su, fdformat, login, logout, chmod, chown, chroot, hostname, ifconfig, netstat, ping.

**UNIT IV**

**12 Hrs**

**Managing Processes and Scheduling:** Processes: What is a Process-Process types-Commands for controlling processes-Process Attributes-Display Process Information – Life Cycle of Process. Managing Processes: Performance – Load - Process Scheduling. Backup and Restore: Backup Strategies and Operations-Restoring files.

**UNIT V**

**12 Hrs**

**Shell Programming and Linux configuration:** Shell Programming: Introduction to Shell Programming- Basics- Variables – Special Characters – Comparison of Expressions – Iteration Statements - Control Statements – Functions - Linux Configuration: Network configuration, DHCP configuration for Linux.

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Machtelt Garrels, Introduction to Linux,A Beginner's Guide, 3rd Edition,Linux Docuementation Library, [www.linbrary.com](http://www.linbrary.com)
2. David Pitts, et al., Red Hat Linux 5.2 Unleashed, 2nd Edition, SAM Publishing

**REFERENCES:**

1. Christopher Negus, Linux Bible 8th Edition, John Wiley & Sons, Inc.
2. Peter Norton, Complete guide to Linux, Techmedia Publications
3. Redhat, Official Red Hat Linux User's guide ,Wiley Dreamte
4. Yeswant Kanethkar,UNIX Shell Programming , BPB





**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DE01**

**E-COMMERCE**

**3 1 0 4**

**OBJECTIVES:**

- To understand about Business of internet.
- To appreciate EDI & E-Payment.
- To know about internet security and e-commerce ethics.

**UNIT I**

**12 Hrs**

**Introduction:** History of E- Commerce - Overview of E- Commerce framework - E- Business models - Network infrastructure - Role of Internet - E- commerce and World Wide Web.

**UNIT II**

**12 Hrs**

**E-Commerce:** Consumer oriented E- Commerce applications - Mercantile process models; Electronic Payment Systems - Digital Token based EPS - Smart cards - Credit cards - Risks - designing EPS.

**UNIT III**

**12 Hrs**

**Organizational Commerce and EDI:** Electronic Data Interchange - EDI applications in Business - EDI and e Commerce - EDI standardization and implementation - Internet based EDI.

**UNIT IV**

**12 Hrs**

**Security:** Internet security standards - secure electronic payment protocols ; cryptography and authentication - security issues - encryption techniques.

**UNIT V**

**12 Hrs**

**E-Payment Mechanisms and E-Commerce Ethics:** E-commerce payment mechanisms -SET protocol - electronic check - electronic cash; E-commerce ethics, regulations and social responsibility

**Total No of Hrs : 60**

**TEXT BOOKS:**

1. Ravi Kalakota and Andrew B Whinston, (1999), "Frontiers of Electronic Commerce", Pearson Education Asia,.(Unit I,II & III)
2. Marilyn Greenstein and Todd M Feinman , (2000), "Electronic commerce: Security, Risk Management and Control" Tata McGraw-Hill,.(Unit IV & V)

**REFERENCES:**

1. Judy Strauss and Raymond Frost, (2002), "E Marketing", PHI.
2. Brenda Kienan, (2001), "Managing e Commerce Business", PHI



**DEPARTMENT OF COMPUTER APPLICATIONS**

<b>HBCA18DL09</b>	<b>PROFESSIONAL SKILLS II</b>	<b>0 0 2 2</b>
<b>UNIT I</b>		<b>9 Hrs</b>
Business writing skills and ability to provide data in standard formats is a key skill.		
<b>UNIT II</b>		<b>9 Hrs</b>
Organizations recognize the importance and ability of the individual to learn and develop their knowledge, skills, and competence while at work		
<b>UNIT III</b>		<b>9 Hrs</b>
This course will enable students to enhance their Interview handling skills.		
<b>UNIT IV</b>		<b>9 Hrs</b>
Identify and develop knowledge and skills they need for the job and learn to present data/information in relevant business formats.		
<b>UNIT V</b>		<b>9 Hrs</b>
Understand the fundamental concepts of sales, accounting, and customer service.		

**Total No of Hrs : 45**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**HBCA18DL10**

**JAVADEVOP PROJECT WORK**

**0 0 10 10**

**OBJECTIVES:**

Students will be able to develop real time project based on java based framework and server side components..  
Students are expected to carry out the following:

- i. Implementing the technologies or its combinations
- ii. Analysing and modeling the concepts of system engineering
- iii. Generate Database Models
- iv. Develop an executable application
- v. Prepare project report

Each project is assigned to group of students. Each group will have four to five members. Apart from project assignment, roles and responsibilities also assigned to each team member in group. Project will be divided into three milestone.

Each project development team will be properly taken care by NIIT mentors and students will be assisted precisely.