INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)
PALLAVARAM - CHENNAI
NAAC ACCREDITED WITH 'A' GRADE
Marching Beyond 25 Years Successfully

BCA(HONS)

BACHELOR OF COMPUTER APPLICATIONS(HONS)

(IV Year programme)

Curriculum and Syllabus

Effective from the Academic year

2018 - 2019

Department of Computer Applications

School of Computing Sciences

PROGRAM EDUCATIONAL OBJECTIVES(PEO)

PEO1: Exhibit practical hands on experience on the core and fundamentals like Analog Electronics, Digital electronics, Electronics circuits, Micro processor and Micro controllers, Digital Signal Processing laboratory, RF Design, VLSI design and Embedded systems.

PEO2: Display practical knowledge, identify and find solutions on research problems related tothe latest trends in communication technology such as cognitive radio, Software defined systems and Software controlled systems, etc.

PEO3: Collaborate Work as a team in inter disciplinary and intra disciplinary projects to develop hardware and software solutions for diverse applications based on time series signal processing, digital image processing, software defined radio, machine language based data mining, etc

PEO4: Publish research findings and innovations in technical symposiums, hackathons, project presentations, and publication of research articles in peer reviewed and indexed conferences and journals.

PEO5: Develop analytical, critical and innovative thinking skills, leadership qualities, and good attitude well prepared for lifelong learning and service in various government, private and research institutions as an electronics engineer.

PROGRAM OUTCOME (PO)

PO1: **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PROGRAMME SPECIFIC OUTCOME (PSO)

PSO1: Be well versed in the various analog and digital electronics systems with specific areas like linear and switching circuits, control systems, etc.

PSO2: Be competent in the fundamentals of electromagnetic theory, wave propagation, antennas, transmission line and wave guidesin RF and microwave range.

PSO3: Discuss the advancements in the specialized communication technologies such as optical communication, satellite communication, remote sensing and optical networks, etc.Demonstrate knowledge on the dynamics of wired and wireless networks, wireless sensor networks and adhoc networks.

PSO4: Be familiar in the applications areas like medical electronics, Advanced Digital Signal Processing, Cryptography, Network security, VLSI, etc., by allowing the students choose electives in accordance with their areas of interest.

PSO5: Be familiar in the applications areas like medical electronics, Advanced Digital Signal Processing, Cryptography, Network security, VLSI, etc., by allowing the students choose electives in accordance with their areas of interest.

PSO6:

BOARD OF STUDIES

S. No	NAME	AFFILIATION	ROLE
1.	Dr. P. SWAMINATHAN	DEAN, School of Computing Sciences	Chairman
2.	Dr.P.MAYILVAHANAN	Professor, Department Of Computer Applications	Internal Member
3.	Dr. S. PRASANNA	Professor and HEAD, Department of Computer Applications	Internal Member
4.	Dr. T. KAMALAKANNAN	Professor and HEAD, Department of IT.	Internal Member
5.	Dr. K. KALAISELVI	Professor and HEAD, Department of Computer Science.	Internal Member
6.	Dr. K.R. ANANTH PADMANABAN	Professor & HEAD, Department of Computer Science, SRM Arts and Science College, Chennai	External Member
7.	Dr. P. MAGESH KUMAR	Calibsoft Technologies Pvt Ltd., Chennai.	Industry Member
8.	Mr.R. BALAMURUGAN,	SCOPUS Ltd., Chennai	Alumni Member

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES (VISTAS)

BCA (Hons) DEGREE COURSE

(Common Template)

COURSES OF STUDY AND SCHEME OF ASSESSMENT

(MINIMUM CREDITS TO BE EARNED: 140)

		Hours/Week				Maximum Marks		
Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	SEE	Total
SEMESTER 1								
LANG	Tamil I/ Hindi / French	5	0	0	5	40	60	100
ENG	English I	5	0	0	5	40	60	100
CORE	Logic Builiding And Effective Problem Solving& Personal Computing & Ne(PCNE)	5	0	0	3	40	60	100
CORE	Programming In Java With Oops Concept	5	0	0	4	40	60	100
CORE	Mathematics – 1	5	0	0	4	40	60	100
CORE	Practical – I Java	0	0	5	2	40	60	100
		25	0	5	23			
SEMESTER 2								
LANG	Tamil II / Hindi / French	5	0	0	5	40	60	100
ENG	English II	5	0	0	5	40	60	100
CORE	RDBMS ESSENTIALS & T SQL PROGRAMMING	5	0	0	4	40	60	100
CORE	HTML PROGRAMMING	5	0	0	3	40	60	100
CORE	MATHEMATICS – II	5	0	0	4	40	60	100
CORE	Practical – II RDBMS & HTML	0	0	5	2	40	60	100
		25	0	5	23			

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES

Programme: BCA (Hons) DEGREE COURSE

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	SEE	Total
SEMESTER 3								
ENG	English - III	5	0	0	5	40	60	100
CORE	Developing Web Applications Using Servlets & JSP	5	0	0	5	40	60	100
CORE	Financial Accounting	5	0	0	5	40	60	100
CORE	Practical – Iii Servlets & JSP	0	0	6	3	40	60	100
DSE	Discipline Specific Elective-I	5	0	0	5	40	60	100
SEC	Soft Skills – I	2	0	0	2	40	60	100
GE	Generic Elective Courses -I	2	0	0	2	40	60	100
		24	0	6	27			

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES

Programme: BCA (Hons) DEGREE COURSE

SEMESTER 4

Code No.	**Course**	**Hours/Week**			**Credits**	**Maximum Marks**		
		Lecture	**Tutorial**	**Practical**		**CA**	**SEE**	**Total**
ENG	English IV	5	0	0	5	40	60	100
CORE	Developing Mobile Apps For The Android Platform	5	0	0	5	40	60	100

CORE	Statistical And Numerical Methods	5	0	0	5	40	60	100
CORE	Practical – Iv Mobile Apps In Android Platform	0	0	5	2	40	60	100
DSE	Discipline Specific Elective-II	4	0	0	4	40	60	100
AECC	Environmental Studies	2	0	0	2	40	60	100
SEC	Soft Skills - II	2	0	0	2	40	60	100
GE	Generic Elective Courses -I	2	0	0	2	40	60	100
		25	0	5	27			

CA - Continuous Assessment

SEE - Semester End Examination

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES

Programme: BCA (Hons) DEGREE COURSE

		Hour / Week				Maximum Marks		
Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	SEE	Total
SEMESTER 5								
CORE	Implementing JSF,Hibernate, And Spring In Java EEE Applications	5	0	0	5	40	60	100
CORE	Developing Apps For Touch And Mobile Devices	5	0	0	5	40	60	100
CORE	Practical – V JSF And Developing Apps	0	0	5	2	40	60	100
CORE	Practical – Vi Capstone Project1	0	0	5	2	40	60	100
DSE	Discipline Specific Elective-Iii	4	0	0	4	40	60	100
DSE	Discipline Specific Elective-Iv	4	0	0	4	40	60	100
SEC	NSS	2	0	0	2	40	60	100
		20		10	24			

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES

Programme: BCA (Hons) DEGREE COURSE

		Hour / Week				Maximum Marks		
Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	SEE	Total
SEMESTER 6								
CORE	Developing And Deploying Web Applications Using Google App Engine	5	0	0	5	40	60	100
CORE	Computer Networks	4	0	0	4	40	60	100
CORE	Practical – Vi Developing And Deploying Web Applications Using Google App Engine	0	0	6	3	40	60	100
CORE	Capstone Project 2	0	0	6	3	40	60	100
DSE	Discipline Specific Elective -V	4	0	0	4	40	60	100
DSE	Discipline Specific Elective –Vi	5	0	0	5	40	60	100
		18	0	12	24			

CA - Continuous Assessment

SEE - Semester End Examination

UGC Recommended Generic Electives

1.Consumer Affairs 2. Disaster Management

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES

Programme: BCA (Hons) DEGREE COURSE

Code No.	Course	Hour / Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	SEE	Total
SEMESTER 7								
CORE	Internship Programme In Industry For 6 Months(Provided By Niit)	0	0	6	3	40	60	100
SEMESTER 8								
CORE	Internship Programme In Industry For 6 Months(Provided By Niit)	0	0	8	4	40	60	100

Total Credits to complete the course : 155

CORE PAPERS

CODE	COURSE
18CBCH11	LOGIC BUILIDING AND EFFECTIVE PROBLEM SOLVING& PERSONAL COMPUTING & NE(PCNE)
18CBCH12	PROGRAMMING IN JAVA WITH OOPS CONCEPT
18BMA001	MATHEMATICS – 1
18PBCH12	PRACTICAL – I JAVA
18CBCH21	RDBMS ESSENTIALS & T SQL PROGRAMMING
18CBCH22	HTML PROGRAMMING
18BMA002	MATHEMATICS – II
18PBCH21	PRACTICAL – II RDBMS & HTML
18CBCH31	DEVELOPING WEB APPLICATIONS USING SERVLETS & JSP
18CBCH32	FINANCIAL ACCOUNTING
18PBCH31	PRACTICAL – III SERVLETS & JSP
18CBCH41	DEVELOPING MOBILE APPS FOR THE ANDROID PLATFORM
18CBCH42	STATISTICAL AND NUMERICAL METHODS
18PBCH41	PRACTICAL – IV MOBILE APPS IN ANDROID PLATFORM
18CBCH51	IMPLEMENTING JSF,HIBERNATE, AND SPRING IN JAVA EEE APPLICATIONS
18PBCH51	PRACTICAL – V JSF AND DEVELOPING APPS
18CBCH52	DEVELOPING APPS FOR TOUCH AND MOBILE DEVICES
18PBCH52	PRACTICAL – V CAPSTONE PROJECT1
18CBCH61	DEVELOPING AND DEPLOYING WEB APPLICATIONS USING GOOGLE APP ENGINE
18CBCH62	COMPUTER NETWORKS
18PBCH61	PRACTICAL – VI DEVELOPING AND DEPLOYING WEB APPLICATIONS USING GOOGLE APP ENGINE

18CBCH11 LOGIC BUILDING AND EFFECTIVE PROBLEM SOLVING & PERSONAL COMPUTING & NE (PCNE) 5 0 0 3

Course Objective:

To study and understand the concepts of identify input and output requirements of a computer problem , define programs and programming language, solve problems using flowchart ,use dry run ,solve the problems using pseudocode, use of operators, repetitive process ,work with arrays, Manipulate arrays using loops

UNIT I: 12

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

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

Conditional Execution, Implementing Iterative Processes.

UNIT IV: 12

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

UNIT V: 12

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

Total: 60 Hours

Course Outcome:

After completing this course, the students will able to:

CO1: Write efficient program logic using pseudo code.

CO2: Create flowcharts to solve problems

CO3: Design and develop pseudo code for various applications.

CO4: Interpret the various concepts of modular programming

CO5: Implement problem solving in real life problems.

References:

www.niitstudent.com

This Course is offered through collaboration with NIIT Limited, Chennai. The course content can be viewed through the above mentioned website.

18CBCH12 PROGRAMMING IN JAVA WITH OOPS CONCEPT 5 0 0 4

Course Objective:

To study and understand the concept of Implementation of oops concept ,inner classes and type casting ,GUI components, work with regular expression and localization ,generics, collections and threads IO Packages and JDBC.

Unit I: Implementation classes and introduction to Regular Expressions. 12

Overview of java-class-objects-access specifiers -access modifiers-Operators-Conditional Constructs-Looping-Constructs-Array-Enum-String-Inheritance-Polymorphism-HandlingExceptions-Assertions-UI Layouts-Handling Events

Creating Inner Class, Implementing Type Casting-Processing Using Regex-Implementing Localization.

Unit II: Java Collections and Generics. 12

Creating User defined Generic Class and methods-implementing Type safety-Using set –list –Map -DE queue-Implementing sorting

Unit III: Java Thread 12

Using threads in java-Creating Threads-Implementing Thread Synchronization-Implementing Concurrency.

Unit IV: Working with Streams & NIO 12

Working with input stream-Working with output stream- Introducing NIO- Performing the read and write operations on a file

Unit V: JDBC 12

Identifying the Layers in the JDBC Architecture-Types of JDBC Drivers- Using JDBC API – Accessing Result Sets-Creating Application using the prepared statement object –Managing Database Transactions – Implementing Batch updates in JDBC-creating and calling stored procedures in JDBC –Using metadata in JDBC

TOTAL: 60 HOURS

COURSE OUTCOME:

After completing this course the students will be able to:

CO1: Apply the concepts of object oriented programming.

CO2: Design and Develop object based applications in java.

CO3: Interpret the use of threads in programming.

CO4: Explain the file operations in java.

CO5: Design and Develop real world applications in java with back end connectivity.

TEXT BOOKS:

1. Paul Deitel and Harvey Deitel, "Java SE 8 for programmers", Pearson Education, 2015
2. Harvey Deitel, Abbey Deitel," Internet and World Wide Web How To Program", 5th Edition,Pearson Publication, 2012
3. James Payne, Beginning Python - Using Python 2.6 and 3.1, Wiley India Pvt. Ltd., 2010

REFERENCES:

1. Marty Hall and Larry Brown, ―Core Servlets And Javaserver Pages‖, Second Edition
2. Bryan Basham, Kathy Siegra, Bert Bates, ―Head First Servlets and JSP‖, Second Edition
3. Uttam K Roy, ―Web Technologies‖, Oxford University Press, 2011.

18BMA001 MATHEMATICS-I 5 0 0 4

Course objective: To develop the skills of the students in the areas of Trigonometry, Set Theory, Calculus and Algebra**.** The course will also serve as a prerequisite for post graduate and specialized studies and research.

UNIT I TRIGONOMETRY 12

Introduction – Angles – Expansions of sinnθ cosnθ,tannθ. Expansion of sinθ, cosθ, tanθ, interms of θ- Simple problems.

UNIT II SET THEORY 12

Sets – Operations on sets – Relations – Relations and functions: Equivalence relations – Partial order relation.

UNIT III MATRICES 12

Introduction-Basic operations-Symmetric-skew symmetric-Hermitian-Skew Hermitian –Unitary-orthogonal-Inverse of a matrix -Solution of linear system(Cramer's rule)- Finding the Eigen roots and Eigen vectors of a matrix-Cayley Hamilton theorem(without proof)

UNIT IV THEORY OF EQUATIONS 12

Polynomial equations with real coefficients, irrational roots, complex roots, symmetric functions of roots, Transformation of equation by increasing or decreasing roots by a constant, reciprocal equations, Newton's method to find the root approximately.

UNIT V DIFFERENTIAL CALCULUS 12

Differentiation – Successive differentiation – Partial differentiation – Maxima and Minima of functions of two variables.

TOTAL: 60 HOURS

COURSE OUTCOME

At the end of the course the students will able to

CO1: Derive the higher powers of angle and multiples of angles

CO2: Distinguish the various sets and operations on sets

CO3: Evaluate the eigen values and eigen vectors of any square matrix

CO4: Find the roots of an equation and derive the relationship between the roots

CO5: Establish the nth derivative of any function and maxima and minima of the functions

TEXT BOOKS:

1. P. Kandaswamy and K.Thilagavathy, Allied Mathematics paper I, 1st Semester, S.Chand Publishing Pvt. Ltd. 1st Edition, 2003.

REFERENCES:

1. P.R. Vittal, Allied Mathematics, Margham Publications, 4th Edition 2009.
2. A. Singaravelu, Allied Mathematics, Meenakshi Agency, 2007.

Course Objective:

To study and understand the concepts of datatypes, variables, conditional constructs, oops concept, array, GUI, inheritance, exception handling.

1. Write a java program for all the datatypes with variables
2. Write a java program for if and if-else constructs.
3. Write a java program for While and Do-while loop
4. Write a java program for single dimensional array
5. Write a java program for enumeration
6. Write a java program for string builder
7. Write a java program for single level inheritance
8. Write a java program to create a GUI
9. Write a java program for exception handling
10. Write a java program for array list

COURSE OUTCOME:

After completion of practical exercise, the student will be able to:

CO1: Develop the console based applications.

CO2: Develop the windows based applications.

C03: Implement the concept of String

CO4: Implement the concept of String builder

CO5: Implement the concept of Exception Handling

18CBCH21 RDBMS ESSENTIALS & T SQL PROGRAMMING 5 0 0 4

Course Objective:

To study and understand the concepts of create an entity relationship model, map an entity relationship diagram to tables and normalize & de-normalize data in tables, Identify SQL server tools, query data with multiple tables, manages databases and tables, manipulate data in tables, Implement the stored procedure and functions, Implement triggers and transactions, Implement managed code, Implement Services for message based communication.

UNIT I: OVERVIEW OF SQL SERVER 12

Introduction to Data models –ER Diagrams-Operators-one to one-one to many-many to one-keys-Normalization-Denormalization.

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. Querying Data, Retrieving Data, Identifying Data Types, Retrieving Specific Attributes, Retrieving Selected Rows, Using Functions to Customize the Result Set, String Functions, Date Functions, Mathematical Functions, Ranking Functions, System Functions, Summarizing and grouping data.

UNIT II: QUERYING DATA BY USING JOINS AND SUBQUERIES 12

Querying Data by Using Joins, 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, Derived Table.

UNIT III: MANAGING DATABASES AND TABLES, IMPLEMENTING INDEXES 12

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

Manipulating Data by Using DML Statements, Storing-Updating-Deleting Data from a Table, Retrieving the Modified Data, Comparing and Updating Data, Manipulating XML Data, Implementing Indexes, Creating XML Indexes, Creating Partitioned Indexes, , Displaying Execution Plan, Controlling Execution Plan.

UNIT IV: IMPLEMENTING VIEWS, FULL TEXT SEARCH, STORED PROCEDURES AND FUNCTIONS 12

Creating and Managing Views, Creating-Managing-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.

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

UNIT V: TRIGGERS AND TRANSACTIONS, MONITORING AND OPTIMIZING PERFORMANCE 12

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

Monitoring Performance by using SQL Server Profiler, DMVs, Database Engine Tuning Advisor, Implementing Statistics, Plan Guides, Tracking Data Changes using CDC and Change Tracking.

Total: 60 hours

Course Outcome:

After completing this course, the student should be able to

CO1: Appreciate the need for database management systems

CO2: Design a database for real time applications.

CO3: Apply the concepts of normalization and de-normalization while designing a database.

CO4: Query and manage databases using SQL Server

CO5: Design and Develop real world applications in java with back end connectivity.

Text Books:

1. Database Management Systems, Peter Rob, A.Ananda Rao and Carlos Coronel, Cengage Learning.
2. Introduction to SQL,Rick F.Vander Lans,Pearson education.

References:

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

References:

http://msdn.microsoft.com/en-us/library/ms144275.aspx

http://msdn.microsoft.com/en-us/library/hh272686%28v=vs.103%29.aspx

http://msdn.microsoft.com/en-us/library/ms174318.aspx

http://msdn.microsoft.com/en-us/library/ms191500%28v=SQL.105%29.aspx

This Course is offered through collaboration with NIIT Limited, Chennai. The course content can be viewed through the above mentioned website.

18CBCH22 HTML PROGRAMMING 5 0 0 3

Course Objective:

To study and understand the concepts of introduce HTML, create an HTML page, work with styles, Apply transitions, animations and transformations, create tables, Accessing multiple web pages by using frames, understanding scripting, Implement java script in web pages ,Implementing canvas, audio and video effects, Work with gallery Implement geo location and offline support

Unit 1: Introducing HTML **12**

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 2: Creating Web Pages. **12**

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 3: Functions **12**

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

Unit 4: Working with Graphics **12**

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 5: Introducing Geolocation and Offline Support for Data. **12**

Implementing the Geolocation API, Handling Errors, Implementing Client-side Storage, Implementing Application Cache.

TOTAL: 60 HOURS

COURSE OUTCOME:

After completing this course, the students will be able to:

CO1: Create and design Web Pages using HTML

CO2: Design a webpage using javascript.

CO3: Develop web applications using form objects.

CO4: Design and develop web applications using graphics

CO5: Develop and implement real life web applications.

TEXT BOOKS:

1. Robin Nixon, "Learning PHP, MySQL, JavaScript, CSS & HTML5" Third Edition, O'REILLY, 2014.
2. James F. Kurose, ―Computer Networking : A Top-Down Approach‖, Sixth Edition, Pearson, 2012.

REFERENCES:

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

18BMA002 MATHEMATICS-II 5 0 0 4

Course Objective: To impart the knowledge of Integral calculus, Differential Equations, Fourier series and Laplace transform. The course will also serve as a prerequisite for post graduate and specialized studies and research.

UNITI INTEGRAL CALCULUS 12

Integral calculus: Integration – Definite integrals – Bernoulli's formula -Reduction formula for $\int sin^n x dx, \int cos^n x dx, \int tan^n x dx, \int x^n e^{ax} dx$.

UNITII ORDINARY DIFFERENTIAL EQUATIONS 12

Ordinary differential equations: First order of higher degree equations – Second order and non-homogenous linear differential equations with constant coefficient – Second order linear differential equations with variable coefficients.

UNITIII PARTIAL DIFFERENTIAL EQUATIONS 12

Formation of partial differential equations by eliminating arbitrary constants and arbitrary function- Solutions of standard types of first order equations- f(p,q)=0; f(x,p,q)=0, f(y,p,q)=0, f(z,p,q)=0, z = px +qy +f(p,q) -Lagrange method of solving linear partial differential equation
Pp +Qq = r.

UNIT IV FOURIER SERIES 12

Fourier series of periodic functions on the interval [c,c+2π] –Even and Odd functions- Half range series.

UNIT V LAPLACE TRANSFORM 12

Laplace transformation: Definition, Laplace transform of basic trigonometric, exponential and algebraic functions - Inverse Laplace transform- Solving differential equation of second order with constant coefficients using Laplace transform

CO1: To inculcate in students the fundamental mathematical background in computer science.

CO2: Student will be able to find the complete solution of a nonhomogeneous differential equation as a linear combination of the complementary function and a particular solution.

CO3: Use Fourier transforms and its inverse in practical applications of computer science

CO4: Apply Laplace transform and its inverse to solve initial value and other related problems.

CO5: Develop analytical ability to solve real-world problems using these methodologies.

Various Fourier series methods **TOTAL: 60 HOURS**

Text Books:

1. P. Kandaswamy and K.Thilagavathy, Allied Mathematics paper II, 2nd Semester, S.Chand Publishing Pvt. Ltd. 1st Edition, 2004.

References:

3. P.R. Vittal, Allied Mathematics, Margham Publications, 4th Edition 2009.
4. A. Singaravelu, Allied Mathematics, Meenakshi Agency, 2007.

18PBCH21 PRACTICAL – II RDBMS & HTML 0 0 5 2

RDBMS

Course Objective:

To study and understand the concept of SQL statements, subquery, constraints, views and functions.

1. Write a Sql Query using DDL and DML Statement.
2. Write a Sql query using aggregate function.
3. Write a Sql query using Isnull and Isnotnull.
4. Write a Sql query using sub query.
5. Write a Sql query for Top keyword using Sql statement.
6. Write a Sql query using joins(inner,left,right,full outer join)
7. Write a Sql Query using Constraints.
8. Write a Sql Query using views
9. Write a Query of Rank Functions.
10. Write a Sql query for DQL statement

Course Outcome:

After completion of this practical course, the student will be able to:

CO1: Implement the concept of DDL Statements

CO2: Implement the concept of DML Statements

CO3: Implement the concept of DQL Statements

CO4: Implement the concept of aggregate functions

CO5: Implement the concept of joins.

HTML 5

Course Objective:

To study and understand the concept of HTML tags, images, audio and video tags, inline style, internal style, external style sheet, positioning of HTML elements, font, Link, List and background properties.

1. Write a Html program of formatting tags.
2. Write a HTML program using image, audio, navigation and video tag.
3. Create web site for our university with external style sheet.
4. Write a HTML program using positioning HTML elements.
5. Write a HTML program using Font, Link, List and Background properties.
6. Write a HTML program using controlling the visibility of an elements.
7. Write a HTML program using grouping and nesting styles.
8. Write a HTML program applying transitions, animations and transformations.
9. Write a HTML program for Class time table.
10. Write a HTML program using Iframes.
11. Write a HTML program for Reverse a number using Java script.
12. Write a HTML program for web page Login and Register
13. Create a web page for linear gradient

Course Outcome:

After completion of this practical course, the student will be able to:

CO1: Implement the concept of Style sheet

CO2: Implement the concept of Navigation tags

CO3: Implement the concept of grouping styles

CO4: Implement the concept of nesting styles

CO5: Implement the concept of Frames

18CBCH31 DEVELOPING WEB APPLICATION USING SERVLETS & JSP 5 0 0 5

Course Objective:

To study and understand the concepts of the web and web application architecture, Servlets, Implement the request dispatcher mechanism, work with filters, Implement types of session management techniques, Describe server cluster and session migration, Understand the JSP Technology, JSTL and EL Tags in web application, create and use custom tags, Ajax concept.

Unit I: Web Application Development and Servlet API. 15

Introduction to web architecture-Introduction to web application architecture and Technologies- introduction to servlets-Implementing servlets

Unit II: Implementing inter servlet communication and manage the session 15

Implementing Request Dispatcher Mechanism-Working with Filters-Understanding Session Management Techniques-Migrating Sessions

Unit III: Java server pages and technologies and script less JSP pages 15

Understanding JSP- JSP page Life Cycle-Working with JSTL AND EL - working with Custom tags

Unit IV: Developing MVC-Based Web Applications Using the Struts Framework and Storing and Manipulating Data in a Web Application 15

MVC and struts Framework-Storing and manipulating data using JDBC- Storing and Manipulating Data Using JPA.

Unit V: Developing Asynchronous Web Applications and Web Application Security. 15

Exploring Ajax-Creating asynchronous servlets-Introducing web Application Security-implementing Security using JASS

Total: 75 HOURS

Course Outcome:

After completing this course, the students will be able to:

CO1: Develop secured web applications using Servlets and JSP.

CO2: Implement different types of session management techniques

CO3: Develop server clusters and session migration

CO4: Understand the JSP technology, Use the JSTL tags and EL in Web applications

CO5: Create and use the custom tags

Reference:

NIIT PORTAL:www.niitstudent.com

18CBCH32 FINANCIAL ACCOUNTING 5 0 0 5

Course Objective: To give an insight into the basics of Accounting Concepts and Principles to Prepare to Students to have the foot hold in Accounts.

UNIT I INTRODUCTION TO ACCOUNTING 15

Meaning and definition of accounting- functions of accounting – limitations of accounting – accounting concepts and conventions systems of accounting – single entry system – double entry system – subsidiary books including cash book – trial balance – rectification of errors.

UNIT II PREPARATION OF FINAL ACCOUNTS 15

Final accounts with adjustments – closing stock, outstanding expenses, unexpired or prepaid expense, accrued income, income received in advance, depreciation, additional bad debts, provision for doubtful debts, provide for a discount on debtors, interest on capital, interest in drawing, discount on creditors and creation of various reserves.

UNIT III BANK RECONCILIATION STATEMENT AND ACCOUNTS 15

Bank reconciliation statement – Importance of Bank Reconciliation Statement – Scope of Bank Reconciliation Statement - Insurance Claim Account – loss of property and stock – average clause.

UNIT IV CALCULATION OF DEPRECIATION UNDER DIFFERENT METHODS 15

Depreciation accounts – definition and causes of depreciation – need for depreciation – methods of calculating the amount of depreciation – straight line method – diminishing balance method.

UNIT V SINGLE ENTRY SYSTEM OF ACCOUNTING 15

Single entry system – salient features – limitations of single entry system – distinction between single entry system and double entry system – ascertainment of profit – net worth method – conversion method (simple problems only)

Total: 75 Hours

Course Outcome:

CO1: Financial Accounting explain financial position of the concern.

CO2: To express Profit and loss of the business.

CO3: Financial Accounting followed by financial Institution and business concern.

CO4: Explain about the Bank Reconciliation and its Rectification of errors

CO5: Useful to management for decision making and impletation.

Text books:

1. T.S.Reddy & A.Murthy, “Financial Accounting”, Margham Publications, Sixth Revision Edition, 2011.
2. P.C. Tulsian, “ Financial Accounting”, Tata MC Graw Hill Ltd, 2003.

References:

1. Assish K. Bhattacharyya, “Financial Accounting”, Prentice of hall of India, 2002.
2. N. Vinayagam and B. Charumaki, “Financial Accounting”, S.Chand & Company Ltd., 2002, Reprint – 2008.

18PBCH31 PRACTICAL – III SERVLETS & JSP 0 0 6 3

Course Objective:

To study and understand the concept of servlet, servlet context, servlet-configuration, request dispatcher forward method, cookie, hidden field, HTTP Session.

1. Creating a Login Form Using Servlet
2. Creating web application with Servlet Context and Servlet Config
3. Creating web application Request Dispatcher-Forward method
4. Creating a Servlet Using Cookie
5. Creating a Servlet Using Hidden Field
6. Creating a Servlet Using HTTP Session
7. Create a Servlet Using URL Rewriting
8. Creating Web Application with JSP Component
9. Create a Tag lib Directive in JSP
10. Creating a JavaBean in JSP
11. Creating web application using MVC
12. Creating web application Request Dispatcher-Include method

Course Outcome:

CO1: After completing this practical course, the student will be able to:

CO2: Implement the concept of Login Form

CO3: Implement the concept of URL Rewriting

CO3: Implement the concept of JSP component

CO4: Implement the concept of TAG lib Directive

CO5: Implement the concept of MVC.

18CBCH41 DEVELOPING MOBILE APPS FOR ANDROID PLATFORM 5 0 0 5

Course Objective: To study and understand the concepts of identify the fundamentals of mobile app development, Identify the fundamentals of Android app development, build the user interface, add functionality to the user interface, debug and android app , Work with activities , Intents, Services, and Broadcast receivers ,styles and themes, store and retrieve data , Implement SMS and telephony, Implement security in android apps and test & Deploy android apps.

Unit 1: Introduction to Mobile App Development 12

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 - iOS, BlackBerry, Windows Mobile, Android, Symbian Development Environment.

Exploring the Android Platform, Exploring the Android Platform, Exploring the Android Architecture, Identifying the Building Blocks of an Android App, Exploring Android Development Environment.

Unit 2: Building, Adding Functionality, Debugging to an UI for Android App 12

Designing the UI, Using Views and View Groups, Viewing the UI on a Device, Creating an Activity, Associating the UI with the Activity, Registering the Activity, 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 3: Handling Data in Android Apps 12

Identifying Data Storage Mechanisms, SQLite Database, Internal Storage, External Storage, Shared Preferences, Network Connection, Using a 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 4: Working with Services, Broadcast Receivers and Notifications 12

Working with Services, Working with Broadcast Receivers. Enhancing the UI by Creating Menus, Tabs, Applying Styles and Themes, Creating Styles, Customizing Views.

Notifying the User by Creating Toast and Dialog Notifications, Creating Alarms, Identifying Location-based Services, Selecting a Location Provider, Implementing Location-based Services in an Emulator, Creating Map-based Apps.

Unit 5: Communicating via Android Apps, Testing and Deploying an Android App 12

Sending and Receiving an SMS, Implementing Telephony. Working with Graphics, Adding the Audio and Video Elements. Securing Android Apps, Identifying the Security Model of the Android Platform, Using Permissions for Specific Operations.

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, Publishing an Android App.

Total: 60 hours

Course Outcome:

After completing this course, the students should be able to:

CO1: Develop rich and visually appealing Android apps

CO2: Exploring about Android Platform

CO3: Learned about Android Debugging Tools

CO4: Implementing Creating and Customizing Views

CO3: Test and deploy Android apps

TEXT BOOKS:

1. Share Conder, Lauren Darcey, "Android Wireless Application Development" Pearson 3rd Edition.
2. Zigurd Mednieks, Laird Dornin, G, Blake Meike and Masumi Nakamura, ―Programming Android‖, O‟Reilly, 2011.

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 Development‖, 2010.
3. Alasdair Allan, ―iPhone Programming‖, O‟Reilly, 2010.
4. Wei-Meng Lee, ―Beginning iPhone SDK Programming with Objective-C‖, Wrox Wiley, 2010.
5. Stefan Poslad, ―Ubiquitous Computing: Smart Devices, Environments and interactions‖, Wiley, 2009.

18CBCH42 STATISTICAL AND NUMERICAL METHODS 5 0 0 5

Course objective:

To develop the skills of the students in the concepts of Statistics and Numerical Methods.

The course will also serve as a prerequisite for post graduate and specialized studies and research development.

UNIT I INTRODUCTIONTO STATISTICS 12

Introduction to statistics-frequency distribution-Diagrammatic representation-Measures of Central Tendency: Mean, Median, Mode, Geometric mean, Harmonic mean-Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, and Coefficient of Variation.

UNIT II CORRELATION AND REGRESSION 12

Correlation Analysis: Introduction, Methods of Studying Correlation- Karl Pearson's Coefficient Of Correlation-Spearman's Rank Correlation Coefficient: Ranks are given, Ranks are not given, Equal ranks or Repeated Values.

Regression Analysis: Two Regression Equations-Regression Equation of X on Y, Regression Equation of Y on X.

UNIT III TESTS OF HYPOTHESIS 12

Sampling –Test of hypothesis- Test of Significance for Small Samples: t test- Single Mean, Two Mean and Paired t-test- F test-Chi Square Test: Goodness of Fit, 2X2 Contingency table.

UNIT IV ALGEBRAIC AND TRANSCENDENTAL EQUATIONS 12

Roots of equations: Graphical Method- Bisection Method- False position Method – Newton –Raphson's Method- Secant Method- Algebraic Equations: Gauss Elimination Method- Gauss- Jordan Method- Matrix Inverse Method- Gauss-Seidel Method.

UNIT V NUMERICAL INTEGRATION, DIFFERENTIATION AND DIFFERENTIAL EQUATIONS 12

Numerical Integration and Differentiation: Trapezoid Rule- Simpson's Rule- Application of numerical methods to differential equations: Runge-Kutta Order Methods

TOTAL: 60 HOURS

COURSE OUTCOMES

CO1: Have a necessary basic concepts of a few statistical methods

CO2: Understand how to develop the null and alternative hypothesis.

CO3: To develop the analytical capability and to impart knowledge on statistical methods.

CO4: Describe how to design experiments, carry them out and analyze the data they yield.

CO5: To select the appropriate numerical technique to solve a given engineering problem.

CO6: To realize the limitations and performance of different schemes in order to interpret the output generated from them

TEXT BOOKS

1. P.R. Vittal and V. Malini, Statistical and Numerical Methods, Margham Publications, 1st Edition, 2007.

REFERENCES:

1. S.P.Gupta, Statistical Methods, Sultan Chand & Sons, 35th Revised Edition, 2007.

2. S. Arumugam, A. Thangapandi Isaac and A. Somsundaram, Numerical Methods, Scitech Publications India Pvt. Ltd.2001.

18PBCH41 PRACTICAL – IV MOBILE APPS IN ANDROID PLATFORM 0 0 5 2

Course Objective:

To study and understand the concepts of UI like edit text, radio button, radio group, check box, labels, creation of menus like option menu, context menu, popup menu on android platform.

1. To write an app a text from edit text and check the length of the text.
2. Create an app to accept username and password.
3. To write a program for multiplication using intent
4. To write a program for internal storage in mobile app
5. Create an app to display a popup menu with button option
6. To write a program for creation of context menu
7. To write a program for creation of option menu
8. To write a program for creation of tabs
9. To write a program for implementing styles on UI.
10. To write a program for creation of toast.

Course Outcome:

After completing this practical course, the students will be able to:

CO1: Develop an UI on android platform

CO2: Implement the concept of toast

CO3: Implement the concept of custom toast

CO4: Implement the styles on UI.

CO5: Implement the creation of tabs.

18CBCH51 IMPLEMENTING JSF, HIBERNATE AND SPRING IN JAVA EEE APPLICATION **5 0 0 5**

Course Objective:

To study the understand the concepts of identify the benefits and features of the JSF Framework , Create a JSF Page, Access , convert and validate user input, Implement navigation in a web application ,work with styles and templates ,create and uses composite components, Implement AJAX in a JSF application, Identify the features of the Hibernate Framework ,Retrieve the databases from the database tables by using different types of queries, Identify the features and benefits of the spring framework ,Use the spring MVC Model, Manage the transactions in a web applications developed using the Spring Framework.

Unit I: Overview of JSF **15**

Introduction to JSF, Exploring the JSF Framework, Overview of JSF Architecture, Life Cycle of a JSF Page, Components of a JSF Application. Exploring JSF Tag Libraries, Creating a JSF Page, Creating a JSF Page Using Facelets. Managing User Input, Managed Beans, Introducing Converters & Validators, Managing Page Flow in a Web Application, Introducing the Navigation Model, Implementing Advanced Navigation Mechanisms.

Unit II: JSF Events and AJAX **15**

Handling Events, Introducing the JSF Event Model, Implementing Event Handler, Attaching the Event Listener, Working with Styles and Templates. Exploring the Composite Tag Library, Implementing Composite Components.

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

Unit III: Introduction to Hibernate **15**

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

Mapping Classes with Relational Database, Configuring Mapping Properties, Mapping Database Relationships, Implementing Query Languages, Implementing Criteria Queries, Identifying the Object States, Working with Persistent Objects, Implementing Transactions and Concurrency.

Unit IV: Overview of Spring, Integrating Spring with Web Layer **15**

Features of Spring, Comparing Spring with Struts and EJB, Managing Application Objects, Introducing Bean Factory, Introducing Application Context, Injecting Application Objects, Applying Explicit Wiring, Applying Auto wiring.

Configuring Transactions Introducing AOP, Features of AOP, Describing Aspects, Creating Advice, Defining Point cut, Creating Proxy.

Unit V: Integrating Spring with Business and Presentation Layers **15**

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: 75 hours

Course Outcome:

After completing this course, the student will be able to:

Implement JSF in Java EE Applications

CO1: Implement data persistence using Hibernate Framework

CO2: Exploring the Composite Tag Library and Components

CO3: Understanding about Database Mapping

CO4: Build Web applications using the spring framework

CO5: Learned about Transaction and Configuration Management

TEXT BOOKS:

1. Kogent Learning Solutions Inc.," Java Server Programming Java EE7 (J2EE 1.7): Black Book", Dream Tech Press, 2014.

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.

18CBCH52 DEVELOPING APPS FOR TOUCH AND MOBILE DEVICES 5 0 0 5

Course Objective:

To study and understand the concept of plan apps touch and mobile devices ,design wireframes and UI for touch and mobile devices, Design mobile UX patterns, Design prototypes for touch and mobile apps, develop cross platform apps, Use sensors to capture the data, Use device features in apps, Use cloud services in mobile apps, publish and monetize an app.

Unit I Planning the User Experience for Touch and Mobile Devices, Designing Wireframes for Mobile Apps,Getting Acquainted with mobile UX Patterns-I 15

Identify the fundamental of app design –Planning the UX for a mobile app-Creating wireframes-Identify the navigation patterns-Identify the form and table patterns-Identify Search,sort, and Filter Patterns.

Unit II: Getting Acquainted with mobile UX Patterns-II and creating mobile prototypes,Developing Cross–Platform Apps 15

Feedback Affordance-Rotation-Camera-Map and Location-Identify Tools Patterns-Getting Acquainted with Mobile prototyping –Identify the different types of prototyping-Introduction to cross platform app development-working with apache cordova-working with phone gap build

Unit III: Enhancing the User Experience of a Hybrid App and Working with Events and Data, Using SensorstoCaptureData 15

Getting Started with Chocolate chip UI-Creating Basic Layouts for app screens- Enhancing the user interactions-Handling events-introducing data binding-Introducing templates-Storing data-Identify the sensors-Working with sensors-Developing Location –Aware Apps.

Unit IV: Exploiting Device Features 15

Capturing images and videos using the Device cameras-recording and playing audio files-working with Devices Contacts Database-Hooking into native file system-Monitoring the status of the devices battery

Unit V: Using Cloud Services in Mobile Apps and Monetizing and Publishing an App 15

Identify the fundamental of azure mobile services-Managing app Data using Mobile Services-Monetizing an App-Publishing an App-Analyzing an App

TOTAL :75 hours

Course Outcome:

After completing this course, the students will be able to:

CO1: Build rich mobile experience for touch and mobile devices

CO2: Devleop cross platform apps that target multiple platforms, such as Android, IOS, Windows and windows phone.

CO3: Develop apps that use sensors, devices and cloud services.

CO4: Monetize and publish app.

CO5: Analyzing and working with Audio and Video concepts

Reference:

NIIT PORTAL:

www.niitstudent.com

18PBCH51 JSF AND DEVELOPING APPS 0 0 5 2

IMPLEMENTATION OF JSF, HIBERNATE AND SPRING

Course Objective:

To study and understand the concept of HTML input and output tags of JSF, HTML command and Selection Tags, Implicit Navigation

1. To write a JSF page for HTML Input and HTML Output tags
2. To write a JSF program for HTML Command and Selection Tags
3. To write a JSF program for Registration Page
4. To write a JSF program for Implicit Navigation
5. To write a JSF program for Rule Based Navigation
6. To write a JSF program for Inline style and Embeded style
7. To write a JSF program for External Style
8. To write a JSF program for Insert tag in Template
9. To write a JSF program for Login Page using composite component
10. To write a JSF program for AJAX .
11. To write a Querying Database using Hibernate
12. To write a MVC program using spring.

Course Outcome:

After completion of this practical course, the students will be able to:

CO1: Implement the concept of Styles.

CO2: Implement the concept of Navigation

CO3: Implement the concept of AJAX

CO4: Implement the concept of Hibernate

CO5: Implement the concept of spring.

18PBCH52 CAPSTONE PROJECT -1 5 0 0 2

Course Objective:

To study and understand the concepts of cross platform app using apache corodova, layout, events, location on map, File system, Compass data.

1. Building a cross platform App using Apache corodova
2. Developing corodova App using visual studio
3. Creating Layout
4. Handling Events
5. Creating AtodoList
6. Reading Accelerometer data
7. Displaying Location on Map
8. Capturing Still Images
9. Working WithFileSystem
10. Reading Compass Data
11. Working with Files
12. Creating A todoList with Data Persistant

Course Outcome:

After completing this practical course, the students will be able to:

CO1: Implement the concept of corodova
CO2: Implement the concept of Layout
CO3: Implement the concept of Events
CO4: Implement the concept with Files
CO5: Implement the concept of to-do-List.

18CBCH61 DEVELOPING AND DEPLOYING WEB APPLICATIONS USING GOOGLE APP ENGINE 5 0 0 5

Course Objective:

To study and understand the concepts of Identify fundamentals of cloud computing and google cloud platform, Build an app engine application using Google plugin and maven, build backend API'S using cloud Endpoints, Handle user Authentication and forms, Use app engine data store to store data, Query, Filter, and sort data from google data store, Implement data store transactions, Automatically scale, deploy and secure applications, Fetch URL and manipulate images, Schedule tasks for triggering events at specified times or regular intervals, Manage requests logs.

Unit I: Fundamentals of Cloud Computing and Using Google App Engine – I, Using Google App Engine – II 15

Building Simple Cloud App Using Google Plugin, Exercises. Building Simple Cloud App Using Eclipse and Maven, Importing Existing Maven Project in Eclipse, Exercises.

Unit II: Introduction to Google Cloud Endpoints and Handling User Authentication and Forms, Using Google Data store 15

Creating, Running, and Testing a Simple Backend API, Adding a New Endpoint Function in the Existing, Testing Google's Built- Authenticating User in GAE Java Application, Getting OAuth 2.0 Credentials and Setting a Redirect URI-Storing Data in the Google Data store Using the Objectify API, Retrieving Data from the Google Data store Using the objectify API

Unit III: Filtering and Sorting Data and Data store Indexes, Implementing Data store Transactions 15

Sorting and Filtering Data Using Low-Level Java, Data store APIs, Using Ancestor Queries in GAE Java Application. Using Single-Property Index to Filter Records, Using Composite Index to Filter Records, Searching, Filtering, and Sorting Data Using Google Endpoints and Objectify. Using Transaction in GAE Java Application, Implementing Transaction Using the Objectify API.

Unit IV: Working with Emails, Optimizing Apps Performance and Understanding Auto scaling, Deploying, and Securing Application 15

Sending Simple Email, Receiving Simple Email, Receiving Email Using the Multipart Class, Handling Bounced Emails. Optimizing Apps Performance Using Me cache, Optimizing Apps Performance Using Appstats. Adding Multiple Versions in an Application using Versions Tab, Securing an Application Using Blacklist Tab.

Unit V: URL Fetch API and Images Service API and Task Queues and Cron Jobs, Managing Request Logs **15**

Fetching Web Page Using the URL Fetch Service API, Fetching Web Pages Using the URL Class, Transforming Images Using the Images Java API. Implementing the Push Queue, Implementing the Pull Queue, Implementing Cron Jobs. Writing to the Log, Viewing Recent Logs, Querying Logs Using Logs API.

Total: 75 hours

Course Outcome:

After completing this course, the students will be able to:

CO1: Understands the cloud environment and its applications

CO2: Learned about data storage and retrieval process

CO3: Importance of Performance analysis and security issues

CO4: Create highly scalable Google App Engine Applications

CO5: Seek a job as a Google App Engine Application Developer(Java)

Reference:

www.niitstudent.com

18CBCH62 COMPUTER NETWORKS 4 0 0 4

OBJECTIVES

To understand the network fundamentals, Explore network layer protocols and understand the transport layer services. To explore the various application layer functionalities and understand the link layer services and data communication fundamentals.

UNIT I NETWORKS FUNDAMENTALS 12

Components -Data Representation – Data Flow - Networks - Distributed Processing- Network Criteria - Physical Structures - Network Models -Categories of Networks, Interconnection of Networks: The OSI Model- TCP/IP Protocol Suite- Addressing

UNIT II NETWORK LAYER 12

Network Layer: Logical addressing, Internetworking, IPv4, IPv6, Transition from IPv4 TO IPv6, Tunneling, address mapping, ICMP, IGMP, forwarding, Uni-cast routing protocols, multicast routing protocols.

UNIT III TRANSPORT LAYER 12

Transport Layer: Process to process delivery, UDP and TCP protocols, SCTP, data traffic, congestion, congestion control, QoS, integrated services, differentiated services, QoS in switched networks

UNIT IV APPLICATION LAYER 12

Application Layer – Domain name space, DNS in Internet, Remote Logging, Telnet, electronic mail, FTP, WWW, HTTP, SNMP, Multi-media, Network security

UNIT V FUNDAMENTALS OF DATA COMMUNICATION 12

Communication Model – Data communications – Data Transmission: Concepts and Terminology, Analog and Digital Transmission, Transmission Impairments – Signal Encoding Techniques: Digital Data and Digital Signals – Multiplexing: FDM, TDM, Multiple Channel Access.

TOTAL : 60 HOURS

COURSE OUTCOMES

On completion of the course, the students will be able to:

CO1: Describe the fundamentals of networking
CO2: Identify the networking protocol for reliable communications
CO3: Trace and analyze the packets between end-to-end applications.
CO4: Calculate the capacity of links between nodes.
CO5: Select suitable transport layer protocols for network applications

TEXT BOKS:

1. Behrouz A. Forouzan , “Data Communications and Networking “, Fourth Edition TMH,2006.
2. Andrew S Tanenbaum “Computer Networks” , 4th Edition, Pearson Education.

REFERENCES

1. James F. Kurose, Keith W. Ross, “Computer Networking: A Top-Down Approach”, Seventh Edition, Pearson Education, 2017.
2. Larry L. Peterson and Bruce S. Davie, “Computer Networks: A Systems Approach”, Fifth Edition, Morgan Kaufmann Publishers, 2011.
3. William Stallings, “Data and Computer Communications”, Tenth Edition, Pearson, 2014.
4. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, “Computer Networks: An Open Source Approach”, McGraw-Hill, 2012

18PBCH61 PRACTICAL – VI DEVELOPING AND DEPLOYING WEB APPLICATIONS

USING GOOGLE APP ENGINE 0 0 6 3

The Managing Google Kubernetes Engine and App Engine course is designed to help students become confident at configuring, deploying, and maintaining these services.

Course Outcome

CO1: App Engine is a fully managed, serverless platform for developing and hosting web applications at scale

CO2: Develop application by using several popular languages, libraries, and frameworks

CO3: App Engine take care of provisioning servers and scaling up app instances based on demand.

CO4: Understand Google Cloud Platform (GCP) and compare, many of the computing and storage services available in Google Cloud Platform,

CO5: Know about important resource and policy management tools, such as the Google Cloud Resource

Manager Hierarchy and Google Cloud Identity and Access Management.

18PBCH62 CAPSTONE PROJECT II 0 0 6 3

Course Objective:

To Understand the purpose and scope of the JSF architecture, Build Web applications using JSF's Faces Servlet, faces-config.xml, and the JSF request/response lifecycle, Use the JSF custom tag libraries to build JSF views as JSPs. Use managed beans to encapsulate not only server-side form handling but also client-side presentation logic Implement control logic as JSF event listeners or action methods and Use validators and converters to implement a validation phase for a JSF application

Course Outcome:

CO1: To become better aware of the quality of his or her own design, engineering or business skills

CO2: To understand the potential and the challenges of the interdisciplinary technologies

CO3: Thinks creatively and searches broadly to identify and formulate innovative approaches

CO4: Models and supports actions that enhance innovation

CO5: Designs technological and Apply state-of-the-art technologies in development of new products

Discipline Specific Electives (DSE)

List of Discipline Specific Elective Courses (DSE)

CODE	COURSE CODE
18CBCH32	Professional Skills – I
18CBCH43	Responsive Web Design Using HTML5 and JQuery
18BHC117	Data Structure and Algorithm
18CBCH52	Professional Skills –II
18BHC101	Essential Of Information Technology
18BHC102	Software Project Management
18BHC103	Internet Of Things
18BHC104	Mobile Computing
18BHC105	Cloud Computing
18BHC106	Management Information System
18BHC107	Operating Systems
18BHC108	Object Oriented Analysis And Design
18BHC109	Network Security
18BHC110	Ad Hoc Networks
18BHC111	Big Data Analytics
18BHC112	Unix Programming
18BHC113	Artificial Intelligence
18BHC114	Software Testing
18BHC117	Object Oriented Software Engineering
18BHC118	Software Quality and Assurance
18BHC119	Client / Server Computing
18BHC122	Software Engineering Essentials -I
18BHC151	Enterprise Resource Panning
18BHC152	Introduction to Information Technology
18BHC153	Internet and its applications

18BHC154	Web technology
18BHC155	Introduction to PHP
18BHC156	Business Intelligence
18BHC157	E-Commerceh
18BHC158	Software Project Management
18BHC159	Open Source Technology

18CBCH32 PROFESSIONAL SKILLS – I 5 0 0 5

Course Objective:

To study and understand the concepts of Communication skills, Self- presentation, Team work, Health, Safety and security, Planning and prioritizing(cloud), Aptitude Test Practice, Values and Ethics concept, basic presentation skills, Listening essentials Video log and Assignments

UNIT I: **9**

Team Work- working in Terms –The Anatomy of a Team

UNIT II: **9**

Communication Skills - Basics of Communication –Barriers to Communication

UNIT III: **9**

Importance of Listening in Communication-Effective Conversation

UNIT IV: **9**

Nonverbal Communication –Assertive Communication

UNIT V: **9**

Self Presentation

Total: 45 hours

Course Outcome:

After completing this course, the students will be able to:

CO1: Enhance your professional Skills by being able to communicate and present yourselves in a better way

CO2: Work effectively in a team environment and apply the critical thinking skills

CO3: Practice aptitude test and Problem solving Techniques and maintain a professional Behavior at your work place

CO4: Develop and nurture a deep understanding of personal motivation

CO5: Develop an understanding of and practice personal and professional responsibility

Reference:

NIIT PORTAL:www.niitstudent.com

This Course is offered through collaboration with NIIT Limited, Chennai.

The course content can be viewed through the above mentioned website.

18CBCH43 RESPONSIVE WEB DESIGN USING HTML5 AND JQUERY 4 0 0 4

Course Objective:

To study and understand the concepts of identify web designing techniques, understand blocks and architecture of RWD, Identify the develop environment, Create media queries and set viewport settings, Add fluidity to a website, Identify the different types of Java script Libraries, Manipulate and traverse HTML DOM using JQuery, Implement AJAX functionality, create websites using twitter bootstrap, create web workers

Unit I HTML Understanding 12

Identify the web designing techniques-understanding building blocks and the architecture of RWD-Identify the Development Environment-Applying styles to selective Elements-Applying effects to Html Elements-Using Custom Fonts-Introducing to media query-Introducing to view port

Unit II Adding Fluidity to a website, JavaScript and JQuery 12

Understanding Fluid Grids-Using angular-Using Knockout-Manipulating Html Elements-Traversing DOM

Unit III Event Driven Programming with JQuery and AJAX Using twitter Bootstrap and Working with JQuery 12

Implementing JQuery Elements- Implementing Ajax Functionality using JQuery-Introducing Bootstrap-Creating JQuery mobile application-Enhancing a JQuery Mobile Application

Unit IV: Creating Advance JQuery Mobile Pages 12

Working with List Views –Implementing touch and scroll Events

Unit V Introducing Web Workers 12

Using web workers in a web page

Total: 60 hours

Course Outcome:

After completing this course, the students will be able to:

CO1: Develop responsive web site that adopt their structure according to the device on which they are accessed

CO2: Develop responsive websites in a shorter period of time using twitter bootstrap

CO3: Develop cross-platform web applications using JQuery Mobile

CO4: Implementing Ajax Functionality using JQuery

CO5: Develop new project using JQuery mobile application.

References:NIIT PORTAL:www.niitstudent.com

18BHC117 **DATA STRUCTURE AND ALGORITHM** **4 0 0 4**

Course Objective:

To study and understand the concepts of the role data structure and algorithms in problem solving through computers, identify the techniques to design algorithms and measure their efficiency, sort data by using bubble sort, insertion sort and quick sort, search data by using linear search and binary search techniques, store and search data by using hashing, solve programming problems by using linked list, solve problems by using stacks and queues, solve programming problems by using trees.

Unit I Introducing Algorithms and Data Structures **12**

Exploring the role of algorithms and data structures –Designing algorithms and measuring their Efficiency

Unit II Implementing Sorting Algorithms **12**

Sorting Data-Sorting Data by using Bubble sort-sorting data by using insertion sort-sorting data by using quick sort

Unit III Implementing Searching Algorithms **12**

Performing Linear Search-Performing Binary search-Implementing Hashing

Unit IV Solving Programming Problems Using Linked Lists **12**

Introduction to linked list – Implementing to singly linked list – Implementing to Doubly Linked List

Unit V Solving Programming Problems Using Stacks and Queues **12**

Solving programming problems by using stacks –Solving Programming problems by using Queues-Storing data in a tree implementing a binary tree- Implementing the binary search tree.

Total: 60 hours

Course Outcome:

After completing this course, the students will be able to:

CO1: Develop skills for effective data representation to build efficient programs

CO2: Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are Represented in memory and used by algorithms

CO3: Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.

CO4: Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs and Demonstrate different methods for traversing trees

CO5: Compare and contrast the benefits of dynamic and static data structures implementations

Reference:NIIT PORTAL:www.niitstudent.com

This Course is offered through collaboration with NIIT Limited, Chennai.The course content can be viewed through the above mentioned website.

18CBCH52 **PROFESSIONAL SKILLS –II** **4 0 0 4**

Course Objective:

To study and understand the concepts of Business communication, Interview Skills, Develop your knowledge, understanding job role, Aptitude test practice, understanding organization policies and procedures, business grammar, sentence construction, introduction to sale, Communicating with professional and Etiquette, Assessments.

UNIT I: **9**

Business Writing –Practicing Business Writing

UNIT II: **9**

Providing Data in Relevant Formats

UNIT III: **9**

Self Development

UNIT IV: **9**

Carrer Growth Development

UNIT V: **9**

Understanding the Interviews -Getting Ready for the Interview – Preparing for the Group Discussion- Handling Interview Questions 1- Handling Interview Questions 2

Total: 45 hours

Course Outcome:

After completing this course, the students will be able to:

CO1: Enhance your professional skills by being able to improve your business communication skills and present data in various formats.

CO2: Develop your knowledge, skills and competence.

CO3: Develop interview skills and practice aptitude tests.

CO4: Identify and research a wide variety of career fields and opportunities

CO5: Market themselves effectively to prospective employers (through written documents, online presence, and skillful interviews)

Reference:

NIIT PORTAL: **www.niitstudent.com**

18BHC101 ESSENTIALS OF INFORMATION TECHNOLOGY 4 0 0 4

Course Objective:

To understand the basics of computers, problem solving techniques, file handling and database concepts, Analysis and Design varied roles of information systems software development life cycle human factors develop interpersonal and analytic skills design a large information system group design effort communicate design orally and in writing data modeling

UNIT IINTRODUCTION TO COMPUTER SYSTEM 9

Basics of computer systems – Various hardware components – Date storage and various memory Units – Central processing unit– Execution cycle – Introduce to software and its classification.

UNIT IIPROBLEM SOLVING TECHNIQUES 9

Introduction to Problem Solving – Computational Problem and its Classification – Logic and its Types – Introductionto Algorithms – Implementation of Algorithms using Flowchart – Flowcharts Implementation through RAPTOR Tool – Searching and Sorting Algorithms – Introduction and Classification to Data Structures – Basic Data Structures – Advanced Data Structures.

UNIT III PROGRAMMING BASICS 9

Introduction to Programming Paradigms and Pseudo Code – Basic Programming Concepts – Program Life Cycle – Control Structures – Introduction and Demonstration of 1–D Array And 2–D Array – Searching and Sorting Techniques – Demonstration Concepts of Memory References in Arrays – Strings – Compiler Concepts – Code Optimization Techniques.Structured Programming – Functions – Structures – File Handling – Introduction to Software Development Life Cycle – Industry Coding Standards and Best Practices – Testing and Debugging – Code Review.

UNIT IV PROJECT 9

Project Specification – Preparation of High Level Design and Detailed Design Document, UNIT Test Plan and Integrated Test Plan – Coding and UNIT Testing Activities – Integration Testing.

UNIT VRDBMS 9

RDBMS – Data Processing – The Database Technology – Data Models – ER Modeling Concept – Notations –Extended ER Features – Logical Database Design – Normalization – SQL – DDL Statements – DML Statements – DCL Statements – Joins – Sub queries–Views – Database Design Issues.

TOTAL: 45 HOURS

COURSEOUTCOME:

CO1: Explain the working of operating system
CO2: Differentiate the various types of networking and their functionality
CO3: Use Microsoft office document for developing personal, business documents following current industry/professional standards
CO4: Identify the components of multimedia and their importance
CO5: Analyse and synthesize business information system to facilitate management

Text Books:

1. Andrew S.Tanenbaum,"Structured Computer Organization", PHI,4th edition, 2010.
2. Dromey,R.G,"How to solve it by computers",Prentice Hall,2005.
3. Alfred V.Aho,Ullman,Hopcroft,"Data Structures and Algorithms",Addison–Wesley.
4. YashwantKanitker,Let Us C, "YashwanthKanitkar",Second Edition.
5. AhoAlfred V.Compiler,"Principles,Techniques and Tools",Pearson Education.
6. Henry F Korth,AbrahamSilberschatz,"Database System Concepts", 2nd Edition,McGrawHill International editions,Computer science series, 2012.

References:

1. John L.Hennessy,David Goldberg,David A.Patterson,"Computer Architecture A Quantitative Approach",Morgan Kaufman Publishers, Second Edition, 1996.
2. Silberschatz and Galvin, "Operating System Concepts", John Wiley & Sons, Sixth edition.
3. Andrew Tanenbaum,"Modern Operating System Concepts", Pearson Education.
4. Milan Milenkovic,"Operating Systemconcepts and design", McGraw–Hill.
5. Charles Crowley,"OperatingSystem A Design–oriented Approach".
6. Lipschutz, Seymour & G A V Pai, "Data Structures", Tata McGraw–Hill.
7. Baldwin,Douglas &Scragg, Greg W., "Algorithms and Data Structures the Science of Computing",DreamTech.
8. Kernighan,Ritchie, "ANSI C Language",Prentice Hall of India, New Delhi, 1992.
9. Schaum series,"Programming in C", 3rd Edition.
10. Jon Bentley, "Programming Pearls",Pearson Education Publication.
11. Tharp Alan L, "File Organization and Processing",John Willey and Sons.
12. Elmasri, Navathe, "Fundamentals of Database Systems", Addison Wesley,Third edition.
13. C.J.Date,"An Introduction to Database Systems",Narosa Publication, 6th Edition.

18BHC103 INTERNET OF THINGS 4 0 0 4

Course Objective: To learn the basic issues, policy and challenges in the Internet. To understand the components and the protocols in Internet. To build a small low cost embedded system with the internet. To understand the various modes of communications with internet. To learn to manage the resources in the Internet. To deploy the resources into business. To understand the cloud and internet environment.

UNIT IINTRODUCTION 9

Definition – phases – Foundations – Policy– Challenges and Issues – identification – security – privacy. Components in internet of things Control UNITs – Sensors – Communication modules – Power Sources – Communication Technologies – RFID – Bluetooth – Zigbee – Wi-Fi – Rflinks – Mobile Internet – Wired Communication.

UNIT IIPROGRAMMING THE MICROCONTROLLER FOR IOT 9

Basics of Sensors and actuators – examples and working principles of sensors and actuators – Cloud computing and IOT – Arduino/Equivalent Microcontroller platform – Setting up the board – Programming for IOT – Reading from Sensors Communication Connecting Microcontroller With Mobile Devices – Communication Through Bluetooth and USB – Connection With The Internet Using Wi-Fi / Ethernet

UNIT III RESOURCE MANAGEMENT IN THE INTERNET OF THINGS 9

Clustering – Software Agents – Data Synchronization – Clustering Principles in an Internet of Things Architecture – The Role of Context – Design Guidelines –Software Agents for Object – Data Synchronization– Types of Network Architectures –Enabling Autonomy and Agility by the Internet of Things–Technical Requirements for Satisfying the New Demands in Production – The Evolution from the RFID–based EPC Network to an Agent based Internet of Things– Agents for the Behaviour of Objects.

UNIT IV BUSINESS MODELS FOR THE INTERNET OFTHINGS 9

The Meaning of DiY in the Network Society– Sensor–actuator Technologies and Middleware as a Basis for a DiY Service Creation Framework – Device Integration – Middleware Technologies Internet of Things Semantic Interoperability as a Requirement for DiY Creation –Ontology– Value Creation in the Internet of Things–Application of Ontology Engineering in the Internet of Things–Semantic Web–Ontology – The Internet of Things in Context of EURIDICE – Business Impact

UNIT V FROM THE INTERNET OF THINGS TO THE WEB OF THINGS 9

Resource–oriented Architecture and Best Practices– Designing Restful Smart Things – Web– enabling Constrained Devices – The Future Web of Things – Set up cloud environment – send data from microcontroller to cloud – Case studies – Open Source e–Health sensor platform – Be Close Elderly monitoring – Other recent projects.

Course Outcome (CO): At the end of this course, the students will be able to

CO 1: Designing IOT based Applications using sensors and actuators.

CO 2: Implementing different kinds of sensors for real world systems.

CO 3: To Learn how to implement the IOT with cloud and develop the applications.

CO 4: To Demonstrate concepts of Virtual machines in the cloud environment.

CO 5: To understand the Cloud services available for the web applications.

TOTAL: 45 HOURS

Text Books:

1. CharalamposDoukas, “Building Internet of Things with the Arduino”, Create space, April 2002.
2. Dieter Uckelmann et.al, “Architecting the Internet of Things”, Springer, 2011

References:

1. http//postscapes.com/
2. http//www.theinternetofthings.eu/what–is–the–internet–of–things

18BHC104 MOBILE COMPUTING 4 0 0 4

Course Objective:

To understand the basics of Mobile computing. To learn the role of wireless networks in Mobile Computing. To study about the underlying wireless networks. To understand the architectures of mobile. To become familiar with the mobile computing platforms

UNIT I WIRELESS COMMUNICATION FUNDAMENTALS 12

Introduction – Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks.

UNITIITELECOMMUNICATION NETWORKS 12

Telecommunication systems – GSM – GPRS – DECT – UMTS – IMT–2000 – Satellite Networks **–**Basics – Parameters and Configurations – Capacity Allocation – FAMA and DAMA – Broadcast Systems – DAB – DVB.

UNITIIIWIRELESS LAN 12

Wireless LAN – IEEE 802.11 – Architecture – services – MAC – Physical layer – IEEE 802.11a – 802.11b standards – HIPERLAN – Blue Tooth.

UNITIVMOBILE NETWORK LAYER 12

Mobile IP – Dynamic Host Configuration Protocol – Routing – DSDV – DSR – Alternative Metrics.

UNIT V TRANSPORT AND APPLICATION LAYERS 12

Traditional TCP – Classical TCP improvements – WAP, WAP 2.0.

Course Outcomes:

CO-1: To be well versed in Electronic Commerce Environment.

CO-2: To understand the basics of Electronic Data Interchange.

CO-3: To understand the secure commerce Requirements.

CO-4: To understand how the payments are transferred in a secured manner.

CO-5: To understand the need for the security of web servers.

TOTAL: 60 HOURS

Text Books:

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, Second Edition, 2003. (UNIT I Chap 1,2 &3–UNIT II chap 4,5 &6–UNIT III Chap 7.UNIT IV Chap 8–UNIT V Chap 9&10.)
2. William Stallings, “Wireless Communications and Networks”, PHI/Pearson Education, 2002. (UNIT I Chapter – 7&10–UNIT II Chap 9)

References:

1. KavehPahlavan, PrasanthKrishnamoorthy, “Principles of Wireless Networks”, PHI/Pearson Education, 2003.
2. UweHansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, New York, 2003.
3. HazysztofWesolowshi, “Mobile Communication Systems”, John Wiley and Sons Ltd, 2002.

18BHC105 CLOUD COMPUTING 4 0 0 4

Course Objective: To introduce the broad perceptive of cloud architecture and model. To understand the concept of Virtualization and design of cloud Services. To be familiar with the lead players in cloud. To understand the features of cloud simulator. To apply different cloud programming model as per need. To learn to design the trusted cloud Computing system

UNIT I CLOUD ARCHITECTURE AND MODEL 12

Technologies for Network–Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models– Characteristics – Cloud Services – Cloud models (IaaS, PaaS, SaaS) – Public vs Private Cloud –Cloud Solutions – Cloud ecosystem – Service management – Computing on demand.

UNIT II VIRTUALIZATION 12

Basics of Virtualization – Types of Virtualization – Implementation Levels of Virtualization – Virtualization Structures – Tools and Mechanisms – Virtualization of CPU, Memory, I/O Devices – Virtual Clusters and Resource management – Virtualization for Data–canter Automation.

UNIT III CLOUD INFRASTRUCTURE 12

Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development – Design Challenges – Inter Cloud Resource Management – Resource Provisioning and Platform Deployment – Global Exchange of Cloud Resources.

UNITIV PROGRAMMING MODEL 12

Parallel and Distributed Programming Paradigms – MapReduce , Twister and Iterative MapReduce – Hadoop Library from Apache – Mapping Applications – Programming Support – Google App Engine, Amazon AWS – Cloud Software Environments –Eucalyptus, Open Nebula, OpenStack, Aneka, CloudSim

UNIT V SECURITY IN THE CLOUD 12

Security Overview – Cloud Security Challenges and Risks – Software–as–a–Service Security – Security Governance – Risk Management – Security Monitoring – Security Architecture Design – Data Security – Application Security – Virtual Machine Security – Identity Management and Access Control – Autonomic Security.

TOTAL: 60 HOURS

Course Outcomes:

CO-1: Ability to understand architecture and concepts of different cloud models.

CO-2: Capable of creating applications by utilizing cloud platforms.

CO-3: Understanding the key dimensions of the challenges of cloud computing.

CO-4: Ability to assess own organization’s needs for capacity building and training in

Cloud related IT areas.

CO-5: Broadly educate with the impact of engineering on legal and societal issues Involved.

Text Books:

1. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, "Distributed and Cloud Computing, From Parallel Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.
2. John W.Rittinghouse and James F.Ransome, "Cloud Computing Implementation, Management, and Security", CRC Press, 2010.
3. Toby Velte, Anthony Velte, Robert Elsenpeter, "Cloud Computing, A Practical Approach", TMH, 2009.
4. Kumar Saurabh, "Cloud Computing – insights into New–Era Infrastructure", Wiley India,2011.
5. George Reese, "Cloud Application Architectures Building Applications and Infrastructure in the Cloud" O'Reilly.

References:

1. James E. Smith, Ravi Nair, "Virtual Machines Versatile Platforms for Systems and Processes", Elsevier/Morgan Kaufmann, 2005.
2. Katarina Stanoevska–Slabeva, Thomas Wozniak, SantiRistol, "Grid and Cloud Computing – A Business Perspective on Technology and Applications", Springer.
3. Ronald L. Krutz, Russell Dean Vines, "Cloud Security – A comprehensive Guide to Secure Cloud Computing", Wiley – India, 2010.
4. RajkumarBuyya, Christian Vecchiola, S.ThamaraiSelvi, 'Mastering Cloud Computing", Tata McGrawHill,2013.
5. Gautam Shroff, "Enterprise Cloud Computing",Cambridge University Press,2011 11. Michael Miller, Cloud Computing,Que Publishing,2008.
6. Nick Antonopoulos, "Cloud computing,Springer", Publications,2010

18BHC106 MANAGEMENT INFORMATION SYSTEMS 4 0 0 4

Course Objective:

MIS is very useful for efficient and effective planning and control functions of the management. Management is the art of getting things done through others. MIS will be instrumental in getting the things done by providing quick and timely information to the management. Reports give an idea about the performance of men, materials, machinery, money and management. Reports throw light on the utilization of resources employed in the organization.

UNITIINTRODUCTION TO INFORMATION SYSTEMS 9

Why study Information System – Why Business needInformation Technology – Fundamentals of Information System – Overview of InformationSystems.

UNITII SOLVING BUSINESS PROBLEMS WITH INFORMATION SYSTEMS 9

System Approach to Problem Solving –Developing Information System Solution – Database ManagementManaging Data Resources –Technical Foundations of database Management.

UNITIII INFORMATION SYSTEMS FOR STRATEGIC ADVANTAGES 9

Fundamentals of Strategic Advantage StrategicApplications and Issues in It; Managing IT Enterprise and Global Management

UNITIV BUSINESS APPLICATIONS OF INFORMATION TECHNOLOGY 9

The Internet and Electronic Commerce –Fundamentals of Electronic Commerce – Information System for Business Operations BusinessInformation System – Transaction – processing Systems.

UNITV INFORMATION SYSTEMS FOR MANAGERIAL DECISION SUPPORT 9

Decision Support Systems ArtificialIntelligence technology in Business – Managing IT – Planning for Business change with IT –Implementing business change with IT – Security & Control Issues in I/S – Ethical and societalchallenges of Information Technology.

COURSE OUTCOME:

CO-1: To understand MIS and its support for organization.

CO-2: To clarify the structure of MIS and provide information for decision making

CO-3: To understand system concepts and classification.

CO-4: To know the categories of system and competitive advantage.

CO-5: To aware of computers and their peripheral devices.

TOTAL: 45 HOURS

Text Book

1. James A. O'Brien, "Management Information Systems", Galgotia publications, Fourth Edition,1999.

References:

1. Gordon B. Davis Margret the H. Olson, "Management Information Systems", McGraw Hill,3rd Reprint 2000.

18BHC107 OPERATING SYSTEMS 4 0 0 4

Course Objectives: Learn basics of operating Systems. Understand the process management and synchronization that take place in the operating system. Learn the principles of memory, I/O and file management in a secured environment.

Unit -1 **12**

Introduction, Basic OS functions, types of operating systems–Batch, Multiprogramming, Time sharing, and Real time systems; operating systems for personal computers, Operating System Organization, User and Kernal Modes, system calls and system programs.

Unit -II **12**

Process Management, , Process Control Block, Processes Scheduling – Schedulers, Context Switch, Operation on Process, Scheduling Criteria Non-pre-emptive and pre-emptive scheduling algorithms: FCFS, Shortest Job First, Round Robin, Priority Scheduling

Unit -III **12**

Process Synchronization - Concurrent processes, concept of critical section, semaphores Classic Problems of Synchronization

Deadlock, Condition for deadlock, Concept of deadlock prevention, detection and recovery.

Unit -IV **12**

Memory Management- Basic Hardware Logical & Physical Address Space , Dynamic Loading Swapping, Relocation, Memory Allocation , Fragmentation, Paging, Segmentation.

Virtual Memory – Background, Demand Paging, Page Replacement techniques

Unit V **12**

File-System Interface- File Concept File Operations, File Types File Structure, Access Methods, Directory and Disk Structure Disk scheduling techniques - FCFS, Shortest Seek Time First, and Scan.

Case Studies – Linux, Windows

TOTAL: 60 HOURS

Course Outcomes:

After completing the subject, students will be able to:

- **CO-1:** Describe the basic functionalities and structure of the Operating System
- **CO-2:** Explain the concepts and implementations of: Processes, Process Scheduling
- **CO-3:** Comprehend the concepts of Synchronization and Deadlocks in the Operating System
- **CO-4:** Discuss the concepts of Memory Management(Physical and Virtual memory)
- **CO-5:** Explain the concepts of File System with regard to directory and disk management algorithms.

Text Books:

1. Operating System Concepts (8th Edition) by Silberschatz, Peter B. Galvin and Greg Gagne, Wiley Indian Edition (2010).
2. Modern Operating Systems (Third Edition) by Andrew S Tanenbaum, Prentice Hall India (2008).

Reference Books:

1. Principles of Operating Systems by Naresh chauhan, Oxford Press (2014).
2. Operating Systems by D.M. Dhamdhere, Tata McGraw Hill 2nd edition

18BHC108 OBJECT ORIENTED ANALYSIS AND DESIGN 4 0 0 4

Course Objective:

Develop a working understanding of formal object–oriented analysis and design processes, Develop an appreciation for and understanding of the risks inherent to large–scale software development, Learn (through experience!) techniques, processes, and artifacts that can mitigate these risks, Develop the skills to determine which processes and OOAD techniques should be applied to a givenproject, and Develop an understanding of the application of OOAD practices from a software project management perspective

UNITI INTRODUCTION **9**

System Development – Object Basis – Development Life Cycle – Methodologies – Patterns – Unified Approach – UML.

UNITII USE CASE MODELS **9**

Use–Case Models – Object relations – Attributes – Methods – Class and Object responsibilities

UNIT III CASE DESIGN **9**

Design Processes – Design Axioms – Class Design – Object Storage – Object Interpretability – Case Studies.

UNIT IV USER INTERFACE DESIGN **9**

User Interface Design – View layer Class – Micro–Level Processes – View Layer Interface – Case Studies.

UNIT V TESTING **9**

Quality Assurance Tests – Testing Strategies– Test Cases – test Plants – Continuous testing – Debugging Principles – Measuring User Satisfaction – Case Studies.

TOTAL: 45 HOURS

Course Outcomes:

At the end of this course the student will be able to

CO1: understand the formal object–oriented analysis and design processes.

CO2: understand the risks inherent to large–scale software development.

CO3: Develop the skills to determine which processes and OOAD techniques should be applied to a given project.

CO4: Develop an understanding of the application of OOAD practices.

CO5: Analyse the various testing strategies in Object oriented software development.

Text Book:

1. Ali Bahrami,“Object Oriented Systems Development”, McGraw Hill International Edition,1999.

References:

1. Grady Booch,“Object Oriented Analysis and design”, Addison Wesley, 2nd, Edition, 1999.

18BHC109 NETWORK SECURITY 4 0 0 4

Course Objective:

To understand Network Devices functions and configurations hub, switch, tap andRouters, Understand Network Security Devices (IDS, Firewall..Etc.), Understand and analyse network services, Understand network–troubleshooting concepts, Understand networksecurity concepts, Understand network intrusions

UNITI INTRODUCTION 9

Attacks – Services – Mechanisms – Conventional Encryption – Classical and Modern Techniques – Encryption Algorithms – Confidentiality.

UNITII PUBLIC KEY ENCRYPTION 9

Public key cryptography RSA (Rivestshamir-adleman) algorithm – Elliptic Curve Cryptography –Number Theory Concepts – Modular arithmetic – Euler's theorem.

UNITIII MESSAGE AUTHENTICATION 9

Message Authorization and Hash Functions- Authentication Requirements – Digest Function – Digital Signatures – Digital signature Standards.

UNIT IVNETWORK SECURITY PRACTICE 9

Authentication Protocols, Authentication Applications – Electronic Mail Security – Internet Protocol Security – Web Security.

UNIT VSYSTEM SECURITY 9

Introduction to security attacks - Intruders –Types of Intruders – Viruses – Worms – Firewalls Design Principles –Trusted Systems.

COURSE OUTCOMES: TOTAL : 45 HOURS

CO-1: To Provide students with a high- level understanding of how information security

functions in an organization both business and technology- centric.

CO–2: To describe master information security governance, and related legal and regulatory issues and to master understanding external and internal threats to an organization,

CO–3: To be familiarity with information security awareness and a clear understanding of its importance and to be familiar with how threats to an organization are discovered, analyzed, and dealt with.

CO–4: To understand master fundamentals of secret and public cryptography and to master protocols for security services

CO–5: To be well known with network security threats and countermeasures and to design available secure solutions (such as PGP, SSL, IPSec, etc),

TOTAL: 45 HOURS

Text Book

1. Stallings, “Cryptography & Network Security – Principles & Practice”, Prentice Hall, 3rd Edition 2002.

References:

1. Bruce, Schneier, “Applied Cryptography”, Toha Wiley & Sons, 2nd Edition, 1996.
2. Man Young Rhee, “Internet Security”, Wiley, 2003.
3. Pfleeger&Pfleeger, “Security in Computing”, Pearson Education, 3rd Edition, 2003.

18BHC110 AD HOC NETWORKS 4 0 0 4

Course Objective

To understand the state–of–the–art in network protocols, architectures and applications, Analyze existing network protocols and networks, Develop new protocols in networking, To understand how networking research is done, To investigate novel ideas in the area of Networking via term–long research projects.

UNIT I. INTRODUCTION 9

Introduction–Fundamentals of Wireless Communication Technology – The Electromagnetic Spectrum – Radio Propagation Mechanisms – Characteristics of the Wireless Channel – IEEE 802.11a,b Standard – Origin Of Ad hoc Packet Radio Networks – Technical Challenges – Architecture of PRNETs – Components of Packet Radios – Ad hoc Wireless Networks –What Is an Ad Hoc Network? Heterogeneity in Mobile Devices – Wireless Sensor Networks – Traffic Profiles – Types of Ad hoc Mobile Communications – Types of Mobile Host Movements – Challenges Facing Ad Hoc Mobile Networks–Ad hoc wireless Internet

UNIT II AD HOC ROUTING PROTOCOLS 9

Introduction – Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks – Classifications of Routing Protocols –Table–Driven Routing Protocols – Destination Sequenced Distance Vector (DSDV) – Wireless Routing Protocol (WRP) – Cluster Switch Gateway Routing (CSGR) – Source–Initiated On–Demand Approaches – Ad Hoc On–Demand Distance Vector Routing (AODV) – Dynamic Source Routing (DSR) –Temporally Ordered Routing Algorithm (TORA) – Signal Stability Routing (SSR) –Location–Aided Routing (LAR) – Power–Aware Routing (PAR) – Zone Routing Protocol (ZRP)

UNIT III MULTICASTROUTING IN AD HOC NETWORKS 9

Introduction – Issues in Designing a Multicast Routing Protocol – Operation of Multicast Routing Protocols – An Architecture Reference Model for Multicast Routing Protocols –Classifications of Multicast Routing Protocols – Tree–Based Multicast Routing Protocols– Mesh–Based Multicast Routing Protocols – Summary of Tree–and Mesh–Based Protocols – Energy–Efficient Multicasting – Multicasting with Quality of Service Guarantees – Application–Dependent Multicast Routing – Comparisons of Multicast Routing Protocols

UNIT IV TRANSPORT LAYER, SECURITY PROTOCOLS 9

Introduction – Issues in Designing a Transport Layer Protocol for Ad Hoc Wireless Networks – Design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks –Classification of Transport Layer Solutions – TCP Over Ad Hoc Wireless Networks –Other Transport Layer Protocols for Ad Hoc Wireless Networks – Security in Ad Hoc Wireless Networks – Network Security Requirements – Issues and Challenges in Security Provisioning – Network Security Attacks – Key Management – Secure Routing in Ad Hoc Wireless Networks

UNIT VQOS AND ENERGY MANAGEMENT 9

Introduction – Issues and Challenges in Providing QoS in Ad Hoc Wireless Networks –Classifications of QoS Solutions – MAC Layer Solutions – Network Layer Solutions –QoS Frameworks for Ad Hoc Wireless Networks Energy Management in Ad Hoc Wireless Networks –Introduction – Need for Energy Management in Ad Hoc Wireless Networks – Classification of Energy Management Schemes – Battery Management Schemes – Transmission Power Management Schemes – System Power Management Schemes

TOTAL: 45 HOURS

COURSE OUTCOME:

CO1: Have gained an understanding of the current topics in MANETs and WSNs, both

from an industry and research point of views.

CO2: Understanding of the principles of mobile ad hoc networks (MANETs)

CO3: Undersanding the concept of infrastructure-based networks.

CO4: Understand how proactive routing protocols function

CO5: Knowledge on implications ofdata transmission delay and bandwidth consumption.

Text Book:

1. C. Siva Ram Murthy and B.S. Manoj “Ad Hoc Wireless NetworksArchitectures and Protocols”, Prentice Hall PTR, 2004.

References:

1. C.K. Toh, “Ad Hoc Mobile Wireless Networks Protocols and Systems”, Prentice Hall PTR,2001

18BHC111 BIG DATA ANALYTICS 4 0 0 4

Course Objective:

To explore the fundamental concepts of big data analytics, To learn to analyze the big data using intelligent techniques, To understand the various search methods and visualization techniques, To learn to use various techniques for mining data stream, To understand the applications using Map Reduce Concepts.

UNIT I INTRODUCTION TO BIG DATA 9

Introduction to BigData Platform – Challenges of Conventional Systems – Intelligent data analysis – Nature of Data – Analytic Processes and Tools – Analysis vs Reporting – Modern Data Analytic Tools – Statistical Concepts Sampling Distributions – Re–Sampling – Statistical Inference – Prediction Error.

UNIT II MINING DATA STREAMS 9

Introduction To Streams Concepts – Stream Data Model and Architecture – Stream Computing – Sampling Data in a Stream – Filtering Streams – Counting Distinct Elements in a Stream – Estimating Moments – Counting Oneness in a Window – Decaying Window – Real time Analytics Platform(RTAP) Applications – Case Studies – Real Time Sentiment Analysis, Stock Market Predictions.

UNIT III HADOOP 9

History of Hadoop– The Hadoop Distributed File System – Components of Hadoop–Analysing the Data with Hadoop– Scaling Out–Hadoop Streaming– Design of HDFS–Java interfaces to HDFS– Basics–Developing a Map Reduce Application–How Map Reduce Works–Anatomy of a Map Reduce Job run–Failures–Job Scheduling–Shuffle and Sort – Task execution – Map Reduce Types and Formats– Map Reduce Features

UNIT IV HADOOP ENVIRONMENT 9

Setting up a Hadoop Cluster – Cluster specification – Cluster Setup and Installation –Hadoop Configuration–Security in Hadoop– Administering Hadoop – HDFS – Monitoring–Maintenance–Hadoop benchmarks–Hadoop in the cloud

UNIT VFRAMEWORKS 9

Applications on Big Data Using Pig and Hive – Data processing operators in Pig – Hive services – HiveQL – Querying Data in Hive – fundamentals of HBase and ZooKeeper– IBM InfoSphereBigInsights and Streams. Visualizations – Visual data analysis techniques, interaction techniques; Systems and applications

TOTAL: 45 HOURS

COURSE OUTCOME:

CO-1: Understand the fundamental concepts of big data platform and know about the basic concepts of nature and evolution of big data.

CO-2: To work with big data platform learn intelligent data analysis and compare old and modern data analytic tool.

CO-3: Understand the data streams concepts and stream computing.

CO-4: To explore on Big Data real time analytics platform applications.

CO-5: Learn about the advanced analytics techniques to gain knowledge of latest techniques.

Text Books:

1. Michael Berthold, “Intelligent Data Analysis”,David J. Hand,”, Springer, 2007.
2. Tom White “ Hadoop The Definitive Guide”, O’reilly Media, Third Edition, 2012.
3. Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, “Understanding Big Data Analytics for Enterprise Class Hadoop and Streaming Data”, McGrawHill Publishing, 2012
4. AnandRajaraman and Jeffrey David Ullman, “Mining of Massive Datasets”, Cambridge University Press, 2012.
5. Bill Franks, “Taming the Big Data Tidal Wave Finding Opportunities in Huge Data Streams with Advanced Analytics”, John Wiley & sons, 2012.
6. Glenn J. Myatt, “Making Sense of Data”, John Wiley & Sons, 2007.

References:

1. Pete Warden, “Big Data Glossary”, O’Reilly, 2011.
2. Jiawei Han, MichelineKamber, “Data Mining Concepts and Techniques”, Elsevier, Reprinted Second Edition,2008.
3. Da Ruan,Guoquing Chen, Etienne E.Kerre, Geert Wets, “Intelligent Data Mining”, Springer,2007
4. Paul Zikopoulos,Dirk deRoos, Krishnan Parasuraman, Thomas Deutsch , James Giles , David Corrigan, Harness, “The Power of Big Data the IBM Big Data Platform”, Tata McGraw Hill Publications, 2012
5. Michael Minelli, Michele Chambers, AmbigaDhiraj, “Big Data, Big Analytics Emerging Business Intelligence and Analytic Trends for Today's Businesses”,Wiley Publications,2013 .
6. Zikopoulos, Paul, Chris Eaton, “Understanding Big Data Analytics for Enterprise Class Hadoop and Streaming Data”, Tata McGraw Hill Publications, 2011.

15MCA110 BUSINESS INTELLIGENCE AND ITS APPLICATION 3 0 0 3

Course Objective:
The objective of this course is for the students to achieve a profound understanding of Business Intelligence (BI) systems in terms of its tools, current practices and impacts. The students should acquire knowledge on how to design BI solutions for different BI targets and users.

UNIT1 INTRODUCTION TO BUSINESS INTELLIGENCE 9

Introduction to OLTP and OLAP, BI Definitions& Concepts, Business Applications of BI , BI Framework, Role of Data warehousing in BI, BI Infrastructure components – BI process, BI Technology, BI Roles & Responsibilities.

UNITII BASICS OF DATA INTEGRATION 9

Concepts of data integration need and advantages of using data integration, introduction to common data integration approaches, introduction to ETL using SSIS, Introduction to data quality, data profiling concepts and applications.

UNITIII INTRODUCTION TO MULTI–DIMENSIONAL DATA MODELING 9

Introduction to data and dimension modeling, multidimensional modeling vs. multi-dimensional modeling, concepts of dimensions, facts, cubes, attributes, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using SSAS.

UNITIVENTRERPRISE REPORTING 9

Basic of Enterprise Reporting, Introduction to enterprise reporting, concepts of dashboards, balanced scorecards, introduction to SSRS Architecture, enterprise reporting using SSRS.

UNIT VCASE STUDY 9

A project that allows the students to apply Technical, Behavioral and Process concepts learnt in the elective course by

- Executing near real–life project (with large data).
- Working in teams (Project teams will ideally comprise of 4 members).
- Experiencing expectations from different roles.

TOTAL: 45 HOURS

COURSE OUTCOME:

CO1: Explain the concepts of business intelligence
CO2: Interpret data for acquiring intelligence
CO3: Implement multidimensional data modelling
CO4: Design and develop enterprise model and report
CO5: Implement business intelligence in real life problems

Text Books

1. David Loshin, “Business Intelligence”.
2. Mike Biere,“Business intelligence for the enterprise”.

3. Larissa Terpeluk Moss, ShakuAtre, “Business intelligence roadmap”.
4. CindiHowson, “Successful Business Intelligence Secrets to making killer BI applications”.

References:

1. Brain, Larson, “Delivering business intelligence with Microsoft SQL server”, 2008.
2. Lynn Langit, “Foundations of SQL server 2005 Business intelligence”.

18BHC112 UNIX PROGRAMMING 4 0 0 4

Course Objective:

To study and understand the UNIX architecture, file systems, basic commands. To understand Shell programming and analyze various system calls and processes.

UNIT I: Introduction to UNIX 9

Architecture of UNIX, Features of UNIX , UNIX Commands – man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip, env . Environment Variables**:** PATH, LOGNAME, SHELL, USER.

UNIT II: UNIX Utilities 9

Introduction to UNIX file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities ,Networking commands, unlink, du, df, mount, umount, find, unmask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin, text processing utilities and backup utilities , tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, cpio.

UNIT III: Introduction to Shell 9

UNIX Session, Standard Streams, Redirection, Pipes, Tee Command, Command Execution, Command Line Editing, Quotes, Command Substitution, Job Control, Aliases, Variables, Predefined Variables, Shell/Environment Customization, Filters, grep, sed, awk, Functions, String Functions, Mathematical Functions, User – Defined Functions, Using System commands in awk, Applications, awk and grep, sed and awk .

UNIT IV: File Management 9

File Structures, System Calls for File Management – create, open, close, read, write, lseek, link, symlink, unlink, stat, fstat, lstat, chmod, chown, Directory API – opendir, readdir, closedir, mkdir, rmdir, umask

UNIT V: Process Management 9

Categories of process, Parent & Child process, Zombie and Orphan process, mechanism of init(), termination of a process, process control mechanism

TOTAL : 45 HOURS

COURSE OUTCOME:

At the end of this course the student will be able to

CO1 : Describe the architecture of multi user OS UNIX and its basic features and commands.

CO2 : Interpret and apply UNIX Commands and utilities in Linux/UNIX systems.

CO3 : Illustrate Shell Programming and to write Shell Scripts

CO4 : Design and develop UNIX File I/O operations.

CO5 : Ability to understand and interpret UNIX

Text Books:

1. UNIX and Shell Programming; Behrouz A. Forouzan, Richard F. Gilberg; Thomson
2. UNIX: Concepts and Applications; Sumitava Das; TMH

Reference Books:

1. UNIX for Programmers and Users; Graham Glass, King Ables; Pearson Education
2. UNIX Programming Environment; Kernighan and Pike; PHI/Pearson Education
3. The Complete Reference UNIX; Rosen, Host, Klee, Farber, Rosinski; TMH
4. Your UNIX – The Ultimate Guide; Sumitava Das; TMH
5. Design of UNIX Operating System; Maurice Bach; PHI

18BHC113 ARTIFICIAL INTELLIGENCE 4 0 0 4

Course Objective: This course introduces the basic concepts of artificial intelligence and expert systems and also imparts the knowledge of predictions and how to monitor and acquire knowledge.

UNIT I INTRODUCTION 12

What is Artificial Intelligence? The AI Problems – The Underlying Assumptions – What is an AI Techniques? Problems: Problems spaces and search – Defining the Problems as a State Space Search – Production Systems – Problem Characteristics – Production System Characteristics – Issues in the Design of Search Programmes.

UNIT II CONCEPTS 12

Generate – and-Test – Hill Climbing – Best-First Search – Problem Reduction – Constraint Satisfaction – Means – Ends – Analysis-Knowledge -Representation issues: Representation and Mappings – Approaches to Knowledge Representation – Issues in Knowledge Representation – The Frame Problem

UNIT III PREDICATE LOGIC 12

Using predicate logic – Representing Simple facts in Logic – Representing Instance and Is a relationships – Computable functions and Predicates – Resolutions – Natural Deductions – Representing Knowledge Using Rules: Procedural versus Declarative Knowledge – Forward versus Backward Reasoning – Matching – Control Knowledge

UNIT IV MONITORING AND REASONING 12

Symbolic Reasoning under uncertainty – Introduction to Non Monotonic Reasoning – Logics for Non Monotonic Reasoning – Implementation issues – Augmenting a Problem solver – Implementation: Depth – First Search – Implementation: Breadth – First Search – Statistical reasoning – Bayesian Networks – Fuzzy Logic- Learning: What is learning? – Rote Learning – Learning by taking advice – Learning in Problem Solving

UNIT V CONNECTIONIST MODELS 12

Introduction – Hopfield Networks – Learning in Neural Networks – Applications of Neural Networks – Expert Systems –Representing and Using Domain Knowledge – Expert System Shells – Explanation – Knowledge acquisition.

TOTAL : 60 Hours

Course Outcomes:

CO 1: To understand the concepts of Artificial Intelligence.

CO-2: To classify the knowledge representations.

CO-3: To understand the concept of predictive logic.

CO-4: Able to understand the application areas of Artificial Intelligence

CO-5:.To analyze different Network models.

Text Books:

1. Artificial Intelligence, Elaine Rich, Kevin Knight, TataMcGraw Hill, 2nd Edition, 1991.

2. Introduction to Artificial Intelligence and Expert Systems, Dan W.Patterson, Prentice Hall of India, 2nd Edition, 1992.

3. Artificial Intelligence, A Modern Approach, Stuart J. Russell and Peter Norvig, Pearson Education, 2nd Edition, 2003.

4. Artificial Intelligence, A New Synthesis, Nils J. Nilsson, Harcourt Asia Pvt.Ltd, 2005.

Reference Books:

1. Machine learning: An artificial intelligence approach, Michalski, Ryszard S., Jaime G. Carbonell, and Tom M. Mitchell, Springer Science & Business Media, 2013.

2. Multiagent systems: a modern approach to distributed artificial intelligence, Weiss, Gerhard, MIT press, 1999.

18BHC114 SOFTWARE TESTING 4 0 0 4

Course objective:

To introduce the basics and necessity of Software testing, to introduce various testing techniques along with software production, and to introduce the concepts of Software bugs and its impact

UNIT I INTRODUCTION 9

Software testing background – software bugs- cost of bugs-software testing realities- Testing Axioms – Precision and Accuracy-verification and validation- quality and reliability-testing and quality assurance.

UNIT II SOFTWARE TESTING METHODOLOGY 9

Functional testing, Structural testing – Static and Dynamic testing – low level specification

test techniques – Equivalence Partitioning – Data testing – State Testing –formal reviews – coding standards and guidelines – code review checklist– data coverage- code coverage.

UNIT III SOFTWARE TESTING TECHNIQUES 9

Configuration testing –Compatibility tests – foreign language testing – usability testing – testing the documentation - testing for software security – website testing.

UNIT IV AUTOMATED TESTING AND TEST TOOLS 9

Benefits of automation and tools – viewers and monitors – drivers – stubs – stress and load tools – analysis tools- software test automation – random testing –beta testing

UNIT V TEST DOCUMENTATION 9

Goal of Test Planning – test phases – test strategy – resource requirements – test schedule – writing and tracking test cases- Bug tracking systems – metrics and statistics- risks and issues

TOTAL: 45 Hours

COURSE OUTCOME

Upon Completion of the course, the students should be able to:

CO1 : Discuss the concepts of software testing

CO2 : Explain the testing techniques

CO3 : Perform automated testing using test tools

CO4 : Document the testing procedures

TEXT BOOKS:

1.Glenford J.Myers, Tom Badgett, Corey Sandler, “The Art of Software Testing”, 3rd edition, John Wiley & Sons publication, 2012.

2. Ron Patton, “Software testing”, second edition, Pearson education, 2009.

REFERENCE BOOKS:

1 Boris Beizer, “Software testing techniques”,DreamTech Press,2009.

2.Srinivasan Desikan, Gopalaswamy Ramesh, “Software testing- Principles and Practices”, Pearson education, 2009

18BHC117 OBJECT ORIENTED SOFTWARE ENGINEERING 4 0 0 4

Course Objective: This course introduces the basic concepts of software engineering concepts, UML, analysis object and dynamic model, system design activities, object design and implementation issues, software life cycle.

UNIT I INTRODUCTION 12

System Concepts – Software Engineering Concepts – Development Activities – Managing Software Development – Unified Modeling Language – Project Organization – Communication

UNIT II ANALYSIS 12

Requirements Elicitation – Concepts – Activities – Management – Analysis Object Model – Analysis Dynamic Models

UNIT III SYSTEM DESIGN 12

Decomposing the system – Overview of System Design – System Design Concepts – System Design Activities – Addressing Design Goals – Managing System Design

UNIT IV OBJECT DESIGN AND IMPLEMENTATION ISSUES 12

Reusing Pattern Solutions – Specifying Interfaces – Mapping Models to Code – Testing

UNIT V MANAGING CHANGE 12

Rationale Management – Configuration Management – Project Management – Software LifeCycle

COURSE OUTCOME:

CO-1:To learn and understand various OO concepts along with their applicability contexts.

CO-2: To identify domain objects, their properties, and relationships among them.

CO-3: To identify and model/represent domain constraints on the objects and (or) on their relationships.

CO-4: To develop design solutions for problems on various OO concepts.

CO-5:To learn various modeling techniques to model different perspectives of object-oriented software design. (UML)

TOTAL: 60 Hours

Books for References:

1. Bernd Bruegge, Alan H Dutoit, Object-Oriented Software Engineering, 2nd edition, Pearson Education, 2004.

2. Craig Larman, Applying UML and Patterns, 3rd edition, Pearson Education, 2005.

3. Stephen Schach, Software Engineering 7th

18BHC118 SOFTWARE QUALITY AND ASSURANCE 4 0 0 4

COURSE OBJECTIVE

To gather knowledge on quality management, documentation and controlling for software quality. To provide knowledge on standards, models and tools used for quality management, To perform measurement and assessment of software quality, To introduce the basics and necessity of software testing. To introduce various testing techniques along with software production.

UNIT I INTRODUCTION TO SOFTWARE QUALITY & ARCHITECTURE 9

Need for Software Quality – Quality Challenges – Software Quality Assurance (SQA) – Definition and Objectives – Software Quality Factors – McCall's Quality Model – SQA System and Architecture – Software Project Life Cycle Components – Management of SQA components – Pre-Project Software Quality Components – Contract Review – Development and Quality Plans.

UNIT II SQA COMPONENTS AND PROJECT LIFE CYCLE 9

Software Development Methodologies – Quality Assurance Activities in the Development Process – Verification, Validation and Qualification – Reviews: Objectives – Formal design Review – Peer Review – Quality of Software Maintenance Components – Pre-Maintenance Software Quality Components – Maintenance Software Quality Assurance Tools – Assuring the Quality of External Participants Contributions: Objectives, Types, Risks and Benefits – Tools: CASE Tools and Their Effect on Software Quality.

UNIT III SOFTWARE QUALITY INFRASTRUCTURE 9

Procedures and Work Instructions – Supporting Quality Devices – Templates – Checklists – Staff Training and Certification – Corrective and Preventive Actions – Configuration Management – Software Change Control – Configuration Management Audit – Documentation Control – Storage and Retrieval.

UNIT IV SOFTWARE QUALITY MANAGEMENT, METRICS & STANDARDS 9

Project Process Control – Computerized Tools – Software Quality Metrics – Objectives of Quality Measurement – Process Metrics – Product Metrics – Implementation – Limitations of Software Metrics – Cost Of Software Quality – Classical Quality Cost Model – Extended Model – Application of Cost Model. Quality Management Standards – ISO 9001 And ISO 9000-3 – Capability Maturity Models (CMM & CMMI) – Project Management Responsibilities – SQA Units and Other Actors in SQA Systems.

UNIT V SOFTWARE TESTING 9

Definition and Objectives – Software Testing Strategies – Software Test Classifications – White Box Testing: Data Processing, Calculation Correctness Tests, Mccabe's Cyclomatic Complexity Metrics, Software Qualification and Reusability Testing, Advantages and Disadvantages of White Box Testing – Black Box Testing: Equivalence Classes for Output Correctness Tests, Revision Factor Testing Classes, Transition Factor Testing Classes, Advantages and Disadvantages of Black Box Testing – Implementation: The Testing Process – Test Case Design – Automated Testing – Alpha and Beta Site Testing Programs.

TOTAL: 45 HOURS

COURSE OUTCOMES

CO1: Learn document control and manage software quality with the aid of tools and

Standards.

CO2: Distinguish between various software quality models.

CO3: Measure and assess software quality through process and product metrics.

CO4: Distinguish between the software quality standards.

CO5: Perform automated testing using test tools.

CO6: Document the testing procedures.

TEXT BOOK & REFERENCE BOOK:

1. Daniel Galin, “Software Quality Assurance: From theory to implementation”, Pearson Education, 2004.

2. Stephen H. Kan, “Metrics and Models in Software Quality Engineering”, Pearson Education, 2002.

3. Mordechai Ben-Menachem, Garry S. Marliss, “Software Quality”, BSP, Second Edition, 2014.

4. Allan C. Gillies, “Software Quality: Theory and Management”, Thomson Learning, 2003.

5. Glenford J. Myers, Tom Badgett, Corey Sandler, “The Art of Software Testing”, Third Edition, John Wiley & Sons, 2012.

6. Ron Patton, “Software testing”, Second Edition, Pearson Education, 2009.

7. Srinivasan Desikan, Gopalaswamy Ramesh, “Software Testing – Principles and Practices”, Pearson Education, 2009.

18BHC119 CLIENT / SERVER COMPUTING 4 0 0 4

Course Objective:

Gain Exposure on most common used servers. Understand the concept of client-server development and learn problem solving skills through design scenarios for network environment. Develop a client –server based application.

Unit 1: Introduction to Client/Server Computing

What is Client/Server Computing – Benefits of Client/Server Computing – Evolution of C/S Computing – Hardware Trends – Software Trends-Evolution of Operating Systems – N/w Trends – Business Considerations.

Unit-2: Overview of C/S Applications

Components of C/S Applications – Classes of C/S Applications – Categories of C/S Applications. Understanding C/S Computing: Dispelling the Myths – Obstacies – Upfront & Hidden – Open Systems & Standards – Standards – Setting Organizations – Factors of Success.

Unit 3: The Client Hardware & Software

Client Component – Client Operating Systems – What is GUI – Database Access – Client Software Products : GUI Environments – Converting 3270/5250 Screens – Database Tools – Client Requirements : GUI Design Standards – Open GUI Standards – Interface Independence – Testing Interfaces .

Unit-4: The Server

Categories of Servers – Features of Server Machines – Classes of Server Machines – Server Environment : N/W Management Environment – N/W Computing Environment – Extensions – Network Operating System – Loadable Module.

Unit-5 : Server Operating System

OS/2 2.0 – Windows New Technology – Unix Based OS – Server Requirements : Platform Independence – Transaction Processing – Connectivity – Intelligent Database – Stored Procedure – Triggers – Load Leveling – Optimizer – Testing and Diagnostic Tools – Backup & Recovery Mechanisms.

Total No: 60 hours

CO1: Design client server environment with given scenarios using computer aided tool.

CO2: Devise popular servers with two tier scenarios. Theory / Practical

CO3: Design and Set up a client /server environment using LAN and WAN Scenarios.

CO4: Describe the concept of middleware, and communication protocols. Theory / Practical

CO5: Design and build client server applications with network programming exposure. Understand basic networking concepts using sockets.

Text Books:

1.Patrick Smith & Steave Guengerich, “Client/Server Computing”. PHI

2. Dawna Travis Devire, “Client/Server Computing”. TMH

18BHC122 SOFTWARE ENGINEERING ESSENTIALS -1 4 0 0 4

Course Objective: This course introduces the basic concepts of Software Engineering, the phases of Software Development Life Cycle, the metrics of Software projects, Software Cost Estimation Techniques and quality assurance.

UNIT I INTRODUCTION TO SOFTWARE ENGINEERING 12

Definitions - Size Factors - Quality And Productivity Factors - Managerial Issues –Planning A Software Project: Defining The Problem - Developing A Solution Strategy - Planning The Development Process - Planning An Organization Structure – Other Planning Activities.

UNIT II SOFTWARE COST ESTIMATION 12

Software Cost Factors - Software Cost Estimation Techniques - Staffing-Level Estimation - Estimating Software Maintenance Costs - The Software Requirements Specification - Formal Specification Techniques - Languages And Processors For Requirements Specification.

UNIT III SOFTWARE DESIGN 12

Fundamental Design Concepts - Modules And Modularization Criteria – Design Notations - Design Techniques - Detailed Design Considerations - Real-Time And Distributed System Design - Test Plans - Milestones, Walkthroughs, And Inspections.

UNIT IV IMPLEMENTATION ISSUES 12

Structured Coding Techniques - Coding Style - Standards And Guidelines - Documentation Guidelines - Type Checking - Scoping Rules - Concurrency Mechanisms.

UNIT V QUALITY ASSURANCE 12

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 - Other Maintenance Tools And Techniques.

TOTAL: 60 Hours

Course Outcomes:

CO-1: Identify, formulate, analyze, and solve problems, as well as identify the

Computing requirements appropriate to their solutions.

CO-2: Ability to Learn Software Requirement Specifications

CO-3: Learn to design software and apply strategies of project management

CO-4: Apply rapid software development methods and decide on appropriate software

architecture.

CO-5: To study and practice methods for analysis, design, testing, and implementation

of large, complex software systems

Text Books:

1. Software Engineering Concepts, R.Fairley,Tata McGraw-Hill Edition. 1997.

2. Software Engineering, R.SPressman, McGraw Hill, Fourth Ed, 1997.

Reference Books:

1. Software Engineering fundamendals, Behforooz, Hudson, PHI, 2nd edition, 1996.

2. Software Project Management, Hughes, Bob, TMH, 4th Edition, 2006.

edition, McGraw-Hill, 2007.

18BHC151 ENTERPRISE RESOURCE PLANNING 4 0 0 4

Course Objective: To understand about ERP systems, ERP software and modules, Implementation of ERP, and Emerging trends on ERP.

UNIT I INTRODUCTION 12

Overview of enterprise systems – Evolution - Risks and benefits - fundamental technology - Issues to be consider in planning design and implementation of cross functional integrated ERP systems

UNIT II ERP SOLUTIONS AND FUNCTIONAL MODULES 12

Overview of ERP softwaresolutions- Small medium and large enterprise vendor solutions, BPR, Business Engineering and best Business ractices - Business process Management. Overview of ERP modules -sales and Marketing, Accounting and Finance, Materials and Production management.

UNIT III ERP IMPLEMENTATION 12

Planning Evaluation and selection of ERP systems Implementation life cycle - ERP implementation, Methodology and Frame work Training – Data Migration. People Realization in implementation- Consultants, Vendors and Employees.

UNIT IV POST IMPLEMENTATION 12

Maintenance of ERP- Organizational and Industrial impact; Success and Failure factors of and ERP Implementation

UNIT V EMERGING TRENDS ON ERP 12

Extended ERP systems and ERP add–ons -CRM, SCM, Business analytics etc- Future trends in ERP systems-web enabled, Wireless technologies so on.

After completing this course, student will be able to

CO1: Make basic use of Enterprise software, and its role in integrating business functions

CO2: Analyze the strategic options for ERP identification and adoption.

CO3: Design the ERP implementation strategies.

CO4: Create reengineered business processes for successful ERP implementation

CO5: .Understanding the Organizational concept

TEXT BOOKS:

1. Alexis Leon, ERP demystified, second Edition Tata McGraw-Hill, 2007.

REFERENCE BOOKS:

1. Jagan Nathan Vaman, ERP in Practice, Tata McGraw-Hill, 2008

2. Alexis Leon, Enterprise Resource Planning, second edition, Tata McGraw-Hill, 2008.

18BHC152 INTRODUCTION TO INFORMATION TECHNOLOGY 4 0 0 4

Course objective: Students will gain literacy in the underlying principles and vocabulary of Information Technology. Introduces students to the fundamental concepts in information technology (IT) that provide the technical underpinning for state-of the-art applications.

UNIT I INTRODUCTION 12

Introduction: History of Computer - Parts of Computer System – Hardware Devices – Software – Operating System – Examples of Operating systems – Computer Networking – Visual Editor

UNIT II MS OFFICE 12

Microsoft Word - Microsoft Excel –Manipulation in Excel work sheet– Microsoft PowerPoint – Microsoft Access

UNIT III INTRODUCTION TO MULTIMEDIA 12

Introduction to Multimedia – Images – Sound -Video Desktop Publishing Basics – Page layout Programs – Text Generation – Graphics for DTP - Print Production – Data Communication – Computer Networking Basics – Local Area Networking Technology and Networking Topology –Wide Area Networking Technology and Routing – Protocols and Layering – Networking Devices.

UNIT IV INTRODUCTION TO INTERNET 12

Introduction to Internet – Working of Internet- Internet Services – Internet Addressing – E-Mail Basics- Web Development Tools- Introduction to HTML

UNIT–V MANAGEMENT INFORMATION SYSTEM 12

Information System – Management Information concepts – Planning Issues and the MIS - Organizing Issues and the MIS - Control Issues and the MIS – Decision Support Systems - Programming languages - Low Level languages Basics – Data Objects, Variables and Constants – Data Types – Tamil Word Processors – Tamil Web Browsers and Web Pages- Tamil E-Mail

TOTAL: 60 HOURS

Text Book:

1. Sanjay Saxsena, “A First Course in Computer”, Vikas Publishing House, 2000

References:

1.Ron Mansfield, “Working in Microsoft Office”,Tata McGraw Hill, 1667
1. Linda Tway, Sapphiro Pacific Lajolla, “Multimedia in Action”, Academic Press,1665
2. Neil randal “Teach yourself the internet in a week”, Prentice Hall of India, Second Edition.

COURSE OUTCOME:

CO1: Explain the working of operating system
CO2: Differentiate the various types of networking and their functionality
CO3: Use Microsoft office document for developing personal, business documents following current industry/professional standards
CO4: Identify the components of multimedia and their importance
CO5: Analyse and synthesize business information system to facilitate

18BHC153 INTERNET AND ITS APPLICATIONS 4 0 0 4

Course Objective: This course introduces the basic concepts of internet, Email, HTML and various Web Browsers, E-marketing, CRM credit card payments Digital cash and ewallets micro payments- smart card.

UNIT I INTRODUCTION TO COMPUTERS 12

Programming Language Types History Of Internet Personal Computers History Of World Wide Web-Micro Software .NET Java-Web Resources

UNIT II WEB BROWSERS 15

Internet Explorer- Connecting To Internet Features Of Internet Explorer6 Searching The Internet- Online Help And Tutorials- File Transmission Protocol (FTP) Browser Settings.

UNIT III FILES AND E-MAIL MANIPULATION 12

Attaching A File, Electronic Mail Creating An E-Mail Id Sending And Receiving Mails Attaching File-Instance Messaging - Other Web Browsers.

UNIT IV HTML BASICS 12

Introduction To HTML Headers- Linking- Images-Special Characters And Line Breaks- Unordered Lists-Simple HTML Programs.

UNIT V ELECTRONIC MARKETING 12

E-Marketing Consumer Tracking Electronic Advertising Search Engine-Crm Credit

Card Payments Digital Cash And E-Wallets Micro Payments- Smart Card.

TOTAL: 60 Hours

COURSE OUTCOMES:

CO-1: Learn the basic concepts of World Wide Web and Computer Languages.

CO-2: To be well versed in Types of Programming Languages and History of World

Wide Web.

CO-3: Connecting to the internet and Features of Internet with clear explanation about

basic internet Package.

CO-4: To Understand the Internet Explorer (IE) Features, Enable IE and File

Transmission Protocol (FTP).

CO-5: E-mail uses and Features with clear concepts.

Text books:

1. Internet and World Wide Web H.M.Deitel, P.J. Deitel andA.B.Goldberg,PHI, , Third

edition, 2004.

2. Computer network and Internet with its applications, comer, Douglas, 4th Edition, 2008.

Reference Books:

1. The Internet- Complete Reference, Harley hahn, Tata McGraw Hill,2004

2. Internetworking Technologies: An Engineering perspective, Banarjee, PHI,2002.

18BHC154 WEB TECHNOLOGY 4 0 0 4

Course Objective:

The main objective of the course is present the basic web technology concepts that are required for developing web applications. The key technology components are descriptive languages, server side program elements and client side program elements.

UNIT 1 HTML 12

Internet basics-Introduction to HTML-Structure of HTML-Formatting Tags-Anchor Tag-Image Tag-Working with Frames

UNIT 2: HTML: 12

Working With List-Ordered list-Unordered List-Definition List-Graphics with HTML--Working with Tables-Rowspan and Colspan-Form HandlingWith Html.

UNIT 3: JAVASCRIPT: 12

Introduction to JavaScript- Variables-Constants-Data types-Operators-Expression-Control Structures-Functions-Object-DOM-Event Handling

UNIT 4: PHP: 12

Introductionto PHP- Variables-Comments-Operators-Looping-Statements-If Statement-Switch Statement Array-Functions-Super Globals

UNIT 5: MYSQL: 12

Introduction toMYSQL Database Connectivity; Working with MYSQL Statement: Select- Insert-Update- and Delete; Creating Tables and Records-SQL Data types-Creating Database and Tables-Dropping the Database and Tables-Adding and Altering Fields In Tables-Working with PhpMyadmin.

TOTAL: 60 HOURS
COURSE OUTCOME:

At the end of this course the students will be able to:

CO1: History and development of the World Wide Web and associated technologies.

CO2: The client-server architecture of the World Wide Web and its communication protocol HTTP/HTTPS..

CO3: Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, Javascript, DOM

CO4: Programming web pages with Javascript/DOM (client).

CO5: Good design, universal design, multi-platform web applications.

TEXT BOOKS:

1. I.Bayross, “Teach yourself webtechonology part 1 & 2“, BPB, 2010.
2. Coding with Javascript for Dummies,Chris Minnick, Eva Holland, Wiley Brand ,2015.
3. Michele E. Davis and Jon A. Phillips, Learning PHP and MySQL ,2007 edition.

18BHC155 INTRODUCTION TO PHP 4 0 0 4

Course objective: Understand how server-side programming works on the web. PHP Basic syntax for variable types and calculations. Creating conditional structures Storing data in arrays Using PHP built-in functions and creating custom functions Understanding POST and GET in form submission.

UNIT I INTRODUCTION TO PHP 12

Introduction to PHP -How PHP works - the php.ini file - Basic PHP Syntax - PHP Tags – PHP statements and whitespace - comments - PHP functions - hello world.

UNIT II PHP VARIABLES 12

PHP open source technology - PHP for web application - variables - variables types -variable names (identifiers) - type strength - hello variables! - Variable scope – superglobal- constants variable - testing and manipulation functions.

UNIT III PHP FUNCTIONS 12

Echo,print_r() - Operators - Strings,arrays,commentes,builtin - Functions – PHP methods,functions user-defined functions - Function arguments - Returning values – variable functions -internal(built-in) functions - anonymous functions - PHP looping,Condition statements - conditional processing.

UNIT IV ENCRYPTION & FILE HANDLING 12

Login Security Authentication (users logins) – Authorization (permissions) – Encryption – Session Cookies PHP Mail,FileHandling, File Uploading.

UNIT V TABLE& DATABASES IN PHP 12

MySqlConnection – PHP- Classes Objects,Function Overriding and Overloading – PHP Framework Code Generation scripts – Web Services – Introduction to MySQL - MYSQL for Web application Creating Database – Create table – Constraints – Where Clause –Alias – Using MySQL from PHP.

TOTAL: 60 HOURS

COURSE OUTCOME

At the end of this course, student will be able to

CO1. Understand the programming concepts of PHP.

CO2. Understand the concepts of client –server technology and Open Source technology.

CO3. Write PHP scripts to handle HTML forms

CO4. Analyze and develop Web application using PHP programs.

CO5. Analyze and develop database applications using PHP and mysql language.

Text Books:

1. Core PHP Programming by Leon Atkinson:Pearson Publishers
2. The complete Referance PHY by SteverHolzner: Mc Grow Hill
3. PHP 5.0 and MySql Bible Tim Converse, Joyce Park,Clark Morgan, Publishers:JohnWiley&Sons

References:

1. Beginning PHP 5.0 Database by Christopher Scollo,HarishRawat,Deepak Thomas, Publisher:WROX press
2. PHP – A beginners Guides BY: Ashok AppuPublisher : Wiley
3. MySql Bible by Steve Suehring Publisher: John Wiley &Sons
4. PHP Black Book by Peter Moulding
5. PHP 5 and Mysql – Tim converse, Joyce Park and Clark Morgan - Bible Wiley
6. Beginning PHP 5.3 by matt Doyle – By Word publication

18BHC156 BUSINESS INTELLIGENCE 5 0 0 4

Course objective: The course objective of this course is for the students to achieve a profound understanding of Business Intelligence (BI) systems in terms of its tools, current practices and impacts. The students should acquire knowledge on how to design BI solutions for different BI targets and users.

UNIT I: INTRODUCTION TO BUSINESS INTELLIGENCE 12

Introduction to OLTP and OLAP, BI Definitions & Concepts, Business Applications of BI , BI Framework, Role of Data warehousing in BI, BI Infrastructure components – BI process, BI Technology , BI Roles & Responsibilities.

UNIT II: BASICS OF DATA INTEGRATION (EXTRACTION TRANSFORMATION LOADING) 12

Concepts of data integration need and advantages of using data integration, introduction to common data integration approaches, introduction to ETL using SSIS, Introduction to data quality, data profiling concepts and applications.

UNIT III: INTRODUCTION TO MULTI-DIMENSIONAL DATA MODELING 12

Introduction to data and dimension modeling, multidimensional modeling vs. multi-dimensional modeling, concepts of dimensions, facts, cubes, attributes, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using SSAS.

UNIT IV: ENTRERPRISE REPORTING 12

Basic of Enterprise Reporting, Introduction to enterprise reporting, concepts of dashboards, balanced scorecards, introduction to SSRS Architecture, enterprise reporting using SSRS.

UNIT V: CASE STUDY 12

- A project that allows the students to apply Technical, Behavioral, Process concepts learnt in the elective course by:
    - Executing near real-life project (with large data).
    - Working in teams (Project teams will ideally comprise of 4 members).
    - Experiencing expectations from different roles.
- Project 1: Data in disparate data sources such as Excel, text file, databases etc. will be provided to the students. They will be expected to extract, cleanse, integrate and load it into the data-warehouse.
- Project 2: Design reports according to given business scenarios. The data for the report s is to be pulled from the data-warehouse built in the earlier project.

TOTAL: 60 HOURS

COURSE OUTCOME:

CO1: Explain the concepts of business intelligence
CO2: Interpret data for acquiring intelligence
CO3: Implement multidimensional data modelling
CO4: Design and develop enterprise model and report
CO5: Implement business intelligence in real life problems

References:

5. Business Intelligence by David Loshin.
6. Business intelligence for the enterprise by Mike Biere.
7. Business intelligence roadmap by Larissa TerpelukMoss,ShakuAtre.
8. Successful Business intelligence: Secrets to making killer Bl applications by cindi Howson.
9. Delivering business intelligence with Microsoft SQL server 2008 by Brain, Larson.
10. Foundations of SQL server 2005 Business intelligence by Lynn Langit.

18BHC157 E-COMMERCE 4 0 0 4

Course Objective: This course gives an exposure to the Electronic Commerce concepts.

It gives in depth knowledge about electronic commerce, its opportunities, Electronic

Data Interchange, Secure Electronic Transaction.

Unit I ELECTRONICCOMMERCE AND OPPORTUNITIES BACKGROUND 12

The Electronic Commerce Environment – Electronic Marketplace Technologies – Modes of Electronic Commerce: Overview: Electronic Data Interchange.

Unit II APPROACHES TO SAFE ELECTRONIC COMMERCE 12

Overview – Secure Transport Protocols – Secure Transaction – Secure Electronic Payment Protocol (SEPP) – Secure Electronic Transaction (SET)

Unit III CERTIFICATES FOR AUTHENTICATION 12

Security on Web Servers – Payment Schemes: Internet Monetary Payment and Security Requirements-Payment And Purchase Order Process – Online Electronic Cash.

Unit IV INTERNET / INTRANET SECURITY ISSUES AND SOLUTIONS 12

The Need For Computer Security – Specific Intruder Approaches – Security Strategies-Security Tools – Encryption – Enterprise Networking And Access to The Internet Antivirus Programs.- Security Teams

Unit V MASTERCARD/VISA SECURE ELECTRONIC TRANSACTION 12

Introduction –Business Requirements – Concepts – Payment Processing. E-Mail And Secure E-Mail Technologies For Electronic Commerce: Introduction _ The Means Of Distribution – A Model For Message Handling- MIME, S/MIME, MOSS , MIME And Related Facilities For EDI Over The Internet.

TOTAL: 60 Hours

Course Outcomes:

CO-1: To be well versed in Electronic Commerce Environment.

CO-2: To understand the basics of Electronic Data Interchange.

CO-3: To understand the secure commerce Requirements.

CO-4: To understand how the payments are transferred in a secured manner.

CO-5: To understand the need for the security of web servers. To understand the how the payments are purchase orders are processed.

Text Books:

1.Web Commerce Technology Handbook,Daniel Minoli & Emma Minoli, Tata McGraw

Hill,1999.

2. Electronic Commerce Strategy, technologies and application, whitlely, Pearson Education, 2000.

Reference Books:

1. E-Commerce, K.Bajaj & D Nag, Tata McGraw Hill, 2nd Edition, 1999.

2. E-Commerce: An Indian Perspective, Joseph.P.T, 3rd edition, 2008

18BHC102 SOFTWARE PROJECT MANAGEMENT 4 0 0 4

Course Objective

To define and highlight importance of software project management. To formulate strategy in managing projects. To estimate the cost associated with a project.To plan, schedule and monitor projects for the risk management. To define the software management metrics. To train software project managers and other individuals involved in software project planning and tracking and oversight in the implementation of the software project management process

UNITI INTRODUCTION **9**

Introduction to Competencies – Product Development Techniques – Management Skills – Product Development Life Cycle – Software Development Process and models – The SEI CMM – International Organization for Standardization.

UNIT IIDOMAIN PROCESSES **9**

Managing Domain Processes – Project Selection Models – Project Portfolio Management – Financial Processes – Selecting a Project Team – Goal and Scope of the Software Project – Project Planning – Creating the Work Breakdown Structure – Approaches to Building a WBS – Project Milestones – Work Packages – Building a WBS for Software.

UNIT III SOFTWARE DEVELOPMENT **9**

Tasks and Activities – Software Size and Reuse Estimating – The SEI CMM – Problems and Risks – Cost Estimation – Effort Measures –COCOMO. A Regression Model – COCOMO II –SLIM, A Mathematical Model – Organizational Planning – Project Roles and Skills Needed.

UNIT IV SCHEDULING ACTIVITIES **9**

Project Management Resource Activities – Organizational Form and Structure – Software Development Dependencies – Brainstorming – Scheduling Fundamentals – PERT and CPM – Leveling Resource Assignments – Map the Schedule to a Real Calendar – Critical Chain Scheduling.

UNIT VQUALITY ASSURANCE **9**

Quality Requirements – The SEI CMM – Guidelines – Challenges – Quality Function Deployment – Building the Software Quality Assurance – Plan – Software Configuration Management Principles – Requirements – Planning and Organizing – Tools – Benefits – Legal Issues in Software – Case Study.

TOTAL: 45 HOURS

Course Outcome:

CO1: Critically evaluate alternative standards, models and techniques aimed at achieving quality assurance in a variety of software development environments.

CO2: Propose and defend innovative solutions to software quality assurance and measurement problems in the context of various software development environments.

CO3: Interpret and apply various software cost estimation techniques.

CO4: Prepare a software quality plan for a software project - to include sections on change management, configuration management, defect elimination, validation and verification and measurement.

CO5: Discuss the role of software quality assurance in improving the software development process

Text Book:

1. Robert T. Futrell, Donald F. Shafer, Linda I. Safer, "Quality Software Project Management", Pearson Education, Asia, 2002.

References:

1. PankajJalote, "Software Project Management in Practice", Addison Wesley, 2002.
2. Hughes, "Software Project Management, 3rd Edition", Tata McGrawHill, 2004.

18BHC159 OPEN SOURCE TECHNOLOGY 4 0 0 4

Course Objectives: To demonstrate different open source technology like Linux, PHP & MySQL with different packages. To lustrate Linux commands for programming. To explore programs of PHP with MySQL connection.

UNIT I INTRODUCTION TO OPEN SOURCE 12

Open Source Definition, The distribution terms of open source software, open source technology importance Free and open Source Software (FOSS), LAMP(Linux, Apache, MySQL, PHP, Python, and Perl) Benefits , Perspective of Open Source software Linux and Open Source, basic commands of Linux. Introduction to PHP – what does PHP Do? – a brief history of PHP – language basics – lexical structure – data types – variables – expressions and operators – flow control statements – including code – embedding PHP in web pages.

UNIT II FUNCTIONS & STRINGS 12

Functions & Strings: Calling a function – defining a function – variable scope – function parameters – return values – variable functions anonymous function. Strings: Accessing individual characters – cleaning strings – encoding and escaping – comparing strings – manipulating and searching strings – regular expression.

UNIT III ARRAYS & OBJECTS 12

Arrays and Objects : Indexed Vs associative arrays – identifying elements of an array – storing data in arrays – multidimensional arrays – extracting multiple values – converting between arrays and variables – traversing arrays – sorting. Objects: Creating an object – accessing properties and methods – declaring a class – introspection.

UNIT IV MYSQL AN OVERVIEW 12

Introduction – Entering queries – Creating and using a database – Creating and selecting a database – creating a table – loading data into a table – Retrieving information from a table – selecting all data – selecting particular rows – selecting particular columns – sorting rows – date calculations – working with NULL values – pattern matching – counting rows – using more than one tables.

UNIT V CASE STUDY 12

Designing a simple application using PHP and MYSQL to query the database, modify the data, retrieve or delete the data and to display the results.

Course Outcomes:

CO-1: To execute Linux basic commands for programming.

CO-2: To explore different open source technology like Linux, PHP & MySQL with different packages.

CO-3: To explore functions of PHP.

CO-4: To understand the String functions.

CO-5: To understand the concepts of Arrays.

TOTAL: 75 hours

Books for References:

1. Red Hat Linux Bible by Christopher Negus. Wiley Publishing ISBN: 0-7645-4333-4 ,2010 Edition
2. Sams,Teach yourself PHP, MySQL and Apache all in one by Julie C Meloni. SAMS Publication, Fifth Edition
3. RasmusLerdorf, Kevin Tatroe, Bob Kaehms, RicMcGredy (2002), Programming PHP, O'REILLY (SPD), First edition.
4. Lee Babin, Nathan A. Good, Frank M. Kromann, Jon Stephens (2005), "PHP 5 Recipes, A problem solution approach", après Special edition.
5. PHP & MYSQL in easy steps by MCGrawHill Indian edition, First Edition
6. The Complete Reference PHP by Steven HolznerMCGrawHill, Indian edition, First Edition
7. https://www.tutorialspoint.com//cakephp/cakephp_form_handling.htm
8. http://www.php.net/tut.php
9. https://www.w3schools.com/php/default.asp

Ability Enhancement Compulsory Courses (AECC)

S.NO	CODE	COURSE
1	18LTAM21	TAMIL I
	18LHIN21	HINDI I
	18LFRE21	FRENCH I
2	18LEN001	Foundation Course English – I
3	18LTA002	TAMIL – II
	18LHN002	HINDI – II
	18LFR002	FRENCH – II
4	18LEN002	Foundation Course English – II
5	18EVSC41	Environmental Studies

15LTA001 **தமிழ் மொழி, இலக்கிய வரலாறு – அறிமுகம்** 5 0 0 4

நோக்கம்:

தமிழ்மொழி மற்றும் இலக்கியத்தின் வரலாற்றை அறிமுகம் செய்யும் நோக்கில் இப்பாடம் வடிவமைக்கப்பட்டுள்ளது. தமிழ்மொழியின் வரலாற்றை அறிவியல் கண்ணோட்டத்துடனும் மொழிக்குடும்பங்களின் அடிப்படையிலும்விளக்குகிறது. சங்க இலக்கியம் தொடங்கி, இக்கால இலக்கியம் வரையிலான தமிழிலக்கிய வரலாற்றை இலக்கிய வரலாறு அறிமுகப்படுத்துகின்றது. அரசு வேலை வாய்ப்பிற்கான போட்டித் தேர்வுகளுக்குப் பயன்படும் வகையிலும் இப்பாடம் அமைந்துள்ளது.

அலகு 1 தமிழ் மொழி வரலாறு 13மணி நேரம்

மொழிக்குடும்பம் - இந்திய மொழிக்குடும்பங்கள் - இந்திய ஆட்சி மொழிகள் - திராவிட மொழிக்குடும்பங்கள் - திராவிட மொழிகளின் வகைகள் –திராவிட மொழிகளின் சிறப்புகள் - திராவிட மொழிகளின் வழங்கிடங்கள் - திராவிட மொழிகளுள் தமிழின் இடம் - தமிழ்மொழியின் சிறப்புகள் - தமிழ் பிறமொழித் தொடர்புகள்.

அலகு 2 சங்க இலக்கியம் 12 மணி நேரம்

சங்க இலக்கியம் - எட்டுத்தொகை - நற்றிணை - குறுந்தொகை - ஐங்குறுநூறு - பதிற்றுப்பத்து - பரிபாடல் - கலித்தொகை - அகநானூறு - புறநானூறு - பத்துப்பாட்டு – திருமுருகாற்றுப்படை – சிறுபாணாற்றுப்படை – பெரும்பாணாற்றுப்படை – பொருநராற்றுப்படை – மலைபடுகடாம் – குறிஞ்சிப்பாட்டு, முல்லைப்பாட்டு, பட்டினப்பாலை –நெடுநல்வாடை – மதுரைக்காஞ்சி.

அலகு 3 அற இலக்கியங்களும் காப்பியங்களும் 11 மணி நேரம்

களப்பிரர் காலம் விளக்கம் – நீதி இலக்கியத்தின் சமூகத்தேவை - பதினெண்கீழ்க்கணக்கு நூல்கள் அறிமுகம் - திருக்குறள், நாலடியார்.

காப்பியங்கள் – ஐம்பெருங்காப்பியங்கள் மற்றும் ஐஞ்சிறுங்காப்பியங்கள் அறிமுகம்–காப்பிய இலக்கணம் - சிலப்பதிகாரம் – மணிமேகலை – சீவகசிந்தாமணி – வளையாபதி – குண்டலகேசி.

அலகு 4 பக்தி இலக்கியங்களும் சிற்றிலக்கியங்களும் 11 மணி நேரம்

தமிழகப் பக்தி இயக்கங்கள் - பக்தி இலக்கியங்கள் - சைவ இலக்கியம் - நாயன்மார்கள் அறுபத்து மூவர் - சமயக்குரவர் நால்வர் - வைணவ இலக்கியம் - பன்னிரு ஆழ்வார்கள் - முதல் மூன்று ஆழ்வார்கள்.

சிற்றிலக்கியக் காலம் - சிற்றிலக்கியங்கள் - வகைகள் - பரணி - கலிங்கத்துப்பரணி - குறவஞ்சி - குற்றாலக் குறவஞ்சி - பிள்ளைத்தமிழ் - மீனாட்சியம்மைப் பிள்ளைத்தமிழ் - தூது - தமிழ்விடு தூது - கலம்பகம் - நந்திக்கலம்பகம் - பள்ளு - முக்கூடற்பள்ளு.

அலகு 5 இக்கால இலக்கியங்கள் 13 மணி நேரம்

நவீன காலம் – நவீன இலக்கியம் – உள்ளடக்கம் - புதுக்கவிதை - தோற்றமும் வளர்ச்சியும்- நாவல் - முதல் மூன்று நாவல்கள் – நாவலின் வகைகள் - பொழுது போக்கு நாவல்கள் - வரலாற்று நாவல்கள் - சமூக நாவல்கள் - இக்கால நாவல்கள் - மொழிபெயர்ப்பு நாவல்கள் - சிறுகதை –வகைகளும் வளர்ச்சியும் – நாடகம் –காலந்தோறும் நாடகங்கள் - புராண இதிகாச நாடகங்கள் - சமூக நாடகங்கள் - வரலாற்று நாடகங்கள் – மொழிபெயர்ப்பு நாடகங்கள் - நகைச்சுவை நாடகங்கள்.

மொத்தம்: 60 மணி நேரம்

கல்வித்திட்டப் பயன்கள் (Programme Outcome):

CO1: தமிழ்மொழியின் வரலாற்றை மொழிக் குடும்பங்களின் அடிப்படையில் கற்பித்தல்.
CO2: சங்க இலக்கியங்களான எட்டுத் தொகை, பத்துப்பாட்டு ஆகியவற்றை விளக்கியுரைத்தல்.
CO3: அற இலக்கியங்கள் மற்றும் காப்பியங்களை பட்டியலிட்டு விவரித்தல்.
CO4: பக்தி இலக்கியங்கள் மற்றும் காப்பியங்களைச் சுருக்கமாக அறிமுகம் செய்தல்.
CO5: இக்கால இலக்கியங்களை வகைப்படுத்தி விளக்குதல்.

பார்வை நூல்கள்

1. அகத்தியலிங்கம். ச., “திராவிடமொழிகள் தொகுதி 1”, மணிவாசகர் பதிப்பகம், முதற்பதிப்பு, 1978.

2. சக்திவேல். சு., “தமிழ்மொழி வரலாறு”, மணிவாசகர் பதிப்பகம், முதற்பதிப்பு 1998.

3. பூவண்ணன், “ தமிழ் இலக்கிய வரலாறு”, சைவசித்தாந்த நூற்பதிப்புக் கழகம், முதற்பதிப்பு, 1998.

4. வரதராசன். மு., ”இலக்கிய வரலாறு”,சாகித்ய அகாதெமி, ஒன்பதாம் பதிப்பு, 1994.

5. விமலானந்தம். மது.ச., “இலக்கிய வரலாறு”, பாரி நிலையம், மறுபதிப்பு, 2008.

15LTA002 **தமிழிலக்கியம்** 5 0 0 4

நோக்கம்:

சங்க காலம் தொடங்கி தற்காலம் வரையிலும் தமிழில் உள்ள படைப்பிலக்கியங்களை இப்பாடம் அறிமுகம் செய்கின்றது. தமிழ் இலக்கியத்தில் தேர்ந்தெடுக்கப்பட்ட மிக முக்கியமான செய்யுட்கள், கவிதைகள், கதைகள், உரைநடை ஆகியவற்றைக்கொண்டு இப்பாடம் கட்டமைக்கப்பட்டுள்ளது. மாணாக்கரிடம் இலக்கியத் தேடலை உருவாக்குவதும், தற்சார்புடைய அறிவை மேம்படுத்துவதும் இப்பாடத்தின் நோக்கமாகும்.

அலகு 1 செவ்வியல் இலக்கியங்கள் 12 மணி நேரம்

திருக்குறள்- அன்புடைமை, ஒழுக்கமுடைமை, பெரியாரைத்துணைக்கோடல் –மூன்று அதிகாரங்கள் முழுமையும்.

புறநானூறு- பாடல் எண்: 18, 55, 182, 183, 192 –ஐந்து பாடல்கள்.

குறுந்தொகை- பாடல் எண்: 2, 167, 27, 202, 184 - ஐந்து பாடல்கள்.

அலகு 2 காப்பியங்கள் 12 மணி நேரம்

சிலப்பதிகாரம்- கனாத்திறம் உரைத்தக் காதை முழுவதும்.

மணிமேகலை- பவத்திறம் அறுக எனப் பாவை நோற்ற காதை முழுவதும்.

கம்பராமாயணம் - மந்தரைச் சூழ்ச்சிப்படலம் (தேர்ந்தெடுக்கப்பட்ட ஒன்பது பாடல்கள்).

அலகு 3 கவிதையும் புதுக்கவிதையும் 11 மணிநேரம்

பாரதிதாசனின் ‘தமிழியக்கம்’ -(i) நெஞ்சு பதைக்கும் நிலை - (ii) இருப்பதைவிட இறப்பது நன்று - இரண்டு கவிதைகள்.

ஈரோடு தமிழன்பனின், “அந்த நந்தனை எரித்த நெருப்பின் மிச்சம்” என்னும் தொகுதியில் இடம்பெற்றுள்ள ‘விடிகிறது’ என்னும் புதுக்கவிதை.

அலகு 4 சிறுகதைகள் 12 மணி நேரம்

தி. ஜானகிராமனின் ‘சக்தி வைத்தியம்’

கி. ராஜநாராயணனின்‘கதவு’ - இரண்டு கதைகள்

அலகு 5 உரைநடை 13 மணி நேரம்

வைரமுத்து எழுதிய 'சிற்பியே உன்னைச் செதுக்குகிறேன்' முழுவதும்

மொத்தம்: 60 மணி நேரம்

கல்வித்திட்டப் பயன்கள் (Programme Outcome):

CO1: செவ்விலக்கியச் செய்யுட்களின்வழி, கவித்திறனை விளக்கியுரைத்தல்.

CO2: தமிழ்க் காப்பியங்களின் கதை, கதைக்களம், கதை மாந்தர் ஆகியவற்றை அறிமுகம் செய்து, விதந்துரைத்தல்.

CO3: மரபுக் கவிதை மற்றும் புதுக்கவிதை உருவ-உள்ளடக்க வளர்ச்சியை விளங்க வைத்தல்.

CO4: தற்காலச் சிறுகதைகளின் போக்குகளை அறிமுகம் செய்தல்.

CO5: கட்டுரைகளின்வழி இளைஞர்களின் சமூகப் பொறுப்பை உணர வைத்தல்.

பாட நூல்கள்

1. இரவிச்சந்திரன். சு. (ப.ஆ), "செய்யுள் திரட்டு", வேல்ஸ் பல்கலைக்கழகம், முதற்பதிப்பு, 2008.

2. வைரமுத்து. இரா., "சிற்பியே உன்னைச் செதுக்குகிறேன்", திருமகள் நிலையம், பதினேழாம் பதிப்பு, 2007.

பார்வை நூல்கள்

1. பாலச்சந்திரன்.சு., "இலக்கியத் திறனாய்வு", நியூ செஞ்சுரி புக் ஹவுஸ், பத்தாம் பதிப்பு, 2007.

2. மாதையன்.பெ., "தமிழ்ச் செவ்வியல் படைப்புகள்", நியூ செஞ்சுரி புக் ஹவுஸ், முதல் பதிப்பு, 2009.

3. வரதராசன்.மு., "குறள் காட்டும் காதலர்", பாரி நிலையம், மறுபதிப்பு, 2005.

HINDI 1 (Prose,Letter writing& Technical words)

Unit I Mamta',letter writing,Technical words. *12*

Aim - Through the story students will be familiar with the writing style of great writer "sri Jayashankar Prasad", &can understand the situation of country during Mughal period .

Unit II - 'Yogyata aur vyavasaya kaa chunaav', letter writing, Technical words. *12*

Aim - To make the children understand the importance of selecting a profession according to one's own interest.

Unit III - 'Rajnithi kaa bantwara', letter writing,Technical words. *12*

Aim - To describe the present situation;politician's behaviour& their selforiented activities.

Unit IV - ' computer:nayi kranthi ki dastak',letter writing, Technical words *12*

Aim - To explain the importance of computer in daily life in all the fields.

Unit V - Raspriya,letter writing,Technical words *12*

Aim - This story helps the students to understand the Writing style of writer "Fanishwarnath renu"who Is wellknown for his village type Stories .

Training the students in different types of letters & technical words ,this will help the students to understand the official work in Hindi.

Total Hours :60

Text Book

1. Gadya our prayojanmulak Hindi ; Edited by Dr.N.Lavanya,MayurPublishers Edition :2011

HINDI II (kahani,Ekanki&Translation)

Unit I - ' Pus ki raath'(kahani), Translation ***12***

Aim *This story explains the problems faced by the farmers 'Upanyas samrat Premchand' describes the life of a poor farmer who represents present day's situation*

Aim ***'Das hazar'(ekanki),Translation***

Author 'Uday Shankar bhatt' criticized the rich&stingy person's behaviour and explains the importance of humanvalues in a humorous mannner By translating the English passage into Hindi,students learn the rules which should be followed while translation.

Unit II - 'vaapasi'(kahani), Translation ***12***

Aim *Female writer'Usha priyamvada 'describes the mentality of a retired person in a beautiful manner*

Aim ***'Akhbaari vijnapan'(ekanki), Translation***

This humorous story written by 'chiranchith'points out the problems occur due to Carelessness&lack of communication.

Unit III - 'Akeli'(kahani), Translation ***12***

Aim *Writer 'Mannu bhandari'describes the condition of middle aged woman Left lonely who longs only for love &affection&nothing else.*

Aim ***'Raat ke raahi', (ekanki), Translation***

'Vrajabhushan' shows the clear picture of cunning woman and creates Awareness

Unit IV - 'Parda'(kahani), Translation ***12***

Aim *Written by 'Yashpal',this story brings the clear picture of problems Faced by a poor muslim family.*

Aim ***'Maim bhi maanav huum'(ekanki), Translation***

Author 'vishnu prabhakar' describes the kalinga war&reasons behind samrat Ashok's change of mind.

Unit V - ***'Sharandata'(kahani), Translation*** ***12***

Aim *This story written by 'Anjeya explains the situation of Indian people who lived in Pakistan region after separation .*

Aim ***'Yah meri janma bhumi hai''(ekanki), Translation***

'Harikrishna premi' points out the patriotism of a british girl who Was born in India &also the country's condition at that time.

Total Hours :60

Text book :

1. ***Sankalan kahani our ekaanki ; Edited by Dr,N.Lavanya ,***
   Mayur Publishers- Edition :2010

15LFR001 **FRENCH I** **5 0 0 4**

(Syllabus for the I year I semester common to all UG courses)

Course Objective:
To introduce French Language.
To enable the students to understand and to acquire the basic knowledge of French Language with the elementary grammar.

UNIT I INTRODUCTION **20**
Introduction - Alphabet – Comment prononcer, écrire et lire les mots- Base : Les prénoms personnel de 1er, 2ème et 3ème personnes – Conjugaisons les verbes être et avoir en forme affirmative, négative et interrogative

UNIT II LECONS 1- 3 **20**
Leçons 1.Premiers mots en français,- 2. Les hommes sont difficiles,- 3 Vive la liberté- Réponses aux questions tirés de la leçon - Grammaire : Les adjectives masculines ou féminines – Les articles définis et indéfinis - Singuliers et pluriels

UNIT III LECONS 4- 6 **20**
Leçons 4. L'heure, C'est l ; heure,- 5. Elle va revoir sa Normandie,- 6 .Mettez –vous d'accord groupe de nom - Réponses aux questions tirés de la leçon - Grammaire : A placer et accorder l'adjectif en groupe de nom- Préposition de lieu –A écrire les nombres et l'heure en français

UNIT IVLECONS 7- 9 **20**
Leçons7. Trois visages de l'aventure,- 8. A moi, Auvergne,- 9. Recit de voyage - Réponses aux questions tirés de la leçon - Grammaire : Adjectif possessif – Les Phrases au Présent de l'indicatif - Les phrases avec les verbes pronominaux au présent

UNIT V COMPOSITION **20**
A écrire une lettre à un ami l'invitant à une célébration différente ex : mariage – A faire le dialogue - A lire le passage et répondre aux questions

TOTAL: 100 HOURS

Text Book:

1. Jacky GIRARDER & Jean Marie GRIDLIG, « Méthode de FrançaisPANORAMA », Clé Intérnationale , Goyal Publication, New Delhi.,Edition 2004

References:

1. DONDO Mathurin , " Modern French Course", Oxford University Press.,New Delhi., Edition 1997.

2. Nitya Vijayakumar, "Get Ready French Grammar – Elementary", GoyalPublications, New Delhi., Edition 2010

15LFR002 **FRENCH II** **5 0 0 4**

(Syllabus for the I year II semester common to all UG courses)

Course Objective:

To fortify the grammar and vocabulary skills of the students.

Enable the students have an idea of the French Culture and Civilization

UNIT I LECONS 10 – 11 **20**

Leçons : 10. Les affaires marchent,- 11. Un après-midi à problèmes- Réponsesaux questions tirés de la leçon - Grammaire : Présent progressif, passé récent ou future proche - omplément d'objet directe - Complément d'objetindirecte .

UNIT II LECONS 12 – 13 **20**

Leçons : 12. Tout est bien qui fini bien,- 13. Aux armes citoyens – Réponsesaux questions tirés de la leçon - Grammaire : Les pronoms « en ou y » rapporter des paroles - Les pronoms relatifs que, qui, ou où ,

UNIT III LECONS 14 – 15 **20**

Leçons 14. Qui ne risqué rien n'a rien,- 15. La fortune sourit aux audacieux –Réponses aux questions tirés de la leçon - Grammaire : Comparaison – Les phrases au passé composé

UNIT IV LECONS 16 – 18 **20**

Leçons16 La publicite et nos reves 17 La france le monde 18 Campagnepublicitaire Réponses aux questions tirés de la leçon - Grammaire :- Lesphrases à l' Imparfait - Les phrases au Future

UNIT V COMPOSITION **20**

A écrire une lettre de regret// refus à un ami concernant l'invitation d'une célébration reçue- A écrire un essaie sur un sujet générale - A lire le passage etrépondre aux questions

TOTAL: 100 HOURS

Text Book:

1. Jacky GIRARDER & Jean Marie GRIDLIG, « Méthode de Français PANORAMA », Clé Intérnationale , Goyal Publication, New Delhi., Edition 2004

References:

1. DONDO Mathurin, " Modern French Course", Oxford University Press, New Delhi., Edition 1997

2. Paul Chinnappane " Grammaire Française Facile" , Saraswathi House Pvt Ltd, New Delhi, Edition 2010

ENGLISH- I **-5 0 0 5**

COURSE OBJECTIVE:

- To enable students to develop their communication skills effectively. To make students familiar with the English Language.
- To enrich their vocabulary in English
- To develop communicative competency

Credit Hours

UNIT I - Preparatory Lesson **12**

1. Competition Matters
   Suzanne Sievert
2. A Personal Crisis May Change History
   Dr. A.P.J. Abdul Kalam
3. Why Preserve Biodiversity
   Prof. D. Balasubramanian

UNIT II –Prose **12**

1. The Unexpected
   Robert Lynd
2. My Greatest Olympic Prize
   Jesse Owens
3. If You are wrong, admit it
   Dale Carnegie

UNIT III –Poetry **12**

1. The Night of the Scorpion
   Nissim Ezekiel
2. Pulley or The Gift of God
   George Herbert
3. La Bella Dame Sans Merci
   John Keats

UNIT IV- Short Story **12**

1. The Gift of Magi
   O Henry
2. Three Questions
   Leo Tolstoy

UNIT V – One Act Play **12**

1. The Shirt
   Francis Dilion
2. The Pie and the Tart
   Hugh Chesterman

Total: 60 Hours

Books Prescribed:

- Confluence - Anu Chithra Publications

ENGLISH- II **-5 0 0 5**

COURSE OBJECTIVE:

- To enable students to develop their communication skills effectively
- To make students familiar with various sentence patterns of the English Language
- To enrich their vocabulary in English
- To develop communicative competency

Credit Hours

UNIT-I Prose **12**

1. The Words of Wisdom
   Chetan Bhagat
2. Forgetting
   Robert Lynd
3. My Early Days
   Dr. A.P.J. Abdul Kalam

UNIT II –Poetry **12**

1. Ozymandias
   Percy Bysshe Shelley
2. Mending Wall
   Robert Frost
3. Where the Mind is Without Fear
   Rabindranath Tagore

UNIT III –Short Story **12**

1. Am I Blue?
   Alice Walker
2. The Last Leaf
   O' Henry
3. The Selfish Giant
   Oscar Wilde

UNIT IV – One Act Play **12**

1. Soul Gone Home
   Langston Hughes

UNIT V **12**

1. Lexical Skills
2. Vocabulary
3. Communication and Grammar at the end of all lessons

Total: 60 Hours

Books Prescribed:

Radiance - Emerald Publications

18EVSC41 ENVIRONMENTAL STUDIES 5 0 0 4

UNIT I INTRODUCTION 12

The multidisciplinary nature of Environment of studies – Definition - Scope and Importance - Need for Public Awareness.

UNIT IINATURAL RESOURCES 12

Natural resources and associated problem - Renewable and Non- Renewable resources:.-Forest Resources-Mineral Resources-Food Resources - Energy Resources -Land ResourcesRole of an individual in conservation of natural resources-Equitable use of resources of sustainable lifestyles.

UNIT III ECO SYSTEM 12

Concepts of an Ecosystem - Structure and Functions of an Ecosystem - Procedures, Consumers and Decomposers - Energy flow in the ecosystem - Food chains, Food webs and ecological pyramids - Introduction, types, Characteristics features - Structures and functions of the following ecosystem :Forest ecosystem, Grass land ecosystem, Desert ecosystem, Aquatic ecosystem.

UNIT IVBIODIVERSITY AND ITS CONSERVATION 12

Introduction - Definition, genetic, species and ecosystem diversity - Bio-geographical classification of India - Value of Bio-diversity - Bio-diversity at global, National and Local levels - India s a mega-diversity nation - Hot-Spots of diversity - Threats to diversity: Habitats loss, poaching of Wild life, man wild life conflicts - Endangered and Endemic species of India In-Situ conversation of Bio-diversity.

UNIT V ENVIRONMENTAL POLLUTION AND HUMAN RIGHTS 12

Definition - Causes, effects and control measures of : Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution - Soil pollution management: Causes, effects and control measures of urban and industrial wastes - Role of an individual in prevention of pollution - Pollution – Case studies -Disaster Management – Flood, earthquakes, cyclone of landslides Environment and human health - Human rights - Value education - HIV/AIDS - Women and child welfare - Role of information technology in Environment and Human health - Case study

.

TOTAL: 60 HOURS

Textbooks:

1. Dr. Shradha sinha, Dr.Manisha shukula, Dr. Ranjana Shukla

References:

Environmental studies by:

1. Dr. N. Arumugam, Prof.V. Kumaresan
2. Thangamani & Shyamala Thangamani.

LIST OF ENGLISH PAPERS

SNO	CODE	COURSE
1	18LENG11	Foundation Course English – I
2	18LENG21	Foundation Course English – II
3	18LENG31	ENGLISH PAPER - III
2	18LENG41	ENGLISH PAPER – IV

ENGLISH- I **-5 0 0 5**

COURSE OBJECTIVE:

- To enable students to develop their communication skills effectively. To make students familiar with the English Language.
- To enrich their vocabulary in English
- To develop communicative competency

Credit Hours

UNIT I - Preparatory Lesson **12**

1. Competition Matters
   Suzanne Sievert
2. A Personal Crisis May Change History
   Dr. A.P.J. Abdul Kalam
3. Why Preserve Biodiversity
   Prof. D. Balasubramanian

UNIT II –Prose **12**

1. The Unexpected
   Robert Lynd
2. My Greatest Olympic Prize
   Jesse Owens
3. If You are wrong, admit it
   Dale Carnegie

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1. The Night of the Scorpion
   Nissim Ezekiel
2. Pulley or The Gift of God
   George Herbert
3. La Bella Dame Sans Merci
   John Keats

UNIT IV- Short Story **12**

1. The Gift of Magi
   O Henry
2. Three Questions
   Leo Tolstoy

UNIT V – One Act Play **12**

1. The Shirt
   Francis Dilion
2. The Pie and the Tart
   Hugh Chesterman

Total: 60 Hours

Books Prescribed:

- Confluence - Anu Chithra Publications

ENGLISH- II **-5 0 0 5**

COURSE OBJECTIVE:

- To enable students to develop their communication skills effectively
- To make students familiar with various sentence patterns of the English Language
- To enrich their vocabulary in English
- To develop communicative competency

Credit Hours

UNIT-I Prose **12**

4. The Words of Wisdom
   Chetan Bhagat
5. Forgetting
   Robert Lynd
6. My Early Days
   Dr. A.P.J. Abdul Kalam

UNIT II –Poetry **12**

1. Ozymandias
   Percy Bysshe Shelley
2. Mending Wall
   Robert Frost
3. Where the Mind is Without Fear
   Rabindranath Tagore

UNIT III –Short Story **12**

1. Am I Blue?
   Alice Walker
2. The Last Leaf
   O' Henry
3. The Selfish Giant
   Oscar Wilde

UNIT IV – One Act Play **12**

1. Soul Gone Home
   Langston Hughes

UNIT V **12**

1. Lexical Skills
2. Vocabulary
3. Communication and Grammar at the end of all lessons

Total: 60 Hours

Books Prescribed:

Radiance - Emerald Publications

ENGLISH – III **-5 0 0 5**

COURSE OBJECTIVE:

- To train students in the use of English language in varied literary and non-literary context
- To teach them soft skills and strengthen their foundation in grammar and composition
- To evaluate their comprehension skills.

Credit Hours

UNIT - I- Prose **12**

1. Two Gentleman of Verona - A.J. Cronin
2. Judas Iscariot - Bonnie Chamberlain
3. Dangers of Drug Abuse - J. V. S. Henbane

UNIT II - Short Stories **12**

1. Journey by Night - Norah Burke
2. The 2000-Mile Turtle - Henry Edward Fox
3. Fools Paradise - Isaac Bashevis Singer

UNIT III – Fiction **12**

R. L. Stevenson - Dr. Jekyll & Mr. Hyde (Retold by Kennet) – S. Chand & company Ltd.

UNIT IV - Functional English **12**

1. Paragraph Writing
2. Comprehension
1. Letter Writing
2. Report writing
   a) News Paper Report
   b) Reports for Government Official Attention
   c) Definition

UNIT V – Conversation In Situations & Conversation Practice **12**

1. **Conversation in Situations**

   a) At the Airport
   b) In a Bank
   c) On the Beach
   d) At the Customs
   e) At the Doctors'
   f) In a Flight
   g) In a Hotel
   h) In a Restaurant
   i) In a Shop
   j) Tea Time
   k) On the Telephone
   l) In a Travel Agency
   m) On a Country Walk
   n) At the theatre
   o) In a Street
2. **Conversation Practice**

a) Daily Activities
b) Asking Directions
c) Travel plans
d) Living in an Apartment
e) Money Problems
f) Weather Conditions
g) Dinner Conversations
h) Common Health Problems
i) Tag Questions
j) Office Conversations

3. **Expansion of Hints**

Total: 60 Hours

Books Prescribed:

1. Effective English Communications for You – V. Syamala, Emerald Publishers, Chennai.
2. English Conversation Practice by D. H. Spencer, Oxford University Press
3. English Conversation Practice by Grant Taylor, Tata McCraw-Hill, Publishing Company Limited, New Delhi.

ENGLISH – IV **-5 0 0 5**

COURSE OBJECTIVE:

- To train students in the use of English language in varied literary and non-literary context
- To teach them soft skills and strength their foundation in grammar and composition
- To elevate their comprehension skills.

Credit Hours

UNIT I – Prose **12**

1. Walking Tours - R. L. Stevenson
2. All About a Dog - A. G. Gardinar
3. No Man is an Island - Minno Masani

UNIT II - Short Stories **12**

1. The Man Who Likes Dickens - Evelyn Waugh
2. Lamb to the Slaughter - Roald Dahl
3. Buck Hears the Call - Jack London

UNIT III – Drama **12**

1. Selected Scenes from Shakespeare's Plays – Book I, Emerald Publishers
   a) Funeral Oration (Julius Caesar)
   b) Trial for a Pound of Flesh (The Merchant of Venice)
   c) Patterns of Love (As You Like It)

UNIT IV **12**

1. General Essay Writing & Group Discussion
2. Persuasive Writing and Role Play

UNIT V **12**

1. Notice, Agenda, Minutes.

Total: 60 Hours

Books Prescribed:

1. Invitation to English Prose – A. E. Varadarajan & S. Jagadisan, Orient Black Swan, Chennai

SKILL ENHANCEMENT COURSE

S.NO	CODE	COURSE
1	18…..	SOFTSKILL -I
2	18NSS255	NSS PAPER – I
3	18…..	SOFTSKILL -II

15MCA151 SOFT SKILL – I 2 0 0 2

Course Objective

To help the students understand interpersonal skills, to support them in building interpersonal skills, to better the ability to work with others.

UNIT I PRONUNCIATION 6

1. An Introduction to Phonetics
2. Sounds – Vowel Sounds, Consonant Sounds and Diphthongs
3. Speaking with the right pronunciation
4. Regional Slant and how to overcome the slant
5. Standard Pronunciation and Received Pronunciation (R.P.)
6. Correcting common errors of pronunciation

DRILL IN LANGUAGE LAB

UNIT II SPEAKING 6

Learning to talk

Different attitude–different concept–different orientation according to the situation, aim and talk

1. Familiar Topics
2. Brain – storming, just a minute
3. Thinking Together
4. Finding the right word, Expressions, Usage, Mannerisms, Postures, Body–Language, Eye–Contact, Gestures.
5. Presenting points
6. Overcoming hesitations, Shyness and Nervousness

[From a word to a sentence and then to a short speech]

7. Speech – Rhythm
   - –Rising and falling Tone
   - –Accent
   - –Intonation
   - –Word stress, Syllable Stress and Sentence Stress.

UNIT III DRILLING IN THE LANGUAGE LAB 6

8. Preparing a speech on a given Subject
9. Pattern of a speech to suit the audience

–addressing the audience, slowly introducing the topic, defining the topic, points 1,2,3,…and if there is a draw–back mention it, Conclusion ‘Thank You’.

10. Choose the right word for right meaning– expression to suit the thought

11. Words – Derivatives, synonyms & Antonyms

DRILLING WITH DIFFERENT TOPICS FROM FAMILIAR TO UNFAMILIAR

UNIT IV WRITING SKILLS[creative Writing] 6

I Narration and Story – Telling

1) Narrating an incident, Cogency and Readability

2) Choosing the Tense

3) Plan of a story [Introducing the story, characters, incidents and proper end]

DRILL IN LANGUAGE LAB

II Reports

1) Agenda of a meeting
2) Circulars & Internal Memos
3) Reports of Meetings
4) Reports of Experiments
5) Business Report
6) Reporting for the media
7) Writing Press Reports
8) Conflict resolution – Adopting an agreed resolution

UNIT V READING [READING TO UNDERSTAND] 6

1) Reading with pauses
2) Reading with Intonation
3) Reading in a classroom
4) Reading to an assembly of Business men / Scientists
5) Quoting
6) Slogans in the reading material
7) Training for a News Reader/Corporate Spokesperson

Function of Commonly used Tenses
The function of the Parts of Speech in daily use in the corporate world

TOTAL: 30 HOURS

References:

www.tatamcgrawhill.com
www.dictionary.cambridge.org
www.wordsmith.org

15MCA152 SOFT SKILL – II 2 0 0 2

Course Objective

To help the students understand Speaking skills, to support them in building communication skills, to better the ability to work with others.

UNIT I SPEAKING **6**

1) Speaking at an Interview – "Interviews"
2) Meeting People
3) Exchanging Greetings
4) Introducing Oneself
5) Introducing people to others
6) Debates and Group Discussions
7) At the Interview for a Job

DRILL IN LANGUAGE LAB

UNIT II TELEPHONE CONVERSATION **6**

1) Etiquette & Manners
2) Answering the Telephone
3) Asking for someone
4) Taking and leaving messages
5) Making Enquiries

DRILL IN LANGUAGE LAB

UNIT III PRESENTATION **6**

1) Presenting a matter for discussion
2) Presenting a problem for Support
3) Presenting a product among customers and inventors
4) Slogans for advertising
5) Proverbs Re–defined
6) Saying 'No' without saying 'No'
7) Presenting a paper at a seminar/conference

DRILLING IN PRESENTATION [EXERCISES]

UNIT IV WRITING SKILLS **6**

1) Letters [Different types of Letters]
2) Developing an argument, story or an article from hints
3) Note – Making
4) Drafting
5) Summary Writing
   –Method of Summarizing
   –Summarizing paragraphs, Essays, Stories, Incidents, Long articles, Speeches.

UNT V LISTENING SKILLS [LISTENING AND TAKING NOTES] 6

1) Listening in a class – room
2) Listening to a Public – speaker
3) Listening to a Scientists
4) Listening to the news to pick–out the points
5) Listening in Corporate offices
6) Listening to a recorded speech – cassette of C.D.
7) The importance of listening in Business houses

DRILL IN LANGUAGE LAB

VI PERSONALITY

1) Personality – An Introduction –Roles of Heredity and Learning Identity Clothing/Speech/Age/Success/Reputation/Aspirations and Achievements.

2) Attitude

- Advantages of positive attitude Thought and Action
- Appearance
- Facial Expressions
- Dress Code
- Posture
- Gesture
- Know the impressions created.

3) Presenting Oneself – [Manner and matter]

- Timing
- Knowledge
- Skill and Competence
- Communication
- Behaviour
- Avoiding Anxiety
- Shrewdness

* Being true to type
* Punctuality
* Self – confidence
* Assurance

4) Path to greatness

- Self Confidence
- Self-Motivation
- Leadership Qualities
- Be Innovative and Original / Creativity

5) The Impact of appearance

- Essentials of a good appearance
- Cleanliness and morals
- Importance of dress
- Overcome shyness / fear and Anxiety

- positive thinking
- career planning
- Etiquette & Manners
- Speech
- Character
- Integrity
- Wisdom
- Courage

6) Interpersonal Skills

- Team work
- Concept of leadership
- The Virtues of a Leader
- Decision making
- Time Management

Text Books:

–Newspapers and Magazines
–Write to Communicate – Geetha Nagaraj
–Spoken English – "A Self Leaning Guide to Conversation Practice", 34th Reprint, Tata McGraw Hill–New Delhi.
–Powell, In Company – Macmillan
–Personality Development – Elizabeth B. Hurlock

TOTAL: 30 HOURS

References:

www.tatamcgrawhill.com
www.dictionary.cambridge.org
www.wordsmith.org

15NSS255 NATIONAL SERVICE SCHEME PAPER -1 2 0 0 2

UNIT IENVIRONMENT ISSUES 4

Environment conservation, enrichment and Sustainability - Climate change - Waste management - Natural resource management - (Rain water harvesting, energy conservation, waste land development, soil conservations and afforestation)

UNIT II DISASTER MANAGEMENT 4

Introduction to Disaster Management, classification of disasters - Role of youth in Disaster Management

UNIT III PROJECT CYCLE MANAGEMENT 4

Project planning - Project implementation - Project monitoring -Project evaluation: impact assessment

UNIT IV DOCUMENTATION AND REPORTING 4

Collection and analysis of date - Preparation of documentation/reports - Dissemination of documents/reports

UNIT VPROJECT WORK/ PRACTICAL 4

Workshops/seminars on personality development and improvement of communication skills.

TOTAL:20 HOURS

GENERIC ELECTIVE PAPER

Generic Elective **DISASTER MANAGEMENT** **2 0 0 2**

Unit: I Definition and types of disaster

Hazards and Disasters, Risk and Vulnerability in Disasters, Natural and Man-made disasters, earthquakes, floods drought, landside, land subsidence, cyclones, volcanoes, tsunami, valanches, global climate extremes. Man-made disasters: Terrorism, gas and radiations leaks, toxic waste disposal, oil spills, forest fires.

Unit: II Study of Important disasters

Earthquakes and its types, magnitude and intensity, seismic zones of India, major fault systems of India plate, flood types and its management, drought types and its management, landside and its managements case studies of disasters in Sikkim (e.g) Earthquakes, Landside). Social Economics and Environmental impact of disasters.

Unit: III Mitigation and Management techniques of Disaster

Basic principles of disasters management, Disaster Management cycle, Disaster management policy, National and State Bodies for Disaster Management, Early Warming Systems, Building design and construction in highly seismic zones, retrofitting of buildings.

Unit IV Training, awareness program and project on disaster management

Training and drills for disaster preparedness, Awareness generation program, Usages of GIS and Remote sensing techniques in disaster management, Mini project on disaster risk assessment and preparedness for disasters with reference to disasters in Sikkim and its surrounding areas.

Text Books:

1. Disaster Management Guidelines, GOI-UND Disaster Risk Program (2009-2012)

2. Damon, P. Copola, (2006) Introduction to International Disaster Management, Butterworth

Heineman.

3. Gupta A.K., Niar S.S and Chatterjee S. (2013) Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.

4. Murthy D.B.N. (2012) Disaster Management, Deep and Deep Publication PVT. Ltd. New Delhi.

5. Modh S. (2010) Managing Natural Disasters, Mac Millan publishers India LTD