

DCS 501: SOFTWARE ENGINEERING

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V Semester

CREDIT:-4

Module No.	Contents	Teaching Hours
I	Overview of Software Engineering & the Software Development Process:- Software Engineering –A layered Technology approach, A process framework & software project tracking & control. The Capability Maturity Model Integration technique, Process patterns, process Assessment, personal & Team Process models & Process Technology Theories. Process Models –Waterfall, Incremental, RAD, Prototype, Spiral. Software Engineering requirements & Development of Analysis & Design models;- Software Engineering core principles, Communication, Planning, Modeling, Construction & Deployment principles. Requirements Engineering Tasks, Initiating the requirement process, Analysis approaches of software & preparation of Analysis model, using Data modeling, Concepts, Object-oriented Analysis, Flow oriented model, Class-Based model, Behavioral Model	12
II	Testing Strategies & Methods:- Software Testing Fundamentals, A Strategic approach to software testing. Test Strategies for conventional software, Unit Testing, Integration Testing, Regression testing, smoke testing. Validation testing using Alpha & beta testing, system testing using recovery, security, stress & performance testing. Black Box & White Box Testing. Debugging process strategies.	12
III	Software Project Management:- The management spectrum – The people, The product, the process & the project. Project scheduling – Basic concepts, relationship between people & effort, effort distribution, defining a task for the software project, Defining a task network & scheduling of project. Risk Management – Reactive Vs Proactive risk strategies, software Risks, Risk Identification, Risk Projection & Risk refinement, monitoring & management. Change Management – SCM scenario, SCM repository & process.	12

Text Books

1. Software Engineering Concept by Richard Fairley, Tata McGraw Hill Publishers, New Delhi
2. An Integrated Approach to Software Engineering by Pankaj Jalote, Narosa Publishing House Pvt Ltd, Darya Ganj, New Delhi 110002

Reference Books:

1. Software Engineering – A Practitioner’s Approach by RS Pressman, Tata McGraw Hill Publishers, New Delhi
2. Software Testing Techniques by B Beizer

DCS – 502 : COMPUTER NETWORKS

Credits: 04

Semester V

Module No.	Content	Teaching Hours
I	<p>Basic Network Concepts:- Understanding Network - Human Networks; Computer Networks; Network Plan. Identifying the Benefits of Network - Sharing Information; Sharing Resources; Facilitating Centralized Management – Managing Software, Maintaining the Network, Backing Up Data. Distinguishing Between Network classifications:- Classifying Networks by their Geography – LAN, MAN, WAN; Classifying Networks by their Component Role - Peer to Peer, Server based Network. Network Features: - File Sharing; Printer Sharing; Application Services; E- Mail; Remote Access.</p> <p>Network Topologies and Networking Devices:- Type of Topology - Bus Topology; Ring Topology; Star Topology; Mesh Topology; Tree Topology; Hybrid Topology. Network Control Devices -Hubs; Switches; Routers; Bridges; Repeaters; Gateways; Modems</p>	12
II	<p>Transmission Media:- Guided Media -Twisted Pair -UPT, STP; Coaxial Cable; Optical Fiber - Optical Fiber Structure, Light Source for Fiber, Propagation Mode, Advantages of optical fiber and Disadvantages of optical fiber. Un-Guided Media: Wireless Communication – Communication Band; Microwave Communication; Satellite Communication – Access Method; Cellular (Mobile) Telephone – Band in Cellular Telephony, Calls Using Mobile Phones, Transmitting receiving operations; New Developments.</p> <p>Network Reference Model:- OSI Reference Model - Interlayer Communication – Data Encapsulation, Horizontal Communication, Vertical Communication, Encapsulation Terminology; Physical layer; Data link layer; Network layer; Transport layer; Session layer; Presentation layer; Application layer. TCP/IP Reference Model – Link; Internet; Transport; Application layer. Comparison of the OSI and TCP/IP reference models.</p>	12
III	<p>TCP/IP Fundamentals:- TCP/IP Protocols - SLIP and PPP; ARP; IP; ICMP; TCP and UDP. IP Addressing - IP Address Assignments; IP Address Classes; Subnet Masking; Registered and unregistered Addresses. TCP/IP Configuration - Installing the TCP/IP Protocol; Configuring TCP/IP - Configuring Basic TCP/IP Properties, Configuring Advanced TCP/IP Properties</p>	12

Reference Books:

1. Computer Networks by Tanenbaum, Andrew S, Prentice Hall of India, New Delhi
2. Data Communications and Networking by Foronzan, Tata McGraw Hill, New Delhi
3. Local area Networks by Peter Hudson
4. Understanding Local area Network by Neil Jenkins

DCS – 503 : INTERNET AND WEB TECHNOLOGY

Credits: 03

Semester V

Module No.	Content	Teaching Hours
I	<p>Internet Basics:- Application and use of internet in various fields of Science and Technology, Specification and technical details for establishing Internet. Types and functions of modems, internet domains, domain name server, TCP/IP protocols, Internet service providers, Intranets,</p> <p>World Wide Web and its evolution, web page, web server, HTTP protocol. Examples of web servers. Navigation Tools: Netscape and Internet Explorer to surf</p> <p>Internet, Uniform Resource Locator (URL)</p> <p>Hypertext, hyperlinks and hypermedia, its registration, browsers, search engines, proxy servers, Internet Applications: E-mail, Telnet, FTP, IRC, NNTP, Video conferencing, e-commerce</p>	12
II	<p>Developing Portals Using HTML:-Basic structure of HTML, designing a web page, inserting links images, horizontal rules, comments. Formatting text, title, headings, colors, fonts, sizes, simple tables and forms. Introduction (WEB publishing, HTML tag concept, <head><body>, URL, hyperlinks <link> href, <A> tags. HTML tags, hyperlinks. Adding graphics and images, image maps, image files. Using tables, forms, style sheets and frames</p>	12
III	<p>Using Front Page Front page editor, Front page explorer Client-side Scripting: VB Scripting Vs Java Script, Server-side Scripting: Scripting methods, Java Server Pages (JSP), Active Server Pages (ASP)</p> <p>Text processing using ASP, Handling server/Client requests, Accessing databases, using IIS web server; ASP Objects Developing Interactive Web</p>	12

Reference Books:

1. Internet 6-in-1 by Kraynak and Habraken, Prentice Hall of India Pvt. Ltd., New Delhi
2. Using the Internet IV edition by Kasser, Prentice Hall of India Pvt. Ltd., New Delhi
3. Using the World Wide Web, (IInd edition) by Wall, Prentice Hall of India Pvt. Ltd., New Delhi

DCS – 504 JAVA PROGRAMMING**Credits: 4****Semester-V**

Module No.	Contents	Teaching Hours
I	<p>Introduction to Java:- Fundamentals of Object Oriented Programming, Object and Classes, Data abstraction and encapsulation, Inheritance, Polymorphism, Dynamic Binding.</p> <p>Java Features:- Compiled and Interpreted, Platform independent and portable, Object oriented Distributed, Multithreaded and interactive, High performance.</p> <p>Constant, Variables and Data Types, Constant, Data Types, Scope of variable, Symbolic Constant, Type casting, Standard default values.</p> <p>Operator and Expression:- Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operator Increment and Decrement Operator, Conditional Operator, Bit wise Operator, Special Operator.</p> <p>Decision making and Branching:- Decision making with if statement, Simple if statement, The if else statement, The else if ladder, The switch statement, The? : Operator.</p> <p>Decision making and Looping:- The While statement, The do statement, The for statement, Jumps in Loops, Labeled Loops.</p>	16
II	<p>Classes, Object and Methods:- Defining a class, Creating object, Accessing class members, Constructor, Methods Overloading, Static Member.</p> <p>Inheritance Extending a Class (Defining a subclass Constructor, Multilevel inheritance, Hierarchical inheritance, Overriding Methods, Final variable and Methods, Final Classes, Abstract method and Classes .</p> <p>Visibility Control:- Public access, friend access, Protected access, Private access, Private Protected access.</p> <p>Array, Strings and Vectors:- Arrays, One Dimensional array, Creating an array, Two Dimensional array, Strings, Vectors, Wrapper Classes.</p> <p>Interfaces and Packages:-</p> <p>Interface: Multiple Inheritance Defining interfaces, Extending interfaces, Implementing interfaces, Accessing Interface variable.</p> <p>Packages: Putting Classes Together System Package, Using system Package, Naming Convention, Creating Package, Accessing a package, Using a package, adding a class to a package.</p>	16
III	<p>Multithreaded Programming and Exception handling:-</p> <p>Multi Threading: Creating Thread, Extending a thread class, Stopping and Blocking a thread, Life cycle of thread, Using thread method, Thread exceptions,</p> <p>Thread priority, Synchronization, Managing Errors and Exceptions Types of errors, Exception. Java Applets and Graphics Programming:- Applet Programming Local and remote applets, How applet differ from application, Preparing to write applets, Building applet code, Applet life cycle, Creating an Executable Applet, Designing a Web page, Applet tag, Adding Applet to HTML file, Running the Applet.</p>	16

Text Books:

1. Programming in JAVA by E. Balagursamy by TMH publications.
2. JAVA 2 Complete BPB publications.

Reference Books

1. Programming in JAVA 2 by QUE (Prentice Hall) publications.
MCSE networking guide by BPB publications



DCS 505: E-COMMERCE (V SEMESTER)

Credits: 04

Module No.	Content	Teaching Hours
I	<p>An Overview of E-Commerce: Trade Process & Trade Cycles their linkages with information exchange; Definitions of E-commerce & E-business & their difference; Problems with Manual Systems, Aims of E-commerce, Functions of E-commerce, Applications of E-commerce in business functions, Tools & Technologies for E-commerce, Types of E-commerce, Operational & Strategic benefits of E-commerce, Issues & Challenges in E-commerce .</p> <p>Electronic Data Interchange (EDI): Definition, Concept & Evolution of EDI, Traditional versus EDI enabled system for document exchange, EDI Layered Architecture, Process of EDI Message Exchange, Components of EDI, UNEDIFACT Standards & Message Structure, EDI in India, EDI enabled procurement process, EDI Implementation, UN 'Model Interchange Agreement' for international commercial use of EDI.</p>	12
II	<p>Intranet, Extranet and VPN: Architecture of Intranet, Intranet Software, Applications of Intranets, Intranet Application Case Studies, Considerations in Intranet Deployment; The architecture of Extranets, Extranet Products & Services, Applications of Extranets, Business Models of Extranet Applications; Virtual Private Network (VPN): Architecture of VPN - service provider dependent & service provider independent configurations, VPN Security- User authentication & Data Security.</p> <p>Electronic Payment Systems: E-cash: Purchasing & using of e-cash; Electronic Purses their loading with cash and use; E-cheque payment system; Online Third Party Verified Payment</p>	12
III	<p>Web based E-Commerce: Need for web based business, Choosing the right format of website: Characteristics of PR site, Marketing site, Sales site/web-store and vertical & horizontal portals; Steps in setting up business on Internet: Selection & registration of domain name, Website development-client & server side tools, web authoring tools, catalogue & web store tools, Website hosting considerations-own versus rented server; Website Maintenance Online Promotion tools & techniques: Getting links to your site, banner advertisements & measuring advertisement effectiveness, Web Traffic Analysis.</p>	12

Text Book

1. e-commerce: Strategy, Technologies and Applications, David Whiteley, Tata McGraw Hill
2. E-Commerce: The Cutting Edge of Business, KK Bajaj & Debjani Nag, McGraw Hill.

Reference Books:

1. The Complete Reference: Internet, Margaret Levine Young, Tata McGraw Hill.
2. e-Commerce: Concepts, Models, Strategies, CSV Murthy, Himalayas Publishing House.
3. Frontiers of Electronic Commerce, Ravi Kalakota & Andrew B. Wilson, Addison-Wesley



DCS – 551 : JAVA PROGRAMMING LAB

Credits: 02

Semester V

List Of Practical

Module No.	Content	Teaching Hours
1	To write a Java application program which clarify the following points? How to compile and run, How to set path and class path, Single and Multi-line comments, and, Command line arguments. Data Types, Variables Operators & Arrays	
2	To write a Java program which defines and initialized different data types: byte, short, int, long, float & double.	
3	Problems related to Character and Boolean data type.	
4	Problems related to one and two dimensional array.	
5	Problems related to Arithmetic, bit wise and relational operators.	
6	Control Statements & Looping Structure Problems related to: IF-ELSE, IF-ELSE-IF, SWITCH statements. Problems related to the following looping statements — WHILE, DO-WHILE & FOR. Problems related to nested looping and jump statements (BREAK, CONTINUE & RETURN)	
7	Classes ,Objects & Methods To write a Java program to clarify the following points: (a) how to declare a class, (b) how to create an object, (c) how methods are defining in a class, (d) access variables and methods.	
8	To construct a Java program which defines: (a) how arguments values are passed to a method, (b) use of new operator, constructor and finalize) method, (c) passing objects to a method, (d) declaration of static keyword.	
9	To practice problems related to: (a) Method overloading, (b) Multiple constructor, (c) Calling constructor from a constructor.	
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[Diploma in Engineering]

**DCS – 554 : INTERNET AND WEB
TECHNOLOGY LAB**

Credits: 01

Semester V

List Of Practical

Module No.	Content
1	Configuring computer system to access internet
2	Using e-mail
3	Using WWW for accessing relevant information
4	Creating Web pages using HTML
5	Creating web pages using front page
6	Demonstration of audio-video conferencing
7	Demonstration of e-commerce transaction
8	Design of Forms using Java Script or Visual Basic Script
9	Validation of user queries and responses in the Forms using Java Script or VB script
10	Create a Homepage with frames, animation, background sound and hyperlinks . Design fill-out form with text, check box, radio buttons etc and embed Java
11	script or VB script to validate users input. .
12	Develop interface with database (MS-Access etc) for online retrieval and storage of data through HTML form.