

SWAMI VIVEKANAND UNIVERSITY, SIRONJA, SAGAR (M.P.)



SYLLABUS

For

**Diploma in Computer Science and Engg.
Semester - V**

**Swami Vivekanand University, Sironja Sagar
2013-2014**

PROGRAMME NAME : Three years Diploma in **Computer Science and Engineering**

Name of Scheme : **Jul. 2013**

Implemented from Session 2013– 2014

Scheme of Studies and Examinations for: **V SEMESTER** Exam Code:

COURSE CODE	COURSE TITLE	PAPER CODE	THEORY COMPONENT							PRACTICAL COMPONENT					TOTAL	TOTAL	
			LECTURES	CONTINUOUS EVALUATION		END OF THE TERM/ SEMESTER EVALUATION			TOTAL MARKS	PRACTICAL	CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION					
																	Hrs. Per Week
				I	II	NO	MARKS	DURATION (Hrs.)			NO	MARKS	DURATION (Hrs.)				
501	Web Technology	DCS-501	4	10	10	10	1	70	3	100	4	20	1	30	3	50	150
502	Java Programming	DCS-502	4	10	10	10	1	70	3	100	4	20	1	30	3	50	150
503	Hardware Installation and Maintenance	DCS-503	4	10	10	10	1	70	3	100	4	20	1	30	3	50	150
504	Software Engineering	DCS-504	4	10	10	10	1	70	3	100	-	-	-	-	-	-	100
511	Optional (Anyone)	DCS-511															
512	Wireless Communication and Mobile Computing /Theory of Computation	/ DCS-512	4	10	10	10	1	70	3	100	-	-	-	-	-	-	100
507	Professional Activities										02	Grade to be awarded					
	TOTAL		20	50	50	50	5	350	-	500	14	60	3	90		150	650

Semester: Fifth
Course Code: 501
Name Of Course: Web Technology

Scheme: Jul. 2013
Paper Code: DCS-501

Lectures: 4 Hrs. per week

SCHEME OF STUDIES

Sr. No.	TOPICS	THEORY (HRS)	PRACTICAL (HRS)	TOTAL (HRS)
1.	Introduction To Web Design	05	00	05
2.	HTML	15	16	31
3.	JAVA Script	15	16	31
4.	DHTML	15	16	31
5.	XML Basics	04	04	08
6.	Publishing the site	06	08	14
	TOTAL	60	60	120

Lectures: 4 Hrs. per week

UNIT-1

1. Introduction To Web Design

Web page and Web site - Web publishing Process of Web, publishing, planning, organizing, Hierarchical, Linear, Webbed. Implementing, Testing, Maintenance.

UNIT-2

2. HTML

Introduction, Head section – Prologue, Link, Base, Meta, Script, Style
Body Section – Header, Paragraphs, Text Formatting, Linking, Internal Linking, Embedding Images, Lists, Tables, Frames. Other Special Tags and Characters, HTML Forms

UNIT-3

3. Java Script

Introduction, Language Elements – Identifiers, Expressions, Keywords, Operators, Statements, Functions, Object of Java Scripts – Window Object, Document Object, Forms Objects, Text Boxes and Text Areas, Buttons, Radio Buttons and Check Boxes, The Select Object, Other Object – The Date Object, The Math Object, The String Object, Regular Expressions, Arrays, Worked Examples

UNIT-4

4. DHTML

Introduction. Cascading Style Sheet (CSS) – Coding, Properties of Text, Property Values, Other Style Values, In-Line Style Sheet, Embedded Style Sheet, External Style Sheet, Grouping, Inheritance, Classes as Selector, ID as Selector, Contextual Selector, Pseudo Classes and Pseudo Elements, Positioning, Backgrounds, Element Dimensions DHTML Document Object Model and Collections – Using the Collection all, Moving object around the documents, Event Handling – Assigning Event Handlers, Event Bubbling, Filters and Transactions Data Bindings – Using Tabular Data Control, Sorting Data, Dynamic, Sorting, Filtering

UNIT-5

5. XML Basics

Introduction, HTML vs XML, Syntax of the XML Document, XML Attributes
Publishing The Site, Uploading Web pages - Using FTP and using Web Page Editors, Web hosting - Shared hosting Running a Local Web server

Semester: Fifth
Course Code: 501
Name Of Course: Web Technology

Scheme: Jul. 2013
Paper Code: DCS-501

Practical: 2 Hrs. per week

Total Lab Hours: 60

LIST OF PRACTICALS

- Design a Home Page of Website using HTML Tags.
- Write an HTML Document to provide a form that collects names and phone numbers.
- Write a program in Java Script to compare numbers whose inputs will be taken from HTML Form.
- Write a JAVA Script function to display current date and time using Date Object.
- Write a Java Script to generate Random Numbers
- Design three pages of your Home Page and link all of them to a single stylesheet.
- Design a web page that demonstrates blinking and scrolling text. \
- Design an E-Commerce Site displaying the detail of the items that are sold in that store. The Site should provide a feature to sort the items based on the price of the items.
- Design an XML document using basic syntax.
- Uploading websites on FTP and Local Server.

Recommended Text Books

Web Technology – A Developer’s Perspective – PHI by N. P. Goplan and J. Akilandeswari

REFERENCE BOOKS:

- Allen D.W. & Steve Johnson; the Learning Guide to Internet; B.P.B. Publication.
- Alexis Leon and Matthew Leon; Internet for every one; Vikas publishing house Pvt. Ltd. New Delhi
- Internet for Dummy, Pustak Mahal, New Delhi
- Dixit Manish (1999); Internet, An Introduction, C I Stems TMH Series , Tata McGraw Hill publishing company limited, New Delhi.
- Design Web Pages, BPB Publication.

Semester: Fifth
Course Code: 502
Name Of Course: Java Programing

Scheme: Jul. 2013
Paper Code: DCS-502

SCHEME OF STUDIES AND SPECIFICATION TABLE

Course duration: **15** weeks
Lectures: **4** Hrs. per week
Practical: **4** Hrs. per week

S. N O.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theor y	Practic al	Total
1.	Overview of Java Language	10	10	20
2.	Classes, Objects & Methods	10	10	20
3.	Arrays, Strings & Vectors	10	10	20
4.	Multithreaded Programming	10	10	20
5.	Applet Programming	10	10	20
6.	JDBC	05	05	10
7	File handling and simple GUI Design	05	05	10
TOTAL		60	60	120

Semester: Fifth
Course Code: 502
Name Of Course: Java Programming

Scheme: Jul. 2013
Paper Code: DCS-502

COURSE CONTENT

Course duration: **15** weeks
Lectures: **4** Hrs. per week

Course Content

Hours of Study

UNIT-1

OVERVIEW OF JAVA LANGUAGE

20

JAVA and its support systems, JAVA environment.

JAVA program structure, Tokens, Statements, JAVA virtual machine, C++ Versus JAVA, Constants & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting, Operators: Arithmetic, Relational, Logical Assignments, Increment & Decrement, Conditional, Bit wise, Special, Expressions & its Evaluation. Control statements: If statements and its variant, Switch statement, ? Operator, While loop, Do while loop, For loop, Break and continue, Labeled Loops.

UNIT-2

CLASSES, OBJECTS & METHODS

20

Defining a Class, Adding Variables & Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods, Inheritance: Extending a Class, Overriding Methods, Concept of public, private and protected, Final Variables & Methods, Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.

UNIT-3

ARRAYS, STRINGS & VECTORS

20

Arrays : One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interfaces Variables, Systems Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using Package, Adding a Class to a Package, Hiding Classes.

MULTITHREADED PROGRAMMING

Creating Threads, Extending the Threads Class, Stopping & Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, basic exception handling, Threads Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface.

UNIT-4

APPLET PROGRAMMING

20

Local & Remote Applets, Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.

UNIT-5

JDBC

20

Understanding JDBC, JDBC Architecture, types of JDBC driver, Register JDBC driver, establish a database connection, execute an SQL statement, process the result, close the data base connection.

File handling and simple GUI Design

Introduction, Data records, reading and writing to text files, simple GUI design JOptionPane class, message dialog-presenting information to user, input dialog-reading data from the user, confirmation dialog - getting confirmation from user.

LIST OF EXPERIMENTS

Course duration: **15** weeks

Practical: **4** Hrs. per week

S. NO	Name of experiments	Hours of Study
1	Programs using various decision making & looping statements of JAVA.	
2	Programs to demonstrate the use of array, Class & packages.	
3	Programs using Concept of public, private and protected, Final Variables & Methods.	
4	Programs using Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.	
5	Program for creating & extending thread.	
6	Programs to demonstrate the use of multiple threads.	
7	Programs to create an applet for "HELLO " & call this in HTML.	
8	Programs to demonstrate the use of various applet tags, Designing data entry forms using various building blocks at client side.	
9	Program to connect single & multiple databases using JDBC concept.	
10	Program to read & write a text file.	
11	program for GUI design using JOptionPane class.	
		TOTAL 60

REFERENCES

TEXT BOOKS:

- E. Balaguruswami, Programming in Java, 2nd Edition, TMH Publications
- Herbert Schildt, Java Complete Reference TMH publication

REFERENCE BOOKS:

- Peter Norton, Peter Norton Guide to JAVA Programming, Techmedia Publications.
- Stoker, Philip, 1998, An introduction to JAVA, Thomson Learning.

Semester: Fifth
Course Code: 503

Scheme: Jul. 2013
Paper Code: DCS-503

Name Of Course: Hardware Installation and Maintenance

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
Practical: 4 Hrs. per week

SCHEME OF STUDIES

Sr. No.	TOPICS	THEORY (HRS)	PRACTICAL (HRS)	TOTAL (HRS)
7.	PC FUNDAMENTALS	06	02	08
8.	MOTHERBOARD	12	12	24
9.	MICROPROCESSOR	12	12	24
10.	MEMORY	10	08	18
11.	BIOS	06	08	14
12.	ASSEMBLING THE COMPUTER	08	14	22
13.	COMPUTER MAINTENANCE	06	04	08
	TOTAL	60	60	120

Semester: Fifth
Course Code: 503
Name Of Course: Hardware Installation and Maintenance

Scheme: Jul. 2013
Paper Code: DCS-503

Lectures: 4 Hrs. per week

UNIT-1

PC FUNDAMENTALS

06

- Elements of Computers
- Processors Specifications
- SMPS
- Types of data cables and power cables
- Types of connectors, headers I/O Ports:- Serial, Parallel
- USB
- Chipset, Video system, sound system, Drive system, MODEM, USB Printers

UNIT-2

MOTHERBOARD

12

- Motherboard Controllers & System Resources, Memory Mapping
- Interrupts Request Line (IRQ) - Purpose, Standard Assignments, Conflicts, Sharing & ISA, PCI, PnP Configuration of IRQ
- System Buses - Industry Standard Organization, Micro Channel Architecture, Enhanced Industry Standard Architecture, UESA Local Bus, Peripheral Component Interconnect, Accelerated Graphics Ports, PC I-X.
- Chipsets - Northbridge & South Bridge, Function of Chipset
- Motherboard form factor & Power supplies - AT, ATX, LPX & NLX, Voltage & Signal Lines, Power Supply Quality & Specifications, Form Factors, Ribbon Cable and Adaptor Card Installation
- Batteries - charging, rating, CMOS backup Batteries, Backup Battery replacement

UNIT-3

MICROPROCESSOR

12

- Processor Specification - Clock Speed, FSB, L1, L2 & L3 cache, Processor over clocking CPU - RISC & CISC Microprocessor CPU Packaging - DIP, PGA, SPGA, MCM, LCC, PLCC & Tape Carrier Package. Intel CPU Family - Fifth generation & Sixth Generation P6, Xeon, Celeron Processor AMD CPU Family - Fifth, Sixth, & Seventh Generation K Series, Athlon, Thunderbird & Duron Processor Handling & Replacement of CPU, CPU Configuration FSB, Core Speed, Core Voltage Configuration

Semester: Fifth
Course Code: 503
Name Of Course: Hardware Installation and Maintenance

Scheme: Jul. 2013
Paper Code: DCS-503

Lectures: 4 Hrs. per week

UNIT-4

MEMORY

10

- Logical Organization of Memory - Real Mode, Protected Mode, Lower, BIOS Data Area, Upper Memory, High Memory Area, Frame Buffer, Shadow & Cache
- Memory Packaging - DTPM, STPM, SIMM, DIMM, RIMM
- RAM Types - EDO, SDRAM, VRAM, SRAM, RDRAM, DDRAM, PPRAM, DDR 1, DDR 2, DDR 3
- Memory Performance - Speed, Interlocking & Caching
- Interfaces - IDE, ATA 1 to 6, Master Slave Configuration, SCSI, SATA, PATA.
- SCSI Interface - BUS ID, Logical Unit Number, Termination, Signaling Types, SCSI Standards, Comparison between IDE & SCSI
- Optical Storage Devices - CD, DVD, and Blu-ray Disc

UNIT-5

BIOS

06

- BIOS Functions
- Cold & Warm Booting
- BIOS Error Codes
- BIOS Interrupts
- Identification of Different BIOS (AMI & AWARD BIOS)
- BIOS Memory Assignments,
- BIOS Advance setup

ASSEMBLING THE COMPUTER

12

PC Case/Cabinet Preparation, Mounting process of the Motherboard, CPU Installation, Attaching Heat sink and Cooling Fan, RAM installation, Connecting SMPS to different devices, Connecting Hard-drive and its cables, Installation of optical drives, video card, sound cards, PCI cards and Expansion cards.

Semester: Fifth
Course Code: 503
Name Of Course: Hardware Installation and Maintenance

Scheme: Jul. 2013
Paper Code: DCS-503

Lectures: 4 Hrs. per week

MAINTENANCE OF COMPUTER

- Error Codes- Beep Codes, Post Codes
- Windows System Tools – Back Up, Disk Clean Up, Disk Defragmenter, Files and Settings Transfer Wizard, Scheduled Tasks, Security Center, System Information, System Restore
- Anti virus and Other Complete Security Tools

Semester: Fifth
Course Code: 503
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

Scheme: Jul. 09
Paper Code: 6376

Practical: 4 Hrs. per week

Total Lab Hours: 60

LIST OF PRACTICALS

1. Preparing the case
2. Installation and troubleshooting the Motherboard
3. Installation and troubleshooting the CPU
4. Installation and troubleshooting the heat sink and cooling fan
5. Installation and troubleshooting RAM
6. Installation and troubleshooting SMPS to different devices
7. Installation and troubleshooting the hard-drive and its cables
8. I Installation and troubleshooting optical drives
9. Installation and troubleshooting the video card, sound cards and other cards
10. Installation and troubleshooting PC I
11. Installation and troubleshooting E xpansion cards
12. Operating System Installation i.e. Wi ndows and Open Source OS (Linux, SUN)
13. Device Driver Installation

RECOMMENDED TEXT BOOKS

- Stephen J. Bigelow, Troubleshooting, Maintaining and Repairing PCs, Fifth edition TMH.

REFERENCE BOOKS

- Subhadeep Choudhary, The A-Z of PC Hardware & Maintenance part I and II.
- Govindrajalu, IBM PC and Clones.
- Balasubramanyam, Computer Installation and Servicing.

Semester: Fifth
Course Code: 504
Name Of Course: Software Engineering

Scheme: Jul. 2013
Paper Code: DCS-504

S. N O.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theor y	Practic al	Total
1.	INTRODUCTION TO SOFTWARE ENGINEERING	10	-	10
2.	SOFTWARE PROJECT PLANNING	10	-	10
3.	SOFTWARE REQUIREMENT ANALYSIS , SPECIFICATION AND MODELING	10	-	10
4.	OBJECT –ORIENTED CONCEPT	12	-	12
5.	DESIGN CONCEPT PRINCIPLE AND METHODS	10	-	10
6.	SOFTWARE TESTING	15	-	15
7.	SOFTWARE IMPLEMENTATION AND MAINTAINANCE	8	-	8
	TOTAL	75	-	75

Semester: Fifth
Course Code: 504
Name Of Course: Software Engineering

Scheme: Jul. 2013
Paper Code: DCS-504

S. NO	COURSE CONTENT	HOUR OF STUDY
UNIT-1		
	INTRODUCTION TO SOFTWARE ENGINEERING Software characteristics, Software myths. Components, application; process, methods, tools & view of S/E; software process Capability Maturity Model, life cycle models (water fall, incremental, spiral, RAD, prototyping, object oriented) fourth generation model.	10
UNIT-2		
	SOFTWARE PROJECT PLANNING Responsibilities of Software Project manager, Project planning Objective, Software scope, Software project estimation technique, Decomposition techniques, Estimation models, Scheduling, staffing, Risk Management, Software configuration Management	10
UNIT-3		
	SOFTWARE REQUIREMENT ANALYSIS , SPECIFICATION & MODELING Analysis principles, system specification, software requirement specifications, functional specifications, software prototyping, specification, data modeling, data flow diagrams, ER Diagram, Mechanics of structured analysis, data dictionary.	10
	OBJECT –ORIENTED CONCEPT Object Oriented Concepts, Unified Modeling language Diagram(Use Case Diagram, Class Diagram, Sequence Diagram, State Chart Diagram)Elements Of Object Modeling, Management Of Object Oriented Software Projects, Object Oriented Analysis, Domain Analysis, OOA Process Conventional v/s OO Approach, Object – Relationship Model	12
10		
UNIT-4		
	DESIGN CONCEPT PRINCIPLE AND METHODS Design Process, Design Principles, Design Concepts, Effective Modular Design, Design Documentation, Architectural Design, and Architectural Design Process - Optimization, Procedural Design.	

Semester: Fifth
Course Code: 504
Name Of Course: Software Engineering

Scheme: Jul. 2013
Paper Code: DCS-504

UNIT-5

SOFTWARE TESTING

Software Testing Fundamentals: Principles & objectives, V model.

Testing Methodology: Unit Test, Integration Test, Functional testing, System
15

Testing, Acceptance test, White Box & Black Box testing techniques Gray box testing, Retesting and Regression testing, Debugging & reliability Analysis.

Testing Documentation: Test Requirement, Test Plan, Test case design and execution(Study of manual testing tool : Quality center)

Software Reliability And Quality Management: Concepts of S/W Quality Control and Assurance, Software Reliability, ISO 9000 & 9001, Standard SEI –CMM

SOFTWARE IMPLEMENTATION AND MAINTENANCE

Characteristics, reverse engineering, maintenance process model, estimation of
maintenance cost 8

Semester: Fifth
Course Code: 504
Name Of Course: Software Engineering

Scheme: Jul. 2013
Paper Code: DCS-504

REFERENCES

TEXT BOOKS:

- Roger S. Pressman, Software Engineering A Practitioner's Approach, McGraw Hill,

REFERENCE BOOKS:

- Software engineering A Precise Approach by Pankaj Jalote's ,Wiley India.
- Rajib Mall, Fundamental of Software Engineering, PHI.
- Software Engineering by Kassem A. Saleh J.Ross Publishing
- Ron Patton, Software Testing, BPB.
- Gazzi, Fundamental of Software Engineering, P H I.
- Maryhauser Anneliese Von, Software Engineering Methods Management, Academic Press.
- Wirts Brock Elal, Designing object oriented software, P H I.
- Rajaraman V, Analysis and Design of Information System, PHI.

Semester: Fifth
Course Code: 511
Name Of Course: Wireless and mobile computing
Common With Program (S):

Scheme: Jul. 2013
Paper Code: DCS-511

SCHEME OF STUDIES

Lectures: 5Hrs. per week

S.No.	TOPICS	THEORY (HRS.)	TOTAL (HRS.)
1	Introduction to wireless technology	8	8
2	Wireless LAN	15	15
3	Cellular system infrastructure	10	10
4	GSM Technology	15	15
5	Reflection & Propagation models	12	12
6	Evolution and Deployment of cellular system	15	15
	TOTAL	75	75

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Semester: Fifth
Course Code: 511
Name Of Course: Wireless and mobile computing
Common With Program (S):

Scheme: Jul. 2013
Paper Code: DCS-511

UNIT-1

Introduction to wireless technology

- 1.1 Comparison of wired and wireless mechanism,
- 1.2 Basic equipments in wireless communication: Wireless access point, Wireless access cards, routers etc.
- 1.3 Various types of wireless communication technologies used in Mobiles, antennas etc.
- 1.4 Concept of spread spectrum, various types of spread spectrum
- 1.5 Spreading sequences.

UNIT-2

Wireless LAN

- 2.2 Wireless access protocols
- 2.3 Various types of wireless LAN technologies like infrared, microwave LANs etc.
- 2.4 IEEE 802.11x standards for wireless LANs

UNIT-3

Cellular system infrastructure

- 3.1 Cell fundamentals: Cell site, cell capacity, frequency reuse clustering, co channel interference, Cell splitting, cell sectoring
- 3.2. Mobile station (MS), Base transceiver station (BTS), Mobile switching center (MSC), Functions of MSC, Base station system, Base station control, HLR, VLR
- 3.3 Mobile station (MS) registration

UNIT-4

GSM Technology

- 4.1 GSM network architecture
- 4.2 GSM channel concepts: logical channels, Broadcast channel, Common control channel & dedicated control channel.
- 4.3 GSM identities: Mobile station associated numbers, Network Numbering plans, mobile station roaming number.
- 4.4 GSM system operation: GSM call setup phase, GSM call confirmation and call accepted, GSM location updating, GSM Connection release.
- 4.5 Overview of CDMA technology

UNIT-5

Semester: Fifth

Course Code: 511

Name Of Course: Wireless and mobile computing

Common With Program (S):

Scheme: Jul. 2013

Paper Code: DCS-511

Reflection & Propagation models	12
5.1 Mobile radio propagation	
5.2 Ground reflection model	
5.3 Diffraction sculpturing	
5.4 Indoor propagation models	
5.5 Outdoor propagation models	
5.6 Ray tracing	
Evolution and Deployment of cellular system	15
6.1 Short Message Services (SMS), Enhanced Message services(EMS), Multimedia Message Services (MMS) & Mobile Instant Messaging(MIM)	
6.2 1G cellular Systems	
6.3 2G cellular Systems	
6.4 2.5G cellular Systems	
6.5 3G cellular Systems	
6.6 4G cellular Systems	
6.7 Emerging wireless technologies	

Semester: Fifth

Course Code: 511

Name Of Course: Wireless and mobile computing

Common With Program (S):

Scheme: Jul. 2013

Paper Code: DCS-511

REFERENCES

- 1) "Wireless Communication and Networks" by William Stallings, 1st edition.
- 2) "Wireless and Mobile Network Architectures" by Yi-Bing Lin and Imrichchlamtac 3)Wireless & Cellular Telecommunications, 3/e,Dr. William C.Y. Lee,TMH
- 4)Introduction to Wireless telecommunication systems and networks,Mullett,cengage learning
- 5)Wirless Communication : Principle and practice – T.S. Rappaport
- 6)Mobile Communication – Schwartz
- 7) "Introduction to wireless and mobile systems" -2nd edition by Dharmprakash Agrawal & Qing- An Zeng, Cengage Learning, Indian edition.
- 8) "Wireless Communication T.L.SINGAL TMHI NEW DELHI

Semester: Fifth
Course Code: 512
Name Of Course: Theory Of Computation
Common With Program (S):

Scheme: Jul. 2013
Paper Code: DCS-512

SCHEME OF STUDIES

Course duration: **15** weeks
Lectures: **5** Hrs. per week

S. N O.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theor y	Practic al	Total
1.	Automata theory:	15	-	15
2.	Context –Free Grammars:	15	-	15
3.	Pushdown Automata:	15	-	15
4.	Turing Machines:	15	-	15
5.	Related Problems:	15	-	15
	total			75

Semester: Fifth
Course Code: 512
Name Of Course: Theory Of Computation
Common With Program (S):

Scheme: Jul. 2013
Paper Code: DCS-512

COURSE CONTENT

Course duration: 15 weeks
Lectures: 5 Hrs. per week

Course Content	Hours of Study
UNIT-1	15
Automata theory: Basic machine, FSM , Transition graph, Transition matrix, Deterministic and non-deterministic FSM'S, Equivalence of DFA and N DFA, Mealy & Moore machines, minimization of finite automata, Two-way finite automata. Regular Sets and Regular Grammars, Alphabet, words, Operations, Regular sets, Finite automata and regular expression, Pumping lemma and regular sets, Application of pumping lemma, closure properties of regular sets.	
UNIT-2	15
Context –Free Grammars: Introduction to CFG, Regular Grammars, Derivation trees and Ambiguity, Simplification of Context free grammars, Normal Forms (Chomsky Normal Form and Greibach Normal forms).	
UNIT-3	15
Pushdown Automata: Definition of PDA, Deterministic Pushdown Automata, PDA corresponding to given CFG, CFG corresponding to a PDA.Context Free Languages: The pumping lemma for CFL's, Closure properties of CFL's, Decision problems involving CFL's.	
UNIT-4	15
Turing Machines: Introduction, TM model, representation and languages acceptability of TM, Church's hypothesis, composite & iterated TM. Turing machine as enumerators. Properties of recursive & recursively enumerable languages, Universal Turing machine.	
UNIT-5	15
Related Problems: P, NP, NP complete and NP hard problems, examples of these problems like Hamiltonian path problem, traveling sales man problem etc.	

Semester: Fifth

Course Code: 512

Name Of Course: Theory Of Computation

Common With Program (S):

Scheme: Jul. 2013

Paper Code: DCS-512

REFERENCES

1. John E. Hopcroft, Jeffery Ullman, "Introduction to Automata theory, Languages & computation", Narosa Publishers.
2. K.L.P Mishra & N.Chandrasekaran, "Theory of Computer Science", PHI Learning
3. Michael Sipser, "Theory of Computation", Cengage Learning
4. John C Martin, "Introduction to languages and theory of computation McGraw Hill
5. Daniel I.A. Cohen, "Introduction to Computer Theory", Wiley India.
6. Kohavi, "Switching & Finite Automata Theory", TMH

Semester: Fifth
Course Code: 507
Name Of Course: PROFESSIONAL ACTIVITIES (PA).
Common With Program (S):

Scheme: Jul. 09
Paper Code:

Scheme of Studies

Practicals : 2 Hrs Per Week

S.No.	Topics	Total Hrs
1.	PRESENTATION SKILLS :	
2.	LEARNING TO LEARN SKILLS :	
3.	STUDY SKILLS :	
4.	INFORMATION SEARCH :	
5.	TIME MANAGEMENT :	
6.	PERSONALITY :	
7.	PERSONAL GROOMING :	
		30

Semester: Fifth

Course Code: 507

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

Scheme: Jul. 09

Paper Code:

Content Details

S.No.	Course Contents	Hrs of Study
1.	<p><i>PRESENTATION SKILLS :</i></p> <p>1.1 Oral Presentation :</p> <ul style="list-style-type: none"><input type="checkbox"/> Need of effective oral presentation.<input type="checkbox"/> Characteristics of good oral presentation.<input type="checkbox"/> Ways of Oral Presentation (Seminar, Viva -voce, Interview, Group Discussion, Lecturing, Power Point Presentations etc.)<input type="checkbox"/> Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation.<input type="checkbox"/> Assessment of oral presentation. <p>1.2 Written Presentation :</p> <ul style="list-style-type: none"><input type="checkbox"/> Need and characteristics of written presentation.<input type="checkbox"/> Ways of written presentation (Report writing, manual, handout, notes etc.).<input type="checkbox"/> Grammar, P unctuation, referencing paragraphing during written presentation	
2.	<p><i>LEARNING TO LEARN SKILLS :</i></p> <p>Need of Learning to Learn Skills.</p> <p>Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self-learning).</p> <p>Developing Learning to Learn Skills</p>	

3. **STUDY SKILLS :**
Methods of Good Study Habits ,Note Taking ,Developi ng Reading Skills.
4. **INFORMATION SEARCH :**
 - 4.1 Objecti ves of information search.
 - 4.2 Ways of information search (Internet surfing, Library search, Abstracts, Journals, books etc.)
 - 4.3 Assimilation and presentation of information.
5. **TIME MANAGEMENT :**
 - 5.1 Principles of Time Management.
 - 5.2 Time Management matrix.
 - 5.3 Criteria governing Time Management.
 - 5.4 Possible time waster
6. **PERSONALITY :**
 - 6.1 Concept and meaning of personality.
 - 6.2 Characteristics of good personality.
 - 6.3 Factors influencing personality.
 - 6.4 Types of personality.
 - 6.5 Need for desirable personality for success.
 - 6.6 Qualities of complete personality.
7. **PERSONAL GROOMING :**
 - 7.1 Posture and Health.
 - 7.2 Types and importance of posture.
 - 7.3 Importance of yoga and meditation.
 - 7.4 Factors affecting good health-diet, exercise personal cleanliness, sleep and rest.
 - 7.5 Use of cosmetics.
 - 7.6 Dress Code
 - 7.7 Physical Fitness and Inner Strength.

Semester: Fifth

Course Code: 507

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

Scheme: Jul. 09

Paper Code:

A) SUGGESTED IMPLEMENTATION STRATEGIES :

1. Students should be made to listen to effective presentations of experts, comprehend that and then summarise that orally and in writing. Feedback should be given immediately after each task.
2. Also they should be given certain task/assignment on which they need to collect new information in specified time.
3. Students should be able to take decision that the particular information can be gathered from such and such sources and should be able to present that confidently in verbally or in writing.

In this particular subject only practical hours are allotted, but, it may be essential to take up certain inputs followed by assignments This may include expert lectures, group discussion , plenary session etc.

B) SUGGESTED LIST OF EXPERIENCES/TUTORIALS :

1. Seminar Presentation on Specific topic for fixed time duration.
2. Information Collection on a particular topic followed by presentation in specified time duration.
3. Visit to multinational outlet for observing personality traits of officials and preparing detailed report.
4. Demonstration exercise by personality experts.
5. Arranging expert lecturers of well known personality like Shiv Khera etc.
6. Selected Book Review.

C) EVALUATION :

Following grade scale of evaluation of performance in PA has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

Semester: Fifth

Course Code: 507

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Paper Code:

Reference Books :

S. NO.	TITLE	AUTHOR, PUBLISHER, EDITION & YEAR	ISBN NUMBER
1	How to achieve success and happiness	Sultan Chand and Sons, New Delhi	
2	How to develop effective personality	Dr Mittal and Agarwal CS	
3	The Art of Public Speaking	Stephen E Lucas	
4	Public Speaking and Influencing Business	Dale Carnegie	