RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 501 **Paper Code: 6353**
Name Of Course: Web Technology
Common With Program (S): Computer Hardware and Management

RATIONALE

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This subject is essential for providing knowledge and hands on experience over the issue of managing data on web, developing powerful GUI based friendly user interface. In order to professionally design and handle the web site, knowledge of web languages and scripting is necessary. After learning this subject student will be able to develop projects required in curriculum as well as industry.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 501 **Paper Code: 6353**
Name Of Course: Web Technology
Common With Program (S): Computer Hardware and Management

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)
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

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 501 **Paper Code: 6353**
Name Of Course: Web Technology
Common With Program (S): Computer Hardware and Management

Lectures: 4 Hrs. per week

1.	**Introduction To Web Design** Web page and Web site - Web publishing Process of Web, publishing, planning, organizing, Hierarchical, Linear, Webbed. Implementing, Testing, Maintenance.	**5**
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	**15**
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	**15**
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, Even Bubbling • Filters and Transactions • Data Bindings – Using Tabular Data Control, Sorting Data, Dynamic Sorting, Filtering	**15**

Semester: Fifth **Scheme: Jul. 09**
Course Code: 501 **Paper Code: 6353**
Name Of Course: Web Technology
Common With Program (S): Computer Hardware and Management

5.	**XML Basics** • Introduction • HTML vs XML • Syntax of the XML Document • XML Attributes	**04**
6.	**Publishing The Site** • Uploading Web pages - Using FTP and using Web Page Editors • Web hosting - Shared hosting Running a Local Web server	**06**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 501 **Paper Code: 6353**
Name Of Course: Web Technology
Common With Program (S): Computer Hardware and Management

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 style sheet.
- Design a web page that demonstrates blinking and scrolling text.\
- Design a e Commence 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 prize of the Items.
- Design a 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, CI Stems TMH Series , Tata McGraw Hill publishing company limited, New Delhi.
- Design Web Pages, BPB Publication.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 502 **Paper Code: 6375**
Name Of Course: Java Programming
Common With Program (S):

RATIONALE

Java language enhances and refines the object oriented paradigm. With the enormous growth-taking place in Internet and World Wide Web, Java is rapidly becoming the dominant application development language and system programming language. Java is most appropriate language for integrating Internet into the information system.

The course introduces students to the design of Java language, syntax of Java, programming applets and applications that can perform multiple actions in parallels. It also introduces the Java technology that enables Java programs to access databases and explores server side of Java.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 502 **Paper Code: 6375**
Name Of Course: Java Programming
Common With Program (S):

SCHEME OF STUDIES AND SPECIFICATION TABLE

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

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	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**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 502 **Paper Code: 6375**
Name Of Course: Java Programming
Common With Program (S):

COURSE CONTENT

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

S. NO	Course Content	Hours of Study
1	**OVERVIEW OF JAVA LANGUAGE** 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 wises, 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.	20
2	**CLASSES, OBJECTS & METHODS** 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.	20

Semester: Fifth **Scheme: Jul. 09**
Course Code: 502 **Paper Code: 6375**
Name Of Course: Java Programming
Common With Program (S):

3	**ARRAYS, STRINGS & VECTORS** 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.	20
4	**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.	20
5	**APPLET PROGRAMMING** 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.	20
6	**JDBC** 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.	10
7	**File handling and simple GUI Design** Introduction, Data records, reading and writing to text files, simple GUI design joption pane class, message dialog-presenting information to user, input dialog-reading data from the user, confirmation dialog - getting confirmation from user.	10

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 502 **Paper Code: 6375**
Name Of Course: Java Programming
Common With Program (S):

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 joption pane class.	
	TOTAL	**60**

Semester: Fifth **Scheme: Jul. 09**
Course Code: 502 **Paper Code:**
Name Of Course: Java Programming
Common With Program (S):

REFERENCES

TEXT BOOKS:

- E. Balaguruswami, Programming in Java, 2nd Edition, TMH Publications
- Herbert Shield, java complete reference TMH publication

REFERENCE BOOKS:

- Peter Norton , Peter Norton Guide to JAVA Programming, Techmedia Publications.
- Stroker, Plew, 1998, An introduction to JAVA, Thomson learning.

Semester: Fifth **Scheme: Jul. 09**
Course Code: 503 **Paper Code: 6376**
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

RATIONALE

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Hardware Installation and Maintenance is subject to give exposure to student for installing maintaining of various hardware and peripheral devices. By studying and doing practical exercises student will able to work as per the industry need. Hardware and Maintenance of PC is the most inevitable part for a computer professional. It is always expected that a computer professional must have an optimum knowledge of hardware parts. It is also advisable that one should have an idea about the minor maintenance activities to be carried out for optimum working of a PC. The objective of the subject Hardware Installation and Maintenance is to impart essential knowledge about hardware, installation of Hardware, installation of driver software, installation of application packages and its fine tuning to the student of computer science and engineering .It is quite normal that for minor fault and breakdown most of the computer professional fully rely on maintenance and services personnel, rather then doing their own. Therefore it is also visualized by the expert that one must be self-reliant in minor maintenance and repairing of the computer systems.

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 503 **Paper Code: 6376**
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

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**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 503 **Paper Code: 6376**
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

Lectures: 4 Hrs. per week

1.	**PC FUNDAMENTALS** • 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	**06**
2.	**MOTHERBOARD** • 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, PCI-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 Adopter Card Installation • Batteries - charging, rating, CMOS backup Batteries, Backup Battery replacement	**12**
3.	**MICROPROCESSOR** • 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, Thunderbid & Duron Processor Handling & Replacement of CPU, CPU Configuration FSB, Core Speed, Core Voltage Configuration	**12**

Semester: Fifth **Scheme: Jul. 09**
Course Code: 503 **Paper Code: 6376**
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

Lectures: 4 Hrs. per week

4.	**MEMORY** • Logical Organization of Memory - Real Mode, Protected Mode, Lower, BIOS Data Area, Upper Memory, High Memory Area, Frame Buffer, Shadow & Cache • Memory Packaging - DTPP, STPP, SIMM, DIMM, RIMM • RAM Types - EDO, SDRAM, VRAM, SGRM, RDRAM, DDRAM, PPRAM, DDR 1, DDR 2, DDR 3 • Memory Performance - Speed, Inter living & Caching • Interfaces - IDE, ATA 1 to 6, Mater 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	**10**
5.	**BIOS** • BIOS Functions • Cold & Warm Booting • BIOS Error Codes • BIOS Interrupts • Identification of Different BIOS (AMI & AWARD BIOS) • BIOS Memory Assignments, • BIOS Advance setup	**06**
6.	**ASSEMBLING THE COMPUTER** 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.	**08**

Semester: Fifth **Scheme: Jul. 09**
Course Code: 503 **Paper Code: 6376**
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

Lectures: 4 Hrs. per week

7.	**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 • Antivirus and Other Complete Security Tools	**06**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 503 **Paper Code: 6376**
Name Of Course: Hardware Installation and Maintenance
Common With Program (S):

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 PCI
11. Installation and troubleshooting Expansion cards
12. Operating System Installation i.e. Windows 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.

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 504 **Paper Code: 6377**
Name Of Course: Software Engineering
Common With Program (S):

RATIONALE

Software Engineering deals with reliability and quality assurance of the software under development. It provides framework for development of quality software product.

The course enables the students to write specifications for software system understand the importance of good software, design and develop test plans from design specifications. The course also covers other important aspects of software Engineering such as software lifecycle, requirement analysis and documentation, characteristics of good design, design techniques, testing, software implementation and maintenance etc.

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 504 **Paper Code: 6377**
Name Of Course: Software Engineering
Common With Program (S):

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	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

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**
Course Code: 504 **Paper Code: 6377**
Name Of Course: Software Engineering
Common With Program (S):

COURSE CONTENT

S. NO	COURSE CONTENT	HOUR OF STUDY
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
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
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
4.	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
5.	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.	10

Semester: Fifth **Scheme: Jul. 09**
Course Code: 504 **Paper Code: 6377**
Name Of Course: Software Engineering
Common With Program (S):

6	SOFTWARE TESTING *Software Testing Fundamentals:* Principles & objectives, V model. *Testing Methodology:* Unit Test, Integration Test, Functional testing, System 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	15
7	SOFTWARE IMPLEMENTATION AND MAINTAINANCE Characteristics, reverse engineering, maintenance process model, estimation of maintenance cost	8

Semester: Fifth **Scheme: Jul. 09**
Course Code: 504 **Paper Code: 6377**
Name Of Course: Software Engineering
Common With Program (S):

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, PHI.
- Maryhauser Anneliese Von, Software Engineering Methods Management, Academic Press.
- Wirts Brock Elal, Designing object oriented software, PHI.
- Rajaraman V, Analysis and Design of Information System, PHI.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 511 **Paper Code: 6378**

Name Of Course: Wireless and mobile computing

Common With Program (S):

Rationale

Wireless and mobile computing provides the detailed description of wireless cellular industry and the industries that produce product that provide wireless extensions to wired IEEE 802.x data networks and wireless connectivity to the internet. It also includes GSM and CDMA cellular systems ,2G,3G cellular System and IEEE standards based wireless LANs . This course is illuminating the principles, commonalities, key differences and specific implementation issues associated with virtually every leading wireless system.

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 511 **Paper Code: 6378**

Name Of Course: Wireless and mobile computing

Common With Program (S):

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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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 511 **Paper Code: 6378**

Name Of Course: Wireless and mobile computing

Common With Program (S):

Course Content

Lectures: 5 Hrs. per week

Sr. No.	Course Content	Hrs of Study
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.	8
2.	**Wireless LAN** 2.1 Wireless local loops 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	15
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	10
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	15

Semester: Fifth **Scheme: Jul. 09**

Course Code: 511 **Paper Code: 6378**

Name Of Course: Wireless and mobile computing

Common With Program (S):

5	**Reflection & Propagation models** 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	12
6	**Evolution and Deployment of cellular system** 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	15

Semester: Fifth **Scheme: Jul. 09**

Course Code: 511 **Paper Code: 6378**

Name Of Course: Wireless and mobile computing

Common With Program (S):

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

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 512 **Paper Code: 6379**

Name Of Course: Theory Of Computation

Common With Program (S):

RATIONALE

The theory of computation or computer theory is the branch of computer science and mathematics that deals with whether and how efficiently problems can be solved on a model of computation, using an algorithm. The field is divided into two major branches: computability theory and complexity theory, but both branches deal with formal models of computation.

In order to perform a rigorous study of computation, computer scientist's work with a mathematical abstraction of computers called a model of computation. There are several models in use, but the most commonly examined is the Turing machine. Computer scientists study the Turing machine because it is simple to formulate, can be analyzed and used to prove results, and because it represents what many consider the most powerful possible "reasonable" model of computation.

The course enables the students to understand the structure and performance of Computer algorithms, to analyze the resource requirements of algorithms, and to design And program efficient algorithms over a range of different problem domains. During the Course, students learn how different types of classical problems are modeled and solved. This process enriches the set of techniques available to the student and his or her Understanding of the range of applicability of various techniques. In practical terms, the Course enhances the student's ability to design and implement good software.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 512 **Paper Code: 6379**

Name Of Course: Theory Of Computation

Common With Program (S):

SCHEME OF STUDIES

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

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	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

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 512 **Paper Code: 6379**

Name Of Course: Theory Of Computation

Common With Program (S):

COURSE CONTENT

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

S. NO	Course Content	Hours of Study
1	**Automata theory:** Basic machine, FSM , Transition graph, Transition matrix, Deterministic and non-deterministic FSM'S, Equivalence of DFA and NDFA, 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.	15
2	**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).	15
3	**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.	15
4	**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.	15
5	**Related Problems**: P, NP, NP complete and NP hard problems, examples of these problems like Hamiltonian path problem, traveling sales man problem etc.	15

Semester: Fifth **Scheme: Jul. 09**

Course Code: 512 **Paper Code: 6379**

Name Of Course: Theory Of Computation

Common With Program (S):

REFERENCES

1. John E. Hopcroft, Jeffery Ullman,"Introduction to Automata theory, Langauges & computation" , Narosa Publishers.
2. K.L.P Mishra & N.Chandrasekaran,"Theory of Computer Science", PHI Learning
3. Michael Sipsev,"Theory of Computation",Cenage Learning
4. John C Martin, "Introdution 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

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 507 **Paper Code:**

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

RATIONALE

In this rapidly changing technological world, engineers and technicians are expected to adapt to different situations and perform multiple roles. Hence, it is expected that students must be given ample opportunities to develop multiple skills to excel in the present day circumstances. As engineers, it is vitally important to be able to present/communicate thoughts and ideas effectively using a variety of tools and medium.

Job requirement of technicians also demand, confident and well groomed personality. Also due to stress on quality and time bound activities in the world of work, time management is also equally important. In the industry, the students have to work independently as well as in a group, therefore, apart from their subject knowledge, they are called upon to work as leader of a group of workers, be a team member of a task group. They are also to lead and participate in group discussions, speak extempore on some current subject or technology, present a paper on some project, solve problems and some times even counsel people working with/under him/her. In the polytechnic our student stays for almost three years or so, apart from developing professional/technical skills in the students, the students are also required to develop certain generic skills for total personality development.

Hence, this course has been designed to develop the skills such as presentation skills, learning to learn skills, time management, personality development in the technician passouts.

This course is therefore of a special nature. These generic skills need to be developed in integration with the technical subjects throughout the three years duration.

ENABLING OBJECTIVES :

The students after completing the course will be able to –

1.1 present themselves effectively verbally and in writing.
1.2 develop learning to learn skills.
1.3 develop study skills.
1.4 search the information from different sources on the given topic.
1.5 manage time effectively.
1.6 learn the different techniques of yoga, meditation, exercises etc.
1.7 develop the well groomed personality.

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 507 **Paper Code:**

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

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

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Fifth **Scheme: Jul. 09**

Course Code: 507 **Paper Code:**

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

Content Details

S.No.	Course Contents	Hrs of Study
1.	*PRESENTATION SKILLS :* **1.1 Oral Presentation :** • Need of effective oral presentation. • Characteristics of good oral presentation. • Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point Presentations etc.) • Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation. • Assessment of oral presentation. *1.2 Written Presentation :* • Need and characteristics of written presentation. • Ways of written presentation (Report writing, manual, handout, notes etc.). • Grammar, Punctuation, referencing paragraphing during written presentation.	
2.	*LEARNING TO LEARN SKILLS :* Need of Learning to Learn Skills. Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self-learning). Developing Learning to Learn Skills.	

3.	**STUDY SKILLS :** Methods of Good Study Habits Note Taking Developing Reading Skills.	
4.	**INFORMATION SEARCH :** 4.1 Objectives 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.	

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Semester: Fifth **Scheme: Jul. 09**

Course Code: 507 **Paper Code:**

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

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.

Grades	Level of performance
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

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Course Code: 507 **Paper Code:**

Name Of Course: PROFESSIONAL ACTIVITIES (PA).

Common With Program (S):

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**	