West Bengal State Council of Technical Education
(A Statutory Body under West Bengal Act XXI of 1995)
Kolkata Karigori Bhavan, 2nd Floor, 110 S. N. Banerjee Road, Kolkata - 700 013.

DETAIL SYLLABI OF THE DIFFERENT COURSES OFFER IN INFORMATION TECHNOLOGY, PART –III, FIRST SEMISTER

West Bengal State Council of Technical Education

(A Statutory Body under West Bengal Act XXI of 1995)
Kolkata Karigori Bhavan, 2nd Floor, 110 S. N. Banerjee Road, Kolkata - 700 013.

PROPOSED CURRICULAR STRUCTURE FOR PART – 3 (3RD YEAR) OF THE FULL- TIME DIPLOMA COURSE IN INFORMATION TECHNOLOGY

WEST BENGAL STATE COUNCIL OF ECHNICAL EDUCATION

TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES

SEMISTER:FIFTH BRANCH:IT

SL.No.	SUBJECT	CREDITS	PERIODS			Evaluation Scheme					
						INTERNAL SCHEME			ESE	PR	TOTAL MARKS
			L	TU	PR	TA	CT	Total			
1	**Software Engineering**	3	3			10	20	30	70		100
2	**Java Programming**	3+2	3		3	10	20	30	70	100	200
3	**Operating System**	3+1	3		2	10	20	30	70	50	150
4	**Principle of Communication**	3+1	3		2	10	20	30	70	50	150
5	**ELECTIVE- I (Any One)**										
	Multimedia and Animation Technique	3+1	3		2	10	20	30	70	50	150
	Windows Programming	3+1	3		2	10	20	30	70	50	150
	Network Management and Administration	3+1	3		2	10	20	30	70	50	150
6	**Project (Phase-I)**				4						
7	**Professional Practice-III (Advance Web Technology)**	2			3					50	50
Total		22	15		16	50	100	150	350	300	800

STUDENT CONTACT HOURS PER WEEK: 31 HRS.

Theory and Practical Periods of 60 minutes each.

L-Lecture, TU-Tutorials, PR-Practical, TA-Teachers Assessment, CT-Class Test, ESE-End Semester Examination.

Format for Syllabus

Name of the Course: SOFTWARE ENGINEERING	
Course Code: SE	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 100**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 00 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3	**Practical / Sessional : 00 (Internal) + 00 (External)**

Aim:

Sl. No.	
1.	To learn different software processes and models.
2.	To learn software testing methods.

Objective: Student will be able to

Sl. No.	
1.	Plan & develop the frame work of project.
2.	Compare various project process models & use in project planning
3.	Use the principles of communication, planning, modeling construction & deployment
4.	Apply testing strategies & methods on software projects.
5.	Compare various testing methods.
6.	Identify the duties & responsibilities of People, team leader & stakeholders while planning the software project.
7.	Schedule the project according to time, size, shape, utility & application
8.	Monitor & manage the risk during the design of software project.
9.	Use the parameters of software quality assurance
10.	Calculate the cost of software, using cost estimation models such as COCOMO II.

Pre-Requisite:

Sl. No.	
1.	Basic knowledge of computer is helpful.

Unit No.	Contents (Theory)	Hrs./Unit	Marks
Unit: 1	**Overview of Software Engineering & the Software Development Process:-** 1.1 The evolving Role of software & changing nature of software. 1.2 Software Engineering –A layered Technology approach. 1.3 A process framework & software project tracking & control. 1.4 The Capability Maturity Model Integration technique. 1.5 Process patterns, process Assessment, personal & Team Process models & Process Technology Theories. 1.6 Process Models –Waterfall, Incremental, RAD, Prototype, Spiral.	08	
Unit: 2	**Software Engineering requirements & Development of Analysis & Design models.** 2.1 Software Engineering core principles, Communication, Planning, Modeling, Construction & Deployment principles. 2.2 Requirements Engineering Tasks, Initiating the requirement process.	13	

	2.3 Analysis approaches of software & preparation of Analysis model using Data modeling, Concepts, Object-oriented Analysis, Flow oriented model, Class-Based model, Behavioral Model. 2.4 Design approaches of software & preparation of design model using Design concepts, Design model, and pattern based design.		
Unit: 3	**Testing Strategies & Methods.** 3.1 Software Testing Fundamentals. 3.2 A Strategic approach to software testing. 3.3 Test Strategies for conventional software, Unit Testing, Integration Testing, Regression testing, smoke testing. 3.4 Validation testing using Alpha & beta testing, system testing using recovery, security, stress & performance testing. 3.5 Black Box & White Box Testing. 3.6 Debugging process strategies.	08	
Unit: 4	**Software Project Management** 4.1 The management spectrum – The people, The product, the process & the project. 4.2 Project scheduling – Basic concepts, relationship between people & effort, effort distribution, defining a task for the software project, Defining a task network & scheduling of project. 4.3 Risk Management – Reactive Vs Proactive risk strategies, software Risks, Risk Identification, Risk Projection & Risk refinement, monitoring & management. 4.4 Change Management – SCM scenario, SCM repository & process. 4.5 Formal method & clean room software development & management approach.	10	
Unit: 5	**Software Quality Management& Estimation** 5.1 Basic Quality Concepts. 5.2 Software Quality Assurance 5.3 Statistical software quality assurance, 5.4 Six sigma strategy. 5.5 Software Reliability 5.6 The ISO 9000 quality standards 5.7 McCall's quality factors. 5.8 Observations on estimation 5.9 The project Planning process ,software scope & feasibility ,Resources 5.10 Decomposition Techniques 5.11 COCOMO II model & the make / Buy design	06	
	Total	**45**	

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Rajib Mall	Fundamental of Software Engineering		PHI
Bell	Software Engineering for Students, 4e		Pearson
Sommerville	Software Engineering, 9e		Pearson
Pfleeger	Software Engineering: Theory and Practice, 4e		Pearson

Mishra/ Mohanty	Software Engineering		Pearson
Roger S. Pressman	Software Engineering –A Practitioner's Approach		TMH

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Aalam	Application Software Re-engineering		Pearson
James	Software Engineering		PHI

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course:JAVA PROGRAMMING	
Course Code: JVPR	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 200**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 03 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+2	**Practical / Sessional : 50 (Internal) + 50 (External)**

Aim:

Sl. No.	
1.	To learn & understand various programming paradigms.
2.	To implement platform independent model.
3.	To increase robustness & Security of software.

Objective:

Sl. No.	Students will able to:
1.	Design and implement classes and methods
2.	Understand and implement basic programming constructs
3.	Apply object oriented features to real time entities
4.	Differentiate between primitive data types and class data types and implement conversion between them.
5.	Understand and implement the concept of reusability and extensibility
6.	Create packages and interfaces and used it in programs
7.	Design and implement multithreaded programs
8.	Manage errors and exceptions
9.	Design and implement applet and graphics programming

10.	Make use of Data streams in programs		
11.	Write programs by combining all features of Java.		
Pre-Requisite:			
Sl. No.			
1.	Basic of Object Oriented Programming		
Unit No.	**Contents (Theory)**	Hrs./Unit	Marks
Unit: 1	**Introduction to Java** 1.1 **Fundamentals of Object Oriented Programming** Object and Classes, Data abstraction and encapsulation, Inheritance, Polymorphism, Dynamic Binding 1.2 Java Features Compiled and Interpreted, Platform independent and portable, Object oriented Distributed, Multithreaded and interactive, High performance 1.3 Constant, Variables and Data Types Constant, Data Types, Scope of variable, Symbolic Constant, Type casting, Standard default values 1.4 Operator and Expression Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operator Increment and Decrement Operator, Conditional Operator, Bit wise Operator, Special Operator 1.5 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 1.6 Decision making and Looping The While statement, The do statement, The for statement, Jumps in Loops, Labeled Loops	**08**	
Unit: 2	2.1 Classes, Object and Methods Defining a class, Creating object, Accessing class members, Constructor, Methods Overloading, Static Member 2.2 Inheritance Extending a Class (Defining a subclass Constructor, Multilevel inheritance, Hierarchical inheritance, Overriding Methods, Final variable and Methods, Final Classes, Abstract method and Classes 2.3 Visibility Control Public access, friend access, Protected access, Private access, Private Protected access 2.4 Array, Strings and Vectors Arrays, One Dimensional array, Creating an array, Two Dimensionalarray, Strings, Vectors, Wrapper Classes	**08**	
Unit: 3	**Interfaces and Packages** 3.1 Interface: Multiple Inheritance Defining interfaces, Extending interfaces, Implementing interfaces, Accessing Interface variable 3.2 Packages: Putting Classes Together System Package, Using system Package, Naming Convention, Creating Package, Accessing a package, Using a package, adding a class to apackage	**06**	
Unit: 4	**Multithreaded Programming and Exception handling** 4.1 Multi-Threading: Creating Thread, Extending a thread class, Stopping and Blocking a thread, Life cycle of thread, Using thread method, Thread exceptions, Thread priority, Synchronization,	06	

	Implementing a 'Runnable'' Interface. 4.2 Managing Errors and Exceptions Types of errors, Exception, Multiple catch statement, using finally statement, Using Exception for Debugging		
Unit: 5	**Java Applets and Graphics Programming** 5.1 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, Passing parameter to applet 5.2 Graphics Programming The Graphics Class, Lines and rectangle, Circle and Ellipse, Drawing Arcs, Drawing Polygons, Line Graphs, Using control loops in Applets, Drawing Bar charts	06	
Unit: 6	**Streams and File I/O** 6.1 Stream Classes 6.2 Character Stream, Byte Stream 6.3 Serialization	05	
Unit: 7	**DATA BASE CONNECTIVITY : JDBC** i *Java Data Base Client/ Server* 3.1 Java as a Database front end Database client/server methodology Two-Tier Database Design Three-Tier Database Design *3.2 The JDBC API* The API Components, Limitations Using JDBC(Applications vs. Applets), Security Considerations, A JDBC Database Example JDBC Drivers ,JDBC-ODBC Bridge Current JDBC Drivers	**06**	
Total		**45**	

Contents (Practical)	
Sl. No.	Skills to be developed
1.	**Practical:** Skills to be developed: Intellectual skills: Use of programming language constructs in program implementation. To be able to apply different logics to solve given problem. To be able to write program using different implementations for the same problem Study different types of errors as syntax semantic, fatal, linker & logical Debugging of programs Understanding different steps to develop program such as Problem definition Analysis Design of logic Coding Testing Maintenance (Modifications, error corrections, making changes etc.)

2.	Motor Skills: Proper handling of Computer System**.**

List of Practical:

LIST OF SAMPLE PROBLEMS FOR JAVA PROGRAMMING LAB(for example)

Write simple programs based on basic syntactical constructs of Java like:
a) Operators and expressions.
b) Looping statements.
c) Decision making statements.
d) Type casting.
2. Write a simple Java program to demonstrate use of command line arguments in Java..
3. Write a Java Program to define a class, describe its constructor, overload the constructors and instantiate its object
4. Write a Java Program to define a class, define instance methods for setting and retrieving values of instance variables and instantiate its object
5. Write a Java Program to define a class, define instance methods and overload them and use them for dynamic method invocation.
6. Write a Java Program to demonstrate use of sub class
7. Write a Java Program to demonstrate use of nested class.
8. Write a Java Program to practice
- use of single Dimensional array.
- use of multidimensional array.
9. Write a Java Program to implement array of objects.
10. Write a Java program to practice
- using String class and its methods.
- using String Buffer class and its methods.
11. Write a Java Program to implement Vector class and its methods.
12. Write a Java Program to implement Wrapper classes and their methods.
13. Write a Java Program to implement single inheritance by applying various access controls to its data members and methods.
14. Write a Java Program to implement multilevel inheritance by applying various access controls to its data members and methods.
15. Write a Java Program to implement inheritance and demonstrate use of method overriding.
16. Write a program to demonstrate
- Use of implementing interfaces.
- Use of extending interfaces.
17. Write a Java program to implement the concept of importing classes from user defined package and creating packages.
18. Write a program to implement the concept of threading.
19. Write a program to implement the concept of Exception Handling
- using predefined exception.
- by creating user defined exceptions.
20. Write a program to implement the concept of Synchronization for
- object synchronization.
- Method synchronization.
21. Write a program using Applet
- To display a message in the Applet.

- For configuring Applets by passing parameters.
22. Write programs for using Graphics class
- To display basic shapes and fill them.
- draw different items using basic shapes
- set background and foreground colours.
23. Write program to demonstrate use of I/O streams.
24. 14 Write an Application program /Applet to make connectivity with database using JDBC API.
25. Write an Application program/Applet to send queries through JDBC bridge & handle result.

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Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Ivor Horton's	Beginning Java	7th	Wiley India
Gaddis	Starting Out with Java: From Control Structures through Objects, 4e		Pearson
Debasish Jana	Java and Object Oriented Programming Paradigm		PHI
Horstmann, Cornell	Core Java Vol I		PEARSON
Mahesh P.Matha	Core Java		PHI
Liang	Introduction to Java Programming, 7e		Pearson
Deitel	Java for Programmers		PEARSON
Pandey	**Java Programming**		Pearson

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Herbert Schildt	JAVA 2: The Complete Reference		Tata Mc-Graw Hill Pub. Co. Ltd
Malhotra, Choudhary	Programming in Java		OXFORD
Knoernschild	Java Application Architecture: Modularity Patterns with Examples Using OSGi, 1/e		PEARSON
Liang	Introduction to Java Programming, Comprehensive Version, 7e		PEARSON

Suggested list of Laboratory Experiments:

Sl. No.	Laboratory Experiments
1.	java program to perform garbage collection
2.	Java Program to get IP Address
3.	Write a program for stopwatch.

Suggested list of Assignments / Tutorial:

Sl. No.	Topic on which tutorial is to be conducted
1.	What are Hash Code and equals in Java?
2.	When to use Comparator and Comparable Interface in java?
3.	How to create an immutable class?

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: OPERATING SYSTEM	
Course Code: OS	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 150**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+1	**Practical / Sessional : 25 (Internal) + 25 (External)**

Aim:

Sl. No.	
1.	To learn Basic concepts of operating systems.
2.	To learn in detail different types of OS.
3.	To learn all functionalities of OS in detail.

Objective:

Sl. No.	Students will able to:
1.	Learn the various milestones in the history of operating system and the modern trends in operating system.
2.	Understand the features and functions of operating systems provided by various system calls.
3.	Understand a process, deadlock & the concept of context switching & multiprogramming.
4.	Learn various memory management and file management techniques.
5.	Understand the tools and the components of the operating system.
6.	Implement various algorithms of scheduling.
7.	Compare and contrast the various standard solutions to operating system problems.
8.	Make best use of facilities that computer systems offer them for solving problems.
9.	Understand the UNIX vi editor and Unix utilities.

Pre-Requisite:

Sl. No.	
1.	Handling of Windows OS.

Unit No.	Contents (Theory)	Hrs./Unit	Marks
Unit: 1	**Introduction** 1.1 Operating system, Evolution, Generations –1st, 2nd, 3rd, 4th. 1.2 Mainframe Systems – Batch, Multi programmed, Multitasking, Time sharing, Desktop. 1.3 Multiprocessor Systems 1.4 Distributed Systems. 1.5 Clustered Systems. 1.6 Real Time Systems. 1.7 Special-Purpose Systems 1.8 Open-Source Operating System	**04**	
Unit: 2	**Operating System Structures** 2.1 System components - Process management, Main memory	**02**	

	management, File Management, I/O system management, Secondary storage management. 2.2 Operating system services. 2.3 System calls – Uses, process control, file management, Device management, Information Maintenance, communication**.** 2.4 Operating system structure. Simple structure, layered, monolithic, microkernel. 2.5 Booting 2.6 Virtual Machine		
Unit: 3	Process Management 3.1 Processes - Concept, process, state, process Control block. 3.2 Process scheduling - Scheduling queues, Scheduler, context switch. 3.3 Operations on processes - creation, termination. 3.4 Inter process communication. Classical problems of synchronization, semaphores. 3.5 Threads - Benefits, user and kernel threads. 3.6 Multithreading Models - Many to one, one to one, many to many.	**06**	
Unit: 4	Scheduling 4.1 Scheduling – Objectives, concept, criteria, CPU and I/O burst cycle. 4.2 Types of Scheduling-Pre-emptive, Non pre-emptive. 4.3 Scheduling Algorithms. First come first served (FCFS), Shortest job first (SJF), Round Robin (RR), Priority. 4.4 Other Scheduling. Multilevel, Multiprocessor, real-time. 4.5 Deadlock. System model, principle necessary conditions, mutual exclusion, critical region. 4.6 Deadlock handling. Prevention and avoidance.	04	
Unit: 5	**File System and Memory Management** 5.1 File- Concept, Attributes, Operations, Types, Structure 5.2 Access Methods – Sequential, Direct. 5.3 Swapping 5.4 Allocation Methods – Contiguous, Linked, Indexed. 5.5 Directory Structure – Single level, Two level, Tree Structure. 5.6 Protection –Types of accesses, Access control. 5.7 Basic Memory Management –Partitioning, Fixed & Variable. 5.8 Free Space management techniques – Bitmap , Linked List. 5.9 Virtual Memory – Concept ,Paging, Page fault ,Page Table.	08	

	5.10 Page Replacement algorithms – FIFO(First in First out) ,Optimal Page replacement, LRU (Least recently used),NRU (Not recently used)		
Unit: 6	**I/O Management** I/O hardware, polling, interrupts, DMA, application I/O interface (block and character devices, network devices, clocks and timers, blocking and non-blocking I/O), kernel I/O subsystem (scheduling, buffering, caching, spooling and device reservation, error handling), performance.	08	
Unit: 7	**Disk Management** Disk structure, disk scheduling (FCFS, SSTF, SCAN,C-SCAN) , disk reliability, disk formatting, boot block, bad blocks.	**06**	
Unit: 8	**Case Studies** 8.1 General overview of Unix System System Structure, Operating System Structure 8.2 Introduction to kernel Kernel data structure, System Administration 8.3 Internal Representation of Files I nodes, Structure of regular file, Super block	**07**	
Total		**45**	

Contents (Practical)	
Sl. No.	Skills to be developed
1.	**Practical:** Skills to be developed: Intellectual skills: Understanding syntax of commands Interpretation of commands Execution of commands. Motor skills: Proper handling of Computer System**.** *List of Practical:* 1) Identify the major desktop components, interfaces and their functions .Differentiate the various Windows Operating system.(Windows 9x,Windows NT, Windows 2000& Windows XP. 2) **Use of file and directory manipulation commands** – ls, rm, my, cp, join, split, cat, head, tail, touch, diff, comm., pr, chmod, mkdir, rmdir, cd, pwd, dir, cmp. 3) Use of text processing and communication commands – tr, wc, cut, paste, spell, sort, grep, msg, talk, wall, write, who, who am i ,news, mail. 4) Use of general purpose and process commands- ps, wait, sleep, exit, kill, bc, date, time, cal, clear, banner, tty, script, su, man. 5) Use of vi editor & perform all editor commands. **Study of:** **SHELL PROGRAMMING** i) Shell Script ii) System variables & shell variables. iii) Shell termination.

	iv) Looping statements; conditional statements; case statements. v) Logical operators, Mathematical expression. vi) Command line parameters – Positional parameters. vii) String handling. 6) Write and execute shell script to display the following output. i) Menu: a) List of files. b) Processes of user. c) Todays date d) Users of the system e) Quit to Unix ii) To check every argument and carry out the following. a) Argument is a directory, then display the number of files and directories present in that directory. b) If argument is a file, then display the size of file. c) If argument does not exist then create the directory. 7) Write and execute the programme to implement round robin scheduling Algorithm. **Study of:** **SYSTEM ADMINISTRATION** i) Adding & Modifying Users accounts, Controlling Password. ii) Creating & Mounting File System. iii) init process &inittabstartup files, Run levels. iv) Managing Disk Space(df , du , cpio) v) Searching Files with find command vi) Using ftp protocol to move files between computers. vii) 'Shutdown' commands.
2.	Motor Skills: Proper handling of Computer System**.**

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Silberschatz Galvin, Gagne	Operating System Concepts	8th	Wiley
Maurice J. Bach	The design of the Unix Operating System		PHI
Andrew S. Tanenbaum	Modern Operating Systems		PHI
Deitel	Operating System, 3e		PEARSON
Achyut S. Godbole	Operating Systems		Tata McGraw-Hill
B.M.Harwani	Unix and Shell Programming		OXFORD
Subhash	UNIX System Programming		PEARSON
Sobell	**Practical Guide to Linux Commands, Editors, and Shell Programming, 3/e**		PEARSON
P.B.Prasad	Operating Systems		Scitech

Reference Books:			
Name of Authors	Title of the Book	Edition	Name of the Publisher
Tanenbaum	Operating Systems: Design and Implementation, 3rd ed.		Phi
Bhatt	Introduction to Operating Systems, An: Concepts and Practice, 4th ed.		Phi
Chandra mohan	Operating system		pHI
Stallings	Operating Systems 6e (Two Color Edition)		PEARSON
Harwani	**Unix and Shell Programming**		**OXFORD**
Ramasatish	Unix Programming		Scitech

Suggested list of Laboratory Experiments:	
Sl. No.	Laboratory Experiments
1.	Installing windows OS.
2.	Introduction to Linux OS.
3.	C programs in VI editor on linux OS.

Suggested list of Assignments / Tutorial:	
Sl. No.	Topic on which tutorial is to be conducted
1.	Solve examples by FCFS and draw gantt chart.
2.	Solve examples by SJF and draw gantt chart.
3.	Solve examples by RR and Priority draw gantt chart.

Note:	
Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: Principle of Communication	
Course Code: POC	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 150**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+1	**Practical / Sessional : 25 (Internal) + 25 (External)**

Aim:	
Sl. No.	
1.	To learn & understand various Encoding Techniques
2.	To understand Modulation Techniques and Decoding Techniques.
3.	To learn and understand Satellite Communisation and Mobile Communication.

Objective:	
Sl. No.	Students will able to:

1.	• Indemnify the need for Modulation.		
2.	• Draw Electromagnetic Spectrum		
3.	• Draw the block diagram for transmitting AM, FM, PM, Pulse modulation, PCM, ASK, FSK and PSK modulation Techniques.		
4.	• Draw Related Waveforms measure and verify the depth of nodulation.		
5.	• Describe Satellite and Cellular Mobile Communication system.		
6.	• Use the Various data encoding techniques in digital carrier system.		
Pre-Requisite:			
Sl. No.			
1.	Basic of Digital Logic Design		
2.	Basic of Electronic device and circuit		
Unit No.	**Contents (Theory)**	**Hrs./Unit**	**Marks**
Unit: 1	**Introduction To Electronic Communication** 1.1 Block diagram of communication system. 1.2 Electromagnetic spectrum. 1.3 Need for Modulation. 1.4 Concept of noise 1.5 Classification of communication systems. 1.6 Radio communication Comparison of AM, FM, PM on the basis of Definition, Waveforms, Bandwidth Requirement, Representation in Time domain and Frequency Domain, Modulation Index. 1.7 Demodulation in AM, FM (methods not necessary) 1.8 Block diagram and function of each block of : a) AM Transmitter and Receiver. b) FM Transmitter and Receiver.	**07**	
Unit: 2	**Wave Propagation** 2.1 Fundamentals of Electromagnetic wave. 2.2 Transverse electromagnetic wave. 2.3 Polarization. 2.4 Ground Wave. 2.5 Ionosphere. 2.6 Sky Wave Propagation, Effect of changes in atmospheric conditions on sky wave propagation. 2.7 Concept of actual height and virtual height. 2.8 Definitions: • Critical frequency. • Maximum usable frequency. • Skip distance. • Fading. 2.9 Space Wave Propagation. 2.10 Duct Propagation. 2.11 Troposphere scatters propagation.	**04**	
Unit: 3	**Pulse Modulation Techniques & Signal Processing** 3.1 Basics of Pulse Modulation : • Sampling Theorem • Natural Sampling • Flat Top Sampling	**13**	

	• Nyquist Rate. 3.2 Advantages of Pulse modulation over AM. 3.3 Block Diagram for generation, Waveforms, working principle, advantages, disadvantages and applications of PAM, PWM, PPM. 3.4 Block Diagram for generation, working principle, waveforms, advantages, disadvantages and applications of: ASK, FSK, QPSK, BPSK, DPSK. 3.5 Introduction to Digital Communication System : Digital modulation methods 3.6 Block diagram, working principle, waveforms, advantages, disadvantages and applications of PCM, Delta modulation, Adaptive delta modulation. 3.7 Baseband and Passband Transmission 3.8 Multiplexing Techniques: FDM, TDM, and WDM - Definition, Schematic diagram, Principle, application, advantages and disadvantages.		
Unit: 4	**Data Encoding And Transmission** 4.1 Introduction to encoding digital data to digital signal. 4.2 Encoding techniques viz. Unipolar, polar, Bipolar and their types. 4.3 Comparison of various techniques. 4.4 Definitions : • Data Rate. • Baud Rate. • Bit rate. • Channel Bandwidth. • Channel Capacity • S/N Ratio.	**06**	
Unit: 5	**Satellite Communication And Mobile Communication** 5.1 Block diagram of Satellite communication system. 5.2 Brief introduction to Communication and orbits.(Elevation and Azimuth angles of satellite) 5.3 Uplink model, Transponder and Downlink model and the frequencies used. 5.4 Frequency band used in Satellite communication. 5.5 Functions of a satellite. 5.6 Concept of antenna 5.7 Construction and working principle of Parabolic dish and horn antenna. 5.8 Satellite application overview. 5.9 Principle, advantages and disadvantages of TDMA, FDMA, CDMA 5.10 Concepts of mobile phone. 5.11 Block diagram of cellular mobile phone system and description. 5.12 Frequency band and types of modulation used for Cellular mobile communication. 5.13 Call processing, Frequency reuse and cell splitting. Forward and reverse direction (handset to handset) and (Handset to Landline) 5.14 Hand Off procedure.	**10**	
Unit: 6	**Analog And Digital Carrier Systems** 6.1 Telephone Carrier system. 6.2 Analog Carrier system Switched , Leased, Analog hierarchy 6.3 Digital Carrier system Switched , Leased Digital hierarchy, T-lines	**05**	

	6.4 Digital Subscriber Line.		
Total		**45**	

Contents (Practical)

Sl. No.	Skills to be developed
1.	**Practical:** Skills to be developed: Intellectual skills: • Interpretation skills. • Encoding techniques
2.	Motor Skills: • Observation • Draw graphs

List of Practical:

1. i) To generate and observe AM waveform using Collector modulator and calculate modulation index.
ii) Observe the effect of change in modulating signal voltage on modulation index.
2. i) To generate and observe FM waveform and calculate modulation index
ii) Observe the effect of change in modulating signal voltage and frequency on modulation index.
3. i) To generate PAM and draw input/ output waveforms and measure amplitude of each pulse
ii) Observe the demodulated output and measure its amplitude and frequency.
4. i) To generate PPM and draw input/ output waveforms and measure the shift in position of pulse
ii) Observe the demodulated output and measure its amplitude and frequency.
5. i) To generate PWM and draw input/ output waveforms and measure width of each pulse
ii) Observe the demodulated output and measure its amplitude and frequency.
6. To generate PCM and draw input/ output Waveforms. From the sampled outputs, measure the quantum levels.
7. To observe the demodulated output waveform of a PCM signal and measure the output voltage and frequency
8. To generate ASK signal and draw input/ output waveforms.
9. To generate FSK signal and draw input/ output waveforms
10. To generate PSK signal and draw input/ output waveforms
11. Assume a data stream consisting of 12 bits and implement various encoding techniques and draw the waveforms
12. Visit to any mobile communication station. A technical report of visit shall be submitted as a part of term work

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Kennedy	Electronic Communication System		Tata McGraw Hill
Roddy Collen	Electronic Communication		Prentice Hall of India
Forouzan	Data Communication & Networking		Tata McGraw Hill
William Lee	Mobile Cellular Telecommunication		McGraw Hill
William Schwaber	Electronic Communication System		Prentice Hall of India
Frenzel	Communication Electronic		Tata McGraw Hill
Wayne Tomasi	Electronic Communication System		Prentice Hall of India

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
B.G.Evans	**Satellite Communication Systems**		IET Telecommunication

Suggested list of Laboratory Experiments:	
Sl. No.	Laboratory Experiments
1.	To generate and observe AM and FM waveform and calculate modulation index.
2.	To generate ASK , FSK and PSK signal and draw input/ output waveforms.
3.	To generate PAM ,PWM and PCM and draw input/ output waveforms and measure amplitude of each pulse
Suggested list of Assignments / Tutorial:	
Sl. No.	Topic on which tutorial is to be conducted
1.	Study AM and FM modulation Techniques.
2.	Assume a data stream consisting of 12 bits and implement various encoding techniques and draw the waveforms
3.	Visit to any mobile communication station near to you. Generate a Report using Communication Techniques you have studied.
Note:	
Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: ELECTIVE I (MULTIMEDIA AND ANIMATION TECHNIQUE)	
Course Code: EC-I	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 150**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+1	**Practical / Sessional : 25 (Internal) + 25 (External)**

Aim:	
Sl. No.	
1.	To combine moving images, graphics, text, and sound in meaningful ways is one of most powerful aspects of computer technology and which is multimedia and animation.
2.	To accessing data, allowing one to display video, animation, graphics, drawings, documents, and still images as needed during a presentation.
3.	To understand memory system and access mechanism of IO devices. To create visually compelling and technically accurate presentations for industrial and legal applications.
Objective: Student will be able to	
Sl. No.	
1.	Import, Export Images.

2.	Edit Images.		
3.	Create Animation.		
4.	Build Flash Movie.		
5.	Integrate Audio & Video.		
6.	Build Text-Based Animation.		
7.	Play Movie.		
8.	Integrate Multimedia In Web Page.		
Pre-Requisite:			
Sl. No.			
1.	Basic knowledge of computer is helpful.		
2.	Basic knowledge of image and graphics is helpful.		
3.			
Unit No.	**Contents (Theory)**	Hrs./Unit	Marks
Unit: 1	**Basics of Multimedia** 1.1 Concept of Multimedia. 1.2 Multimedia data stream. 1.3 Hardware & Software requirement. 1.4 Application of Multimedia. 1.5 Steps of creating Multimedia presentation. 1.6 Concept of Hypermedia and Hypertext.	4	
Unit: 2	**Digital Audio & MIDI file format** 2.1 Audio sampling 2.2 Recording digital audio. 2.3 Audio standards for Multimedia applications. 2.4 MIDI file format. 2.5 MIDI event commands, meta-event & Messages. 2.6 MIDI hardware & Software.	5	
Unit: 3	**Image and Video Compression** 3.1 CODEC 3.2 Types of Compression. 3.3 Lossless/Statistical Compression techniques. 3.4 GIF image coding standard. 3.5 Lossy /Perceptual Compression techniques. 3.6 JPEG image coding steps. 3.7 MPEG Compression basics. 3.8 MPEG-1 Audio & Video. 3.9 MPEG-2 Audio & Video. 3.10 Concept of MPEG-4.	13	
Unit: 4	**Image File Format Details.** 4.1 BMP File Format 4.2 GIF File Format 4.3 JPEG File Format 4.4 TIFF File Format.	6	
Unit: 5	**Animation Techniques** 5.1 Definition of Animation. 5.2 Types of Animation. • Cell Animation • Path Animation	12	

	• 2D vs. 3D Animation 5.3 Computer assisted Animation 5.4 Techniques of Animation • Onion skinning • Motion cycling • Masking • Color cycling • Morphing 5.5 Camera effects • Camera Location • Camera movement • Zones of vision 5.6 Special effects 5.7 Methods of controlling the Animation. • Procedural Animation • Tracking live action • Kinematics of controlling Animation • Tweening, Morphing, Warping, Color dissolve 5.8 Animation Software.		
Unit: 6	**Virtual Reality** 6.1 Immersive and Non-immersive Virtual Reality 6.2 Application of Virtual Reality 6.3 Concept of VRML 6.4 Conceptual Architecture of VRML 6.5 Visualization aspect 6.6 Base technologies used in Implementation 6.7 Navigation.	05	
	Total	**45**	

Practical:

Practical Content:

All of the experiment shall be performed using PHOTOSHOP, MS-Flash or 3D-MAX or MAYA.

List of Experiments:

Photoshop

1. Use of different tools of Photoshop
2. Use of Colour tool of Photoshop
3. Use of blending modes of Photoshop
4. Learn Toning Tool, Different Media, Colour models.
5. Use of different effects of Photoshop
6. Use of Layers, Masks, Filters of Photoshop.
7. Use of Adding Actions in Photoshop

Flash/3D Max/Maya

1. Create a cycle & name each part of cycle using different styles & format & animate text.
2. Draw seed & create small plant with use of at least 4 frames.
3. Create a forest of tree with flowers & fruits from a small plant using different layers & frame transition time.
4. Create a forest of trees using the object created earlier. Also add lighting and rain effect.
5. Insert audio to relevant frames that has lighting & rain effect.
6. Convert created work into file format which can be publish on web.
7. Interfacing digital-web-cam, capturing live image & editing using web-cam software.
8. Importing & exporting images, apply different image editing tools.

9. Mini Project: Students should create a movie of minimum 2 minutes playtime using either Flash or 3D-MAX or MAYA software.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Ranjan Parekh	Principles of Multimedia		TMH
Buford	Multimedia Systems		Pearson
Jeffcoate	Multimedia in Practice		Pearson
M.K. Pakhira	Computer Graphics Multimedia and Animation		PHI
Steinmetz	Multimedia: Computing, Communications & Applications		Pearson

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Sherawat, Sharma	Multimedia and Application		Katson

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: Elective-I (Network Management and Administration)	
Course Code: EC-I	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 150**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+1	**Practical / Sessional : 25 (Internal) + 25 (External)**

Aim:

Sl. No.	
1.	Introduction to computer network
2.	Introduction to network management and Administration
3.	Introduction to network faults and troubleshooting

Objective:

Sl. No.	Students will able to:
1.	Compare different types of network.
2.	Describe the different types of network directory services.
3.	Design the computer network.
4.	Design the computer network.

5.	Know the network management and administration.		
6.	Apply the different types of network technologies for internet connection.		
7.	Troubleshoot and repair the network faults		
8.	Make best use of facilities that computer systems offer them for solving problems.		
Pre-Requisite:			
Sl. No.			
1.	Handling of Windows OS.		
2.	Basic concept of computer network.		
3.	Basic knowledge of network management and Administration.		
4.	Basic knowledge of network faults and troubleshooting.		
Unit No.	**Contents (Theory)**	Hrs./Unit	Marks
Unit: 1	**1.1Duties of the System Administrator** Linux as well as other OS Administrator, Steps of Installing and Configuring Servers. 1.2 Planning the Network – describing the Topologies, planning and Implementing the Security. 1.3 Steps of Kick-start Installation- Installing the kick start Configurator, Boot Loader Option Screen, Partition, Network Configuration, Authentication, Firewall Configuration, Creating a Bootable CD-ROM. 1.4 System Start-up and Shutdown- Examining the Boot Process, Boot Loader, The kernel 1.5. The File system- Understanding the file System Structure, Different OS Supported File Systems. 1.6 Examining the System Configuration Files	**08**	
Unit: 2	Network Services: 2.1 Managing the X Window System – Configuring the X Server with the X Configuration Tool, Manually Configuring X Server 2.2 Configuring Printer 2.3 TCP/IP Networking – Understanding Network Class, Configuring the Network, Exploring Directory Services and Remote Network Access. 2.4 The Network File System – NFS overview, Configure an NFS Server, Configure an NFS Client, NFS Security. 2.5 Network Related Jobs – Network Administrator, Network Engineer, Network Architecture / Designer, Other Network Related Jobs. 2.6 Directory Services - Define Directory Services, Definition of Novelle Directory, Windows NT domains, Microsoft's Active Directory, X500 Directory Access Protocol, Lightweight Directory Access Protocol, Forests, Trees, Roots and Leaves. Configuring Samba Server, 2.7 Active Directory Architecture – Object Types, Object Naming, Canonical Names, LDAP Notation, Globally unique identifiers, User Principle Names, Domain, Trees & Forests. 2.8 Remote Network Access – Need of Remote Network Access, Public Switched Telephone Network, Integrated Services Digital Network, Digital Subscriber Line, CATV. 2.9 Virtual Private Network – VPN Protocols, Types of VPNs, VPN Clients, SSL VPNs.	**08**	
Unit 3	Network Connection and Printing Services 3.1 Dynamic Host Configuration Protocol (DHCP) – DHCP Origins, Reverse Address	**08**	

	Resolution Protocol (RARP), The Bootstrap Protocol (BOOTP), DHCP Objectives, IP Address Assignment, DHCP Architecture. 3.2 Introduction to Domain Name System(DNS) - DNS Objectives, Domain Naming, Top Level Domains, Second Level Domains, Sub domains, DNS Functions, Resource Records, DNS Name Resolution, Resolves, DNS Requests, Root Name Servers, Resolving a Domain Name, DNS Name Registration. 3.3 Understand Network Printing Concepts - Understand Network Printing Concepts, Locally connected print devices, Setting up local print devices, Shared print devices, Sharing Locally Attached Print Devices, Describe Windows Network Printing, and Add Print Wizard.		
Unit: 4	Implementation of Network 4.1 Designing Network – Accessing Network Needs, Applications, Users, Network Services, Security and Safety, Growth and Capacity Planning, Meeting Network Needs – Choosing Network Type, Choosing Network Structure, Choosing Servers. 4.2 Configuring a Database Server 4.3 Creating VNC Server 4.4 Providing Additional Network Services – Configuring a Time Server, Providing a Caching Proxy Server. 4.5 Optimizing Network Services	**06**	
Unit: 5	Administering Windows 2000 Server (The Basics) 5.1 Working With User Accounts - Adding a User, Modifying User Account, Deleting or Disabling a User Account. 5.2 Working With Windows 2000 Security Groups – Creating Group, Maintaining Group Membership. 5.3 Working with Shares – Understanding Share Security, Cresting Shares, Mapping Drives 5.4 Administering Printer Shares – Setting up Network Printer, 5.3 Working with Windows 2000 Backup – Using Windows 2000 Servers Backup Software	05	
Unit : 6	System Administration 6.1Keeping Your System Updated with up2date and Red Hat Network. 6.2 Updating and Customizing the Kernel 6.3 Configuring the System at the Command Line 6.4 Administering Users and Groups	05	
Unit: 7	Troubleshooting and security of Network 7.1 Understanding the Problem – Troubleshooting, Segmenting the Problem, Isolating the Problem, Setting Priorities. 7.2 Troubleshooting Tools – Hardware Tools, Software Tools, Monitoring and Troubleshooting Tools 7.3 Internal Security – Account Security, File and Directory permissions, Practices and user education. 7.4 External Threats – Front Door threats, Back Door threats, Denial services threats, Viruses, worms and other Malicious codes.	05	
	Total	**45**	

Contents (Practical)	
Sl. No.	Skills to be developed
1.	**Practical:** Skills to be developed:

	Intellectual skills: ⍰ Fault finding of network ⍰ Troubleshooting of network ⍰ Proper installation of network
2.	Motor Skills: Proper handling of Computer System**.**

List of Practical:

Practical Name

1 Creating Windows 2003/2008 Server/Linux Boot Disk.
2 Installing Windows 2003/2008 Server/Linux
3 Installing Active Directory
4 Creating AD Objects
5 Setting up Local Print Device
6 Installing and Configuring a Network – Capable Print Device
7 Create new Users & give the Permission
8 Group of four students prepare a mini report on Latest Networking Technology.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Collings and Wall	Red hat Linux Networking & System Administration		Wiley
Burke	**Network Management**		**PEARSON**
Subramania	**Network Management, 2e**		**PEARSON**
Sing	Network security and Management		PHI
Kirch & Dawson	Linux Network Administrator's Guide		SPD

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Microsoft Press	Networking + Certification Training Kit		

Suggested list of Laboratory Experiments:

Sl. No.	Laboratory Experiments
1.	Basic TCP/IP utilities and commands. (eg: ping, ifconfig, tracert, arp, tcpdump, whois, host, netsat, nslookup, ftp, telnet etc...)
2.	Configure a router (Ethernet & Serial Interface) using router commands including access lists on any network simulator (eg. packet Tracer)
3.	Network design and implementation for small network using actual physical components with IP address scheme
4.	

Suggested list of Assignments / Tutorial:

Sl. No.	Topic on which tutorial is to be conducted
1.	Configuration of any three of the following of for each student a) Remote Login Service – TELNET/SSH b) Configuration of FTP server and accessing it via FTP Client.
2.	Installation of NS-2. Test network animation on Network Simulator2 (NS2).
3.	Configuration of any three of the following of for each student a) Remote Login Service – TELNET/SSH b) Configuration of FTP server and accessing it via FTP Client.

Note:

Sl. No.	

1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: Elective-I (Windows Programming)			
Course Code: EC-I		**Semester: Fifth**	
Duration: Six Months		**Maximum Marks: 150**	
Teaching Scheme:		**Examination Scheme:**	
Theory: 03 hrs./week		**Class Test : 20 Marks**	
Tutorial: 00 hrs./week		**Teachers Assessment: 10 Marks**	
Practical: 02 hrs./week		**End Semester Exam. : 70 Marks**	
Credit : 3+1		**Practical / Sessional : 25 (Internal) + 25 (External)**	
Aim:			
Sl. No.			
1.	To study and get the idea of windows based programming and application development environment.		
2.	It aims to be a comprehensive source for any developer who is interested in programming for the Windows platform.		
3.	It focuses on topics that are specific to Windows, and avoids general programming topics.		
Objective:			
Sl. No.	Students will able to:		
1.	• Use Visual environment.		
2.	• Write simple programs using VC++.		
3.	• Develop program for drawing dot, lines and shapes.		
4.	• Handle Keyboard and Mouse input through programs.		
5.	• Create Checkbox, Scroll bars etc.		
Pre-Requisite:			
Sl. No.			
1.	• Student should know C programming.		
2.	• Student should know C++ programming		
3.	• Student should know Computer Fundamentals.		
Unit No.	**Contents (Theory)**	Hrs./Unit	Marks
Unit: 1	**Overview of Windows messaging:-** 1.1 The Windows Environment, History of Windows, Aspects of Windows,	08	

	Windows Programming Options, APIs and Memory Models, The Programming Environment, Your First Windows Program 1.2 The Message Box Function, A Brief History of Character Sets 20 American Standards, Wide Characters and C, The char Data Type, Windows' String Functions, Using printf in Windows, Formatting Message Box. 1.3 Registering the Window Class, Creating the Window, Displaying the Window, the Message Loop and the Window Procedure.		
Unit: 2	**GDI and Basic Drawings:-** 2.1 An Introduction to GDI, The Structure of GDI, The GDI Philosophy, The GDI Function Calls, The GDI Primitives, The Device Context. 2.2 Drawing Dots and Lines, Setting Pixels, Filling in the Gaps, Drawing Filled Area, The GDI Mapping Mode Rectangles, Regions, and Clipping.	**11**	
Unit: 3	**The Keyboard:-** 3.1 Keyboard Basics, Keystrokes and Characters, Using Keystroke Messages, Character Messages, Keyboard Messages and Character Sets, The KEYVIEW1 Program, The Foreign-Language Keyboard Problem, The Caret (Not the Cursor), The Caret Functions.	08	
Unit: 4	**The Mouse:-** 4.1 Mouse Basics, Client-Area Mouse Messages, Simple Mouse Processing: An Example, Mouse double-clicks, No client-Area Mouse Messages, The Hit-Test Message, A Sample Program. 4.2 Emulating the Mouse with the Keyboard, Using Child Windows for Hit-Testing, Capturing the Mouse.	09	
Unit: 5	**Client Window Controls:-** 5.1 The Button Class, Creating the Child Windows, Push Buttons, Check Boxes, Radio Buttons, Group Boxes, Changing the Button Text, Visible and Enabled Buttons, Buttons and Input Focus, Controls and Colors, System Colors, 5.2 The Button Colors, The WM_CTLCOLORBTN Message. The Scroll Bar Class 383 The COLORS1 Program Coloring the Background, Coloring the Scroll Bars and Static Text, The List box Class, List Box Styles, Putting Strings in the List Box, Selecting and Extracting Entries, A Simple List Box application.	09	
Total		**45**	

Contents (Practical)

Sl. No.	Skills to be developed
1.	Intellectual skills: Use of programming language. To be able to apply different logics to solve given problem. To be able to write program using different implementations for the same problem. Identify different types of errors as syntax semantic, fatal, linker & logical. Debugging of programs. Understanding different steps to develop program such as.

2.	Motor skills: Proper handling of Computer System**.**

List of Practical:

LIST OF SAMPLE PROBLEMS FOR WINDOWS PROGRAMMING LAB(for example)

01. Demonstration of Visual Environment.
02. Writing simple VC++ programs.
03. Writing programs on drawing dots, lines, rectangles, filling different shapes.
04. Program on reading keystrokes from Keyboard.
05. Program on displaying text at desired window.
06. Finding size, Resizing windows.
07. Program on handling mouse.
08. Creating different controls (such as checkbox, scrollbar, etc).
09. Program on timer demonstration.

Text Books:-

Name of Authors	Title of the Book	Edition	Name of the Publisher
Charles Petzold	Programming Windows		Microsoft Press
Charles Petzold	Programming Windows		Addison Wesley
Jeffrey Ritcher	Advanced Windows		Microsoft Press, 1997 ISBN 1572315482, 9781572315488

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Stephen Gilber Bill McCarty	Visual C++ 6 programming blue book		PublisherCoriolis,1998 ISBN 1576103242, 9781576103241
Steven Holtzner	Visual Basic 6 Programming black book		Dreamtech press

Suggested list of Laboratory Experiments:

Sl. No.	Laboratory Experiments
1.	Write a Program to send message through network.
2.	Program to capture packet through network.
3.	Program to find out IP address from computer name.

Suggested list of Assignments / Tutorial:

Sl. No.	Topic on which tutorial is to be conducted
1.	What is an API? Explain Windows API.
2.	Write a detailed note on GDI?
3.	Write a note on keyboard and mouse messages?

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole**

	syllabus. **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: (Advanced Web Technology **(Professional Practice. - II))**	
Course Code: PC-III	**Semester: Fifth**
Duration: Six Months	**Maximum Marks: 50**
Teaching Scheme:	**Examination Scheme:**
Theory: 00 hrs./week	**Class Test : 00 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 00 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 00 Marks**
Credit : 1	**Practical / Sessional : 50 (Internal) + 00 (External)**
Aim:	
Sl. No.	
1.	To Study the techniques to develop web communication services.
2.	It provides information about web technologies that relate to the interface between web servers and their clients.
3.	Web technologies are used to support the world wide web and more are being developed all the time.
Objective:	
Sl. No.	Students will able to:
1.	Know the concept of Asp.
2.	Use basic and advance. Net controls.
3.	Interface back-end and front-end.
4.	Build applications integrated with .Net Framework.
5.	Build net based applications.
6.	Can do Asp Transaction.
Pre-Requisite:	
Sl. No.	
1.	Basic knowledge of web technology.
2.	Knowledge of client-server system, script, etc.
3.	Knowledge of HTML, CSS, XML,SQL etc.
Content(Practical/Sessional)	
Sl. No.	Skills to be developed
1.	**Practical:** Skills to be developed: Intellectual skills: Use of programming language constructs in program implementation. • To be able to apply different logics to solve given problem.

	• To be able to write program using different implementations for the same problem
2.	Motor Skills: Proper handling of Computer System**.**

Detail Course Content(Sessional/Practical)

Unit No	Contents	Remarks
1	**ACTIVE SERVER PAGES / ASP.NET** • Introduction to Active Server Pages. • Elements of ASP (Scripts, Objects, Components).	
2	**WORKING WITH ASP & ASP.NET**: • Using HTTP — Writing simple ASP files — Controlling Execution of server side scripts. • Problems on HTML forms to get user information and retrieving HTML form contents • Working with query string.	
3	**ASP SESSION:** • Introduction to session. • Familiarity and working with session objects (simple problems). • Using session events. • Familiarity and working with cookies.	
4	**ASP APPLICATION**: • Introduction to ASP Application features of ASP Application • Creating a Simple ASP Application, Setting the properties of ASP Application — Using Application objects and Application events.	
5	**ASP COMPONENTS:** • Using Components in ASP (Simple problems) — Creating Components with page scope, session scope, Application scope. • Working with browser capability component, file assess components , counter components etc.(Simple problems)	
6	**DATABASE MANAGEMENT THROUGH ASP:** • Brief overview of ActiveX Data Objects. • Using ADODB to access a database from ASP (Simple Problem) — Opening, closing database connection • Executing SQL statements.	
7	**E-mail SENDING THROUGH ASP** • Design of Transaction database. • CDONTS object. • Email sending option supported web page creation.	

List of Practical:

1. Design a simple Login form.
2. Write application for following function:
(1) Login (2) Surfing (3) Logout taking ; into considerations (Application, Session, Server object, global .asa file and their events, methods and collection) also demonstrates enabling and disabling of session.)
3. Creation of file, entry, reading data from a file.

4. Using components create:
(a) Advertisement (using Ad rotator)
(b) Book example (using Next function)
(c) Find capabilities of browser (Browser object capabilities)
5. Online application (student, employee, product, shopping mall)
(a) Using dataset, data reader.
(b) Same application using data table and data row. (use data grid to display data)
(c) Bind the data to data grid using properties / templates.
(d) Display details (student, employee, product, etc.) using data list. (4 cols per line)
6. Application which sends email.

_____

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Esposito	Programming Microsoft ASP.Net		WILEY
Esposito	Professional ASP.Net 4 in C# and VB		WILEY

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Ivan Bayross	Teach Yourself Web Technologies - Part I		BPB Publications
Deitel	XML: How to Program		Pearson

Suggested list of Laboratory Experiments:

Sl. No.	Laboratory Experiments
1.	Write a code in asp.net to perform the login validation.
42	

Suggested list of Assignments :

Sl. No.	
1.	Create A simple college admission form.
2.	Create a pay roll system of a company using .Net.
3.	Assignment on web technologies in asp.net.

Note:

Sl. No.	
1.	

Format for Syllabus

Name of the Course: Project (Phase-I & II)	
Course Code: Project	**Semester: Fifth and Continued to sixth**

Duration: 4 hrs. /week (Fifth Sem.)+ 6 Hrs./week (Sixth sem)	**Maximum Marks: 100 (to be given at end of Sixth semester)**
Teaching Scheme	**Examination Scheme**
Credit:: 6	Practical: 50(INTERNAL)+50(EXTERNAL)

Aim:	
Sl. No.	
1.	To develop technical skill
2.	To make use of hardware in developing Software.
3.	Analysis of different type of case studies

Objective: Student will be able to	
Sl. No.	
1.	Work in Groups, Plan the work, and Coordinate the work.
2.	Develop leadership qualities.
3.	Develop Innovative ideas.
4.	Practically implement the acquired knowledge.
5.	Develop basic technical Skills by hands on experience.
6.	Write project report.
7.	Develop skills to use latest technology in Computer/Information Technology field.
8.	Analyze the different types of Case studies

Pre-Requisite:	
Sl. No.	
1.	How to prepare Project report
2.	Different software Domains
3.	Latest technology in market

Unit Noo.	**Contents (Theory)**	Hrs./Unit	Marks
Unit: 1	**How Project and Project report should be prepared?** Initial idea should be given to the student about how to prepare for the Project and will be done through group work.	2	
Unit: 2	**Typical Software Projects** (1) Develop Application Software for Hospital / Shopping Mall/Cinema/Theatre/Commercial Complex/Educational Institute/Industrial Complex. (2) Develop In-house Systems. (3) Case Studies Related to Industries – Operation / Maintenance / Repair and Fault Finding. (Refer Guideline Document). (4) Develop Information Processing System. (5) Develop Web Based Applications using Web Technologies. 6) Develop Network monitoring system. (7) Develop systems for financial organization. Develop System Program based system like compilers, editors, spreadsheets, mini database systems. (8) Develop Image Processing Systems. (9) Develop Expert Systems. (10) Develop Artificial Intelligence based Systems. (11) Develop mini operating system, assembler, Compiler or part of the system. **** Any other type of innovative projects will be appreciated.**	12	
Unit: 3	Hardware based Project	8	

	(1) Develop any Microprocessor or Microcontroller based project (2) Develop your own processor (3) Develop various types of interfacing Applications **** Any other type of innovative projects will be appreciated.**		

Note: You should concern about the latest technology from Magazines and take concept of your project from different Web sites.	
Sl. No.	
1.	Examination Scheme: **End Semester Examination: Examination will be held at the end of 6th semester.** **Internal marks should be given by the Project Guide.** **External marks should be given by the External examiner from any other Institutes or from Industries.** ****Each and every Lecturer of the corresponding Department must be associated with the project work.****