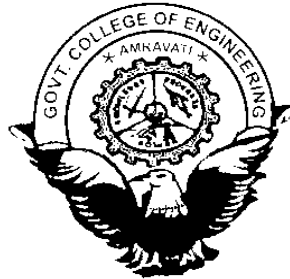


GOVT. COLLEGE OF ENGINEERING, AMRAVATI



B. TECH. (Information Technology) VII and VIII Semester CURRICULUM

**Department of Information Technology
2009-10**

INFORMATION TECHNOLOGY DEPARTMENT

SCHEME FOR B.Tech. Information Technology

Course Code	Name of the Course	Teaching Scheme				Evaluation Scheme							Credits
		Theory Hrs /week	Tutorial Hrs/week	Practical Hrs/week	Total	Theory				Practical		Total	
						TA	CT1	CT2	ESE	Internal	External		
Semester- III													
IT301	Engineering Mathematics- III	4	1		5	10	15	15	60	--	--	100	5
IT302	Discrete Mathematics & Graph Theory	4	1		5	10	15	15	60	--	--	100	5
IT303	Programming Methodology	4			4	10	15	15	60	--	--	100	4
IT304	Electronics Devices & Circuits	4			4	10	15	15	60	--	--	100	4
IT305	Microprocessor Fundamentals	4			4	10	15	15	60	--	--	100	4
IT306	Programming Methodology laboratory			2	2	--	--	--	--	25	25	50	1
IT307	Electronics Devices & Circuits laboratory			2	2	--	--	--	--	25	25	50	1
IT308	Microprocessor Fundamentals laboratory			2	2	--	--	--	--	25	25	50	1
IT309	Computer Lab- I			4	4	--	--	--	--	50	50	100	2
Total		20	2	10	32	50	75	75	300	125	125	750	27
Semester- IV													
IT401	Data Structures	4			4	10	15	15	60	--	--	100	4
IT402	Communication Engineering- I	4			4	10	15	15	60	--	--	100	4
IT403	Digital Integrated Circuits	4			4	10	15	15	60	--	--	100	4
IT404	Introduction Information Theory	4	1		5	10	15	15	60	--	--	100	5
IT405	Numerical & Statistical Methods	4			4	10	15	15	60	--	--	100	4
IT406	Data Structures laboratory			2	2	--	--	--	--	25	25	50	1
IT407	Communication Engineering- I laboratory			2	2	--	--	--	--	25	25	50	1
IT408	Digital Integrated Circuits laboratory			2	2	--	--	--	--	25	25	50	1
IT409	Computer Lab- II			2	2	--	--	--	--	25	25	50	1
IT410	General Proficiency-I			2	2	--	--	--	--	25	25	50	2
Total		20	1	10	31	50	75	75	300	125	125	750	27

Semester- V													
IT501	System Analysis and Design	4	1	--	5	10	15	15	60	--	--	100	5
IT502	Operating System and Compiler construction	4	0	--	4	10	15	15	60	--	--	100	4
IT503	Object Oriented Programming	4	--	--	4	10	15	15	60	--	--	100	4
IT504	Communication Engineering –II	4	--	--	4	10	15	15	60	--	--	100	4
IT505	Theory of Computation	4	0	--	4	10	15	15	60	--	--	100	4
IT506	System Analysis and Design laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT507	Operating System and Compiler construction laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT508	Object Oriented Programming laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT509	Communication Engineering	--	--	2	2	--	--	--	--	25	25	50	1
IT510	General Proficiency-II	--	--	2	2	--	--	--	--	25	25	50	2
Total		20	1	10	31	50	75	75	300	125	125	750	27
Semester- VI													
IT601	Computer Network	4	0	--	4	10	15	15	60	--	--	100	4
IT602	Microprocessor Based Design	4	--	--	4	10	15	15	60	--	--	100	4
IT603	Data Base Management System	4	1	--	5	10	15	15	60	--	--	100	5
IT604	E-Commerce	4	0	--	4	10	15	15	60	--	--	100	4
IT605	Design and Analysis of Algorithms	4	--	--	4	10	15	15	60	--	--	100	4
IT606	Computer Network laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT607	Microprocessor Based Design laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT608	Data Base Management System laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT609	Design and Analysis of Algorithms Laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT610	Minor Project	--	--	2	2	--	--	--	--	25	25	50	2
Total		20	1	10	31	50	75	75	300	125	125	750	27

Semester- VII													
IT701	Wireless Technology	4	--	--	4	10	15	15	60	--	--	100	4
IT702	Web Technology	4	--	--	4	10	15	15	60	--	--	100	4
IT703	Multimedia Technology	4	--	--	4	10	15	15	60	--	--	100	4
IT704	Embedded System	4	--	--	4	10	15	15	60	--	--	100	4
IT705	Elective –I	4	--	--	4	10	15	15	60	--	--	100	4
IT706	Embedded System Laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT707	Multimedia Laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT708	Elective –I Laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT709	Project+ Seminar	--	--	6	6	--	--	--	--	50	50	100	4
Total		20	--	12	32	50	75	75	300	125	125	750	27
Semester- VIII													
IT801	Data Warehousing and Data Mining	4	--	--	4	10	15	15	60	--	--	100	4
IT802	Network Administration & security	4	--	--	4	10	15	15	60	--	--	100	4
IT803	Elective – II**	4	--	--	4	10	15	15	60	--	--	100	4
IT804	Elective – III***	4	--	--	4	10	15	15	60	--	--	100	4
IT805	Data Warehousing and Data Mining laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT806	Elective – II** laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT807	Elective – III*** laboratory	--	--	2	2	--	--	--	--	25	25	50	1
IT808	Project and Seminar	--	--	8	8	--	--	--	--	100	100	200	8
Total		16	--	14	30	40	60	60	240	175	175	750	27

TA :Teacher Assessment CT: Class Tests ESE: End Sem. Examination Duration of ESE: 2hrs.30min

Elective I (IT705)

Distributed computing
Optical and Satellite Communication
Digital Signal Processing

Elective II (IT803)

Computer Graphics
Digital Image Processing
Artificial Intelligence

Elective III(IT804)

Artificial Neural Network
Advanced Ewb Technology
Software Planning & Management with Object oriented Approach

IT701-WIRELESS TECHNOLOGY

Teaching Scheme : 04 L Total 04 Credits : 04
Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE Total Marks: 100
Duration of ESE: 2hrs.30min.

History of wireless communication

Communication Network: LANs, MANs and WANs, Switching Techniques, Circuit Switching, Packet Switching, Asynchronous Transfer mode.

Wireless LAN Technology: Infrared LANs, Speed Spectrum LANs, Narrowband Microwave LANs.

Bluetooth: Overview, Radio Specification, Base band Specification, Link Manager Specification.

Wireless application protocol: Architecture, Wireless datagram protocol, Wireless transport layer security, Wireless transaction protocol, Wireless session Protocol, Wireless application environment.

Antennas and propagation: Antennas, Propagation modes, Line of sight transmission.

Text Book:

- 1) Wireless Communications and Networks ,William Stallings, 2nd Edition, Prentice Hall India, 2005.
- 2) Satellite Communications , Dennis Roddy ,4th edition, Mc-Graw Hill Publication, 2006.

Reference Book:

- 1) Wireless Communications , Theodore S. Rappaport, 2nd Edition, Prentice Hall of India,2001.
- 2) Wireless Networks , P. Nicopolitidis, 3rd Edition, John Wiley publication, 2003.

IT702-WEB TECHNOLOGY

Teaching Scheme : 04 L Total 04 Credits : 04
Evaluation Scheme : 15 CT1 + 15 CT2 +10 TA+ 60 ESE Total Marks :100
Duration of ESE: 2hrs.30min.

Introduction: History of the Internet and World Wide Web, HTTP, SMTP, POP3, MIME.

Enterprise architecture styles: Single tier, 2-tier, 3-tier, n-tier.

Dynamic Web Pages: The need of dynamic web pages, an overview of HTML, DHTML, cascading style sheets (css).

Active Web Pages: Need of active web pages, java applet life cycle.

Java Script: Data types, variables, operators, conditional statements, array object, date object, string object.

Java Servlets: Introduction, Advantages over CGI, Servlet life cycle, Servlet API (Different interfaces & classes of generic servlet & HTTP servlet), Accessing user information by means of Request & Response, Servlet session management techniques.

JSP: Introduction, Comparison between JSP & servlet, Architecture/Life cycle, JSP tags, Directives, Scripting elements, JSP implicit objects, Accessing user information using implicit objects.

EJB : Introduction, Comparison of EJB & Java Beans , Applications, Drawbacks, Different types of enterprise beans ,Services provided by EJB container.

JDBC: Introduction, Database driver ,Different approaches to connect an application to a database server, Establishing a database connection and executing SQL statements, JDBC prepared statements, JDBC data sources.

XML: Java & XML, XML syntax, Document type definition, Parsers.

Textbooks:

1. Professional JAVA Server Programming, Allamaraju & Buest , 1st Edition, Wrox Publication, 2008.
2. Internet & World Wide Web, Deitel & Deitel and Nieto, 1st Edition, Perarson Publication, 2000.

Reference Books :

1. Internet & Java Programming , Krishnamoorthy & S. Prabhu, 1st Edition, New Age Publication, 2004.
2. Web Technologies, Godbole & Kahate, 2nd Edition, Tata Mc-Graw Hill, 2008.

IT703 MULTIMEDIA TECHNOLOGY

Teaching Scheme : 04 L	Total 04	Credits : 04
Evaluation Scheme : 15 CT1 + 15 CT2 +10 TA+ 60 ESE		Total Marks :100
Duration of ESE: 2hrs.30min.		

Introduction: Multimedia basic concepts, Multimedia building blocks, multimedia applications design considerations, goals and objectives, architectural support for multimedia processing. Multimedia Authoring Fundamentals: authoring fundamentals, card/page based, time based, icon based, theatrical-frame based and object based authoring, interactive multimedia software authoring basics.

Multimedia audio: Basic sound concepts, audio capture, sound processor, VOC, WAV file format for sound, MIDI standard, Basic audio compression technique: ADPCM in speech coding, MPEG audio compression Technique MP3 encoder and decoder.

Image and Video technology: Representation of image in digital format, BMP, TIFF file formats, Video technology, Video capture, Video processing, AVI file formats, NTSC, PAL, SECAM, television standards, HDTV, Video streaming.

Image compression techniques: Huffman coding, LZW, DCT, Run Length Coding, JPEG, JPEG 2000, Basic Video Compression Technique.

Video Compensation based on motion compensation: H.261, H.263, MPEG video coding, MPEG1, MPEG4 and MPEG7.



Augmented and virtual reality Conceptive devices: Hand gloves, head mounted tracking system, VR chair, CCD, VCR, 3D sound system, Head mounted displays and rendering software setup, Virtual objects, VRML.

Multimedia devices: Mass storage system for multimedia- requirements, Magnetic devices, Optical devices, CDROM,DVD Scanners: Types and classification.

Multimedia operating system and networking: OS support for continuous media applications, file systems and process management, multi media database management system, characteristics of multimedia database management system, system support, Distributed multimedia database management, Multimedia networking and multimedia communication systems, networking requirements, key technologies used for multimedia communication, traffic attributes, QoS.

Windows support to multimedia: Function Calls API, Support for WINDOWS.

Text books:

1. Multimedia: Computing, Communication and Applications, Ralf Steinmetz, Klara Narrated, 2nd Edition, Prentice Hall, 1995.
2. Fundamentals of Multimedia, Ze nian Li, Marks S. Drew, 1st Edition, Pearson Education, 2004.

Reference Books:

1. Virtual Reality and Multimedia, Durano R. Begault, 1st Additional Professionals, 2002.
2. VRML Programmer’s Library, Kris Jama, Phil Schmauder, Nelson Yee, 1st Edition, Galgotia Publication,1997.
3. Virtual Reality Construction Kit, Joe Gradicki, Pap/Dis Edition, John Wile & Sons, Inc.,1994.

IT704 EMBEDDED SYSTEM

Teaching Scheme	: 04 L	Total 04	Credits	: 04
Evaluation Scheme:	15 CT1 + 15 CT2 +10 TA+ 60 ESE		Total Marks:	100
Duration of ESE:	2hrs.30min.			

Introduction to embedded systems, Processor in the system, Hardware units required in the exemplary cases, Software embedded into a system, Final Machine implementable software for a product, Software in Processor specific assembly language and high level language, Device drivers, device management using an operating systems, Software design for scheduling multiple tasks and devices using RTOS, Embedded SoC in VLSI circuits.

Structural units of the processor, Allocation of memory to program segment and blocks, memory map of the system, Memory blocks for different data sets and structures, Virtual Devices, Device drivers for parallel port, serial and timing devices, Context and periods for context switching, deadline and interrupt latency.

Embedded programming in assembly language and C: Function pointers, Function queues and ISR queues, Queues for implementing protocol for a network, Queuing of functions on interrupts, Use of FIFO queues, Stacks, Lists and Ordered Lists.

Modeling process: Use of dataflow & control data flow graphs, Programming model for event controlled or response time constraint, Real time programs, Inter process



Communication and Synchronization, Multiple processes in an application, Sharing data by multiple tasks, use of finite states machine model & Petri net Model, Use of Semaphores for a task or for Critical section of code, Mutex & P & V, Priority inversion problems & deadlock situations IPC issues, Use of Semaphore flags or Mutex as resource key, use of message queues, mailboxes, pipes, virtual sockets, RPCs.

Introduction to RTOS: RTOS Services, Schedule management for multiple tasks in Real Time, Handling of interrupt source call, RTOS task scheduling models, Cooperative Round Robin Scheduling using a Circular Queue of ready tasks and using ordered list as per precedence constraints, cycling scheduling in Time Sharing, fixed Real Time scheduling, Precedence assignment in Scheduling algorithms, fifteen-point strategy for Synchronization, Embedded Linux Kernel.

Text Book:

1. Embedded Systems, Architecture, Programming & Design , Rajkamal, 2nd edition, Tata McGraw Hill, 2007

Reference Books:

1. Real Time Systems, Jane W. S. Liu, 1st Edition, Pearson Education, 2004.
2. Embedded System Design: A Unified Hardware/Software Introduction by Frank Vahid, Tony Givargis, 1st Edition, John Wiley & Sons publication, 2002.

IT 705 ELECTIVE – I

A) DISTRIBUTED COMPUTING

Teaching Scheme: 04 L

Total 04

Credits: 04

Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE

Total Marks: 100

Duration of ESE: 2hrs.30min.

Distributed Computing System: DCS models, Distributed systems architecture, Distributed Operating Systems: Definition, Design Issues, Introduction to Distributed Computing Environment, Key characteristics, resource sharing, openness concurrency, scalability, fault tolerance, transparency.

Distributed Systems Models: Client-Server model, Thin Client, Mobile Devices, Software agents. Fundamental models: Interaction, Failure and Security models.

Message passing : Desirable features of a Good Message Passing System, Issue in IPC by message passing Synchronization, Buffering, Multi datagram messages, encoding and decoding of message data, process addressing, failure handling, Group Communication, case study 4.3 BSD UNIX IPC mechanism.

Remote Procedure Call :RPC Model, Transparency of RPC, Implementing RPC mechanism, RPC messages, Marshaling arguments and results, Server management, Parameter passing semantics, Call semantics, Communication protocols for RPC, Client Server binding, Exception handling, Security, RPC in heterogeneous environments, Optimization for better performance.

Distributed Shared Memory: General architecture of DSM system, Design and Implementation, issues of DSM, Granularity, Structure of shared memory space,

Consistency models, Replacement strategy, Thrashing, Other approaches to DSM, Advantages of distributed shared memory.

Synchronization: Clock Synchronization, Event Ordering, Mutual Exclusion, Deadlock, Election Algorithms. Resource Management: Features of Global Scheduling Algorithm, Task Assignment Approach, Load Sharing Approach.

Distributed File System : Desirable features of good Distributed file system, file models, File Accessing, Sharing, Caching methods, File replication, Fault tolerance, Atomic transactions, Design principles.

Case study: CORBA.

Text Book :

1. Distributed Operation System, Concepts and Design, P.K. Sinha, 2nd Edition, IEEE Press, Prentice Hall India, 1998.
2. Distributed Systems Concepts and Design ,George Coulouris, Jean Dollimore, and Tim Kindberg, 3rd Edition., Addison Wesley, 2002

Reference Book:

1. Distributed Operating System ,A. S. Tanenbaum , 2nd Edition, Prentice Hall India ,2002.

IT705 ELECTIVE - I

B) OPTICAL AND SATELLITE COMMUNICATION

Teaching Scheme : 04 L Total 04 Credit : 04

Evaluation Scheme : 15 CT1 + 15 CT2 +10 TA+ 60 ESE Total Marks :100

Duration of ESE: 2hrs.30min.

Optical Fiber Communication System: Basic optical laws and definitions, Optical fiber modes and configurations.

Numerical Aperture Attenuation: Units, absorption, scattering losses, radioactive losses, core and cladding losses, Material dispersion, wave guide dispersion, intermodel dispersion.

Optical Sources: Light Emitting Diodes: structure, light source materials, **Laser Diodes:** structure, threshold conditions, modulations of Laser diodes. Light source linearity, reliability considerations.

Elements of Satellite Communication : Satellite frequency bands, communication satellite systems, Kepler's laws, Satellite orbits, LEO, MEO, GEO, HEO, LOOK angles & visibility, Orbital effect in communication system performance.

Satellite Link Design: Basic transmission theory, EIRP, Antennas Gain patterns, Common antenna type, parabolic disc, atmospheric losses, system noise temperature & G/T ratio, up link & Down link analysis.

Satellite Transponder: Transponder model, Satellite front end, R F filtering of digital carriers, introduction to satellite signal processing.

Text Books:

1. Optical Fiber Communication ,G.Keiser, 4th Edition, Tata McGraw Hill International Edition, 2000.



2. Satellite Communication, Gagliardi Robert M, 1st Edition, CBS Publications & Distributor's, New Delhi, 2004.

Reference Books:

1. Optical Fiber Communication and Applications, Seniors J.M., 2nd Edition, Prentice Hall of India Pvt. Ltd., New Delhi., 1993.

IT 705 ELECTIVE - I

C) DIGITAL SIGNAL PROCESSING

Teaching Scheme : 04 L Total - 04 Credits : 04
Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE Total Marks: 100
Duration of ESE: 2hrs.30min.

Discrete Time Signals: Introduction to DSP, Advantages, basic elements of DSP system, Elementary discrete-time sequences.

Discrete Time Systems: Description, representation, classification (linear versus non linear, time-invariant versus time variant, static versus dynamic, casual versus non casual , stable versus unstable)

LTI systems: The convolution sum, properties of convolution, Analysis of causal LTI systems, stability of LTI systems, step response of LTI systems, difference equation, solution of difference equations, Impulse response of LTI recursive system, Correlation of discrete time signals and types.

Fourier Transforms: Definition & properties of Fourier transform, Finite duration sequences and the discrete Fourier transform (DFT), properties, circular convolution, Fast algorithms for the computation of DFT: radix-2 algorithms, Bit Reversal Algorithm.

Z- Transform: Definition of z- Transform, properties, rational z-Transforms, evaluation of the inverse z- Transforms analysis of linear time invariant systems in z-domain, transient and steady-state responses, causality, stability, pole-zero cancellation, relation with Fourier transform.

Digital Filters: Classification (LP, HP, BP, FIR and IIR filters), filter specifications, Impulse invariant transformation and bilinear transformation, Commonly used Analog filters and IIR Filter design example, Structures for realization of Discrete-Time systems,

Realization of FIR and IIR Systems: Direct Form, Cascade Form, Signal flow graph and Transposed structures, Cascade form, Lattice and Lattice-ladder.

Text Book:

1. Digital Signal Processing: Principles Algorithms and Applications ,J G Prokis and D G Manolokis, 4th Edition, Pearson Education Pvt .Ltd, 2006.

Reference Books:

1. Digital Signal Processing: A Computer-Based Approach, S K Mitra, 3rd Edition Tata McGraw Hill Publish Co. Ltd., 2001.
2. Digital Signal Processing a Practical Approach, E C Ifeachor and B W Jervis ,1st Edition, Pearson Education, 2002.
3. Discrete Time Signal Processing, A V Oppenheim, R W Schafer with J RBuck, 2nd Edition (PHI), 2005.

IT706 EMBEDDED SYSTEM LABORATORY

Teaching Scheme : 02 P Total 02 Credits : 01
Evaluation Scheme: 25 Internal + 25 External Total Marks: 50

Minimum Eight Experiments to be performed on following topics

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. NIOS II System and SDRAM Interface
2. Expanded NIOS II System
3. Study of Development Education Board
4. A Simple Computer Embedded System
5. Program Controlled Input Output
6. Subroutines and Stacks
7. Polling and Interrupts
8. Bus Communication

IT707 MULTIMEDIA TECHNOLOGY LABORATORY

Teaching Scheme : 02 P Total 02 Credit : 01
Evaluation Scheme : 25 Internal + 25 External Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Create Seamless Pattern using Adobe Illustrator.
2. Perform Content Aware Scaling using Adobe Photoshop Extended CS3.
3. Perform isolated adjustments to an image using Graduated Filters in Adobe Photoshop Extended CS3.
4. Create Animations with Twin Shape using Adobe Flash CS3 Professional.
5. Change the color of an object using Adobe Flash CS3 Professional.
6. Create dynamic layers with interactive image rollovers using Adobe Dream weaver CS3.
7. Link two different pages from the same image using image maps in Adobe Dream Weaver CS3.
8. Create Powerful Motion with Simple Expressions in AE using Adobe after Effect.
9. Change one object into another using Adobe Flash CS3 Professional.
10. Move objects along a Path using Adobe Flash CS3 Professional.

IT 708 ELECTIVE - I

A) DISTRIBUTED COMPUTING LABORATORY

Teaching Scheme : 02 P Total 02 Credit : 01
Evaluation Scheme : 25 Internal + 25 External Total Marks : 50

Minimum Ten Experiments to be performed on following topics

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

- 1) Design and implement a very simple distributed file system.
- 2) Write a program to implement Remote Procedure Call.
- 3) Simulate Cristian's algorithm for clock synchronization.
- 4) Simulate Berkeley's algorithm for clock synchronization.
- 5) Simulate Lamport's algorithm for clock synchronization.
- 6) Simulate the Ring election algorithm.
- 7) Simulate the Bully election algorithm.
- 8) Simulate the Causal Consistency model.
- 9) Simulate the centralized algorithm for mutual exclusion.
- 10) Simulate the distributed algorithm for mutual exclusion.
- 11) Simulate the token ring algorithm for mutual exclusion.
- 12) Implement the Byzantine algorithm.

IT 708 ELECTIVE - I

B) OPTICAL AND SATELLITE COMMUNICATION LABORATORY

Teaching Scheme : 02 P Total 02 Credit : 01
Evaluation Scheme : 25 Internal + 25 External Total Marks : 50

Minimum Ten Experiments to be performed on following topics.

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Optical fiber cable as a light guide
2. Fiber optic cable transmission
3. Characteristics of connectors and splices
4. Index-matching procedures
5. Fiber optic transmitter
6. Receiver design
7. Fiber termination techniques
8. Investigate reflection, refraction and critical angle.
9. Measure wavelengths of light using the techniques of Young, Michelson and Lloyd.



10. Test a lens for defects, collimate light and evaluate a person's visual perception skills.
11. Capture light in optical fiber and investigate fiber optics phenomena.
12. View a hologram, observe interference rings and measure diffraction patterns with a ruler.
13. Determine the index of refraction of a liquid or transparent solid by measuring bending in the intense laser beam as it enters or leaves the material.
14. Study characteristics of light: wavelength, interference, diffraction and polarization.

IT 708 ELECTIVE - I

C) DIGITAL SIGNAL PROCESSING LABORATORY

Teaching Scheme : 02 P	Total 02	Credits : 01
Evaluation Scheme: 25 Internal + 25 External		Total Marks: 50

Minimum Ten Experiments to be performed on following topics

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Generation of Sine, Cosine, tangent and exponential waveform.
2. Time Scaling and Time Reversal Operation on Discrete Time Sequence, Addition and subtraction operation on Discrete Time Sequence.
3. Shifting (delay and advance) operation on Discrete Time Sequence.
4. Convolution of sine and cosine wave.
5. Cross Correlation and Auto Correlation Operation.
6. Discrete Fourier Transform Operation.
7. Perform response of Fast Fourier Transform.
8. Magnitude and Phase Spectrum.
9. Plot poles and zeros of Z-transform.
10. To design Butterworth filter.
11. To design Chebyshev filter.
12. Generation of low pass Butterworth filter characteristics.

IT709 PROJECT AND SEMINAR

Teaching Scheme : 06 P	Total 06	Credit : 04
Evaluation Scheme : 50 Internal + 50 External		Total Marks : 100

100 marks divided in two parts, 50 marks for Seminar and 50 marks for project work

A. Seminar :

1. Student shall select a topic for seminar which is not covered in curriculum. Student shall complete the conceptual study of the selected topic and expected to know functional and technical details of selected topic



2. Before end of semester students shall deliver a seminar and submit seminar report in proper format consisting of
 - Literature survey
 - Concept
 - Functional and Technical detail
 - Present status
 - Future scope
 - Application
 - Comparison with similar technique
 - References
3. Student shall deliver a seminar on report submitted which shall be assessed by two examiner (one should be guide) appointed by HOD

B. Project :

1. Students have to complete project work in VIIth and VIIIth semester. In general a group of 4 -5 student should be allowed to complete one project
2. In VIIth semester student shall complete literature survey and finalized the topic for project. They shall submit synopsis on the selected topic to HOD. On approval of project topic , they shall complete the design work and procure the required components.
3. Before the end of the semester student shall submit one copy of progress report in proper format covering the total work completed by the group
4. There shall be oral exam based on report submitted by student. The oral examination shall be conducted by two examiner (one should be guide) appointed by HOD

IT801 DATA WAREHOUSING AND DATA MINING

Teaching Scheme : 04 L

Total 04

Credits : 04

Evaluation Scheme : 15 CT1 + 15 CT2 +10 TA+ 60 ESE

Total Marks :100

Duration of ESE: 2hrs.30min.

Data ware house and OLAP Technology for data mining: Data ware house, multidimensional data model, data ware house architecture, data ware house implementation.

Data Staging: Overview, plan effectively, dimension table staging, fact table loads and ware house operations, data quality and cleansing, miscellaneous issues, building end.

User applications: Role of end user application, application specification, end user application development.

Data mining: Data mining functions, classification and major issues. Data Preprocessing Data cleaning, data integration and transformation, data reduction, discrimination & concept hierarchy generation.

Data mining primitives: Concept, Data mining query language. Concept description: data generalization, Analytical characterization, mining class comparison.

Application and trends in data mining: Data mining applications, data mining systems and research prototypes, additional themes on data mining, trends in data mining.

Text Books :

1. Data Mining Concepts and Technique's ,Han and M.Kamber , 1st edition, Elsevier Pub. Indian Reprint, 2004.
- 2.Data Ware Housing, Data Mining and OLAP Berson ,2nd Edition, Tata McGraw-Hill,2004.

Reference Books:

1. The Data Ware House Life Cycle Tool Kit, R. Kimball , 1st Edition,Wiley Press, John Wiley and Sons (ASIA) Pvt. Ltd,2001.
2. Data Mining Techniques, Arun K. Pujari ,2nd Edition,University Press (Orient Longman),2003

IT802- NETWORK ADMINISTRATION & SECURITY

Teaching Scheme : 04 L	Total 04	Credits : 04
Evaluation Scheme : 15 CT1 + 15 CT2 +10 TA+ 60 ESE		Total Marks :100
Duration of ESE: 2hrs.30min.		

Introduction To Network Security: passive and active attacks, authentication, integrity, access control, The model of internet work security, internet standards: internet society and RFC publications. (Request for comments.)

Cryptography: Encryption principles and various algorithms, standardization process, key distribution, public key cryptography and message authentication, digital signature. Network security applications: Kerberos, X.509 directory authentication services, e-mail security PGP (Pretty Good Privacy), operational description. MIME (Multipurpose Internet Mail Extensions), SMIME (Security/Multipurpose internet mail extensions) functionality.

IP Security: Overview, IP security architecture, Authentication header, Web Security: Web security requirements, secure socket layer, Transport layer security, Secure electronic transactions.

Network Management Security: Basic concepts of SNMP, Network management architecture and protocol architectures, proxies, services, SNMPv1 authentication service, access policy and proxy service, SNMPv2 architecture, message processing and user security model, view based access control.

System Security: Intruders, Intrusion technologies, password protection, password selection strategies, Intrusion detection.

Viruses and related threats: Nature of viruses, types, micro viruses and various antivirus approaches.

Firewall: Characteristics, types of firewalls, Firewall configuration, Trusted systems, data access control, the concept of the trusted systems.

Text Book :

Network Security Essentials, William Stallings,3rd edition, Prentice Hall India,2006.

Reference Books:

1. Security for Telecommunication and Network management, Moshe Rozenblit , 1st Edition, Prentice Hall India, 2000.
- 2.Internet Security Protocols - Protecting IP Traffic, Uyles Black, 1st Edition, Pearson

IT 803 ELECTIVE - II
A) COMPUTER GRAPHICS

Teaching Scheme: 04 L

Total 04

Credits: 04

Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE

Total Marks: 100

Duration of ESE: 2hrs.30min.

Computer Graphics and Graphics System : Video display devices, Raster-Scan systems, Random-Scan systems, Graphics monitors and workstations, input devices, hard copy devices, Graphics software.

Output primitives: Point and Lines, Line drawing algorithms, loading the frame buffer, line function, circle and ellipse generating algorithms, curves, parallel curves algorithms, Pixel addressing, filled-area primitives, functions, Cell array, character generation.

Attributes of output primitives: Line and curve attributes, color and grayscale levels, area fill attributes. Character attributes, bundled attributes, anti aliasing.

2-D geometric transformations: basic transformations, matrix representations, Composite Transformations, other transformations, transformations between coordinate Systems, Affine transformations, transformation functions, Raster methods for transformations.

Two-Dimensional viewing: viewing coordinates, Window-to-view port coordinate transformation, viewing functions, clipping : point, line, polygon, curve, text, exterior.

Structures and hierarchical modeling: concepts, editing structures, basic modeling concepts, hierarchical modeling, GUI and interactive input methods : the user dialogue, input of graphical data, functions, initial values for input device parameters, interactive picture - construction techniques, virtual reality environments.

Three dimensional concepts: display methods, graphics, Bezier curves and surfaces, B-spline curves and surfaces, Beta-splines, Three dimensional geometric and modeling transformations : translation, rotation, scaling, three dimensional viewing : viewing pipeline, viewing coordinates, projections.

Text Book :

- 1.Computer Graphics ,D. Hearn, M.P.Baker , 2nd edition ,Pearson Education,1997.

References :

1. Computer Graphics Using Open GL ,F.S.Hill, 2nd edition, Pearson Education,2001.
2. Principles of Interactive Computer Graphics, W.M.Newman & R.F.Sproul , 2nd edition, McGraw Hill,1979.

IT803 ELECTIVE - II
B) DIGIAL IMAGE PROCESSING

Teaching Scheme : 04 L **Total 04** **Credits : 04**
Evaluation Scheme : 15 CT1 + 15 CT2 +10 TA+ 60 ESE **Total Marks :100**
Duration of ESE: 2hrs.30min.

Introduction: Origin and application of DIP, Fundamental steps and components of an IP system, Elements of visual perception, Light and EM spectrum, Image sensing, acquisition, sampling and quantization, Basic relationships between pixels.

Spatial Domain Image Enhancement: Gray level transformations, Histogram processing. Enhancement using arithmetic/logic operations, Basics of spatial filtering, Smoothing spatial filters, sharpening spatial filters, combined methods.

Frequency Domain Image Enhancement: Fourier transform and the frequency domain, Smoothing frequency domain filters, Sharpening frequency domain filters, Homomorphic filtering, Implementation of 2-D Fourier transforms , FFT.

Image restoration: Noise models, Restoration in the presence of noise only- spatial filtering, Periodic noise reduction by frequency domain filtering, Linear, Position Invariant degradation, Estimation of degradation function, Inverse filtering, Wiener filtering. Constrained LS filtering.

Geometric transformations: spatial & gray level interpolation.

Text-Book:

- 1) Digital Image Processing ,Gonzalez, R.C. & Woods R.E., 2nd Edition, Pearson Education, 2004.
- 2) Digital Image Processing & Computer Vision, Schalkoff R.J, John, 2nd Edition, Wiley & Sons, 2005.

Reference Books:

- 1) Digital Image Processing, Pratt W.K., 3rd Edition, John Wiley & Sons, 1991.
- 2) Computer Vision and Image Processing: A Practical Approach Using CVIPtools , 1st Edition, Prentice Hall, 1998.

IT 803 ELECTIVE - II
C)ARTIFICIAL INTELLIGENCE

Teaching Scheme: 04 L **Total 04** **Credits: 04**
Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE **Total Marks: 100**
Duration of ESE: 2hrs.30min.

Overview of Artificial Intelligence: Knowledge, General concept,

Introduction to LISP: Syntax and numerical functions. Basic list manipulation function in LISP, Functions, predicates and conditional Input, output and local variables, iteration and recursion, Property list and arrays.

Knowledge representation - I: Syntax and semantics for propositional logic, Syntax and Semantics for FOPL, Properties of Wffs, Conversion to clausal form, Inference rules, the resolution principle, Nondeductive inference methods, Representation using rules.

Knowledge representation - II: Truth maintenance system, Default reasoning and closed world assumption, Predicate completion and circumscription, model and temporal logics, Overview of object oriented systems, object classes messages and methods, simulation examples using OOS program.

Knowledge organization and manipulation: Preliminary concept, Examples of search problems, Uniformed and blind search, Informed search, Searching AND-OR graphs, structure used in matching.

Measures for matching: distance matrices, qualitative measures, similarity measures, Partial matching, Indexing and retrieval technique, integrating knowledge in memory, Memory organization system.

Knowledge Acquisition: General concept in knowledge acquisition, learning by Induction, Analogical and explanation based learning: Analogical learning and reasoning, Explanation and learning.

Expert system: architectures ,Rules based system architecture, Nonproductive system architecture, Dealing with uncertainty, Knowledge acquisition and validation, Knowledge system building tools.

Text Books

1. Artificial Intelligence, P.H.Winston, 2nd Edition Addison- Wesley Publication Company, 1984.
2. Introduction to Artificial Intelligence E.Charniac and D.McDermott, 2nd Edition, Addison-Wesley Publishing Company, 2002.

Reference Books

1. Introduction to expert systems, Peter Jackson, 3rd Edition, Addison-Wesley Publishing Company, 1986.
2. Artificial Intelligence, E.Rich, K.K.Knight, 2nd Edition, Tata McGraw Hill, New Delhi, 1991.

IT 804 ELECTIVE - III

A) ARTIFICIAL NEURAL NETWORK

Teaching Scheme: 04 L

Total 04

Credits: 04

Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE

Total Marks: 100

Duration of ESE: 2hrs.30min.

INTRODUCTION TO NEURAL NETWORK:-History of Neural Networks, Biological Neural Networks ,Artificial Neuron ,Analysis of Neural networks ,Characteristics of Neural Networks ,Limitations of Neural Networks ,Neural Network Applications .

PERCEPTRON:-Overview of Perceptron ,Pattern Recognition ,Mathematical modeling of Simple Perceptron ,Perceptron Learning Algorithms ,Limitations of Perceptron .

MULTI-LAYER PERCEPTRON NETWORKS: Delta Learning Rule for the Output Layer, Generalized Delta Learning Rule, Backpropagation learning algorithm, Mathematical modeling of MLP Networks, Application to Function Approximation.

RADIAL BASIS FUNCTION (RBF) NETWORKS: Least Square Estimator, Linear Neuron, Recursive Least Squares Algorithm, Basis Function Networks, Radial Basis Function Networks, RBF as Interpolation Networks, Generalized RBF as Approximation Networks, MLP vs. RBF Networks as Function Approximators.

HOPFIELD NETWORKS: Hopfield Network, Energy Minimizing Networks, Analysis and Mathematical modeling of Hopfield Model, Designing Stable States (Energy Wells), Application to Optimization Problems.

ASSOCIATIVE MEMORY NETWORKS: Linear Feed forward Associative Memory Network, Recurrent Associative Memory Network, Bidirectional Associative Memory Network (BAM), Brain-State-in-a-Box (BSB) Network, Cross-Talk versus Perfect Recall.

KOHONEN NETWORKS: Self-Organization in Human Brain, Self-Organizing Neural Networks, Kohonen's Neural Network, Kohonen Learning Rule, Self-Organizing Feature Maps, Vector Quantization, Application to Data Compression.

Text Books :

1. Introduction to Artificial Neural Systems, Zurada, Jacek M., 1st Edition West Publishing Company, 1992.
2. Neural Networks, Simon Haykin, 1st Edition, MacMillan College Publishing Company, 1999.

Reference Books:

1. Artificial Neural Networks, Robert J. Schalkoff, 2nd Edition, McGraw-Hill, 1997
2. Neural Networks for Pattern Recognition, Christopher M. Bishop, 1st Edition Oxford University Press, Oxford UK, 1995.

IT804 ELECTIVE - III

B) ADVANCED WEB TECHNOLOGY

Teaching Scheme: 04 L

Total - 04

Credits: 04

Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE

Total Marks: 100

Duration of ESE: 2hrs.30min.

Introduction: Introduction to Microsoft .Net Framework, Building blocks in .Net, Drawback of previous languages.

C#.Net : C#.Net overview, Types of application architecture, .Net initiative, .Net framework: components of .Net framework, Advantages, requirement of .Net, Features, C#.Net IDE, Data Types, Loops, Control structures, Cases, Operators, Creating forms, Procedures and functions, Form controls, Implementation of OOP, Creation of class and objects, Inheritance, Constructors, Exception handling.

Component based programming: Working with Private assembly, shared assembly, Using COM components developed in C# or other language.

ADO.Net: Introduction to ADO.Net, What is database? , Writing XML file.ADO.Net architecture, Creating connection, Dataset and Data reader, Types of Data adapter and ADO controls, reading data into dataset and data adapter, Binding data to controls, Data table and Data row.

Accessing and manipulating data with ADO.net: Selecting data, Insertion, deletion, updating, sorting, How to fill dataset with multiple tables, Multi-threading, Working with multithreading, Synchronization of Threads.

ASP.Net: Difference between ASP and ASP.Net, Introduction to IIS, ASP.Net IDE. Creation of web forms, Using web form controls.

ASP.Net objects and components: Response, Server, Application, Session, ASP.Net scope, state, view state, post back and configuration, Object creation, Scripting, Drive, folder, file,Server components, Ad rotator, Content linker, Browser capabilities, Use and creation of global .aspx file, Using Application object, Events methods and collection, Using session object , enabling and disabling of session, Event, properties, methods, collection.

ADO.Net in ASP.Net: Connection, Dataset and data reader, Data table and Data row, Web.config introduction, Binding data with data grid, Accessing and manipulating data, Server control templates and Data binding techniques, Understand data access in .Net using ADO.Net, Understand various Server Control Templates available for Data Binding like Repeater, Data List and Data Grid Controls.

ASP transactions and e-mail: Transactions, Transaction db design, CDONTS object. Email sending web page creation.

Text Books:

1. Mastering Visual C#.net ,Jason Price & Mike Gaderlay, Paperback Edition, Sybex Publication, 2008.
2. C# , A Beginners Guide , Herbert Schildt , 1st Edition ,Osborne/McGraw Hill Publication, 2008.

Reference Books:Programming in C#, Balguruswami, 2nd Edition, TMH, 2007ASP.net 3.5 : A Beginners Guide, Sanders & William, 1st Edition, TMH,2008

IT 804 ELECTIVE - III

C) SOFTWARE PLANNING & MANAGEMENT WITH OBJECT ORIENTED APPROACH

Teaching Scheme: 04 L

Total 04

Credits: 04

Evaluation Scheme: 15 CT1 + 15 CT2 +10 TA+ 60 ESE

Total Marks: 100

Duration of ESE: 2hrs.30min.

Introduction to Software Engineering :Evolving Role of Software, Software characteristics.

Software engineering Models: Water fall. Incremental Process Models: Incremental, RAD model, Evolutionary process models :Prototyping, Spiral, Project Management Concept :People, Product, Process, Project.



Software Measures , Metrics & Indicators: Metrics in process and project domain, software measurement, Metrics for software Quality. Software project Planning: Scope, Estimation, Decomposition Techniques. Software Risks: Identification , Risk projection, refinement & RMMM plan.

Project Scheduling: Concepts, Task set, Task network, Scheduling, EV analysis, Software quality concepts, SQ Assurance, Software reviews, Formal Technical reviews, Software reliability, SQA Plan. Software architecture : Data Design, Architectural Styles, Mapping data flow.

Software testing fundamentals: Test case design, White box testing, Basis path, Control structure, Black box-Testing, Testing for specialized environments, Strategic approach for S/W testing, Unit testing, Integration testing, Validation testing, System testing, Debugging..

Introduction to Object Orientation : Models, Relationships, UML , Software Engineering practices, Iterative Model, Rational Unified Process. Analysis: Use case Analysis, Architectural Analysis, Design Analysis, Runtime Architecture.

Workflows: Use case Model, Class Diagram, Object Diagram, Interaction Diagrams, sequence and collaboration diagram, Activity Diagram, State Chart Diagram Component Diagram, deployment Diagram .

Text Books:

- 1.Pressman R.S, Software Engineering: A Practitioner's Approach,6th Edition, McGraw Hill, 2005.
2. The Unified modeling Language User Guide ,Grady Booch, James Rumbaugh, Jacobson, 2nd Edition, Addison-Wesley, 2005

Reference Books:

1. Software Engineering, Ian Sommerville, 7th Edition, Pearson Education Asia, 2004
2. Classical and Object Oriented Software Engineering ,Steve Schach,6th Edition, McGraw Hill International, 2005
3. Object-Oriented Analysis and Design with Applications ,Grady Booch, Robert A. Maksimchuk, Michael W. Engle, Bobbi J. Young Ph.D., Jim Conallen, Kelli A. Houston, 3rd Edition, Addison Wesley Professional, 2007.

**IT805-DATA WAREHOUSING AND DATA MINING
LABORATORY**

Teaching Scheme : 02 P	Total 02	Credit : 01
Evaluation Scheme : 25 Internal + 25 External		Total Marks : 50

Practicals are based on following topics and performed using Statistica Data Mining software:

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Analysis of variance.



2. General linear models.
3. Fixed Nonlinear regression.
4. Time series/Forecasting.
5. Principal components & classification analysis.
6. Multidimensional scaling.
7. Input data.

IT 806 ELECTIVE - II

A) COMPUTER GRAPHICS LABORATORY

Teaching Scheme : 02 P	Total 02	Credit : 01
Evaluation Scheme : 25 Internal + 25 External		Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Program to draw line using DDA algorithm for all quadrants.
2. Program to draw line using Bresenham's algorithm for all quadrants..
3. Program to draw a Circle drawing using DDA and Bresenham algorithms.
4. Program for Polygon Filling using Flood and Boundary fill algorithm
5. Procedure to rotate a wheel
6. Implement 2D transformations with translation, rotation, reflection, shearing and scaling.
7. Program For Line clipping using Cohen-Sutherland algorithm
8. Program For Polygon clipping
9. Construct Bezier curves and Spline curves with 6 or more control points entered through mouse
10. Animation using Segmentation.

IT806 ELECTIVE - II

B) DIGIAL IMAGE PROCESSING

Teaching Scheme : 02 P	Total : 02	Credit : 01
Evaluation Scheme : 25 Internal + 25 External		Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Write a MATLAB program to convert Gray scale image to negative.



2. Write a MATLAB program Log Transformation of image
3. Write a MATLAB program for Contrast stretching using piecewise Transformation
4. Write a MATLAB Program to eliminate Gaussian noise using Average Filtering
5. Write a MATLAB program to eliminate Paper and Salt noise with the help of Avg. Filtering.
6. Write a MATLAB program for enhancing an image using Laplacian filter
7. Write a MATLAB program to find bit planes of a given image
8. Write a MATLAB program Histogram Equalization

IT806 ELECTIVE - II

C) ARTIFICIAL INTELLIGENCE LABORATORY

Teaching Scheme : 02 P	Total : 02	Credit : 01
Evaluation Scheme : 25 Internal + 25 External		Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Implement A* algorithm
2. Implement AO* algorithm
3. Implementation of Unification Algorithm.
4. Implementation of Truth maintenance system using prolog
5. Implementation of Min/MAX search procedure for game Playing
6. Parsing Method Implementation using Prolog.
7. Development of mini expert system using Prolog / Expert System Shell “ Vidwan”

IT807 ELECTIVE - III

A) ARTIFICIAL NEURAL NETWORK LABORATORY

Teaching Scheme : 02 P	Total 02	Credit : 01
Evaluation Scheme : 25 Internal + 25 External		Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Regression Analysis
2. The Back Propagation Algorithm
3. Multilayer Perceptions
4. Radial Basis Function Networks
5. Over-learning and Generalization
6. Probabilistic Neural Networks
7. Generalized Regression Neural Networks

IT807 ELECTIVE - III

B) ADVANCED WEB TECHNOLOGY LABORATORY

Teaching Scheme : 02 P Total 02 Credit : 01
Evaluation Scheme : 25 Internal + 25 External Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Introduction to .Net framework.
2. a) Design Login form with validation.
b) Design Registration form with validation of email address, date of birth, blank field, telephones and mobile numbers etc.
3. Design form, make it a class, create its object and access it from another form.
4. Design student class, marks class, inherits it in result class and access it using form.
5. Create instance of class using new operator of above example.
6. Design mark sheet of student using XML file and dataset.
7. Design employee details with help of database (back-end) using data adapter, data reader and datasets. Use data grid to display result.
8. Generation of database (data table) of employee or student with help of data tables of .Net.
9. To use multiple table design example of employee and department.
10. Design registration form of college using text box, text area, radio list, check list, button etc. using Autopostback property.
11. Simple 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.)
12. Creation of file, entry, reading data from a file.
13. Using components create:
 - (1) Advertisement (using Ad rotator)
 - (2) Book example (using Next function)
 - (3) find capabilities of browser (Browser object capabilities)
14. 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)
15. Application which sends email.

IT807 ELECTIVE - III
**C) SOFTWARE PLANNING & MANAGEMENT WITH OBJECT
ORIENTED APPROACH LABORATORY**

Teaching Scheme : 02 P Total 02 Credit : 01
Evaluation Scheme : 25 Internal + 25 External Total Marks : 50

The sample list of programs is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1. Draw one or more Use Case diagrams for capturing and representing requirements of the system. Use case diagrams must include template showing description and steps of the Use Case for various scenarios.
2. Draw one or more Package diagram to organize and manage your large and complex systems as well as their complex models.
3. Draw activity diagrams to display either business flows or like flow charts.
4. Draw basic class diagrams to identify and describe key concepts like classes, types in your system and their relationships.
5. Draw advanced class diagrams to depict advanced relationships, other classifiers like interfaces.
6. Draw sequence diagrams OR communication diagrams with advanced notation for your system to show objects and their message exchanges.
7. Draw state machine to model the behavior of a single object, specifying the sequence of events that an object goes through during its lifetime in response to events.
8. Draw component diagrams assuming that you will build your system reusing existing components along with a few new ones.
9. Draw deployment diagrams to model the runtime architecture of your system.

IT808 PROJECT AND SEMINAR

Teaching Scheme : 08 P Total 08 Credit : 08
Evaluation Scheme : 100 Internal + 100 External Total Marks : 200

1. In continuation with the work completed in VIIth semester, student shall complete the implementation of ideas given in synopsis, so that working model of project shall be complete before the end of semester.
2. Students shall submit final project report in proper format which shall include the work completed in VIIth semester also.
3. HOD shall design an evaluation system to evaluate the progress of project work.



4. Final examination of project shall include demonstration of working model, presentation by student and oral examination based on total project work. Project work shall be assessed by guide and one external examiner.