GOVT. COLLEGE OF ENGINEERING, AMRAVATI

B. TECH. (Computer Science & Engineering)
VII and VIII Semester
CURRICULUM

Department of Computer Science & Engineering
2009-10

Approved in Academic Board (Senate) meeting held on 22-05-09

COMPUTER SCIENCE& ENGINEERING DEPARTMENT

SCHEME FOR B.Tech. Computer Science & Engineering

Course Code	Name of the Course	Teaching Scheme				Evaluation Scheme							Credits
						Theory				Practical		Total	
		Theory Hrs /week	Tutorial Hrs/week	Practical Hrs/week	Total	TA	CT1	CT2	ESE	Internal	External		
Semester- I													
FE101	Engineering Mathematics-I	4	0	1	5	10	15	15	60	---	---	100	5
FE102	Applied Physics-I	2	-	1	3	4	8	8	30	---	---	50	3
FE103	Applied Chemistry-I	2	-	-	2	4	8	8	30	---	---	50	2
FE104	Computer Science	4	-	1	5	10	15	15	60	---	---	100	5
FE105	Engineering Mechanics	4	-	1	5	10	15	15	60	---	---	100	5
FE106	Workshop Practice-I	-	2	-	2	-	-	-	-	25	25	50	1
FE107	Applied Physics-I Lab	-	2	-	2	-	-	-	-	15	10	25	1
FE108	Applied Chemistry-I Lab	-	2	-	2	-	-	-	-	15	10	25	1
FE109	Computer Science Lab	-	2	-	2	-	-	-	-	25	25	50	1
FE110	Engineering Mechanics Lab	-	2	-	2	-	-	-	-	25	25	50	1
FE111	EVS I	2	-	-	2	-	-		-	-	-	-	-
	TOTAL	**18**	**10**	**4**	**32**	**38**	**61**	**61**	**240**	**105**	**95**	**600**	**25**
Semester- II													
FE201	Engineering Mathematics-II	4	0	1	5	10	15	15	60	---	---	100	5
FE202	Applied Physics-II	2	-	1	3	4	8	8	30	---	---	50	3
FE203	Applied Chemistry-II	2	-	-	2	4	8	8	30	---	---	50	2
FE204	Engineering Graphics	4	-	1	5	10	15	15	60	---	---	100	5
FE205	Electrical Engineering	4	-	1	5	10	15	15	60	---	---	100	5
FE206	Workshop Practice-II	-	2	-	2	-	-	-	-	25	25	50	1
FE207	Applied Physics-II Lab	-	2	-	2	-	-	-	-	15	10	25	1
FE208	Applied Chemistry-II Lab	-	2	-	2	-	-	-	-	15	10	25	1
FE209	Engineering Graphics Lab	-	2	-	2	-	-	-	-	25	25	50	1
FE210	Electrical Engineering Lab	-	2	-	2	-	-	-	-	25	25	50	1
FE211	EVS II	2	-	-	2	-	-	-	100	-	-	100	-
	TOTAL	**18**	**10**	**4**	**32**	**38**	**61**	**61**	**340**	**105**	**95**	**700**	**25**

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Semester- III													
CS301	Engineering Mathematics-III	4	1	---	5	10	15	15	60	---	---	100	5
CS302	Discrete Mathematics and Graph Theory	4	1	---	5	10	15	15	60	---	---	100	5
CS303	Programming Methodology	4	---	---	4	10	15	15	60	---	---	100	4
CS304	Electronic Devices and Circuits	4	---	---	4	10	15	15	60	---	---	100	4
CS305	Computer Organization and Architecture	4	---	---	4	10	15	15	60	---	---	100	4
CS306	Programming Methodology laboratory	---	---	2	2	---	---	---	---	25	25	50	1
CS307	Electronic Devices and Circuits laboratory	---	---	2	2	---	---	---	---	25	25	50	1
CS308	Computer Organization and Architecture laboratory	---	---	2	2	---	---	---	---	25	25	50	1
CS309	Computer laboratory-I	---	---	4	4	---	---	---	---	50	50	100	2
Total		**20**	**2**	**10**	**32**	**50**	**75**	**75**	**300**	**125**	**125**	**750**	27
Semester- IV													
CS401	Data structure	5	--	--	5	10	15	15	60			100	5
CS402	Object Oriented Technology	4	--	--	4	10	15	15	60			100	4
CS403	Principle Of Management	4	--	--	4	10	15	15	60			100	4
CS404	Numerical Method and Computer Programming	4	1	--	5	10	15	15	60			100	4
CS405	Analog and Digital IC's	4	--	--	4	10	15	15	60			100	4
CS406	Data structure laboratory	--	--	2	2					25	25	50	1
CS407	Object Oriented Technology laboratory	--	--	2	2					25	25	50	1
CS408	Analog and Digital IC's laboratory	--	--	2	2					25	25	50	1
CS409	Computer laboratory-II	--	--	2	2					25	25	50	1
CS410	General Proficiency-I	--	--	2	2					50	--	50	2
Total		**21**	**1**	**10**	**32**	**50**	**75**	**75**	**300**	**150**	**100**	**750**	**27**

Semester- V													
CS501	System Analysis and Design	4			4	10	15	15	60			100	4
CS502	Data Communication	4			4	10	15	15	60			100	4
CS503	Theory of Computation	4	1		5	10	15	15	60			100	5
CS504	Database Management System	4			4	10	15	15	60			100	4
CS505	System Software	4			4	10	15	15	60			100	4
CS506	System Analysis and Design laboratory			2	2					25	25	50	1
CS507	Data Communication laboratory			2	2					25	25	50	1
CS508	Database Management System laboratory			2	2					25	25	50	1
CS509	System Software laboratory			2	2					25	25	50	1
CS510	General Proficiency-II			2	2					25	25	50	2
Total		**20**	**1**	**10**	**31**	**50**	**75**	**75**	**300**	**125**	**125**	**750**	**27**
Semester-VI													
CS601	Software Project Management	4			4	10	15	15	60	-	-	100	4
CS602	Computer Network	4	1		5	10	15	15	60	-	-	100	5
CS603	Design and Analysis of Algorithms	4			4	10	15	15	60	-	-	100	4
CS604	Switching Theory and Logic Design	4			4	10	15	15	60	-	-	100	4
CS605	Operating System Design	4	1		5	10	15	15	60	-	-	100	5
CS606	Design and Analysis of Algorithms laboratory			2	2					25	25	50	1
CS607	Switching Theory and Logic Design Laboratory			2	2					25	25	50	1
CS608	Operating System Design laboratory			2	2					25	25	50	1
CS609	Minor Project			2	2					50	50	100	2
Total		**20**	**2**	**8**	**30**	**50**	**75**	**75**	**300**	**125**	**125**	**750**	**27**

Semester- VII													
CS701	Computer Graphics	4			4	10	15	15	60			100	4
CS702	Microprocessor and Interfacing	4			4	10	15	15	60			100	4
CS703	Artificial Intelligence	4			4	10	15	15	60			100	4
CS704	Internet Technology	4			4	10	15	15	60			100	4
CS705	Elective –I	4			4	10	15	15	60			100	4
CS706	Computer Graphics laboratory			2	2					25	25	50	1
CS707	Microprocessor and Interfacing laboratory			2	2					25	25	50	1
CS708	Elective –I laboratory			2	2					25	25	50	1
CS709	Project and Seminar			6	6					50	50	100	4
Total		**20**		**12**	**32**	**50**	**75**	**75**	**300**	**125**	**125**	**750**	**27**
Semester- VIII													
CS801	Operation Research and Planning Management	4			4	10	15	15	60			100	4
CS802	Digital Signal Processing	4			4	10	15	15	60			100	4
CS803	Elective -II	4			4	10	15	15	60			100	4
CS804	Elective-III	4			4	10	15	15	60			100	4
CS805	Operation Research and Planning Management Laboratory			2	2					25	25	50	1
CS806	Digital Signal Processing laboratory			2	2					25	25	50	1
CS807	Elective –II laboratory			2	2					25	25	50	1
CS808	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 (CS705)	**Elective II (CS803)**	**Elective III(CS804)**
Advanced Computer Architecture	Modeling and Simulation	Distributed Operating System s
Multimedia Technology	Parallel Computing	Natural Language Processing
Embedded System	Advanced Database Management System	Robotics

CS701 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.

An Overview of 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, and bundled attributes, anti aliasing.

2-D Geometric Transformations: Basic and composite transformations, matrix representations, 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, and 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.
5. Computer Graphics, Hamington, 2nd edition, (McGraw Hill).2001.

CS702 MICROPROCESSOR AND INTERFACING

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.

8086: Pin configuration, Physical memory organization, general bus organization, I/O Addressing, 8086 minimum mode system & timings, 8086 maximum mode system & Timings, Memory interfacing, DRAM Controller 8203.

I/O Interfacing: Methods of I/O interfacing. 8255 PPI**:** Pin configuration, internal organization, Modes of operation, interfacing with 8086**.**

Programmable Interrupt Controller 8259: Pin Configuration, various control & command words and internal organization, modes of operation, interfacing with 8086.

USART 8251: Pin configuration, internal organization, control word formats for synchronous & Asynchronous modes of operation.

DMA controller 8237: pin configuration, internal organization, modes of operation and 8237 interfacing with 8086.

ADC 0800 /0809: working, interfacing with 8086.

DAC 0800/0808: working, interfacing with 8086.

Programmable Timer/counter 8254: Pin configuration, internal organization, all the modes of Operation, 8254 interfacing with 8086**.**

Bus controller 8288: Architecture, operation and interfacing with 8086.

8289 bus arbiter: Architecture, operation and interfacing with 8086.

Coprocessor Configuration: Synchronization between 8086,Coprocessor Loosely coupled and closely coupled configuration, ESC prefixes, system bus mode, LOCK prefix, priority resolution, NDP architecture.

Protected mode operation: Introduction to protected mode operation, segmentation, segment descriptors, selectors, Protection, protecting segmented access, page level protection, TSS descriptors task switching, virtual 8086 mode.

Text Book:

1. Advanced Microprocessor and Peripherals, A.K.Ray and K.M.Bhurchandi,2nd edition, Tata McGraw-Hill publishing Company Limited,2000.
2. The Pentium Processor, James Antonokos, 2nd edition, Pearson Education,1995.

References Books:

1. Intel Microprocessors, Bray B, 4th Edition, PHI Publication, 1997.
2. Intel Processors: Programming, Interfacing & Applications, Walter A. Triebel, and Avtar Singh, 3rd Edition, Prentice-Hall Publication, 2000.
3. Microprocessors Systems: The 8086/8088 Family, Liu & Gibson,2nd Edition, Prentice-Hall Publication, 1986
4. 8086/8088 Families: Designing, Programming and Interfacing , John P Uffenbeck, 3rd Edition, Prentice-Hall Publication, 2001.

CS703 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.

Introduction to Artificial Intelligence: Introduction, Intelligent Agents.

Problem-Solving: Solving Problems by Searching, Informed Search Methods, Game Playing.

Knowledge and Reasoning: Agents that reason logically, first order logic, building a knowledge base, inference in first order logic, logical reasoning systems.

Planning: Practical Planning, Planning and Acting.

Uncertain Knowledge and Reasoning: Uncertainty, Probabilistic Reasoning Systems, Making Simple Decisions, Making Complex Decisions.

Text Book:

1. Artificial Intelligence: A Modern Approach, S. Russel and P. Norvig, 2nd edition Pearson Education, Asia, 1995.

Reference Books :

1. Artificial Intelligence,P.H.Winston,2nd Edition ,Addison-Wesley Publication Company, 1984.
2. Introduction to Artificial Intelligence & Expert Systems, Dan W. Patterson,4th Edition, Prentice Hall Of India,1999
3. Artificial Intelligence: A New Synthesis: Nils J. Nilsson,1st edition, Morgan Kaufmann Publishers,1998.
4. Artificial Intelligence, E.Rich, K.K.Knight, 2nd edition, Tata McGraw Hill, New Delhi,1991.

CS704 INTERNET 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.

Servlets in Java: Introduction, Servlet structure & lifecycle, Servlet API basics, various classes & interfaces, Servlet requirements & writing, Running and debugging of Servlets, Servlet Debug Class.

HTTP Redirects & Servlet API: Concepts of cookies, Servlets & cookies, State and session management with Servlet API, Server side includes and request forwarding, Servlet chaining, Jdbc Servlet.

Introduction to XML: Writing XML, creating a DTD, elements & attitudes definitions, XML schema, Defining simple & complex types, Namespaces, schemas and validation.

Cascading Style Sheets (CSS) L & XML: Anatomy of a style, creating and calling stylesheets for an XML/HTML document, Layout with CSS, setting up various properties of elements using CSS, Formatting Text with CSS.

Introduction to JSP: Simple JSP & concepts, Request-time expressions, Concept of Beans, Bean instances & serialization.

Advanced JSPs: JSP tag library, Scripts, conditionals, loops, Try/Catch.

Beans & Scriplets: Bean Scopes, Writing Beans, Jdbc & Beans, E-commerce concepts, Using Scopes from Servlets, Using Beans from servlets,JSP classes, JSPs and XML.

Text Book:

1. Professional JAVA Server Programming, Allamaraju & LongShaw, 2nd Edition, Wrox Publication, 2008.
2. Core Servlets & Java Server Pages, Hall & Brown, 2nd Edition, Prentice Hall, 2008.

Reference Books:

1. Web Technologies, Godbole & Kahate, 2nd Edition, Tata Mc-Graw Hill, 2008
2. Internet & world wide web, Deitel & Nieto, 1st Edition, Pearson Education Publication, 2000.

CS705 ELECTIVE - I
A) ADVANCED COMPUTER ARCHITECTURE

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.

Fundamentals: Technology & Computer usage trends, costs, Performance measurements, Quantitative principles of Computer design, Concepts of memory hierarchy, Instruction set architectures, Memory addressing, Operations in the instruction set, Encoding, Role of compilers, DLX architecture.

Pipelining: Basic principles & DLX. Various hazards: Pipelines, data, control hazards, Implementation issues, Multicycle operations, Crosscutting issues, Instruction set design and pipelining, MIPS R4000 pipeline architecture.

Advanced Pipeline And Instruction-Level Parallelism: Concepts & challenges, Data hazards & dynamic scheduling, Dynamic Hardware prediction, Compiler support for ILP, Hardware support for parallelism, Studies of ILP, Power PC620.

Memory-Hierarchy Design: Basics of caches, reducing cache miss & hit time, Main memory, Virtual memory, Protections Examples of virtual memory, Issues in the design of memory hierarchies, Alpha APX 21064 Memory hierarchy.

Interconnection Networks: Introduction & basic concepts, Computer connection to interconnection network, Interconnection network media, Practical issues, Examples of interconnection networks, Issues for interconnection networks, Internet working, An ATM network of workstation.

Text Book :

1. Computer Architecture : A Quantitative Approach,Hennessy J.L. & Patterson D,4th Edition, Harcourt Asia, 2007.

Reference Book:

1. Advanced Computer Architecture & Parallel Programming, Hwang K,3rd Edition, McGraw Hill,1998.

2.Computer Organization,Hamacher V.C,5th Edition,McGraw Hill,2001.

CS705 ELECTIVE - I
B) 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 Concept,VR 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 Nahrstedt, 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 Edition,AP Professionals, 2002.

2. VRML Programmer's Library, Kris Jama, Phil Schmauder, Nelson Yee, 1st Edition,Galgotia Publication,1997.

CS705 ELECTIVE - I
C) EMBEDDED SYSTEMS

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 and 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 and 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, 1st edition,Tata McGraw Hill, 2003

Reference Books:

1. Real Time Systems, Jane W. S. Liu, 3rd Pearson Education, 2004
2. Embedded System Design: A Unified Hardware/Software Introduction, Frank Vahid, Tony Givargis, 1st Edition, John Wiley & Sons publication, 2002.

CS 706 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.

CS707 MICROPROCESSOR AND INTERFACING LABORATORY

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

Minimum Eight Experiments 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. 8086 minimum mode and maximum mode.
2. Methods of I/O interfacing.
3. 8255 interfacing with 8086.
4. 8251 interfacing with 8086.
5. 8237 interfacing with 8086.
6. 8254 interfacing with 8086.

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7. ADC 0800/0809.
8. DAC 0800/0808.

CS708 ELECTIVE - I
A) ADVANCED COMPUTER ARCHITECTURE LABORATORY

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

Minimum eight programs shall be performed from the list given below.

1. Given a set of numbers, count number of zeros, number of positive numbers and
2. number of negative numbers.
3. Transferring contents of an array from one location to another location.
4. To Study Advanced pipeline and instruction - level parallelism
5. Implement Booth's multiplication algorithm.
6. Implement BCD arithmetic using ordinary ADD instruction.
7. A pair of 32-bit numbers is stored in group of four consecutive memory locations, the memory locations with the lowest memory address in each group contains the least significant byte. Write a program to add the numbers. If a carry is generated store it in a specific location.
8. Sort a given set of numbers in ascending order.
9. To Study Interconnection Networks.

CS708 ELECTIVE - I
B) 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.

CS708 ELECTIVE - I
C) EMBEDDED SYSTEM LABORATORY

Teaching Scheme : 02 P Total 02 **Credit : 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. Instantiation of the expanded NIOS II System
3. Study of Development Education Board
4. A Simple Computer System
5. Program Controlled Input Output
6. Subroutines and Stacks
7. Polling and Interrupts
8. Bus Communication

CS709 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

CS801 OPERATION RESEARCH AND PLANNING MANAGEMENT

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.

Operation Research (OR) modeling approach: Problem identification, modeling, finding solution, testing etc., scope and limitations of OR.

Linear Programming (LP): Assumption and formulation of LP model, solution by graphical method, simplex and two phase simplex method, use of Excel to solve LP model, dual simplex method and sensitivity analysis, transportation and assignment models.

Project Management: CPM and PERT, finding critical path, time-cost trade off,

Resource smoothing and resource leveling.

Dynamic Programming: Introduction and characteristics, recursion in dynamic programming, investment problem, production scheduling problem, stage coach problem, equipment replacement, budget allocation problem, shortest route models and cargo loading.

Non-Linear Programming: Introduction, types, constrained and unconstrained optimization method, one variable and multivariable, steepest descent method, quadratic programming.

Decision Theory and Game Theory: Introduction,minmax decision procedure,Bays decision procedure with and without data,regret function versus loss function,minmax and maxmin strategies,expected payoffs,solution of m × n games,Brown algorithm.

Machine Sequencing Problems: n jobs through two machines,n jobs through three machines,n jobs through m machines,two jobs through m machines sequencing problem.

Text Books

1. Introduction to Operation Research, B. E. Gillet,1st Edition, McGraw-Hill,1996.
2. Introduction to Operation Research, Concepts and Cases,Hillier and Liberman, 8th Edition,McGraw-Hill,2004.

Reference Books

1. Operation Research, Tiwari and Shandilya,1st Edition, Prentice Hall of India,2006.
2. Introduction to Optimization,S. S. Rao, 3rd Edition, Prentice Hall of India,2005.
3. Computer Aided Project Management, P. B. Mahapatra,2nd Edition, Prentice Hall of India,2004.
4. Operation Research, Natrajan, 8thEdition, Balsubramani, Pearson Education,2008.

CS802 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 causal , 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, 3rd Edition, Pearson Education Pvt .Ltd, 1996

Reference Books:

1. Digital Signal Processing: A Computer-Based Approach by S K Mitra, 3rd Edition Tata McGraw Hill Publish Co. Ltd., 2001.
2. Digital Signal Processing a Practical Approach, E C Ifeacthor 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.

CS 803 ELECTIVE - II
A) MODELING AND SIMULATION

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.

System Models and System studies: Basic concepts of systems and system modeling, static and dynamic, physical and mathematical models, principles used in modeling. Corporate models: analysis, design and postulation of system.

Basic Concepts and continuous system: Techniques used, distributed log models and cobweb models, continuous system Model, Analytical equations and methods of obtaining solutions, analog, hybrid computers and simulations, CSSLS examples of different continuous system, System dynamics, probability concepts and basic principles of discrete simulation, Growth and decay models, and system dynamics diagrams, stochastic Process, probability functions and their evaluation, random number generation, rejection method, comparison of Monte-Carlo method and stochastic simulation-examples.

Simulation of Queuing System and PERT Network: Simulation of Queuing system, Rudiments of queuing theory, simulation of a single server queue, simulation of a two server queue, simulation of more general queues.

Simulation of a PERT Network: Network model of a project, Analysis of an activity network, critical path, Simulation of Inventory Control & Forecasting.

Simulation Experiments Inventory Control and Forecasting: Elements of inventory theory, more Complex inventory models, simulation example-1, Generation of Poison and Erlanger variates, Simulation example-2, Forecasting and regression Analysis. Design and Evaluation of simulation Experiments: Length of Simulation runs, variance reduction techniques, Experimental layout, Validation, summary and conclusion.

Simulation of Languages and Introduction to GPSS: Different special purpose languages used for continuous and discrete systems and comparison, factors affecting the selection of discrete system, simulation languages-comparison of GPSS and SIMSCRIPT, detailed study of GPSS with examples.

Text Books:

1. System Simulation, Groffrey Gordon,2nd Edition, PHI Pvt.Ltd., New Delhi- 1987.

2. System Simulation with Digital Computers, Narsingh Deo,1st edition PHI Pvt.Ltd.,NewDelhi,2005.

Reference Books:

1.System Simulation:The Art of Science, Shannon R.E.,1st edition, Prentice Hall, Englewood Cliffs, NY, 1975.

2.Computer Simulation,Hugh j. Wston, John H.Blackstone, Jr., 2nd Edition, John Wiley & Sons, 2000.

CS803 ELECTIVE - II
B) PARALLEL 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.

Scalability and Clustering: Evolution of Computer Architecture, Dimensions of Scalability, Parallel Computer Models, Basic Concepts Of Clustering, Scalable Design Principles, Parallel Programming Overview, Processes, Tasks and Threads, Parallelism Issues, Interaction / Communication Issues, Semantic Issues in Parallel Programs.

Enabling Technologies: System Development Trends, Principles of Processor Design, Microprocessor Architecture Families, Hierarchical Memory Technology, Cache Coherence Protocols, Shared Memory Consistency, Distributed Cache Memory Architecture, Latency Tolerance Techniques, Multithreaded Latency Hiding.

System Interconnects: Basics of Interconnection Networks, Network Topologies and Properties, Buses, Crossbar and Multistage Switches, Software Multithreading, Synchronization mechanisms.

Parallel Programming: Paradigms and Programmability, Parallel Programming Models, Shared Memory Programming.

Message Passing Programming: Message Passing Paradigm, Message Passing Interface , Parallel Virtual Machine.

Text Book:

1. Introduction to Parallel Computing, Ananth Grama, Anshul Gupta, George Karypis, Vipin Kumar, 2nd Edition, Addison Wesley,2003.

Reference Books:

1. The Sourcebook of Parallel Computing, Jack Dongarra, Geoffrey Fox, Ken Kennedy, Linda Torczon, William Gropp, 1st Edition , Berkeley Publication,2003.

2. Introduction to Parallel Algorithms and Architectures: Arrays, Trees, Hypercubes, F. T. Leighton, 1st Edition, Morgan Kaufmann Publishers, CA 1992.

3. Analysis and Design of Parallel Algorithms, Laxmivarahn and Dahl, 1st Edition, McGraw Hill. 1990

CS 803 ELECTIVE - II
C) ADVANCED DATABASE MANAGEMENT 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.

SQL: Use Of SQL, DDL Statements, DML Statements, View Definitions, Constraints, Triggers Keys and Foreign Keys, Constraints on Attributes and Tuples, Modification of Constraints Cursors, Dynamic SQL.

Query Execution: Introduction to Physical-Query-Plan Operators, One-Pass and Two-pass algorithms, Nested-Loop Joins, Index-Based Algorithms, Buffer Management, Parallel Algorithms for Relational Operations, Using Heuristics in Query Optimization, Basic Algorithms for Executing Query Operations.

Query Complier: Parsing, Algebraic Laws for Improving Query Plans, From Parse Trees to Logical Query Plans, Estimating the Cost of Operations, Cost-Based Plan Selection, Completing the Physical-Query-Plan, Coping With System Failures, Issues and Models for Resilient Operation, Redo Logging, Undo/Redo Logging, Protecting Against Media Failures.

Concurrency Control: Serializability, Enforcing Serializability by Locks, Locking Systems With Several Lock Modes, Architecture for a Locking Scheduler Managing Hierarchies of Database Elements, Concurrency Control.

Transaction Management: Introduction of Transaction management, Serializability and Recoverability, View Serializability, Resolving Deadlocks, Distributed Databases, Distributed Commit, Distributed Locking.

Database System Architecture: Centralized and Client-Server Architectures, Server System Architectures, Parallel Systems, Distributed Systems, Network Types.

Distributed Database: Homogeneous And Heterogeneous Database, Distributed Data Storage, Distributed Transaction, Commit Protocols, Concurrency Control in Distributed Databases, Availability, Heterogeneous.

Text Books:

1) Database Management Systems, Raghu Ramakrishnan/Johannes Gehrke,3rd edition, Tata Mc Graw Hill, 2007.

Reference Books:

2) Database System Concepts, Silber Schatz. Korth, 3rd edition, Tata Mc Graw Hill, 1997.
3) Fundamental of DataBase System, ShamKanth B. Navathe, 5th Edition, Pearson Education, 2006.

CS 804 ELECTIVE - III
A) DISTRIBUTED OPERATING 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: Characteristics of Distributed Systems, Applications. Challenges Models: Architectural Models, Fundamental Models, Interaction Model, Failure Model and Security Model.

Programming in Distributed Systems: Sockets and socket programming, RPC, Distributed Objects, Event Notification.

Distributed File Systems: Design Issues and Case Studies of NFS, AFS, RFS.

Timing Issues: Clock Synchronization, Lamport's Logical Clocks, Vector Clocks, Ordered Broadcast, Global State Collection, and Termination Detection.

Coordination and Agreement: Leader Election, Distributed Mutual Exclusion, Byzantine Agreement Problem.

Distributed Deadlock Detection: Edge Chasing, Diffusion Computation and Hierarchical Algorithms.

Recovery: Synchronous and Asynchronous Check pointing and Recovery.

Fault Tolerance: Commit protocols, Voting techniques, static and dynamic voting protocols.

Text Book:

1. Advanced Concepts in Operating Systems – M. Singhal and N. Shivaratri, 1st Edition,Tata McGraw Hill Publications,1994.

Reference Books:

1. Distributed Systems – Concepts and Design, Coulouoris, Dollimore and Kindberg,4th Edition, Pearson Education Asia,2004.
2. Distributed Systems – A.S. Tanenbaum, 2nd Edition. Pearson Education Asia,2002.

CS 804 ELECTIVE - III
B) NATURAL LANGUAGE 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: Brief history of NLP research, current applications, generic NLP system architecture, knowledge-based versus probabilistic approaches.
Finite-state techniques: Inflectional and derivational morphology, finite-state automata in NLP, finite-state transducers.
Prediction And Part-Of-Speech Tagging: Corpora, simple N-grams, word prediction, stochastic tagging, evaluating system performance.
Parsing and generation: Generative grammar, context-free grammars, parsing and generation with context-free grammars, weights and probabilities.
Parsing with constraint-based grammars: Constraint-based grammar, unification.
Compositional and lexical semantics: Simple compositional semantics in constraint-based grammar, Semantic relations, Word Net, word senses, word sense disambiguation.
Discourse and dialogue: Anaphora resolution, discourse relations.
Applications: Machine translation, email response, spoken dialogue systems.

Text Book:

1) ***Speech and language processing,*** Jurafsky, D. & Martin, J. , 2nd Edition, Prentice Hall, 2000.

Reference Book:

1) Foundations of Statistical Natural Language Processing, Christopher D. Manning and Hinrich Schutze,2nd edition, IT Press, 1999.

CS 804 ELECTIVE - III
C) ROBOTICS

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.

Robot Fundamentals: Definitions, History of robots, present and future trends in robotics, Robot classifications, Robot configurations, Point to Point robots, Continuous Path robots, Work volume, Issues in design and controlling robots Repeatability, Control resolution, spatial resolution, Precision, Accuracy, Robot configurations, Point to Point robots, Continuous Path robots, Work volume, Applications of robots. Drives used in robots: Hydraulic, Pneumatic and Electric drives, Comparison of drive systems and their relative merits and demerits.
Manipulator Kinematics: Matrix Algebra, Inverse of matrices, rotational groups, matrix representations of coordinate transformation, transformation about reference frame and moving frame Forward & Inverse Kinematics examples of 2R, 3R & 3P manipulators, Specifying position and orientation of rigid bodies, Euler's angle and fixed rotation for specifying position and orientation, Homogeneous coordinate transformation and examples, D-H representation of kinematics linkages, Forward kinematics of 6R manipulators using D-H representations, Inverse kinematics of 6R manipulators using D-H representations, Inverse Kinematics geometric and algebraic methods.
Robotics Dynamics : Velocity Kinematics, Acceleration of rigid body, mass distribution Newton's equation, Euler's equation, Iterative Newton –Euler's dynamic formulation,

closed dynamic, Lagrangian formulation of manipulator dynamics, dynamic simulation, computationalconsideration.

Trajectory planning: Introduction, general considerations in path description and generation, joint space schemes, Cartesian space schemes, path generation in runtime, planning path using dynamic model point to point and continuous trajectory , 4-3-4 & trapezioidal velocity strategy for robots.

Robot Sensors: Internal and external sensors, position- potentiometric, optical sensors ,encoders - absolute, incremental ,touch and slip sensors velocity and acceleration sensors, proximity sensors, force & torque sensors, laser range finder, camera, Micro-controllers, DSP, centralized controllers, real time operating systems.

Robot Controllers: Essential components-Drive for Hydraulic and Pneumatic actuators, H-bridge drives for DC motor Overload over current and stall detection methods, example of a micro-controller/ microprocessor based robot Controller.

Robot Programming languages: Introduction the three level of robot programming, requirements of a robot programming language, problems peculiar to robot programming languages.

TextBook:

1) Robotics Technology and Flexible Automation, S.R.Deb,1st edition, Tata Mc Graw Hill,1994.

2) Industrial Robotics (Technology, Programming and application s) , M.P.Groover, M. Weiss R.N. Nagel, N.G. Odrey,1st edition, McGraw, Hill 1996

Reference Book:

1) Robotics : Control , sensors , vision and intelligence ,K.S.Fu, R.C.Gonzalez and C.S.G.Lee, 1st edition, McGraw-Hill.1987.

2) Introduction to Robotics , J.J.Craig , 2nd edition, Addision-wesely 1989.

CS805 OPERATION RESEARCH AND PLANNING MANAGEMENT LABORATORY

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

Minimum eight programs shall be performed from the list given below.

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. Two Machine sequencing.
2. Three machine sequencing.
3. Travelling salesman problem.
4. Investment problem.
5. Linear programming.
6. Dual simplex.
7. Two phase simplex.

8. Transportation problem.
9. Critical path method/ programme evaluation review technique.
10. Inventory model (deterministic/probabilistic).

Note: Practical may be performed with any computer programming language, following languages/ packages are suggested MATLAB/C/C++.

CS806 DIGITAL SIGNAL PROCESSING 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. Operation on Sinusoidal Sequence.
2. Operation on DTS.
3. Scaling Operation on DTS.
4. Shifting Operation on DTS.
5. Folding Operation on DTS.
6. Linear Convolution.
7. DFT Computation.
8. Magnitude and Phase Spectrum.
9. Poles and Zero's of Z Transform.
10. FFT Computation.

CS 807 ELECTIVE - II
A) MODELING AND SIMULATION 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) simulation of dynamics of continuous systems.

2) Simulation of discrete systems.

3) Evaluation of random number generation-rejection method.

4) Monte Carlo simulation.

5) Implementation of stochastic simulation algorithm.

6) Simulation of Queuing System and PERT Network.
7) Simulation of a two server queue.
8) Simulation of Inventory Control & Forecasting.
9) Simulation of Languages and Introduction to GPSS.
10) Evaluation and improvement of variance reduction in Monte-Carlo production simulation.

CS807 ELECTIVE - II
B) PARALLEL COMPUTING 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.

The following programs should be developed in 'C' language preferably on 'UNIX' platform.

Programs (3-7) require usage of Parallel Computing APIs.

1. Implement three POSIX Threads (PThreads) simultaneously for updating a text file.
2. .Implement synchronizing POSIX Threads (PThreads) using (a) Semaphore (b)Mutex.
3. Implement the PRAM Algorithm for (a) Parallel Reduction (b) Prefix Sums (c) Preorder Tree Traversal.
4. Implement Parallel Matrix Multiplication using (a) Row-Column oriented Algorithm (b) Block-Oriented Algorithm.
5. Implement Solution of Linear Systems using (a) Gaussian Elimination (b) Jacobi Algorithm.
6. Implement (a) Parallel Quick Sort (b) Hyper Quicksort.
7. Implement Parallel Fast Fourier Transform Algorithm.

CS807 ELECTIVE - II
C) ADVANCED DATABASE MANAGEMENT SYSTEM LABORATORY

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

Minimum Twelve Experiments to be performed from following List of Experiment.

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. Login in to your own accounts

2. Execute: select table_name from user_tables; (to list the tables which are in your account).
3. Execute*:* select table_ name from all tables*;* (to list the tables to which you have access to).
4. Display the system date. Note the format in which it is displayed.
5. Display the date in Month/Day/YYYY format.
6. Load the above script (downloaded in 5th task) into your account and execute it.
7. Execute: *select* table_name from user_tables;
8. Enter one complete record into the LOCATION table.
9. Enter another record into the LOCATION table, but the value for one of the fields should be null.
10. Enter a record for three columns into FACULTY table, but this entry should be of the primary key, first and last name.
11. Enter one complete record into the COURSE table.
12. List all the entries of the COURSE table.
13. Commit your entries for the COURSE table.
14. Enter another complete record into the COURSE table.
15. List all the entries of the COURSE table.
16. Roll back your entries for the COURSE table.
17. List all the entries of the COURSE table. Check for the difference in this listing than that of the listing done in 11th task.
18. Load the above script (downloaded in 16th task) into your account and execute it.
19. Execute: select table_name from user_tables*;*
20. List all the information of the student called Tammy Jones.
21. List only those students which are not in senior class (SR) but students from every other class.
22. List student id, student's full name (concatenate first and last name and display heading as STUDENT'S NAME) along with the similar details of advisor. Advisor's first and last name should be concatenated and displayed as ADVISOR'S NAME.
23. List those students whose first name begins with 'J'.
24. List those students whose last name ends with 'N' or the second last letter is 'T' in their last name.
25. List those faculty members who have 'L' as the third last letter in their last name.
26. List the students in order of their zip codes.
27. List only those students who are staying beyond zip code 32500.
28. Count the total number of students who are staying within zip code 32500.
29. List only those students whose birthday falls in the months August or November.

CS808 PROJECT AND SEMINAR

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

1. In continuation with the work completed in VII th 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 VII th 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 accessed by guide and one external examiner.