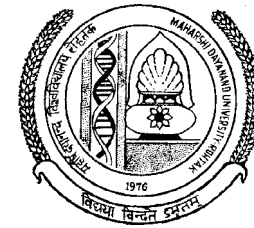# Maharshi Dayanand University
Rohtak

Syllabus and Courses of
Reading for
B.E. Information Technology
Examination

Session 2010-2011

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Rohtak-124 001 (Haryana)

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MAHARSHI DAYANAND UNIVERSITY, ROHTAK
SCHEME OF STUDIES & EXAMINATION
B.E IN Information Technology
SEMESTER - VII
Modified 'E' Scheme effective from (2010-11)

Course No.	Subject	Teaching Schedule				Marks of Class Work	Examination		Total Marks	Duration of Exam (in hrs.)
		L	T	P	Total		Theory	Practical		
IT-401 E	Data Warehousing & Data Mining	3	1	-	4	50	100	-	150	3
CSE-403 E	Software Project Management (CSE,IT)	3	1	-	4	50	-	-	150	3
IT-403 E	System & Network Administration	3	1	-	4	50	100	-	150	3
IT-405 E	Introduction to E-Commence & ERP	3	1	-	4	50	100	-	150	3
	* OPEN ELECTIVES	4	-	-	4	50	100	-	150	3
IT-407-E	System & Network Administration Lab.	-	-	3	3	25	-	50	75	3
CSE-409-E	Visual Programming Lab. (CSE,IT)	-	-	2	2	25	-	50	75	3
IT-409-E	Project	-	-	4	4	50	-	-	50	3
IT-411-E	Practical Training-II	-	-	2	2	-	-	-	-	
	Total	16	4	11	31	350	500	100	950	

LIST OF OPEN ELECTIVES

1. HUM-451-E Language skills for Engineers
2. HUM-453-E Human Resource Management
3. HUM-457-E Business Communication
4. HUM-455-E Entrepreneurship
5. PHY-451-E Nano Technology
6. PHY-453-E Laser Technology
7. ME-451-E Mechatronics Systems
8. CSE-451-E Artificial Intelligence & Expert Systems
9. CSE-303-E Computer Graphics
10. IC-455-E Inteligent Instrumentation for Engineers
11. IC-403-E Embedded Systems Design
12. CH-453-E Pollution Control
13. IT-471-E Management Information System
14. IT-204-E Multimedia Technologies

Note :

1. Students will be allowed to use non-programmable scientific calculator. However, sharing of calculator will not be permitted in the examination.

2. *Students will be permitted to opt. for any elective run by the other departments. However, the departments will offer only those electives for which they have expertise. The choice of the students to any elective shall not be a binding for the department to offer, if the department does not have sufficient faculty strength..

3. Assessement of Practical Training-II, carried out at the end of VI semester, will be based on seminar, viva-voce and project report of the student from the industry. According to performance, letter Grades A, B, C, F are to be awarded. A student who is awarded 'F' grade is required to repeat Practical Training.

4. Project load will be treated as 2 hrs. per week for Project co-ordinator and 1 hr. for each participating teacher. Project will commence in VIIth semester where the students will identify the Project problem, complete the design/ procure the material/ start the fabrication/ complete the survey etc., depending upon the nature of the problem. Project will continue in VIII semester.

IT- 401 E   DATA WAREHOUSING AND DATA MINING

L T P		Class Work	: 50
3 1 -		Exam	: 100
		Total	: 150
		Duration of Exam.	: 3 hrs.

UNIT - I

Data warehousing Definition, usage and trends.DBMS vs data warehouse, Data marts, Metadata, Multidimensional data mode, Data cubes, schemas for Multidimensional Database : stars, snowflakes and fact constellations.

UNIT - II

Data warehouse process & architecture, OLTP vs OLAP, ROLAP vs MOLAP, types of OLAP, servers, 3-Tier data warehouse architecture, distributed and virtual data warehouses, data warehouse manager.

UNIT - III

Data warehouse implementation, computation of data cubes, modeling OLAP data, OLAP queries manager, data warehouse back end tools, complex aggregation at multiple granularities, tuning and testing of data warehouse.

UNIT - IV

Data mining defintion & task, KDD versus data mining, data mining techniques, tools and applications.

UNIT - V

Data mining query languages, data specification specifying knowledge , hierarchy specification, pattern presentation & visualisation specification, data mining langages and standardization of data mining.

UNIT - VI

Data mining techniques : Association rules, Clustering techniques, Decision tree knowledge discovery through Neural Networks & Genetic Algorithm, Rough Sets, Support Victor Mechanics and Fuzzy techniques.

UNIT - VII

Mining complex data objects, Spatial databases, Multimedia databases, Time series and Sequence data; mining text Databases and mining Word Wide Web.

TEXT BOOK :

1. Data Warehousing in the Real World; Sam Anahory & Dennis Murray; 1997, Pearson

2. Data Mining - Concepts & Techniques ; Jiawei Han & Micheline Kamber 2001 Morgan Kaufmann.

3. Data Mning techniques; Arun Pujar- 2001 , University Press Hyderabad.

REFERENCE BOOKS :

1. Data Mining ; Pieter Adriaans & Dolf Zantinge; 1997, Pearson.

2. Data Warehousing Data Mining and OLTP; Alex Berson 1997, Mc Graw Hill.

3. Data Warehousing System; Mallach; 2000, Mc Graw Hill.

4. Building the Data Warehouse; W.H. Inman, 1996 John Wiley & Sons.

5. Developing the Data Warehouses; W.H. Ionhman , C. Klelly, John Wiley & Sons.

6. Managing the Data Warehouses; W.H. Ionhman , C.L. Gassey, John Wiley & Sons.

Note : Eight questions will be set in all the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

SOFTWARE PROJECT MANAGEMENT

CSE - 403 E

L T P		
3 1 -	Class Work	: 50 Marks
	Theory	: 100 Marks
	Total	: 150 Marks
	Duration of Exam.	: 3 Hrs.

UNIT - I

Introduction to Software Project Management (SPM) : Definition of a Software Project (SP), SP vs. other types of projects, activities covered by SPM, categorizing SPs, project as a system, management control, requirement specification, information and control in organization.

UNIT - II

Stepwise Project Planning : Introduction, selecting a project identification project scope and objectives, identifying project infrastucture, analyzing project characteristics, identifying project products and activities, estimate efforts each activity, identifying activity risk, allocate resources, review/ publicize plan.

UNIT - III

Project Evaluation & Estimation : Cost benefit analysis, cash flow forcasting, cost benefit evaluation techniques, risk evaluation. Selection of an appropriate project report; Choosing tecnologies, choice of process model, structured methods, rapid application development water fall-, V-process-, spiral- models.Prototyping, delivery. Albrecht function point analysis.

UNIT - IV

Activity planning & Risk Management : Objectives of activity planing,project schedule, projects and activities, sequencing and scheduling activties,network plannning model, representation of lagged activties, adding the time dimension, backward and forward pass, identifying critical path, activity throat, shortening project, precedence networks.

Risk Management : Introduction, the nature of risk, managing risk, risk identification, risk analysis, reducing the risks, evaluating risks to the schedule, calculating the z values.

UNIT - V

Resource allocation & Monitoring the control : Introduction the nature of resources, identifying resource requirements, scheduling resources creating critical paths, counting the cost, being specific , publishing the resource schedule, cost schedules, the scheduling sequence.

Monitoring the control : Introduction, creating the frame work, collecting the data, visualizing progress, cost monitoring, earned value, prioritizing monitoring, getting the project back to target, change control.

UNIT - VI

Managing contracts and people : Introduction types of contract, stages in contract, placement, typical terms of a contract, contract management, aceptance, Managing people

and organizing terms : Introduction, understanding behaviour, organizational behaviour : a back ground, selecting the right person for the job, instruction in the best methods, motivation, working in groups, becoming a team, decision making, leadership, organizational structures, conclusion, further exercises.

UNIT - VII

Software quality : Introduction the place of software quality in project planning, the importance of software quality defining software quality, ISO 9126, Practical software quality measures, product versus process quality management, external standards, techniques to help enhance software quality.

UNIT - VIII

Study of any Software Project Management software : viz project 2000 or equivalent

TEXT BOOK :

1. Software Project Management (2nd Edition), by Bob Hughes and Mike Cotterell, 1999, TMH

REFERENCE BOOKS :

1. Software Engeering - A Practitioner's approach, Roger S. Pressman (5th Edition), 2001. MGH

2. Software Project Management, Walker Royce, 1998, Addison Wesley.

3. Project Management 2/c. Maylor

4. Managing Global Software Projects, Ramesh, 2001. TMH.

Note : Eight questions will be set in all the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

SYSTEMS & NETWORKS ADMINISTRATION

IT- 403 E

L T P		Class Work	: 50 Marks
3 1 -		Theory	: 100 Marks
		Total	: 150 Marks
		Duration of Exam.	: 3 Hrs.

UNIT - I

Introduction to Systems and Network Administration : The scope of systems and network Adminstartion, The Goals of Systems and Network Admisntartion, System Components and their Managment : Operating Systems : Windows and Unix Varients, File Systems and Standards (UFS, NFS, NTFS) Processes and Job Control, privileged, User and Group accounts, Logs and Audits, systems performance Tuning. **Host Management :** Booting and Shutting down of an Operting System. Formatting, Partitioning and Building a file system , File system layout , Concept of swap space, Cloning systems, OS Installation, Installation and configuration of devices and drivers, Software Instalation and Structuring software, Open source software : The GNU Project Superuser/ Administrator Privileges, User Management, Adding/ Removing usres, Controling User resources, Disk Space allocation and quotas, Process Management and Monitoring Scheduling processes, Killing/ Stopping processes. restarting a Process, Monitoring process Activity Maintaining Log Files, File system repair, Backup and restoration, Handling Man Pages/ help System, Kernel Customization, Integrating Multiple Operating Systems, System Sharing, User IDs, Passwords and Authentication.

UNIT - II

Network Administration : Introduction to Network Adminstartion Approaches, Addressing and Subnetting :

Fixed Vs variable masks, VLAN Principles and Configuration, Routing Concepts, Static and Dynamic Routing, Routing Protocols : RIP, OSPF, BGP, Network Address Translation (NAT), configuring a Linux/ Windows Box as a Router, Dial-up configuration and Authentication : PPP, Radius, RAS, Configuring a DNS Server,Configuring sendmail service, configuring a web server, configuring a proxy server, TCP/ IP troubleshooting : ping, traceroute, ifconfig, netstat, ipconfig, Network Management.

UNIT - III

Host and Network Security : Security Planning Categories of Security : C1, C2, C3, C4, Password security, Access control and Monitoring : Wrappers, Firewalls : Filtering Rules, Detection and Prevention of Denial of service (DOS) Attacks, Automatic Identification of Configuration Loop Holes, Security Information Resources : CERT, Installing and Upgrading System Software, Use of Scripting tools : Shell Scripting Perl/ Python Scripting, Use of Make Option.

UNIT - IV

Security Planning, Categories of Security : C1,C2,C3,C4, password security, Access Control and Monitoring.

BOOKS RECOMMENDED :

1. "Principles of Network and system Administration", Mark Burgess, 2000, John Wiley and Sons Ltd.

2. "TCP/IP Network Administration (3rd Edition), Craig" Hunt, O' Reilly and associates Inc., 2002.

3. "Windows 2000 Administration", George Splading, 2000, Mc Graw Hill.

4. "Linux Network Administrator's Guide", Olaf Kirch and Terry Dawson ,(2nd Edition), O' Reilly ad Associates Inc. , 2000, (Shroff Publishers and Distributors, Calcutta).

SOFTWARE REQUIREMENTS

Microsoft Windows 2000, Linux, Perl/ Python.

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

INTRODUCTION TO E-COMMERCE & ERP

IT- 405 E

L T P	
4 - -	

Class Work	: 50 Marks
Theory	: 100 Marks
Total	: 150 Marks
Duration of Exam.	: 3 Hrs.

PART- I

UNIT - I

Introduction and Concepts : Networks and commercial transactions - Internet and novelties; networks and electronic transactions today, Model for commercial transactions; Internet environment - internet advantages, worlds wide web and other internet sales venues; Online commerce solutions.

UNIT - II

Electronic Payment Methods : Updating traditional transactions; Secure online transaction models; Online commercial environments; digital currencies and payment systems; Offline secure processing ; private data networks. Security protocols.

UNIT - III

Electronic Commerce Providers : On-Line Commerce options : Company profiles.

Electronic Payment Systems : Digital payment systems ;

First virtual internet payment system; cyber cash model. On-line Commerce Environments : Servers and commercial enviroments; Ecommerce servers.

UNIT - IV

Digital Currencies : Operational process of Digicash, Ecash Trail; Using Ecash; Smart cards; Electronics Data Interchange : basics, EDI versus Internet and EDI over Internet. Strategies, Techniques and Tools, Shopping techniques and online selling techniques.

PART-II

UNIT - V

ERP - An Enterprise perspective : Production Finance, Personnel disciplines and their relationship, Transiting environment, MIS Integration for disciplines, Information Workflow, Network structure, Client Server Integrator System, Virtual Enterprise.

UNIT - VI

ERP - Resource Management Perspective : Functional and process of Resource. Management, Introduction to basic Modules of ERP System : HRD, Personnel Management, Training and Development, Skill Inventory Material Planning and Control, Inventory, Forecasting, Manufacturing, Production Planning, production scheduling, production Control, Sales and Distribution, Finance, Resource Management in global scenario.

UNIT - VII

ERP - Information System Perspective : Introduction to OLAP (Online Analysis and Processing), TP, OAS, KBS, MRP, BPR, SCM, REP, CRM , Information Communication technology.

UNIT - VIII

ERP - Key Managerial issues : Concept Selling, IT

Infrastructure,Implication of ERP Systems on Business Organization, Critical success factors in ERP System, ERP Culture Implementation Issues, Resistance to change, ERP Selection issues, Return on Investment, Pre and Post Implementation Issues.

TEXT BOOKS :

1. "Fronteors of electronics Commerce" Ravi lalakota, Andrew Whinston, 1996, Addision Wesley.

2. "Enterprise resource Planning- Concepts and Practice", V.K. Garg and N. K. Venkita Krishna, 1998, PHI.

REFERENCE BOOKS :

1. The SAP/3 Handbook , John Antonio, Fernandz, TMH.

2. "The E- Business Revolution" Denial amor Addision Wesley.

3. "From Edi to E- Commerce : A Business Initiatives" Sokol TMH

4. "E Commerce" Greenstein and Feinman TMH

5. "E Commerce" Excel, Diwan, Sharma.

6. Asset International " Net Commerce" TMH

7. "E Commerce : The Cutting Edge of Business" Bajan and Nag TMH.

8. "E Commerce" Jaffrey F. Rayport, Bernard J. Jaworski 2002, TMH.

9. Electronic Commerce - Security, Risk Management and Control, Greenstein , Feinman, 2002, TMH.

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all but at least two from each Part A & Part- B.

SYSTEM AND NETWORK ADMINISTRATION LAB.

IT- 407 E

L T P
- - 3-

Class Work   : 50 Marks
Exam   : 50 Marks
Total   : 100 Marks
Duration of Exam.   : 3 Hrs.

- Management of the users & the domain.
- Configuring DHCP.
- Setting up the local security policy,.
- Start and stop services from user window and command prompt.
- Use of event viewer.
- Use of the performance monitor.
- Management of the IIS and FJP server
- Setting up of local area network
- Setting up of router in Window 2000 server
- Use of utilities
    (a) Ping
    (b)Trocert
    (c) netstat
    (d)net
    (e) IP configuration
    (f)Path ping
- Use of network monitor
- Setting up of DNS
- Setting up and use " Terminal Client Services".

CSE-409 E

VISUAL PROGRAMMING LAB.

L T P
- - 3

Class Work   : 25 Marks
Exam   : 50 Marks
Total   : 75 Marks
Duration of Exam.   : 3 Hrs.

UNIT - I

Study of Visual Basic 6.0. NET and Visual C++ 6.0.NET.

1. Study Windows API's Find out their relationship withMFC classes. Appreciate how they are helpful in finding complexities of windows programming.

2. Get familiar with essential classes in a typical (Document- view architecture) VC++ Program and their relationship with each other.

3. Create an SDI application in VC++ that adds a popup menu to your application which uses file drop down menu attached with the menu bar as the pop-up menu. The pop-up menu should be displayed on the right click of the mouse.

4. Create an SDI application in VC++ using which the user can draw atmost 20 rectangles in the client area. All the rectangles that are drawn should remain visible on the screen even if the window is refreshed. Rectangle should be drawn on the second click of the left mouse button out of the two consecutive clicks. If the user tries to draw more than 20 rectangles, a message should get displayed in the client area that " No more rectangles can be drawn".

5. Create an application in VC ++ that shows how menu items can grayed, disabled and appended at run time.

6. Write a program in VC++ to implement serialization of inbuilt and user defined objects.

7. Write a program in VC++ to create archive class object from CFile class that reads and stores a simple structure (record).

8. Make an active X control in VC ++ derived from a standard control.

9. Write a program in VB to implement a simple calculator.

10. Create a simple database in MS Access Database. Oracle and a simple database application in VB that shows database connectivity through DAO and ADO.

11. Write a simple program that displays an appropriate message when the illegal operation is performed using error handling technique in VB.

12. Write a program in VB to create a notepad.

13. Create a DLL in VB.

Bright students may do the following exercises :

14. Write a program in VCC++ to implement a simple calculator.

15. Write a program in VC++ to create a static link library and a dynamic link library.

16. Create a simple database in MCAccess Database and a simple database application in VC ++ that shows databases conncetively through ADO model.

17. Make an Active X control of your own using VB.

18. With the help of VB, create an object of excel application and implement any action on it.

MAHARSHI DAYANAND UNIVERSITY, ROHTAK
SCHEME OF STUDIES & EXAMINATION
B.E IN Information Technology
SEMESTER - VII
Modified 'E' Scheme effective from (2010-11)

Course No.	Subject	Teaching Schedule				Marks of Class Work	Examination		Total Marks	Dura-tion of Exam (in hrs.)
		L	T	P	Total		Theory	Practical		
CSE - 402 E	Distribu-ted Opening System (CSE,IT)	3	1	-	4	50	100	-	150	3
CSE-404 E	Advanced Java (CSE,IT)	-	-	-	-	50	-	-	50	3
		3	1	-	4	50	100	-	150	3
	Deptt. ElectiveI	4	-	-	4	50	100	-	150	3
	Deptt. ElectiveI	4	-	-	4	50	100	-	150	3
CSE-406 E	Advanced Java Lab. (CSE,IT)	-	-	3	3	50	-	50	100	3
IT-409-E	Project	-	-	8	8	50	-	100	150	3
IT-402-E	Independent Study Sem-inar	-	-	4	4	50	-	-	50	
*GFIT-402 E	General Fitness for the Profes-sion	-	-	-	-	50	-	100	150	3
	Total	14	2	15	31	400	400	250	1050	

DEPT. ELECTIVE - I

1. IT - 465 - E	Network Technology
2. IT - 466 - E	Embedded System Design
3. IT - 472- E	Introduction to VLSI Design

DEPT. ELECTIVE - II

1. IT - 467- E	Computer Software Testing
2. IT - 470 - E	Web Engineering
3. IT - 468- E	Logic and Functional Programming

Note :

1. Project load will be treated as 2 hrs. per week for the project coor-dinator and 1 hour for each participating teacher. Project involving design, fabrication, testing, computer simulation, case studies etc. which has been commenced by students in VII semster will be completed in VII semester.

2. For the subject IT-402-E (Independent study Seminar), a student will select a topic from emerging areas of information & Technol-ogy and study it throughly and independently. Later he will give a seminar talk on the topic.

3. A team consisting of Principal/ Director, HOD of concerned depart-ment and external examiner appointed by University shall carry out the eveluation of the student for his/ her General Fitness for the Profession.

4. Students will be allowed to use the non- programmable scintific calculator. However, sharing of calculator will not be permitted in the examination.

5. "The subject GFIT-404-E (General Fitness for the Profession) code has been changed to GFIT- 402- E and will be effective from 2006-07.

DISTRIBUTED OPERATING SYSTEM

CSE- 402 E

L T P		Class Work	: 50 Marks
3 1 -		Theory	: 100 Marks
		Total	: 150 Marks
		Duration of Exam.	: 3 Hrs.

UNIT - I

Introduction : Introduction to Distributed System, Goals of Distributed system, hardware and software concepts, Design issues. Communication in distributed system : Layered protocols, ATM networks, Client server model, remote Procedure Calls and Group Commuication, Middleware and Distributed Operating Systems.

UNIT - II

Synchronization in Distributed System : Clock synchronization, Mutual Exclusion, Election algorithm, the Bully algorithem, a Ring algorithem, Atomic Transactions, Deadlock in Distributed Systems, Distributed Deadlock Prevention, Distributed Deadlock Detection.

UNIT - III

Processes and Processors in distributed systems : Threads, system models, Processors Allocation, Scheduling in Distributed system, real Time Distributed systems.

UNIT - IV

Distributed file systems : distributed file system Design, Distributed file system implementation, trends in distributed file systems.

Distributed Shared memory : What is shared memory, Consistency models, Page based distributed shared memory, shared variables distributed shared memory.

UNIT - V

Case Study MACH : Introduction to MACH, process management in MACH, communication in MACH, UNIX emulation in MACH.

TEXT BOOKS :

1. Distributed Operating System - Andrew s,. Tanenbaum, PHI

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

ADVANCE JAVA

CSE - 404 E

L T P		Class Work	: 50 Marks
3 1 -		Theory	: 100 Marks
		Total	: 150 Marks
		Duration of Exam.	: 3 Hrs.

UNIT - I

CORE JAVA : Introduction to Java Data types variables, operators, Arrays, Control Statements, Classes & Methods, Inheritance, Exception Handling Multireading, Collections, I/O streams, AVVT & Applet programming.

UNIT - II

NETWORKING : Connecting to a server, Impelmenting Servers, sending E-Mail, making URL Connections Advanced Socket Programming.

UNIT - III

DATABASE NETWORKING : The Design of JDBC. The Structured Query Language, JDBC Installation Basic JDBC Programming Concepts, Query Execution, Scrollable and Updatable result Sets, Matadata Row Sets, Transactions, Advanced Connection Management, Introduction of LDAP.

UNIT - IV

DISTRIBUTED OBJECTS : The Roles of Clent and Server, remote Method Invocations, Setup for Remote Method Invocation, Parameter Passing in Remote Methods Server Object Activation, Java IDL and CCRA Remote Method Calls with SOAP.

UNIT - V

SWING : Lists, Trees, tables, Styled Text components Progress Indicators, Component Organizers.

UNIT - VI

AWT : The rendering Pipeline, Shapes, Areas, Strokes Paint, Coordinate transformations, Clipping Transparency and Composition, Rendering Hints readers and Writers for Images, Image Manipulation Printing. The Clipboard, Drag and Drop.

UNIT - VII

JAVABEANS COMPONENTS : Beans, the Bean writing processes, Using Beans to Build an Application Naming patterns for Bean Components and Event Bean Property Tubes beaninfo Classes property Editor Cuatomizes.

UNIT - VIII

SECURITY : Class Loaders, Bytecode Verification Security Mangers and Permissions, Digital Signatures code signing Encryption.

TEXT BOOKS :

1. Core Java ™ 2, Volume II- Adavanced features, 7th Edition Cay Horetmann, Gary Cornell Pearson Publisher, 2004

REFERENCE BOOKS :

1. Professional Java Programming by Brett Spell, WROX Publication.

2. Advanced Java 2 Platform, How to Program, 2nd Edition, Harvey, M. Dietal, Prentice Hall.

Note : Eight questions will are to be set at least one from each unit. Students have to attempt any five.

ADVANCED JAVA LAB.

CSE- 406 E

L T P		
- - 3	Class Work	: 50 Marks
	Exam	: 50 Marks
	Total	: 100 Marks
	Duration of Exam.	: 3 Hrs.

Development of programs relating to :

1. JDBC
2. Servlets
3. Beans
4. RMI
5. JSP

IT- 465 E

NETWORK TECHNOLOGY

L T P	Class Work	: 50 Marks
4 - -	Exam	: 100 Marks
	Total	: 150 Marks
	Duration of Exam.	: 3 Hrs.

UNIT - I

Overview of Internet : Address and domain Mangemnt, SNMP, Transport Layer issues, TCP/IP, FTP, WWW undergoing technology, E-mail, talent, FTP, Gateway, Dial - up, SLIP/PPP. Dedicated lines, Internet searching tools, gopher, Archie, Veronica, WWW, Lynx, Mosaic, WAIS, Usenet.

UNIT - II

Security issues , CGI,PERL, HTML, VRML.JAVA,VB script and other internet development tools, internet networking TCP/IP protocols). Network Security and Management.

UNIT - III

Application Layer Services and protocols (RPC, NFC, SMTP, FTP, TELENET), Review of LAN, Principles of I BASE 5 (Strain), Transmitter and receiver of 10 BASE 5 Node, 10 BASE 5 Ethernet and 10BASE 2 (Chapter net), Twisted pair Ethernet, Serial Communication, Connecting LANS and WANS.

UNIT - IV

Serial Communication Circuits, Modems, USART processor Interface Data Buffer Block of 8251A, Control logic of USART, PROTOCOLS, Transmitter receiver, Synchronous Modems and Asynchronous Modems. SYNDET/BRAKDET

ion 8251A, Monitorting of 8251 A, wiriting characters to be transmitted to 8251A, Monitoring of 8251A. read status, ISDN : technology devices, Architecture protocols, Flow control Error detection and Corrrection, ATM, technology, Inter Networking SDH/ SONET.

TEXT BOOKS :

1. Computer Networks by Tanenbaum, 2003, PHI.

2. Computer Networks by Black, 1995, PHI.

REFERENCE BOOKS :

1. Data communication & networking by Furozan, 2000, TMH.

2. Data and Network communicatios by Miller (Delmer)

3. Communication Networks : Fundamentals Concepts & Key Architectures by Alberto Leon, TMH.

IT- 466 E

EMBEDDED SYSTEMS DESIGN

L T P	Class Work	: 50 Marks
4 - -	Exam	: 100 Marks
	Total	: 150 Marks
	Duration of Exam.	: 3 Hrs.

UNIT - I

Real time operating system overview, exposure to windows CE, QNX, Micro kernals and mc/OS of introduction to process models, Interrupt routines in an RTOs environment, encapsulating semaphores and queues, hard real-time scheduling considerations, saving memory space.

UNIT - II

16 &32 bit microprocessor and micro-controller and DSP hardware with refernce to Embedded system.

UNIT - III

Embedded software development tools and compilers- host and target machines, linker/ locators for embedded software, cross compiler, basic concept of device drivers, serial communication interface device driver.

UNIT - IV

System synthesis of Hardware/ software co-emulation, simulation speed of emulators, JTAG OCD.

UNIT - V

Communication protocols with special refernce to embedded system. TCP/IP, VDP wireless protocols, IRDA, Blue tooth IEEE 8.8.11.

TEXT BOOKS :

1. An Embedded system primer by David e Simon, 1999, Addison- Wesley

2. Programming for Embedded system by Dreamtech software team, John wiley 2002.

REFERENCE BOOKS :

1. TCP/IP Lean : Web servers for embedded systems by Jeramy bentham, 2002.

2. Real - time programming : A guide to 32 bit embedded development, Rick Grehan, 1999, AW.

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

IT- 472 E

INTRODUCTION TO VLSI DESIGN

L T P		
4 - -	Class Work	: 50 Marks
	Exam	: 100 Marks
	Total	: 150 Marks
	Duration of Exam.	: 3 Hrs.

UNIT - I

CRYSTAL GROWTH : MGS, EGS, Czpchralspi crystal Puller ,Silicon shapping, Water Preparation. Epitaxy: Vapour Phase Epitaxy, Epitaxial Layer Evaluation Molecullar Beam Epitaxy.

UNIT - II

OXIDATION : Thermal Oxidation Kinetics, Oxidation techniques, Oxide Properties, Oxidation induced Defects. Lithography : Photolithography, e-beam lithography, X-ray Lithography.

UNIT - III

REACTIVE PLASMA ETCHING : Plasma Properties, Featues Size control and anisotropic etching, Plasma etching techniques and equipment. Di-electric and Poly- Silicon Film Deposition : Deposition Processes for Poly- si, SiO2, SiO3 N4 : Plasma assited Depostions.

UNIT - IV

Diffusion : A Qualitative view of atomic diffusion in soilds,diffusion mechanics, Fick's one dimensional diffusion equation, constant source and limited source diffusion, diffusion of Grp3 and 5 impurities in Silicon Impurity sources, diffusion apparatus, Characterization of diffused layers. Ion Implanation : Introduction, Range Theory Implanataion Equipment Anncaling.

UNIT - V

Metallization : Metallization applications , Choices Physical Vapour Deposition. Sputtcring,Metallization Problems. Assembly & Packaging : Package Types design considerations, Package fabrication technologies, Future trends.

UNIT - VI

Isolation techniques : Bipolar IC fabrication process Sequence, nMOS IC fabrication process Sequence.

TEXT BOOKS :

1. VLSI technoology, S.M. Sze, 1998 MGH

2. VLSI Fabrication Principles, S.K. Ghandhi

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

IT- 467 E

COMPUTER SOFTWARE TESTING

L T P		
4 - -	Class Work	: 50 Marks
	Exam	: 100 Marks
	Total	: 150 Marks
	Duration of Exam.	: 3 Hrs.

UNIT - I

FUNDAMENTALS AND TETSING TYPES : First**,** second and later cycles of testing. Objectives and limts of testing. Overview of S/W development stages, Planning and Design stages and testing during these stages. Glass box code, Regression and Black box testing, Software errors, Categories of software error.

UNIT - II

REPORTING AND ANALYZING BUGS : Problem reports, Content and Chacractersitics of Problem report, analysis and Tactics for analyzing a reproducible bug. Making a bug reproducible.

UNIT - III

PROBLEM TRACKING SYSTEM : Objetcive of problem Tracking System, tasks of the system, problem tracking overview, use of the tracking system, mechanics of the database.

UNIT - IV

Test Case Design : Characteristics of a good test, equivalent classes and boundary values , visible state transitions, race conditions and othertime dependencies, load testing. Error guessing, Function equaivalence testing, regression Testing , General issues in configuration testing, printer testing.

UNIT - V

Localization and user manulas testing : Translated text expands, Character sets, Keyboards, text filters. Loading, saving, importing and exporting high and low ASCII, Operating system language, Hot keys. Error message identifiers, Hyphenation rules, Spelling rules. Sorting Rules, Uppercase and Lowercase conversion. printers, Sizes of paper, CPU's and video Rodents Data formats and setup options, Rulers and measurements, Culture bound Graphics and output. European product compatibility. Memory availability automated testing, testing User Manuals Effective documentation, documentation tester's objective. How testing documentation contributes to software reliability.

UNIT - VI

Testing Tools and Test Planing : Fundamental tools Automated acceptance and regression tests, standards, Translucent box testing Overall objective of the test plan : product or tool ? Detaileds objective, type of test, strategy for developing components of test planning documents, components of test planning documents test materials.

UNIT - V

S/W Development tradeoffs and models, Quality related costs. the developments time line, Product design, alpha Pre-beta, Beta User Interface freeze, Pre-final, Final integrity testing, project post-mortems, Legal consequences of defective software, Managing and role of a testing group , independent test agencies.

TEXT BOOKS :

1. test Computer Software, by Cem Kaner, Jack Falk, Hung Quoc Nguyen, 1999, Pub. : Wiley (Second Edition).

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

IT- 470 E

WEB ENGINEERING

L T P		
4 - -	Class Work	: 50 Marks
	Exam	: 100 Marks
	Total	: 150 Marks
	Duration of Exam.	: 3 Hrs.

UNIT - I

INFORMATION ARCHITECTURE : The role of the

information Architect, Collaboration and Communication, Organization InformationOrganzational Challenges, Organizing Web sites and Intranets, Creating Cohesive Organization Systems, Designing Navigation Systems, Types of Navigation systems, Integrated Navigatioin Elements, remote Navigation Elements, Designing Elegant Navigation Systems, Searching Systems, Searching your Web Site, Designing the Search Interface Indexing the Right Stuff To, search or Not To Search, grouping Content, Coceptual Design, High Level Architecture Blueprints, Architectural Page Mockups, Design Sketches.

UNIT - II

DYNAMICS HTML AND WEB DESINING : HTML Basic Concepts, Good Web Design, Process of Web Publishing Phases of Web Site development, Structure of HTML documents, HTML Elements -Core attributes, Languages attributes, Core Events, Block Level Events, text level Events, Linking Basics, linking Basics Linking in HTML. Images and Anchors, Anchor Attributs, Image maps,Semantic Linking meta Information Image Preliminaries. Image Download Issues, Image as Buttons, Intrdouction to Layout : Background, Colors and Text, Fonts, Layout with Tables. Advanced Layout : Frames and Layers HTML and other media types. Audio Support in Browsres, Video Support other binary formats Style sheets, Positioning with style sheets. Basic Interactivity and HTML : FORMS, Form Control, New and emerging form elements.

UNIT - III

JAVA SERVER PAGES AND ACTIVE SERVER PAGES : Basic Integrating Script, JSP/ ASP Objects and Components

configuring and troubleshooting : request and response objects, retrieving the contents of a an HTML for Retrieving a Query String, Cookies, Creating Reading Cookies, Using application Objects Events.

UNIT - IV

Overview of advance features of XML

TEXT BOOKS :

1. HTML, The complete Refernce, TMH.

2. CGI Programming with Perl 2/e, Scott Guelich, Shishir Gundavaram, Gunther Birrzniek; O'Reilly

3. Doug Tidwell, James Snell, Pavel Kulchenko; Program Web Services with SOAP, O' Reilly

4. Pardi, XML in Action, Web technology, PHI.

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

IT- 468 E

LOGIC & FUNCTIONAL PROGRAMMING

L T P
4 - -

Class Work   : 50 Marks
Exam   : 100 Marks
Total   : 150 Marks
Duration of Exam. : 3 Hrs.

UNIT - I

Procedural and non-procedural lang. : Prolog Vs LISP Applications of LISP & PROLOG in designing expert system

UNIT - II

Syntax of PROLOG, Lists, Operators, Arithmetic, Structures, Controlling Back Tracking.

UNIT - III

Input and Ouput, built- in predicates, Operations on Data structures, Advanced Tree Represetation.

UNIT - IV

Prolog in Artificial Inteligence : writing programme for search techniques. Constarint logic programming. Knowledge representation and expert system, expert system shell.

UNIT - V

Planning, Machine Learning, Inductive Logic Programming, quantative Reasoining, Language Processing, Game Playing, Meta Programming.

TEXT BOOKS :

1. Prolog Programming for Artificial Intelligence by Ivan Bratko 2001, Pearson Edu.

2. Programming

Reference Books :

1. Symbolic Computing with Lisp & Prolog - by Mueller, JW 1998

2. Programming in turbo PROLOG by Lee Teft - PHI.

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

ELECTIVE PAPERS FOR BE 7th & 8th SEMESTER

HUM-451-E   LANGUAGE SKILLS FOR ENGINEERS

L T P

4 - -

Class Work : 50 Marks

Exam : 80 Marks

Practical/Presentation : 20 Marks

Total :150 Marks

Duration of Exam. : 3 hrs.

The real challenge before the students stars when they corss the threshold of the college after completing their degree. They, all of a sudden, find themselves competing for interviews. Verbal ability forms a major portion of these tests. Without sound language skills and its semantic-syntactic know-how, the students with engineering background find themselves almost under-prepared for such tests. With this difficulty of students in mind, this course is proposed to make them technically proficient in handling the language skills required in comptitive exams. The course would expose students to almost all variety of items, the common run of such tests as CAT, GMAT etc. And in the context of LPG, this cutting edge comptence becomes imperative, and no professional education can afford to overlook this aspect.

Course Content :

Unit I

Remedial English : Parts to speech, Gerunds, Participles and infinitives; Clauses; Sentence-constructions (Unity; avoidance of choppy and rambling sentences, logic and consistency, conciseness, sequencing of ideas); Sentence errors-agreement between verb and subject, pronoun and antecedents, sequence of tenses, problems involving modifiers (dandling and misplaced modifiers); Shifts in point of view-consistency of number and person, tense, mood, voice and subject, Parallelism; Ommissions and mixed constructions.

Unit II

Vocabulary : Methods of bulding vocabulary- etmological roots, prefixes and suffixes,; Commonly used foreign words and phrases; spelling : words often confused synonyms and homonyms; one word substitutes; verbal idioms.

Unit III

Punctuation and Machanics : End Punctuation; Internal Punctuation; Word Punctuation.

Unit IV

Comprehension : Abstracting : Summarising : Observations, Findings and Conclusions; Illustration and Inductive Logic; Deduction and Analogy.

Unit V

Presentation: Oral presentation-Extempore, discussion on topics of contemporary relevance, interviews.

Sanding :

1. Working with words by R. Gairns and s. Redman, Cambridge University Press, London.

2. Meanings into Words-Upper Intermediate Students Book, Deff/Jones, Foundation Books (Cambridge University Press,) Delhi.

3. A Practical English Grammar by A.J. Thomson and A.V. Martinet, OUP, Delhi.

4. Examine yuor English by Margaret M. Maison, Orient Longman, New Delhi

5. A Practical Guide to Colloquial Idom by W.J. Ball, Longman.

6. A guide to Correct English by L.A. ill, Oxford.

7. Structural Essentials of english by H.whitehall, Longman.

8. Advanced English Practice by B.D. Graver, OUP, Delhi.

9.   Public Speaking, Sudha Publication Pvt. Ltd., New Delhi.

10. Group Discussion, Sudha Publication Pvt. Ltd. New Delhi.

Scheme of Examination :

(A) Theoritical :

The pattern of the exam would be more or less like the pattern of the competitive exams. (i.e. Objective Type) like CAT-G-MAT etc., as far as the units I, II, III and IV are concerned.

Unit-I, II, III : (30, 20, 10 Marks respectively)

The first section of the question paper will have 110 objective type questions with no choice at all. These 110 (60 + 40 + 10) questions will converall the first three units (I, II, III) of the syllabus and would carry, 30, 20, and 10 marks respectively. The questions may be in the form of multiple choices, fill-in-the-blank, supply the right word/choice, choose the right alternative, do as directed etc.

Unit-IV - 20 Marks

The question from this unit will test comprehension competence (in the form of various elements mentioned in the unit) of text given.

(B) Practical (Presentation) :

There will be an oral test carrying 20 marks. The presentation part of section i.e. Unit-V will be covered in this test. Hence, there is no need to include this unit in theory exam.

Three hours for a groupo of 15 students are required for this test. Test can be in the form of aqny of the activities mentioned in the Unit-V.

A panel of examiners appointed by the University will evaluate the presentation.

PHY-453-E   LASER TECHNOLOGY

L T P	Class Work : 50 Marks
4 - -	Exam : 100 Marks
	Total :150 Marks
	Duration of Exam. : 3 hrs.

Conditions for Producing Laser, Concept of coherence, Special and temporal, Population Inversions, English coefficient, Gain and Gain saturation, Saturation intensity, Development and Growth of a Laser Beam, Exponential growth factor, Threshold Requirement for a Laser.

Inversions and two-level systems, steady-state inversons and three and four-level systems. Transient Popultion Inversions, factors effecting population inversion Laser Amplifiers.

Excitation of Pumping Threshold Requirements, Pumping Pathways, Specific excitation Parameters Associated with Optial and Particle pumping.

Helium-Neon Laser, CO_2 Laser, Ruby Laser, Semiconductor diode Laser.

Recommended Books :

1.   Laser Fundamentals by William T. Silfvast Cambridge University, Press.

2.   Introductory University Optics by John Beynon, (PHJI)

3.   Laser-B.B. Laud.

4.   Optics-A.K. Ghatak (TMH)

Note : Eight questions will be set and students will be required to attempt any five questions in all. All questions will be carry equal marks.

CSE-303-E COMPUTER GRAPHICS

L T P   Class Work : 50 Marks
4 - -   Exam : 100 Marks
                                               Total :150 Marks
                                               Duration of Exam. : 3 hrs.

Unit-I

Introduction to Computer Graphics : What is Computer Graphics, Computer Graphics Applications, Computer graphics Hardware and Software, Two dimensional graphics primitives: Points and Lines, Line drawing algorithms : DDA, Bresenham's Circle drawing algorithms : Using Polar coordinates, Bresenham's circle drawing, mid point circle drawing algorithm; Filled area algorithms : Scanline Polygon filling algorithm, boundary filled algorithm.

Unit-II

Two/Three Dimensional Viewing : The 2-D viewing pipeline, windows, viewports, window to view port mapping: Clipping; point, clipping line (algorithms) : -4 bit code algorithm, sutherland -cohen algorithm, parametric line clipping algorithm (Cyrus Beck).

Polygon Clipping Algorithm : Sutherland -Hodgeman polygon clipping algorithm, Two dimensional transformations : transformations, translation, scaling, rotation, reflection, composite transformation.

Three dinesional transformations : Three dimensional graphics concept, Matrix representation of 3-D Transformations, Composition of 3-D transformation.

Unit-III

Viewing in 3D : Pojections, types of projections, the mathematics of planner geometric projections, coordinate systems.

Unit-IV

Hidden surface removal : Introduction to hidden surface removal. The Z buffer algorithm, scanline algorithm, area subdivision algorithm.

Unit-V

Representing Curves and Surfaces : Parametric representation of curves. Bezier curve, B. Spline curves. Parametric representation of surfaces; interpolation method.

Unit-VI

Illuminations, shading, image manipulation : Illumination models, shading modals for polygone, shadows, transparency. What is an image? Filtering, image missing, geometric transformation of images.

Unit-VII

Computer Graphics Principles an Practices second edition by James D. Foley, Andeies van Dam. Stevan K Feiner and Johb f. Hughes, 2000, Addision Wesley. computer Graphics by Donald Hearn and M,. Pauline Baker, 2nd Edition, 1999, PHI.

Reference Books :

1. Procedural Elements for Computer Graphics-David F. Rogers, 2001 T.M.H. Second Edition.

2. Fundamentals of 3 Dimensional Computer Graphics by Alan Watt, 1999, Addision Wesley.

3. Computer Graphics : Secrets and Solutions by corrign Joh, BPB.

4. Graphics, GUI, Games & Multimedia Projects in C by Pilania & Mahendra, Standard Publ.

5. Computer Graphics Secrets and Solutions by Corrign Joh, 1994, BPV.

6. Introduction to Computer Graphics by N. Krishanmurthy T.M.H. 2002.

Note : Eight questions will be set in all the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

HUM-455-E   ENTREPRENEURSHIP

L	T	P		Class Work : 50 Marks
3	1	-		Theory: 100 Marks
				Total : 150 Marks
				Duration of Exam. : 3 Hrs.

UNIT-I

Promotion of Entrepreneurship

Meaning, definition and functions of an entrepreneur, qualities of a good entrepreneur; Role of Entrepreneur in economic development; Government measures for the promotion of small scale industries with special reference to Haryana; Cultural factors in developing entrepreneurship.

UNIT-II

Ownership and Location of Industrial Units

Different forms of Industrial Organisation.

Theories of Industrial location. Process of preparing project reports.

UNIT-III

Size of Firm and Pricing

Concept of optimum firm, factors determining

Optimum size. Technical, Managerial, Marketing Uncertainties and risk.

Pricing Methods, Policies and procedures.

UNIT-IV

Financing of Small Industries

Importance and need : Commercial Banks and term lending in India; Banks and under-writing of capital issues; Brief description about the role of other financial agencies viz; Industrial Finance Corporation of India. State Financial Corporation, Industrial Development Bank of India; Unit Trust of India.

UNIT-V

Problems Faced by Small Enterprises

Problems connected with Marketing, Management of New Products; Power; Finance; Raw Material; Under-utilization of capacity; Causes of under - utilization; Rehabilitation of Sick Mills.

UNIT-VI

Government and Business

(a)   Highlights of Industrial Policy and Licensing Policy.

(b)   International Marketing with special reference to export documentation.

Recommended Books :

1. Entrepreneurship of Small Scale Industries - Deshpande Manohar D. (Asian Publishers, New Delhi)

2. Environment and Entrepreneur - Tandon B.C. (Asian Publishers, New Delhi).

3. The Industrial Economy of India - Kuchhal S.C. (Chaitanya, Allahabad).

4. Emerging Trends in Entrepreneurship Development Theories & Practices - Singh P.Narendra (International

   Founder, New Delhi)

5. Entrepreneur, Banker & Small Scale Industries- Bhattacharya Hrisnikes.

6. Entrepreneurship & Growth of Enterprise in Industrial Estates - Rao Gangadhara N.

NOTE: Eight questions are to be set atleast one question from each unit and the students will have to attempt five questions in all.

HUM-452-E   BUSINESS COMMUNICATION

L T P   **Class Work : 50 Marks**
4 - -   **Theory   : 100 Marks**
                                                 Total   : 150 Marks
                                          Duration of Exam : 3 Hrs

The course proposes to help students develop business and technical communication competence. It focuses on writing skills and strategies for specific purposes. The inevitability of introducing this course to Engineering students is embodied in that it has comparatively a high concentration of certain complex writing techniques and procedures.

COURSE CONTENT:
Unit-I
Business correspondence: Characteristics and Formats of Business letter; Quotations, Orders, Tenders, Sales letters, claim and adjustment letters, Credit and Collection letters, Application Letters for vacant situations with emphasis on Resumes and Curriculum Vitae; E-mail and Netiquette - format, style and tone.

Unit-II
Business Reports and Proposals: Importance, Function, Pattern and formats of Reports, Typical Business Reports, Report Organisation and Presentation, and Formal Reports; Proposal Formats, Writing problem-Solving Proposals, Executive Summary Proposals and project Proposals.

Unit-III
Meetings: Writing of Memorandum, Notes, Agenda and Minutes of Meeting.
Unit-IV
Public Relations and Advertising Documents: Press Releases, Public Service Announcements, Advertising Strategy and its objective, Designing of Classified and Display Advertising copies.

SUGGESTED READING:

1. Business Communication: Process & Product by Hary Ellen Guffey, IV Edition, South-Western College Publishing, Cincinnati.
2. Business Correspondence and Report Writing by R.C. Sharma & Krishna Mohan, Tata Macgraw Hill Publication, New Delhi.
3. Effective Business English and Correspondence by M.S. Ramesh and C.C. Pattanshetti, R. Chand & Co., New Delhi.
4. Effective Letters in Business by Robert by C. Shruter, Tata Macgraw Hill, New Delhi.
5. English Business Letters by F.W. Wing & D. Anncree, Orient Longman.
6. Written Communication in English by Sarah Freeman, Orient Longman.
7. International Business English by Leo Jones & Richard Alexander, Cambridge University Press.
8. General and Business English by Sweet Stephen, Sir Issac Pitman & Sons Ltd., London.
9. How to Write and Present Technical Information, Charles H. Sides, Cambridge University Press, U.K.
10. Strategies for Engineering communication, Susan Stevenson/ Steve Whitmore, John Wiley and Sons, Inc. Printed in India by Replika Press Pvt. Ltd., Delhi.

SCHEME OF EXAMINATION:

There will be six questions in all, covering all the units. All questions will be compulsory and will have enough internal choice.

Unit-I   **30 Marks**

There will be two questions from this unit. One question will cover the theoretical aspect of business letter writing and will carry 10 marks. The other question will be on writing the letter in a proper format on a subject given and will be of 20 marks. There will be enough choice taking care of the justice to be

given to both the aspects of the letter writing.

Unit-II   35 Marks

There will be two questions from this unit. One question will cover the theoretical aspect of report/proposal writing and will carry 15 marks. The other question will be on preparing the report/proposal on a topic/subject given and will be of 20 marks. There will be enough choice taking care of the justice to be given to both the aspects of the report writing.

Unit-III   15 Marks

There will be a question on theoretical aspects of the various items of this unit or students can be asked to draft a specimen of any of these from the material given in the exam. The question can be split into parts.

Unit-IV   20 Marks

There will be one question having two parts. One part will be on theory and will be of 5marks and the other will require the drafting an advertisement copy of a product or service or a public announcement and will carry 15 marks.

IC-403-E   EMBEDDED SYSTEMS DESIGN

L T P   **Class Work : 50 Marks**
3 1 -   **Exam : 100 Marks**
                                        Total : 150 Marks
                                 Duration of Exam : 3 Hrs.

UNIT 1 : INTRODUCTION:

Different types of microcontrollers: Embedded microcontrollers, External memory microcontrollers; Processor Architectures: Harvard V/S Pronceton , CISC V/S RISC; microcontrollers memory types; microcontrollers features : clocking, i/o pins, interrupts, timers, peripherals.

UNIT 2 : MICROCONTROLLER ARCHITECTURE:

Introduction to PIC microcontrollers, Architecture and pipelining, program memory considerations, Addressing modes, CPU registers, Instruction set, simple operations.

UNIT 3 : INTERRUPTS AND I/O PORTS:

Interrupt logic, Timer2 scalar initialization, IntService Interrupt service routine, loop time subroutine, External interrupts and timers, Synchronous serial port module, Serial pheriphal device, O/p port Expansion, I/p port expansion, UART.

UNIT 4 : SOFTWARE:

Development tools/ environments, Assembly language programming style, Interpreters, High level languages, Intel hex format object files, Debugging.

UNIT 5 : PROGRAMMING WITH MICROCONTROLLERS:

Arithmetic operations, Bit addressing, Loop control, Stack operation, Subroutines, RAM direct addressing, state machines, Oscillators, Timer Interrupts, Memory mapped I/O.

UNIT 6 : DESINING USING MICROCONTROLLERS:

Music box, Mouse wheel turning, PWN motor control, Aircraft Demonstration, ultra sonic distance measuring, Temperature Sensor, Pressure Sensor, Magnetic Field Sensor.

TEXT BOOK:

1. Design with PIC Microcontrollers by John B. Peatman , Pearson.

REFERENCE BOOKS :

1. Programming and Customizing the 8051 Microcontroller : Predko ; TMH.

2. Designing Embedded Hardware : John Catsoulis ;SHROFF PUB. & DISTR. ND.

3. Programming Embedded Systems in C and C++ : Michael Barr; SHROFF PUB. & DISTR. ND.

AI AND EXPERT SYSTEMS

CSE-451 E

L	T	P	
3	1	-	**Class Work : 50 Marks**
			Theory : 100 Marks
			Total : 150 Marks
			Duration of Exam : 3Hrs.

CONTENTS

1. **Introduction to Artificial intelligence:** Scope, history & applications: AI as representation and search the predicate calculus inference rules. Logic based financial advisor, structures and strategies for state space search graph theory, strategies for space search, using state space to represent reasoning with the predicate calculus.

2. **Heuristic Search:** An algorithm for heuristic search, admissibility monotonicity and informed ness heuristics in games, complexity issues, control and implementation of state space search recursion based search, pattern directed search. Production systems, predicate calculus and planning the black board architecture for problems solving.

3. **LISP and PROLOG:** Knowledge representation languages issues in knowledge representation, network representation language, structured representations, introduction to LISP, Search in LISP: a functional approach to the farmer, Wolf, Goat and cabbage problem, higher order functions & procedural abstraction, search strategies in LIPS.

4. **Expert systems:** Introduction, History basic concepts, structure of expert systems, the human element in ES how ES works, problem areas addressed by ES, ES success factors, types of

expert systems, ES and the internet interacts web, knowledge engineering, scope of knowledge, difficulties, in knowledge acquisition methods of knowledge acquisition, machine learning, intelligent agents, selecting an appropriate knowledge acquisition method, knowledge acquisition form multiple experts validation and verification of the knowledge base, analyzing coding, documenting & diagramming.

5. **Expert systems-** II, societal impacts reasoning in artificial intelligence, inference with rules, with frames: model based reasoning, case based reasoning, explanation & meta knowledge inference with uncertainty representing uncertainty probabilities and related approaches, theory of certainty (certainty factors) Qualitative reasoning, the development life cycle, phases I, II, III, IV, V, VI the future of expert system development process societal impacts.

TEXT

1. Efrain Turban and Jay E Aranson: Decision support systems & intelligent systems (5th Edn.) Prentice hall, 1998.

2. Donald A Waterman: A Guide to expert Systems, Addison - Wesley 1995

3. G.F. Luger & W.A Stubble Field -Artificial Intelligence structures and Strategies for complex problem solving, 3 rd Edn. Addision Wesley 1998.

4. E.Rich and Knight, Artificial Intelligence, Second Edn, Tata Mc. Graw Hill Publishing, 1981.

IT-471 E   MANAGEMENT INFORMATION SYSTEM

L	T	P	
4	-	-	**Class Work : 50**
			Exam : 100
			Total : 150
			Duration of Exam: 3 Hrs.

Unit-1: Foundation of Information System:

Introduction to Information System and MIS, Decision support and decision making systems, systems approach, the systems view of business, MIS organization within company, Management information and the systems approach.

Unit-2: Information Technology :

A manager's overview, managerial overviews, computer hardware & software, , DBMS, RDBMS and Telecommunication.

Unit-3: Conceptual system design :

Define the problems, set systems objective, establish system constraints, determine information needs determine information sources, develop alternative conceptual design and select one document the system concept, prepare the conceptual design report.

Unit-4 : Detailed system design :

Inform and involve the organization, aim of detailed design, project management of MIS detailed design , identify dominant and trade of criteria, define the sub systems, sketch the detailed operating sub systems and information flow, determine the degree of automation of each operation, inform and involve the organization again, inputs outputs and processing, early system testing, software, hardware and tools propose an organization to operate the system, document the detailed design revisit the manager user.

Unit-5 : Implementation evaluation and maintenance of the MIS:

Plan the implementation, acquire floor space and plan space

layouts, organize for implementation, develop procedures for implementation, train the operating personnel, computer related acquisitions, develop forms for data collection and information dissemination, develop the files test the system, cut-over, document the system, evaluate the MIS control and maintain the system. Pitfalls in MIS development .

Unit-6: Advanced Concepts in Information Systems :

Enterprise Resources Management(ERP), Supply Chain Management, C R M , Procurement Management System.

Text Books:

• Management Information System by W. S. Jawadekar, 2002, Tata McGraw Hill.

• Information System for Modern Management (3rd edition)- Robert G. Murdick, Loel E. Ross & James R. Claggett. PHI

Reference books:

• Management Information System; O Brian; TMH

• Management Information System by Davis Olson Mac Graw Hill

• Management Information System by Stasllings,(Maxwell Mc Millman Publishers)

• Information System; a Management Perspective; Alter Addison Wesley

• Introduction to Information System; McGraw Hill

Note: Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

PHY-151-E   NANO TECHNOLOGY

L	T	P	
3	2	-	**Theory : 100 Marks**
			Class work : 50 Marks
			Total : 150 Marks
			Duration of Exam : 3 hours

UNIT 1 INTRODUCTION TO NANOTECH

Crystalline-Non crystalline materials, Fundamental of Nanotechnology and Nanomaterials in Metals, other Materials, & Biosystem, Molecular Recognition, Quantum Mechanics and Quantum Ideas in Nanotechnology. Semiconductor Nanoparticles.

UNIT 2 PREPARATION AND CHARACTERIZATION OF NANOPARTICLES

Nanoscale Lithography, Dip Pen Lithography, E-Beam LIthography, Nanosphere Life off, LIthography; Molecular Synthesis, Nanoscale Crystal Growth, Polymerization Nanobricks and Building blocks:

Tools for Measuring Nanostructures - Scanning Probe Instrument, Spectroscopy, Electrochemistry, Election Microscope Tools to Make Nanostructure.

UNIT 3 PROPERTIES & APPLICATION OF NANO CRYSTALLINE MATERIALS

Application in Sensors, Nanoscale Biostructure Electronics, Magnets, Optics, Fabrication Biomedical Applications, Smart Materials - Self Healing Structures, Heterogenous Nanostructure and composites En Capsulation, Carbon Nanotubes.

UNIT 4

Synthesis of semiconductor Nanoclusters, Processing of

Nanomaterials

Nanobusiness - Boom, Bust and Nano Tech. NanoEthics

REFERENCES:

1. Camarata, R.C. Nanomaterials synthesis, properties and application Institute of Physics Publication
2. Madou, Fundamentals of microfabrication, Mcgraw Hill.
3. Sibelia, J.P., A Guide to material characterization, Prentice Hall.
4. Mark Ratner, Daniel Ratner - NanoTechnology - A Gentle Introduction to the Next Big Idea.

Note : The question paper will contain 8 questions in all. The student will be required to answer any five. At the most one question will be set from each section.

IT-204 E   **Multimedia Technologies**

L	T	P	
3	1	-	

Class Work : 50
Exam : 100
Total : 150
Duration of Exam : 3 Hrs.

Unit-1: Basics of Multimedia Technology :

Computers, communication and entertainment; multimedia an introduction; framework for multimedia systems; multimedia devices; CD- Audio, CD-ROM, CD-I, presentation devices and the user interface; multimedia presentation and authoring; professional development tools; LANs and multimedia; internet, World Wide Web & multimedia distribution network-ATM & ADSL; multimedia servers & databases; vector graphics; 3D graphics programs; animation techniques; shading; anti aliasing; morphing; video on demand.

Unit-2 : Image Compression & Standards :

Making still images; editing and capturing images; scanning images; computer color models; color palettes; vector drawing; 3D drawing and rendering; JPEG-objectives and architecture; JPEG-DCT encoding and quantization, JPEG statistical coding, JPEG predictive lossless coding; JPEG performance; overview of other image file formats as GIF, TIFF, BMP, PNG etc.

Unit-3: Audio & Video :

Digital representation of sound; time domain sampled representation; method of encoding the analog signals; subband coding; fourier method; transmission of digital sound; digital audio signal processing; stereophonic & quadraphonic signal processing; editing sampled sound; MPEG Audio; audio compression & decompression; brief survey of speech recognition and generation; audio synthesis; musical instrument digital interface; digital video and image compression; MPEG motion video compression standard; DVI technology; time base media representation and delivery.

Unit-4 : Virtual Reality:

Applications of multimedia, intelligent multimedia system, desktop virtual reality, VR operating system, virtual environment displays and orientation making; visually coupled system requirements; intelligent VR software systems.

Applications of environment in various fields.

Text Books:

- An introduction, Villamil & Molina, Multimedia Mc Milan, 1997
- multimedia: Sound & Video, Lozano, 1997, PHI, (Que)

Reference Books:

- Multimedia: Production, planning and delivery, Villamil & Molina,Que, 1997
- Multimedia on the PC, Sinclair,BPB
- Multimedia: Making it work, Tay Vaughan, fifth edition, 1994, TMH.
- Multimedia in Action by James E Shuman, 1997, Wadsworth Publ.,
- Multimedia in Practice by Jeff coate Judith, 1995,PHI.
- Multimedia Systems by Koegel, AWL
- Multimedia Making it Work by Vaughar, etl.
- Multimedia Systems by John .F. Koegel, 2001, Buford.
- Multimedia Communications by Halsall & Fred, 2001,AW.

Note : Eight questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

IC-455-E   INTELLIGENT INSTRUMENTATION FOR ENGINEERS

L T P   **Sessionals : 50 Marks**
3 1 -   **Exam. : 100 Marks**
                                             Total : 150 Marks
                                    Duration of exam. : 3 hrs.

1. **INTRODUCTION :** Intelligence, features characterizing intelligence, intelligent instrumentation system; features of intelligent instrumentation; components of intelligent instrumentation system; Block diagram of an intelligent instrumentation system.

2. **SIGNAL PROCESSING, MANIPULATION AND TRANSMISSION:** Signal amplification & attenuation (OP-AMP based); Instrumentation Amplifier (circuit diagram, high CMRR & other features); Signal Linearization (different types such as Diode-resistor combination, OP-AMP based, etc.); Bias Removal, Signal filtering (outputs from ideal filters, outputs from constant-k filters, matching of filter sections, active analog filters); OP-AMP based Voltage-to-current converter, Current-to-voltage conversion, Signal integration, Voltage follower (pre-amplifier), voltage comparator, Phase-locked loop, Signal addition, Signal multiplication, Signal Transmission (Signal amplification, Shielding, Current loop transmission, Voltage-to-frequency conversion, Fiber optic transmission); Description of Spike Filter (software-based).

3. **SMART SENSORS:** Primary sensors; Excitation; Compensation (Nonlinearty: look up table method, polygon interpolation, polynomial interpolation, cubic spline interpolation, Approximation & regression; Noise & interference; Response time; Drift; Cross-sensitivity); Information Coding/ Processing; Data Communication; Standards for smart sensor interface..

4. INTERFACING INSTRUMENTS & COMPUTERS : Basic issues of interfacing; Address decoding; Data transfer control; A/D converter; D/A converter; Sample & hold circuit; Other interface considerations.

5. RECENT TRENDS IN SENSOR TECHNOLOGIES :
Introduction; Film sensors (Thick film sensors, Thin film sensors); Semiconductor IC technology - standard methods; Microelectro-mechanical systems (Micro-machining, some application examples); Nano-sensors.

TEXT BOOK:

1. Barney, G.C., Intelligent Instruments. Hemel Hempstead: Prentice Hall, 1985.

2. Alan S. Morris, Principles of Measurement & Instrumentation. N. Delhi: PHI Pvt. Ltd., 1999..

REFERENCE BOOK:

1. D. Patranabis, Sensors & Transducers. N. Delhi: PHI, 2003.

2. Roman Kuc, Introduction to Digital Signal Processing. N. York: McGraw-Hill Pub. Co.

NOTES: 1. In the semester exam., the examiner will set 8 questions in all covering the entire syllabus. Students will be required to attempt any five questions.

2. Use of scientific calculator will be allowed in the Exam. However, pager, programmable calculator & cellular phone etc. will not be allowed.

HUM-453-E   HUMAN RESOURCES MANAGEMENT

L T P	Class Work : 50 Marks
4 - -	Theory : 100 Marks
	Total : 150 Marks
	Duration of Exam.: 3 Hrs.

Unit-I : Understanding Organisational Behaviour

Definition, Goals of Organisational behaviour. Key forces affecting Organisational Behaviour. Fundamental Concepts of Organisational Behaviour.

Unit-II : Motivation

Meaning, Objectives and importance of motivation. Theories of Motivation, Maslow's theory, Mc Greger's Theory Herzberg's theory.

Morale : Meaning; Factors affecting morale, types of morale morale and productivity, Evaluation of morale, improving morale.

Unit-III : Communication

Definition & importance of Communcation; Formal & informal communication, Barriers in communication.

Unit-IV : Leadership

Definition & importance, Nature of leadership various approaches to leadership styles.

Unit-V

Importance of human resources in industry, Definition of human resource management, mechanical approach towards personnel, Paternalism, Social system approach.

Unit-VI

Need for human resource planning, process of human resource planning, Methods of recruitment, Psychological tests and interviewing, Meaning and importance of placement, Meaning and techniques of induction. Training and development : Concepts of training and development, Importance of training and development, Management development its nature, purpose and method.

Unit-VII

Significant factors affecting compensation, Methods of wage payment, Wage differentials, Causes of difference in Wages, Types of wage differentials, Wage incentives, Meaning, Objectives, types of incentive plans.

Recommended Books :

Text Books :

1. Human Resource and Personnel Management - K. Aswathappa - Tata McGraw Hill Publishing Company Ltd.

2. Personnel Management : C.B. Mamoria, Himalaya Publishing House.

3. Organisational Behaviour - Dr. L.M. Prasad (Sultan Chand & Sons).

Reference Books :

1. Personnel Management & Industrial Relations : Dr. T.N. Bhagoliwal : Sahitya Bhawan Agra.

2. Personnel Management : V.G. Karnik, Jaico Publishing House.

3. Personnel management & Industrial Relation: Tripathi: Sultan Chand & Sons.

4. Personnel Management - Arun Monappa & Mirza Saiyadain - Tata McGraw Hill Publishing Co. Ltd.

5. Personnel Management and Industrial Relations - D.C. Sharma & R.C. Sharma S.J. Publications.

6. Principles of Personnel Management - Edwin B. Flippo (McGraw Hill).

7. Organisational Behaviour - K. Adwathappa.

8. Organizational Behaviour - John W. Newsstorn & Keith Davis, Tata McGraw - Hill Publishing Company Limited, New Delhi.

Note: Eight questions are to be set at least one question from each unit and the students will have to attempt five questions in all.

CH-453-E   POLLUTION AND CONTROL

L T P   Class Work : 50 Marks
4 - -   Theory : 100 Marks
Total : 150 Marks
Duration of Exam.: 3 Hrs.

1. **Waster Water & its treatment Processes:-**

   Waster-water characteristics, effiuent standards, primary treatment, secondary treatment - aerobic (activated sludge, aerated lagoons, trickling filter, roughing filter, rotating biological contactor) anaerobic (contact process, UASB).

II **Air Pollution:**

   Classification of air pollutants

   Particulates: Physical characteristics, mode of formation, setting properties, Control measures.

   Hydrocarbons: Nature; sources, control

   Carbon Monoxide: Source, harmful effects on human health, control measures.

   Axides of Sulphur and Nitrogen Sources, effects on human health and plants. Control measure.

III. **Solid Waste:** Types, sources and properties of solid waste, aolid waste management - Generation, Collection and techniques for ultimate disposal, Elementary discussion on resource and energy recovery.

IV. Elementary treatment of nuclear pollution, metal pollution, noise pollution their effects & control.

Books Suggested:

1. Environmental Engg.: by Howard s. Peavy & Others, MGH International.

2. Metacaf - EDDY - Waste-water engineering revised by George Teholonobus (TMH)

3. Environmental Chemistry by B.K. Sharma, Goel Publishing, Meerut.

4. Environmental Chemistry, A.K.DE, Wiley Eastern.

5. Air Pollution: H.C. Perking - Mc Graw Hill.

Note: Eight questions will be set and students will be required to attempt five questions in all.

ME-451-E MECHATRONIC SYSTEMS

L T P
4 - -

Class Work : 50 Marks
Theory : 100 Marks
Total : 150 Marks
Duration of Exam.: 3 Hrs.

UNIT 1

Introduction to Mechatronics. Integrated design issues in Mechatronics, Conceptual design. Possible design solutions. Integrated approach for combining sensors, actuators, computer and the product. Some examples - like auto focus camers, engine combustion control, washing machine, vehicle suspensions, electro-mechanical brakes, manufacturing machine, industrial robots, air conditioning systems, etc..

UNIT 2

Classification of sensors of various type, resistive, strain gage, themistor, inductive, capacitive, piezoelectric, optical, photodetectors, encoders, ultrasonic types Silicon sensors, Micro-sensors for various measurements. Consideration for choice of sensors for a given application.

Signal conditioning and data acquisition using computers. AD and DA converters. Use of plus-in-cards and software for acquiring data from several sensors.

UNIT 4

Mechanical actuation systems - kinematic chains, cams, gear trains, beld and chains drive, ratchet and prawl, bearing, guideways, ball screw and nut, etc. Electrical actuation systems: Operational characteristic and application of electrical actuation components for application like, AC/DC motors, stepper motors, relays, push buttons, switches, solenoids etc.

UNIT 5

Introduction to semiconductor electronics, junction diode, bipolar junction transistor, field effect transistors, digital logic. Number

systems. Logic gates Boolean algebra. Application of logic gates. Combinational and sequential logic.

UNIT 6

Sequence control, relay ladder diagrams for sequence control in processes and machines. Programmable Logic Controlllers and applications: PLC structures, PLC languages, programming of PLC using Mnemonics, Interfacing PLC with actuators, Sequencing of cylinders. Timers, internal relays and counters. Open loop and closed loop control using PLC.

UNIT 7

Architecture of microprocessors and microcontrollers. Use of suitable software languages for micro controllers and their applications in mechatronic systems. Real time interfacing between computers and measurement or control systems. Introduction to modeling and computer control of process and mechanical systems.
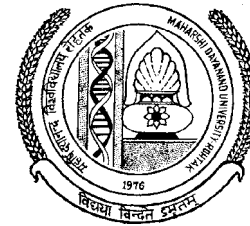
UNIT 8

Communication systems Protocols, Open systems interconnection models. Smart transducers and transmitters. Field buses.

TEXT BOOKS:

1. Mechatronics - Electronic control in mechanical & electrical engineering by W.Bolton, Longman Indian Edn. 1999.

2. Mechatronic system design, by D.Shetty and R.A. Kolk - Mechatronic system design, PWS Publ. Co., Boston, 1997.

3. Mechatronics and Measurement Systems by D.G.Alciatore and M.B. Histand, TMH Publ. 2nd Edn. 2003.

NOTE: In the semester examination, the examiner will set 8 questions in all, and students will be required to attempt only 5 questions.

Maharshi Dayanand University
Rohtak

Syllabus and Courses of
Reading for

B.E. Information Technology
Examination

Session 2010-2011