

**Deenbandhu Chhotu Ram University of Science & Technology,
Murthal (Sonapat) SCHEME OF STUDIES & EXAMINATIONS B.Tech. 4th
YEAR (SEMESTER -VII) COMPUTER SCIENCE AND ENGINEERING Credit
Based Scheme w.e.f. 2015-16**

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	CSE 401B	MOBILE APPLICATIONS DEVELOPMENT (Common with IT)	3	1	-	25	75	-	100	4	3
2	CSE 403 B	CLOUD COMPUTING	3	1	-	25	75	-	100	4	3
3		OPEN ELECTIVE	4	-	-	25	75	-	100	4	3
4		ELECTIVE - I	4	-	-	25	75	-	100	4	3
5		ELECTIVE -II	4	-	-	25	75	-	100	4	3
6	CSE 421 B	MOBILE APPLICATIONS DEVELOPMENT LAB (common with IT)	-		2	20	-	30	50	1	3
7	CSE 423B	CLOUD COMPUTING LAB	-		2	20	-	30	50	1	3
8	CSE 425B	PROJECT	-	-	4	100	-	-	100	4	-
9	CSE 427B	PROFESSIONAL TRAINING -II	-	-	2	50	-		50	2	-
Total			18	2	10	315	375	60	750	28	

*** List of Open Electives**

1	MEI 623B	ENTREPRENEURSHIP	6	BT401B	BIO-INFORMATICS
2	BME451B	MEDICAL INSTRUMENTATION	7	AE417B	MODERN VEHICLE TECHNOLOGY
3	ECE305B	CONSUMER ELECTRONICS	8	CE451B	POLLUTION & CONTROL
4	EE451B	ENERGY AUDIT	9	CSE-411B	MANAGEMENT INFORMATION SYSTEM
5	EEE457B	ENERGY RESOURCES & TECHNOLOGY	10	IT-413B	CYBER SECURITY

ELECTIVES - I		ELECTIVES - II	
IT 304 B	SOFTWARE TESTING	CSE 457 B	NETWORK SECURITY & CRYPTOGRAPHY
IT 405 B	ADVANCED COMPUTER NETWORKS	CSE 459 B	MULTIMEDIA TECHNOLOGY
CSE 451 B	DATA WAREHOUSING & DATA MINING	CSE 461 B	DISTRIBUTED OPERATING SYSTEMS
CSE 453 B	DISTRIBUTED COMPUTING	CSE 463 B	SOFTWARE AGENTS
CSE 455 B	ADVANCED COMPUTER ARCHITECTURE	CSE 465 B	INFORMATION SECURITY & DATA HIDING

Note:

23 Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Moral Values & Ethics and Sports are given in General Proficiency Syllabus.

24 Students will be permitted to opt for any one elective run by the other department (i.e. open electives) and for any two electives, one from Elective-I and one from Elective-II run by the department. However, the department shall offer those elective for which they have expertise. The choice of the students for any elective shall not be binding for the

department to offer, if the department does not have expertise. The minimum strength of the students should be 20 to run an elective course.

- 23 Assessment of Professional Training-II, undergone at the end of VI semester, will be based on seminar, viva-voce, report and certificate of Professional Training obtained by the student from the industry, institute, research lab, training center etc**
- 24 The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.**
- 25 Electronics gadgets including Cellular phones are not allowed in the examination**
- 26 Project coordinator will be assigned the project load of maximum of 2 hrs. per week including his own guiding load of one hr. However, the guiding teacher will be assigned maximum of one period of teaching load irrespective of number of students/groups under him/her.

CSE 401B MOBILE APPLICATIONS DEVELOPMENT
B. Tech. Semester - VII (Computer Science and Engg.) (Common with IT)

L	T	P	Credits	Class Work	25
3	1	--	4	Examination	: Marks 75
				Total	: Marks 100
				Duration of Examination	: 3 Hours

Unit 1:

Introduction to Mobile Application Development

Definition of mobile computing, various types of mobile computing devices (mobile computers, smart phones and dedicated devices). Web based applications, Native applications and Compare and contrast web-based mobile applications against native applications, history of mobile platforms (PDA's, Notebooks, smartphones. Internet protocols for mobile applications .i.e. WAP), evolution of browsers and Internet languages such as HTML and JavaScript.

Unit 2:

Infrastructure

Describe mobile and cell phone technologies (CDMA, GSM, 3G, 4G), Compare and contrast 3G and 4G, Internet terms: IP address, subnet mask, gateway, DNS, static vs Dynamic IP, transport including HTTP , routing, secure connections, proxies and reverse proxies. Need for storage, local Storage, storage on Web

Unit 3:

HTML/CSS/DOM and Scripting.

Basic HTML: validation, rendering and web browser, Cascading Style Sheets (CSS) and how to use them, document object model (DOM) : document, objects, model, DOM tree and DOM's utilization in web design, basic JavaScript code and constructs of the JavaScript language.

Unit 4:

Designing mobile user interfaces and Mobile Platforms

Design mobile interfaces, usability, ways to test user interfaces, various types of user interfaces for mobile apps : Interactive voice response (IVR), SMS/MMS, Mobile web, Native applications, Hybrids, mobile application development design considerations: Text entry, screen size, user interface and user context.

Mobile Platforms: URIs for mobile apps, Compare and contrast native mobile platforms such as tightly controlled (iPhone), open (Android), and licensed (Windows Mobile), web as a mobile application platform.

Text Book:

Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson Education, 2nd ed. (2011)

Reference Books:

0 Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd (2011)
Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd(2009)
Sayed Y Hashimi and Satya Komatineni, "Pro Android", Wiley India Pvt Ltd(2009)
Brian Fling, "Mobile Design and Development: Practical concepts and techniques for creating mobile sites and web

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 403B CLOUD COMPUTING
B. Tech. Semester - VII (Computer Science and Engg.)

L	T	P	Credits	Class Work	: 25 Marks
3	1	--	4	Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

Unit 1:

Introduction: Cloud computing history, architecture and essential characteristics, cloud service models, Cloud Deployment models, advantages of cloud computing, cloud v/s grid computing.

Unit 2:

Virtualization:Virtualization techniques, Benefits and drawbacks of virtualization, VM migration with its types, hypervisors, types of hypervisors, distributed management of virtual infrastructures, scheduling techniques for advance reservation of capacity, Service-oriented architectures, SOA implementation,SOAP v/s REST, web 2.0.

Unit 3:

PaaS: Introduction, advantages and disadvantages of PaaS, introduction to google app engine, GAE cost structure, Apache hadoop: MapReduce, HDFS, Hive, Mapreduce programming model,Hadoop as a service. **Unit 4:**

Migrating into the cloud: Introduction, challenges in the cloud, legal issues in cloud computing, Cloud Economics and Capacity Management:Restricted Choices, Capacity Planning, Queuing andResponse Time, Evidence Based Decision Making, Instrumentation (Measuring Resource Consumption),Bottlenecks, Key Volume Indicators.

Text Books:

Cloud Computing Principles and Paradigms, RajkumarBuyya, Wiley & Sons pub.

Reference Books:

Cloud Computing Web-Based dynamic IT services: Christian Baun, Springer.

Implementing and Developing Cloud Computing Applications: David E.Y Sarna, CRC Press.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

MEI 623B ENTREPRENEURSHIP
B. Tech. Semester - VII (Computer Science and Engg.)
Open Elective

L	T	P	Credits	Class Work	: 25 Marks
4	-	-	4	Examination	: 75 Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT-I

ENTREPRENEURIAL DEVELOPMENT PERSPECTIVE: Concepts of Entrepreneurship Development, Evolution of the concept of Entrepreneur, Entrepreneur Vs. Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager, Attributes and Characteristics of a successful Entrepreneur, Role of Entrepreneur in Indian economy and developing economies with reference to Self-Employment Development, Entrepreneurial Culture

UNIT II

CREATING ENTREPRENEURIAL VENTURE: Business Planning Process, Environmental Analysis - Search and Scanning, Identifying problems and opportunities, Defining Business Idea, Basic Government Procedures to be complied with.

UNIT III

ENTREPRENEURSHIP DEVELOPMENT AND GOVERNMENT: Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units - Fiscal and Tax concessions available; Role of Central/State agencies in the Entrepreneurship Development - District Industries Centers (DIC), Small Industries Service Institute (SISI), Entrepreneurship Development Institute of India (EDII), National Institute of Entrepreneurship & Small Business Development (NIESBUD), National Entrepreneurship Development Board (NEDB).

UNIT IV

PROJECT MANAGEMENT AND CASE STUDIES

Technical, Financial, Marketing, Personnel and Management Feasibility, Estimating and Financing funds requirement - Schemes offered by various commercial banks and financial institutions like IDBI, ICICI, SIDBI, SFCs, Venture Capital Funding, Why do Entrepreneurs fail - The Four Entrepreneurial Pitfalls (Peter Drucker), Case studies of Successful Entrepreneurial Ventures, Failed Entrepreneurial Ventures and Turnaround Ventures.

Texts and References:

Entrepreneurship: New Venture Creation - David H. Holt.
Entrepreneurship - Hisrich Peters.
The Culture of Entrepreneurship - Brigitte Berger.
Project Management - K. Nagarajan.
Dynamics of Entrepreneurship Development - Vasant Desai.
Entrepreneurship Development - Dr. P.C. Shejwalkar.
Thought Leaders - Shrinivas Pandit.
Entrepreneurship, 3rd Ed. - Steven Brandt.
Business Gurus Speak - S.N. Char.
The Entrepreneurial Connection - Gurmit Narula.

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

**BME
451B MEDICAL INSTRUMENTATION**
**B. Tech. Semester - VII-(Computer Science and Engg.) Open
Elective**

L T P Credits
4 - -- 4

Class Work : 25 Marks
Examination : 75 Marks
Total : 100 Marks
Duration of
Examination : 3 Hours

UNIT-I

PHYSIOLOGY AND TRANSDUCERS: Cell and its structure - Action and resting - Potential propagation of action potential - Sodium pump - Nervous system - CNS - PNS - Nerve cell - Synapse - Cardio pulmonary system - Physiology of heart and lungs - Circulation and respiration - Transducers - Different types - Piezo-electric, ultrasonic, resistive, capacitive, inductive transducers - Selection criteria.

UNIT-II

ELECTRO - PHYSIOLOGICAL AND NON-ELECTRICAL PARAMETER MEASUREMENTS: Basic components of a biomedical system - Electrodes - Micro, needle and surface electrodes - Amplifiers - Preamplifiers, differential amplifiers, chopper amplifiers - Isolation amplifier. ECG - EEG - EMG - ERG - Lead systems and recording methods - Typical waveforms. Measurement of blood pressure - Cardiac output - Cardiac rate - Heart sound - Respiratory rate - Gas volume - Flow rate of CO₂, O₂ in exhaust air - PH of blood, ESR, GSR measurements - Plethysmography.

UNIT-III

MEDICAL IMAGING AND PATIENT MONITORING SYSTEMS: X-ray machine - Radio graphic and fluoroscopic techniques - Computer tomography - MRI - Ultrasonography - Endoscopy - Thermography - Different types of biotelemetry systems and patient monitoring - Electrical safety. Biological effects of X-rays and precautions.

UNIT-IV

ASSISTING AND THERAPEUTIC EQUIPMENTS: Pacemakers - Defibrillators - Ventilators - Nerve and muscle

stimulators - Diathermy - Heart - Lung machine - Audio meters - Dialyzers. Respiratory Instrumentation -

Mechanism of respiration, Spirometry, Pneumotachograph Ventilators.

TEXT BOOKS

Biomedical Instrumentation and Measurements - Leslie Cromwell and F.J. Weibell, E.A. Pfeiffer, PHI, 2nd Ed, 1980.

Medical Instrumentation, Application and Design - John G.Webster, John Wiley 3rd Ed., 1998

REFERENCE BOOKS

Principles of Applied Biomedical Instrumentation - L.A.Geoddes and L.E. Baker, John Wiley, 1975.

Hand-book of Biomedical Instrumentation - R.S. Khandpur, TMH, 2nd Ed., 2003.

Biomedical Telemetry - Mackay, Stuart R., John Wiley, 1

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

ECE 305B CONSUMER ELECTRONICS
B. Tech. Semester - VII (Computer Science and Engg.) -
Open Elective

L	T	P	Credit		25
4	-	--	s	Class Work	: Marks
					75
				Examination	: Marks
					100
				Total	: Marks
				Duration of	
				Examination	: 3 Hours

UNIT I

MONOCHROME TV (INTRODUCTION): Elements of a TV System, Picture transmission, Sound transmission, Picture reception, Sound reception, Synchronization, Receiver control, Image continuity, Scanning Process, Aspect Ratio, Flicker, Composite Video Signal, Picture Elements, Kell factor, Vertical Resolution, Horizontal Resolution, Video bandwidth, Interlacing, 625 Line System, Bandwidths for TV Transmission, Vertical and horizontal synch detail, Vestigial Side Band transmission (Advantages and Disadvantages)

MONOCHROME TV (PICTURE AND CAMERA TUBES): Monochrome picture tube, beam reflection, Beam focussing, Screen Phosphor, Face plate, Picture tube characteristics, picture tube circuit controls, Monochrome Camera Tubes: Basic principle, Image Orthicon, Vidicon, Plumbicon

UNIT II

COLOUR TV ESSENTIALS: Compatibility, Colour perception, Three Colour theory, Luminance, Hue and Saturation, Dispersion and Recombination of light, Primary and secondary colours, luminance signal, Chrominance Signal, Colour picture tube, colour TV Camera, Colour TV display Tubes, colour Signal Transmission, Bandwidth for colour signal transmission, Colour TV controls. Cable TV, Block Diagram and principle of working of cable TV.

PLASMA AND LCD: Introduction, liquid crystals, types of LCD's, TN, STN, TFT, Power requirements, LCD working, Principle of operation of TN display, Construction of TN display, Behaviour of TN liquid crystals, Viewing angle, colour balance, colour TN display, limitations, advantages, disadvantages, applications.

UNIT III

LED AND DMD : Introduction to LED Television, comparison with LCD and Plasma TV's, schematic of DMD, introduction to Digital MicroMirror device, Diagram of DMD, principle of working, emerging applications of DMD. **MICROWAVE OVENS AND AIR CONDITIONERS:** Microwaves, Transit Time, Magnetron, Waveguides, Microwave Oven, Microwave Cooking. Air conditioning, Components of air conditioning systems, all water Air conditioning systems, all air air conditioning Systems, Split air conditioner.

UNIT IV

MICROPHONES: Introduction, characteristics of microphones, types of microphone: carbon, moving coil, wireless, crystal, introduction to tape recorder.

LOUDSPEAKER: Introduction to ideal and basic loudspeaker, loudspeaker construction types of loudspeaker:

Dynamic and permanent magnet, woofers, tweeters, brief introduction to baffles, equalisers.

Text Books :

1. Consumer Electronics by S. P. Bali (Pearson Education)
2. Complete Satellite and Cable T.V by R.R. Gulati (New Age International Publishers)

Reference Books:

1. Monochrome and Colour Television by R. R. Gulati

Note: 1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

0 451B ENERGY AUDIT

B. Tech. Semester - VII (Computer Science and Engg.) - Open Elective					
L	T	P	Credits	Class Work	: 25 Marks
4	-	--	4	Examination	: 75 Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT I

INTRODUCTION TO THE POWER DISTRIBUTION SYSTEM: Description of the power distribution system- voltage levels, Components of the distribution system- Substation, Transformer, feeders, distribution system planning, operation & maintenance objectives, activities involved in O&M, grid management, load scheduling & dispatch, load balancing, 66-33/11 KV substation equipment, 11/0.4 KV substation equipment, Distribution transformers- reasons for DT failures.

UNIT II

ENERGY ACCOUNTING & ENERGY AUDIT: Need for energy accounting, objectives & functions of energy accounting, Energy flow diagram in power distribution system, energy accounting procedure- Energy measurement, and problems in energy accounting & overcoming these problems in energy accounting, Definition, need and types of energy audit, energy audit instruments, procedure for conducting an energy audit.

UNIT III

AT&C LOSS REDUCTION & EFFICIENCY IMPROVEMENT: Concepts and principles of distribution losses- transmission & distribution losses, AT&C losses in power distribution network, factors contributing to high technical & commercial losses. Technical loss reduction- Short term measures for technical loss reduction, long term plans for technical loss reduction, Commercial loss reduction- reasons for commercial losses, measures for commercial loss reduction.

UNIT IV

DEMAND SIDE MANAGEMENT: An introduction, Why DSM?, Benefits of DSM, DSM in power systems: load management, DSM techniques and emerging trends, EC Act 2001, DSM on consumer side - the industrial sector, the agricultural sector, the domestic & commercial sectors, ESCO-a route for DSM.

TEXT BOOKS:

Handbook of Energy Engineering, The Fairmont Press, INC.-Albert Thumann& Paul Mehta.
Energy Management Supply & Conservation, Butterworth Heinemann, 2002-dr. Clive Beggs.

REFERENCE BOOKS:

1. Hand book on energy audit & environment management by ISBN 81-1993.0920 TERI

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

**EEE457B ENERGY RESOURCES &
TECHNOLOGY**

B. Tech. Semester - VII (Computer Science and Engg.) -

Open Elective

L	T	P	Credits	Class Work	: 25 Marks
4	-	--	4	Examination	: 75 Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT-I

ENERGY SOURCES & AVAILABILITY: World energy situation. Indian energy scenario. Comparative study of thermal, hydro, nuclear and gas power plants. Impact of thermal, gas, hydro and nuclear power stations on environment, air and water pollution, green house effect (global warming), Plasma confinement - magnetic confinement and inertial confinement, geothermal, hydrogen energy, fuel cells, Alkaline fuel cells (AFC), Solid oxide fuel cell (SOFC), Molten carbonate fuel cells (MCFC), thermo-electric power, MHD power generation OTEC & tidal waves.

UNIT-II

SOLAR ENERGY: Solar constant, solar radiation geometry, local solar time, day length, solar radiation measurement, radiation on inclined surface, solar radiation data & solar charts. Flat plate collectors, liquid and air type. Theory of flat plate collectors, advanced collectors, optical design of concentrators, selective coatings, solar water heating, solar dryers, solar stills, solar cooling and refrigeration. Thermal storage. Conversion of heat into mechanical energy. Active and passive heating of buildings. Solar cells.

UNIT-III

WIND ENERGY: Wind as a Source of Energy, Characteristics of wind, wind data. Horizontal & Vertical axis wind Mills, Wind Energy: Wind energy potential measurement, general theories of wind machines, basic laws and concepts of aerodynamics, wind mill and wind electric generator. Basic electric generation schemes-constant speed constant frequency, variable speed constant frequency and variable speed variable frequency schemes. Applications of wind energy.

UNIT-IV

BIOMASS ENERGY: Introduction to biomass, biofuels & their heat content, biomass conversion technologies. Aerobic & anaerobic digester, Factors affecting biogas production, biogas plants - types & description. Utilisation of biogas - Gasifiers, direct thermal application of Gasifiers. Advantages & problems in development of Gasifiers, use in I.C. engines, Energy plantation. Pyrolysis scheme. Alternative liquid fuels -ethanol and methanol. Ethanol production.

TEXT BOOKS:

Electric Power Generation, B.R.Gupta
Power Generation, Operation and Control, Wood and Wollenberg, John Wiley & Sons,1984.
Power Plant Engg: G.D. Rai

REFERENCE BOOKS:

Renewable Energy Resources: John Twidell and Tony Weir
Renewable Energy Resources Conventional & Non- Conventional: M.V.R Koteswara Rao
Science & Technology of Photovoltaics: Jayarama Reddy P.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

BT401B BIO-INFORMATICS
B. Tech. Semester - VII (Computer Science and Engg.) -
Open Elective

L **T** **P** **Credits**
4 **-** **--** **4**

Class Work : **25 Marks**
Examination : **75 Marks**
Total : **100 Marks**
Duration of
Examination : **3 Hours**

UNIT-I

INTRODUCTION: Internet, intranet and extranet, networking, protocols, genomic data, organization, representation, data base management systems.

SEQUENCING DATA BANK: Introduction, collecting and storing sequence in laboratory, nucleic acid data bank - Gen Bank, EMBL, AIDS and RNA, protein data bank (PDB), cambridge structural database CSD, genome data bank, hybridoma data bank structure and others.

UNIT-II

SEQUENCE ANALYSIS: Analysis tools for sequence data banks, pair wise alignment: NEEDLEMAN and WUNSCH algorithms, Smith Waterman, multiple alignment - CLUSTAL-W, BLAST, FASTA, sequence patterns and motifs and profiles.

PREDICTIONS: Secondary and tertiary structure: algorithms Chao-Fasman algorithm, hidden Markov model, neural networking, protein classification, fold libraries, fold recognition (threading), homology detection, SRS-access to biological data banks.

UNIT-III

PHYLOGENETIC ANALYSIS- Basic concepts in systematics, taxonomy and phylogeny, phylogenetic trees-various types and their construction, tree building methods, distance methods, multiple alignment character based method, phylogenetic software.

MANAGING SCIENTIFIC DATA: Introduction, challenges faced in integration of biological information, SRS, Kleisli Query System TAMBIS, P/FDM mediator for a bioinformatics database, federation, discovery link and data management.

UNIT-IV

GENOMICS & PROTEOMICS: Genome mapping, assembly and comparison, functional genomics: sequence based approaches & microarray based approaches, proteomics: technology of protein expression analysis & posttranslational modifications, protein sorting, protein-protein interaction.

TEXT / REFERENCE BOOKS:

Developing Bioinformatics Computer Skill, ed. Gibes & Jombeck, Shroff
Publication Bioinformatics, ed. David W. Mount

**Not
e:**

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

AE 417B MODERN VEHICLE TECHNOLOGY
B. Tech. Semester - VII) (Computer Science and Engg.) -
Open Elective

L	T	P	Credits	Class Work	: 25 Marks
4	-	--	4	Examination	: 75 Marks
				Total	: 100 Marks
				Duration	of : 3 Hours
				Examination	

UNIT I

TRENDS IN POWER PLANTS: Hybrid vehicles - stratified charged / lean burn engines - Hydrogen engines

- battery vehicles - Electric propulsion with cables - magnetic track vehicles.

UNIT II

SUSPENSION BRAKES AND SAFETY: Air suspension - Closed loop suspension - antiskid braking system,

Retarders, Regenerative braking safety cage - air bags - crash resistance - passenger comfort

UNIT III

NOISE & POLLUTION: Reduction of noise - Internal & external pollution control through alternate fuels / power plants - Catalytic converters and filters for particulate emission.

UNIT IV

VEHICLE OPERATION AND CONTROL: Computer control for pollution and noise control and for fuel economy - Transducers and actuators - Information technology for receiving proper information and

operation of the vehicle like optimum speed and direction.

VEHICLE AUTOMATED TRACKS: Preparation and maintenance of proper road network - National

highway network with automated roads and vehicles - Satellite control of vehicle operation for safe and fast

travel.

TEXT BOOKS

1. Heinz Heisler, "Advanced Vehicle Technology" - Arnold Publication.

REFERENCES

Beranek.L.L., Noise reduction, McGraw Hill Book Co., Inc., Newyork, 1993.

Bosch Hand Book, 3rd Edition, SAE, 1993.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

CE451B POLLUTION & CONTROL
B. Tech. Semester - VII (Computer Science and Engg.) -
Open Elective

L	T	P	Credits	Class Work	: 25 Marks
4	-	--	4	Examination	: 75 Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT - I

WATER POLLUTION - Classification of water pollutants, water characteristics, effluent standards, primary treatment, secondary treatment - aerobic (activated sludge, aerated lagoons, trickling filter, roughing filter, rotating biological contactor) anaerobic (contact process, UASB).

UNIT - II

AIR POLLUTION: Classification of air pollutants, Particulates: Physical characteristics, mode of formation, settling properties, Control measures.

HYDROCARBONS: Nature; sources, control, Carbon Monoxide: Source, harmful effects on human health, control measures. Oxides of Sulphur and Nitrogen Sources, effects on human health and plants. Control measure.

UNIT - III

SOLID WASTE: Types, sources and properties of solid waste, methods of solid waste treatment and disposal

SOLID WASTE MANAGEMENT - Generation, Collection and techniques for ultimate disposal, Elementary discussion on resource and energy recovery.

UNIT - IV

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

Trace element: Mechanism of distribution, essential and non essential elements, trace of element in marine environment, its ecological effects and biological effects.

Suggested Books:

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

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

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

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

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

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

**CSE 411B MANAGEMENT INFORMATION
SYSTEM**

**B. Tech. Semester - VII (Computer Science and Engg.) - Open
Elective**

L	T	P	Credits	Class Work	25
4	-	--	4	Examination	: Marks
					75
				Total	: Marks
				Duration	of : 3 Hours
				Examination	

UNIT I

INFORMATION SYSTEM FOUNDATIONS: Introduction to Information System and MIS, Decision support and decision making systems, systems approach, the systems view of business, Managing the digital firm, Electronic Commerce and Electronic business, DBMS, RDBMS, introduction to Telecommunication and Networks

I.T.INFRASTRUCTURE:- Managing Hardware Assets, Managing Software Assets, Managing Data Resources. Internet And New It Infrastructure .

UNIT II

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, and prepare the conceptual design report. Information Systems Security and Control, Ethical and Social Impact of Information Systems.

UNIT III

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, documentation of detailed design

UNIT IV

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, Redesigning the organization with Information systems, Managing Knowledge Work.

TEXT BOOKS:

1. Management Information System by W. S. Jawadekar, 2002, Tata McGraw Hill.
2. Management Information System by K.C. Laudon & J.P. Laudon 7th Edition 2003 Pearson Education Publishers Indian Reprint.
3. Information System for Modern Management (3rd edition)- Robert G. Murdick, Loel E. Ross & James R. Claggett. PHI

REFERENCE BOOKS:

1. Management Information System; O Brian; TMH
2. Management Information System by Davis Olson Mac Graw Hill
3. Management Information System by Stallings,(Maxwell Mc Millman Publishers)

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

IT413B CYBER SECURITY
B. Tech. Semester - VII (Computer Science and Engg.) -
Open Elective

L	T	P	Credits	Class Work	25 : Marks
4	-	--	4	Examination	75 : Marks
				Total	100 : Marks
				Duration of Examination	: 3 Hours

UNIT I

INTRODUCTION TO CYBERCRIME: Cybercrime and Information Security, Classifications of Cybercrimes, The need for Cyberlaws, The Indian IT Act Challenges to Indian Law and Cybercrime Scenario in India, Weakness in Information Technology Act and its consequences, Digital Signatures and the Indian IT Act, Cybercrime and Punishment; Technology, Students and Cyberlaw; Survival tactics for the Netizens, Cyber-offenses: Cyberstalking, Cybercafe and Cybercrimes, Botnets, Attack Vector, Cloud Computing;

UNIT II

TOOLS AND METHODS USED IN CYBERCRIME: Proxy Servers and Anonymizers, Phishing and identity theft, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan Horses and Backdoors, Steganography, DoS and DDoS Attacks, SQL Injection, Buffer Overflow; Cybercrime: Mobile and Wireless Devices: Trends in Mobility, Attacks on Wireless Networks, Credit Card Frauds in Mobile and Wireless Computing Era, Security Challenges, Registry Settings for Mobile Devices, Authentication Service Security, Attacks on Mobile/Cell Phones.

UNIT III

UNDERSTANDING COMPUTER FORENSICS: The Need for Computer Forensics, Cyberforensics and Digital Evidence, Forensics Analysis of E-Mail, Digital Forensics Life Cycle, Chain of Custody Concept, Network Forensics, Computer Forensics and Steganography, Relevance of the OSI 7 Layer Model to Computer Forensics, Forensics and Social Networking Sites: The Security/Privacy Threats, Challenges in Computer Forensics, Forensics Auditing, Antiforensics.

UNIT IV

CYBERSECURITY: ORGANIZATIONAL IMPLICATIONS: Cost of Cybercrimes and IPR Issues, Web Threats for Organizations, Security and Privacy Implications from Cloud Computing, Social Media Marketing, Social Computing and the Associated Challenges for Organizations, Protecting People's Privacy in the Organization, Organizational Guidelines for Internet Usage, Safe Computing Guidelines and Computer Usage Policy, Incident Handling, Forensics Best Practices, Media and Asset Protection, Importance of Endpoint Security in Organizations.

TEXT BOOKS:

“Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives”,
Nina Godbole, Sunit Belapur, Wiley India Publications, April, 2011

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

IT 304B SOFTWARE TESTING
B. Tech. Semester - VII (Information Technology) Elective-I (Common with IT)

L	T	P	Credits		25
3	1	--	4	Class Work	: Marks
				Examination	: s
				Total	: Marks
				Duration of Examination	: 3 Hours

Unit-I

Introduction: What is software testing and why it is so hard?, Error, Fault, Failure, Incident, Test Cases, Testing Process, Limitations of Testing, No absolute proof of correctness, Overview of Graph Theory. **Functional Testing:** Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique.

Unit-II

Structural Testing: Path testing, DD-Paths, Cyclomatic Complexity, Graph Metrics, Data Flow Testing, Mutation testing.

Testing Activities: Unit Testing, Levels of Testing, Integration Testing, System Testing, Debugging, Domain Testing.

Unit-III

Reducing the number of test cases: Prioritization guidelines, Priority category, Scheme, Risk Analysis, Regression Testing, and Slice based testing

Object Oriented Testing: Issues in Object Oriented Testing, Class Testing, GUI Testing, Object Oriented Integration and System Testing.

Unit-IV

Testing Tools: Static Testing Tools, Dynamic Testing Tools, and Characteristics of Modern Tools and Implementation with example. Advanced topics in software testing: web based testing, Client server testing, Automated test cases generation, Regular expression and FSM based testing.

Text Books

William Perry, Effective Methods for Software Testing , John Wiley & Sons, New York, 1995.

Cem Kaner, Jack Falk, Nguyen Quoc, Testing Computer Software , Second Edition, Van Nostrand Reinhold, New York, 1993.

Boris Beizer, Software Testing Techniques , Second Volume, Second Edition, Van Nostrand Reinhold, New York, 1990.

Louise Tamres, Software Testing , Pearson Education Asia, 2002

Reference Books

Roger S. Pressman, Software Engineering – A Practitioner’s Approach , Fifth Edition, McGraw-Hill International Edition, New Delhi, 2001.

Boris Beizer, Black-Box Testing – Techniques for Functional Testing of Software and Systems , John Wiley & Sons Inc., New York, 1995.

K.K. Aggarwal & Yogesh Singh, Software Engineering , New Age International Publishers, New Delhi, 2003.

Marc Roper, Software Testing , McGraw-Hill Book Co., London, 1994.

Gordon Schulmeyer, Zero Defect Software , McGraw-Hill, New York, 1990.

Watts Humphrey, Managing the Software Process , Addison Wesley Pub. Co. Inc., Massachusetts, 1989.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

IT 405B ADVANCED COMPUTER NETWORKS

B. Tech. Semester - VII (Computer Science and Engg.) Elective-I (Common with IT)

L	T	P	Credits	Class Work	: 25 Marks
4	--	--	4	Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

Unit I:

Binding Protocol Address- Address Resolution Protocol & RARP, ARP & RARP, packet format, Encapsulation. Internet protocol: Introduction, Ipv4 header, Ipv4Datagrams, Encapsulation, Fragmentation and Reassembly, IP routing, Subnet addressing, Subnet mask, Supernetting- special case of IP addresses IPv6-Motivation, frame format and addressing, comparison of IPv4 and IPv6.

Unit II

Socket Programming: Creating sockets, Posix data type, Socket addresses, Assigning address to a socket, Java socket programming, Thread programming, Berkeley Sockets: Overview, socket address structures, byte manipulation & address conversion functions, elementary socket system calls -socket, connect, bind, listen, accept, fork, exec, close, TCP ports (ephemeral, reserved), Berkeley Sockets: I/O asynchronous & multiplexing models, select & poll functions, signal & fcntl functions, socket implementation (client & server programs), UNIX domain protocols.

Unit III

GSM Overview, GSM Network signaling, GSM Mobility Management, GSM Short Message Service, Mobile Number portability
General Packet Radio Service: Functional Groups, Architecture, GPRS Network nodes and Interfaces, Introductory ideas about WAP

Unit IV

Network Security Practice: Authentication Applications- Kerberos, X.509 Authentication Service; Electronic Mail Security- Pretty Good Privacy, S/MIME; IP Security- IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations; Web Security- Web Security Considerations, Secure Sockets Layer and Transport Layer Security, Secure Electronic Transaction.

REFERENCES

Jawin, "Networks Protocols Handbook", Jawin Technologies Inc., 2005.
Bruce Potter and Bob Fleck, "802.11 Security", O'Reilly Publications, 2002.
Ralph Oppliger "SSL and TSL: Theory and Practice", Artech House, 2009.
Forouzan, Data Communication and Networking, TMH
Behrouz A.Forouzan, TCP/IP Protocol Suite
William Stalling, Network Security Essentials, 2nd Edition. PHI New Delhi

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 451 B DATAWAREHOUSING AND DATAMINING
B. Tech. Semester - VII (Computer Science and Engg.)
Elective-I

L	T	P	Credits	Class Work	: 25 Marks
4	--	--	4	Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

Unit 1

Data Warehousing: Introduction to Data Warehousing: Evolution of Data Warehousing, Data Warehousing concepts, Benefits of Data Warehousing, Comparison of OLTP and Data Warehousing, Problems of Data Warehousing.

Data Warehousing Architecture: Architecture: Operational Data and Data store, Load Manager, Warehouse Manager, Query Manager, Detailed Data, Lightly and highly summarized Data, Archive/Backup Data, Meta-Data, architecture model, 2-tier, 3-tier and 4-tier data warehouse, end user Access tools.

Unit 2

Data Warehousing Tools and Technology: Tools and Technologies: Extraction, cleaning and Transformation

tools, Data Warehouse DBMS, Data Warehouse Meta-Data, Administration and management tools,

operational vs. information systems.

OLAP & DSS support in data warehouse.

Distributed Data Warehouse: Types of Distributed Data Warehouses, Nature of development Efforts, Distributed Data Warehouse Development, Building the Warehouse on multiple levels.

Unit 3

Types of Data Warehouses & Data Warehouse Design: Host based, single stage, LAN based, Multistage, stationary distributed & virtual data-warehouses. Data warehousing Design: Designing Data warehouse Database, Database Design Methodology for Data Warehouses, Data Warehousing design Using Oracle.

Unit 4

OLAP and data mining: Online Analytical processing, Data mining.

Knowledge discovery: Knowledge discovery through statistical techniques, Knowledge discovery through neural networks, Fuzzy technology & genetic algorithms.

Reference Books

Building the Data Warehouse , W.H.Inmon, 3rd Edition, John Wiley & Sons.

Developing the Data Warehouse , W.H.Inmon, C.Kelly, John Wiley & Sons.

Thomas Connolly, Carolyn Begg- Database Systems-A practical approach to Design,

Implementation and management 3rd Edition Pearson Education

W.H.Inmon, C.L.Gassey, Managing the Data Warehouse , John Wiley & Sons.

Fayyad, Usama M. et. al., Advances in knowledge discovery & Data mining , MIT Press.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 453B DISTRIBUTED COMPUTING
B. Tech. Semester - VII (Computer Science and
Engg.) Elective-I

L	T	P	Credits	Class Work	: 25 Marks
4	--	--	4	Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

Unit 1

Fundamentals of Distributed Computing: Architectural models for distributed and mobile computing systems. Basic concepts in distributed computing such as clocks, message ordering, consistent global states, and consensus.

Basic Algorithms in Message: Passing Systems, Leader Election in Rings, and Mutual Exclusion in Shared Memory,

Fault-Tolerant Consensus, Causality and Time. Message Passing: PVM and MPI.

Unit 2

Distributed Operating Systems and network operating systems, Distributed File systems. Client/server model for computing, common layer application protocols (RPC, RMI, streams), distributed processes, network naming, distributed synchronization and distributed object-based systems.

Simulation: A Formal Model for Simulations, Broadcast and Multicast, Distributed Shared Memory, Fault-Tolerant Simulations of Read/Write Objects Simulating Synchrony, Improving the Fault Tolerance of Algorithms, Fault-Tolerant Clock Synchronization.

Unit 3

Advanced Topics: Randomization, Wait-Free Simulations of Arbitrary Objects, and Problems Solvable in Asynchronous Systems, Solving Consensus in Eventually Stable Systems, High Performance Computing-HPF, Distributed and mobile multimedia systems. Adaptability in Mobile Computing, Grid Computing and applications.

Unit 4

Distributed Environments: Current systems and developments (DCE, CORBA, JAVA).

Case study- Distributed information searching on the network- Mobile Agent Approach.

Reference Books

Hagit Attiya, Jennifer Welch, Distributed Computing: Fundamentals, Simulations, and Advanced Topics, 2nd Edition, March 2004.

R. B. Patel, Mobile Computing-A Practical Approach, 1st edition, Khanna Publishing House Delhi

Mullendar S. Distributed Systems, 2nd Ed. Addison, Wesley 1994.

Tannenbaum, A. Distributed Operating Systems, Prentice Hall 1995.

Helal, Abdelsalam A. et al. Anytime, Anywhere Computing: Mobile Computing Concepts and Technology, Kluwer Academic Publishers 1999.

George Coulouris, Jean Dollimore and Tim Kindberg, Distributed Systems: Concepts and Design Third Edition Addison-Wesley, Pearson Education, 2001.

Cay S Horstmann and Gary Cornell, Java 2 Vol I and II-Sun Micro Systems-2001

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 455 B ADVANCED COMPUTER ARCHITECTURE
B. Tech. Semester - VII (Computer Science and Engg.)
Elective-II

L	T	P	Credits	Class Work	25
4	--	--	4	Examination	: Marks
				Total	75Mark
				Duration of	: s
				Examination	100
					: Marks
					: 3 Hours

Unit-1:

Introduction: Elements of modern computers (computing problems, algorithms, hardware, OS, system software); Evolution of computer architecture; Factors affecting system performance ; architectural development tracks (Multiple-processor tracks , Multivector & SIMD tracks, Multithread & Dataflow tracks) Conditions of parallelism (Data dependence, Resource dependence , control dependence , Bernstein's Conditions); Hardware & Software parallelism; Program partitioning & Scheduling; Program flow machines (Control flow , Data flow , Demand driven); Parallel processor applications; Speedup performance laws (Amdahl's law, Gustafson's law); Scalability (Goals, Metrics, evolution of scalable architectures , open issues)

Unit-2:

Advanced processor Technology :- Design space ; Instruction pipelines ; Instruction set architecture (RISC, CISC, RISC scalar processors, CISC scalar processors) ; Superscalar Processors , VLIW architecture; Vector & Symbolic processors; Pipelining: Linear pipeline processors, Nonlinear pipeline processors, Instruction pipeline(pipelined instruction processing, mechanisms for instruction pipelining, dynamic instruction scheduling , branch handling techniques) Parallel & Scalable Architectures :- Hierarchical bus system, Crossbar switch & multiport memory , multistage & combining networks; Cache coherence & synchronization mechanisms (cache coherence problem, Snoopy bus protocols , directory based protocols .

Unit-3:

Advanced Memory Technology:- Bus system (Backplane bus specification, addressing & timing protocols, Arbitration , Transaction and Interrupt , IEEE futurebus) Cache organizations (Cache addressing models , cache performance issues); Shared memory organizations(Interleaved memory organization, Bandwidth and fault tolerance , memory allocation schemes , Sequential & weak consistency models . Latency hiding techniques .

Unit-4:

Parallel Models and Languages :- Parallel Programming Models(Shared-Variable, Message passing, Data-Parallel, Object-Oriented);Parallel languages & Compilers (language features for parallelism, parallel language constructs, optimizing compilers for parallelism);Code optimization & partitioning (Scalar optimization , Local & Global optimization, Vectorization , code generation & scheduling , Trace scheduling compilation); Parallel programming environments (S/W Tools , Y-MP, Paragon, CM-5 Environments , Visualization & Performance tuning)

TEXT BOOK:

Advance Computer Architecture : Parallelism , Scalability, Programmability ; 2nd Edition by Kai Hwang &Nareshjotwani, 2012, TMH.

REFERENCE BOOKS:

Pipelined and Parallel processor design by Michael J. Fiynn - 1995, Narosa.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 457 B NETWORK SECURITY AND CRPTOGRAPHY
B. Tech. Semester - VII (Computer Science and Engg.)
Elective-II

L	T	P	Credits	Class Work	25
4	--	--	4	Examination	: Marks
				Total	75Mark
				Duration of	: s
				Examination	100
					: Marks
					: 3 Hours

Unit-I

Introduction: Plain text and cipher text, substitution techniques, transposition techniques, encryption and decryption, symmetric and asymmetric key cryptography.

Unit-II

Symmetric key algorithms: introduction, algorithms types and modes, DES, AES.

Asymmetric key algorithms: introduction, history of asymmetric key cryptography, RSA symmetric and asymmetric key cryptography together, Digital signature.

Unit-III

Internet security protocols: basic concepts, Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Hyper Text Transfer protocol (SHTTP), Time Stamping Protocol (TSP), Secure Electronic Transaction (SET), SSL versus SET, Electronic Money, Email Security.

Unit-IV

User Authentication and Kerberos: Introduction, Authentication basics, Passwords, authentication tokens, certificate based authentication, biometric based authentication, Kerberos, key distribution center(KDC), Security handshake pitfalls, single Sign on(SSO) approach.

Text Books:

Cryptography and Network Security, 2nd Edition by Atul Kahate, TMH
Network Management Principles & Practices by Subramanian, Mani (AWL)
SNMP, Stalling, Willian (AWL)

Reference Books:

SNMP: A Guide to Network Management (MGH)
Telecom Network Management by H.H. Wang (MGH)
Network Management by U. Dlack (MGH)

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 459B MULTIMEDIA TECHNOLOGIES

B. Tech. Semester - VII (Computer Science and Engg.) Elective-II

L	T	P	Credits	Class Work	: 25 Marks
4	--	--	4	Examination	: 75Marks
				Total	: 100 Marks
				Duration of	
				Examination	: 3 Hours

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
3. 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:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 461B DISTRIBUTED OPERATING SYSTEM
B. Tech. Semester - VII (Computer Science and Engg.)
Elective-II

L	T	P	Credits	Class Work	25
4	--	--	4	Examination	: Marks
				Total	75Mark
				Duration of	: s
				Examination	100
					: Marks
					: 3 Hours

Unit I

Introduction to Distributed System, Characteristics of Distributed system, Network vs. centralized systems, Design issues. Resource sharing and the Web – Challenges – System models – Architectural and fundamental models – Networking and internetworking Communication in distributed system: Layered protocols, ATM networks, Client - Server model ,Remote Procedure Calls and Group Communication.

UNIT II

Clock synchronization, Mutual Exclusion, Election algorithm, the Bully algorithm, a Ring algorithm, Transactions – Nested transactions – Locks – Optimistic concurrency control – Timestamp ordering – Comparison – Flat and nested distributed transactions – Atomic commit protocols – Concurrency control in distributed transactions, Deadlock in Distributed Systems, Distributed Deadlock Prevention, Distributed Deadlock Detection .

Threads, System models, Processors Allocation, Scheduling in Distributed System, Real Time Distributed Systems.

Unit III

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 IV

Overview of security Cryptographic algorithms ,Digital signatures , Cryptography techniques, Replication , pragmatics, group communications, Fault tolerant services, Highly System model and available services , Transactions with replicated data

TEXT BOOKS

Andrew S. Tanenbaum, Maarten van Steen, Distributed Systems, —Principles and Paradigms||, Pearson Education, 2002.

George Coulouris, Jean Dollimore and Tim Kindberg, —Distributed Systems Concepts and Design||, 3rd Edition, Pearson Education, 2002.

REFERENCES

Tanenbaum and Steen, —Distributed Systems||, PHI, 2002.

Sape Mullender, —Distributed Systems||, 2nd Edition, Addison Wesley, 1993.

Albert Fleishman, —Distributed Systems: Software Design and Implementation||, Springer Verlag, 1994.

M. L. Liu, —Distributed Computing Principles and Applications||, Pearson Education, 2004.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 463 B SOFTWARE AGENTS
B.Tech. Semester - VII (Computer Science and Engg) Elective- II

L T P Credits
4 4

Class Work : 25 Marks
Exam. : 75 Marks
Total : 100 Marks
Duration of Exam : 3 hrs

UNIT I

Agents Introduction

Agent Definition - **Autonomy vs. Agency**, Agent vs Object - Mobile Agents - Agent Programming Paradigms - Frameworks - Agent Reasoning-Mobile Agent Context-Description-Components-Features-Life Cycle

UNIT II

Agent Communication, Collaboration, and Mobility

Agent Communication Languages-Interaction between agents- Reactive Agents- Cognitive Agents - Rational Agents-Interaction protocols - Agent coordination - Agent negotiation - Agent Cooperation - Agent Organization

UNIT III

Mobile Agents Models and Framework: Standardization and Evolution,

Generating Useable Metrics-Evaluating Semantic Alignment -Evaluating System Agility-Evaluating Loose Coupling- Survey of Mobile Agent System: JADE, SPRINGS, Voyager, Jini, Aglets, Choosing a Mobile Agent Framework

UNIT IV

Agent Security Issues - Threats in Mobile Agents Security - Mobile Agent Threat Models- Protecting Agents against Malicious Hosts - Untrusted Agent -Black Box Security - Authentication for agents - Security issues for aglets.

TEXT BOOKS:

Bigus & Bigus, " Constructing Intelligent agents with Java ", Wiley, 1997.
Bradshaw, " Software Agents ", MIT Press, 2000.

Russel & Norvig, " Artificial Intelligence: a modern approach ", Prentice Hall, 1994.

Danny Lange & Mitsuru Oshima, Programming and Deploying Java Mobile Agents with Aglets, Addison-Wesley, 1998,

Richard Murch, Tony Johnson, " Intelligent Software Agents ", Prentice Hall, 2000.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 465B INFORMATION SECURITY AND DATA HIDING

B. Tech. Semester - VII (Computer Science and Engg.) Elective-I

L	T	P	Credits	Class Work	: 25 Marks
4	--	--	4	Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT-I

Introduction: the need for security, security approach, principles of security, types of attack, denial of service, IP spoofing, Phishing. Digital signature, Firewall.

UNIT-II

Hacking: Basics, Email hacking, computer hacking, types of hacking, practice against hacking, Access Authorization, Compression, LZW Compression and Decompression Method.

UNIT-III

Data hiding: terms related to data hiding, Differences between cryptography, stenography & watermarking, history of stenography. Applications of data hiding.

UNIT-IV

Advance data hiding techniques: transform domain, difference between special domains and transform domain, wavelets, advantages of wavelet, and wavelet based techniques for data hidings.

Text books:

Cryptography and Network Security by Atul Khathe, Mc Graw Hill Publisher
E-mail Hacking by Ankit Fadia, Vikash Publishers

Reference Books

Data communication and Networking , Behrouz A. Forouzan .

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

**MOBILE APPLICATIONS DEVELOPMENT
LAB**
CSE 421B
**B. Tech. Semester - VII (Computer Science and
Engg.)**

L T P Credits
2 1

Class Work : 20 Marks
Examination : 30Marks
Total : 50 Marks
Duration of Examination : 3 Hours

Learn Android

Lesson 1: Getting Started with Android Development

Lesson 2: Activities and Views: Android Manifest.xml, Activity Class ,Basic View Components: Layouts and Buttons

Lesson 3: Navigation with Data: Working with Intent, Sharing Data Between Activities, Application

Class Lesson 4: Android Resources: String Resources, Loading Strings in XML, Loading Strings in Code, The Resource Values Folder

Lesson 5: Drawables - Image Basics, Drawable Folders and Qualifiers, Dimensions, Image Padding, The ImageButton Widget

Lesson 6: Lists: Implementing an Android List, ListView, ListActivity, Empty Lists , ListAdapter, Sorting the Adapter, Overriding ArrayAdapter, List Interaction

Lesson 7: Dialogs, New and Old : AlertDialog, Custom Dialog, Support Library, Fragments, DialogFragment

Lesson 8: Menus: Options Menu, Modifying an Options Menu, Context Menu

Lesson 9: Saving Data with Shared Preferences: Shared Preferences, Getting Started with SharedPreferences, PreferenceActivity

Lesson 10: Saving Data with a Database: Setting Up SQLite, Creating a Helper , using the Helper, Cursor and CursorAdapater

Lesson 11: Threading with AsyncTasks: Threading in Android, AsyncTask, Tracking Progress

Lesson 12: Styles and Themes: Introduction to Styling: Defining Styles, Defining Themes, Style Inheritance, Direct Theme References

Develop an Android based Project

CSE 423B CLOUD COMPUTING LAB
B. Tech. Semester - VII (Computer Science and
Engg.)

L	T	P	Credits	Class Work	: 20 Marks
		2	1	Examination	: 30Marks
				Total	: 50 Marks
				Duration of	
				Examination	: 3 Hours

Development of applications on Google app engine.
Case study of private Cloud setup through OpenStack
Case study of private Cloud setup through CloudStack
Case study of XEN/VMware/KVM hypervisor
Case study of Amazon ec2.

CSE 425B PROJECT

B. Tech. Semester - VII (Computer Science and Engg.)					
L	T	P	Credits	Class Work	: 50Marks
--	-	4	4	Total	: 50 Marks
-					

The primary objective of this course is to develop in students the professional quality of synthesis employing technical knowledge obtained in the field of Engineering & Technology through a project work involving design, analysis augmented with creativity, innovation and ingenuity.

Project involving design/ fabrication/ testing/ computer simulation/ case studies etc. which commences in the VII Semester will be completed in VIII Semester and will be evaluated through a panel of examiners consisting of the following:

Chairman of Department	: Chairperson
Project coordinator	: Member Secretary
Respective project supervisor	: Member

The student will be required to submit two copies of his/her project report to the department for record (one copy each for the department and participating teacher).

Project coordinator will be assigned the project load of maximum of 2 hrs. per week including his own guiding load of one hr. However, the guiding teacher will be assigned maximum of one period of teaching load irrespective of number of students/groups under him/her.

The format of the cover page and the organization of the body of the report for all the B.Tech. will be finalized and circulated by the Dean, Faculty of Engineering and Technology.

CSE 427B PROFESSIONAL TRAINING II

B. Tech. Semester - VII (Computer Science and Engg.)

L	T	P	Credits	Class Work	: 50 Marks
--	-	2	2	Total	: 50 Marks
-					

At the end of 6th semester each student would undergo four weeks Professional Training in an Industry/ Institute/ Professional / Organization/ Research Laboratory etc. with the prior approval of the Training and Placement Officer of the University and submit in the department a typed report along with a certificate from the organization.

The typed report should be in a prescribed format.

The report will be evaluated in the VII Semester by a Committee consisting of three teachers from different specialization to be constituted by the Chairperson of the department. The basis of evaluation will primarily be the knowledge and exposure of the student towards different processes and the functioning of the organization.

The student will interact with the committee through presentation to demonstrate his/her learning.

Teachers associated with evaluation work will be assigned 2 periods per week load.