

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat) SCHEME OF STUDIES & EXAMINATIONS B.Tech. 4th YEAR (SEMESTER -VIII) 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 402B	DATABASE ADMINISTRATION	3	1	-	25	75	-	100	4	3
2	CSE 404B	SOFTWARE PROJECT MANAGEMENT	3	1	-	25	75	-	100	4	3
3		ELECTIVE -III	4	-	-	25	75	-	100	4	3
4		ELECTIVE -IV	4	-	-	25	75	-	100	4	3
5	CSE 422B	DATABASE ADMINISTRATION LAB	-	-	2	20	-	30	50	1	3
6	CSE 412 B	SEMINAR	-	-	2	50			50	2	-
7	CSE 414 B	PROJECT	-	-	8	75	-	125	200	8	3
8	GPCSE 402B	GENERAL FITNESS FOR THE PROFESSION	1	-	-	-	-	100	100	4	3
Total			15	2	12	245	300	255	800	31	

ELECTIVES - III		ELECTIVES - IV	
IT 402B	DATA ANALYTICS AND APPLICATIONS	CSE 458 B	NATURAL LANGUAGE COMPUTING
IT 404B	LINUX ADMINISTRATION	CSE 460 B	GREEN COMPUTING
CSE 452B	SOFT COMPUTING	CSE 462 B	HIGH PERFORMANCE COMPUTING
CSE 454 B	DIGITAL IMAGE PROCESSING	CSE 464 B	SOFTWARE STANDARDS & QUALITY
CSE 456 B	WIRELESS COMMUNICATION	CSE 466 B	EMBEDDED SYSTEMS

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 Sports is given in General Proficiency Syllabus.

24 Students will be permitted to opt for any two electives, one from Elective-III and one from Elective-IV. 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 The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.

24 Electronics gadgets including Cellular phones are not allowed in the examination

CSE 402B DATABASE ADMINISTRATION
B. Tech. Semester - VIII (Computer Science
and Engg.)

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

Unit 1

Oracle overview and Architecture, Installing and managing oracle, creating a database and data dictionary, control and redo log files, Managing Table spaces and data files, Managing tables, indexes, and constraints, Managing users and security.

Unit 2

Basic Oracle net architecture - basic net server side configuration, basic net client-side configuration, usage and configuration of Oracle shared server architecture. Backup and Recovery, Transporting data between databases - export and import utility, Loading data into database-SQL*loader, database performance tuning.

Unit 3

Basic constructs of PL/SQL , Cursors: need, types and implementation, Stored Procedures, functions

Unit 4

Active Database, ECA Rules, implementing ECA rules in PL/SQL. CUBE technology , Data ware house, creating a Data ware House in oracle.

Text Books:

Kevin loney, Bob Baryla Oracle database 10g: DBA handbook, Tata McgrawHills.
Biju Thomas, Bob Baryla, Oracle DBA Fundamental-I, BPB publications

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 404B SOFTWARE PROJECT MANAGEMENT
B. Tech. Semester - VIII (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 to Software Project Management (SPM): Definition of a Software Project (SP), SP Vs. other types of projects activities covered by SPM, Fundamentals of Software Project Management (SPM), Need Identification, Vision and Scope document, Project Management Cycle, SPM Objectives, project as a system, management control, requirement specification, information and control in organization, Project management and CMM

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

Unit-2

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

Project Scheduling: Objectives of activity planning, project schedule, projects and activities, Identifying activities, sequencing and scheduling activities, network planning model, Network Diagrams, CPM, representation of lagged activities, 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-3

Project Monitoring & control: identifying resource requirements, scheduling resources, PERT, Gantt Charts, Earned Value Analysis, Earned Value Indicators: Budgeted Cost for Work Scheduled (BCWS), Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Error Tracking, Software Reviews, Types of Review: Inspections, Deskchecks, Walkthroughs, Code Reviews, Pair Programming.

Managing contracts and people: Introduction, types of contract, stages in contract, placement, typical terms of a contract, contract management, acceptance, Managing people and organizing terms: Introduction, understanding behavior, organizational behavior: 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-4

Software quality Assurance and Testing: Testing Objectives, Testing Principles, Test Plans, Test Cases, Types of Testing, Levels of Testing, Test Strategies, Program Correctness, Program Verification & validation, Concept of Software Quality, Software Quality Attributes, Software Quality Metrics and

Indicators, The SEI Capability Maturity Model CMM), SQA Activities, Formal SQA Approaches: Proof of correctness, Statistical quality assurance, Cleanroom process.

Software Project Management Tools: CASE Tools, Planning and Scheduling Tools, MS-Project

Text Book:

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

Reference Books:

Software Engineering - A Practitioner's approach, Roger S. Pressman (5th edi), 2001, MGH

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

Project Management 2/c. Maylor

Managing Global software Projects, Ramesh, 2001, TMH.

S. A. Kelkar, Software Project Management, PHI Publication.

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 402 B DATA ANALYTICS AND APPLICATIONS
B. Tech. Semester - VIII (Computer Science and Engg.) Elective-III
(Common with IT)

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

Unit-I

Statistical Analysis of Data, Individual Differences, Descriptive Statistics, Frequency Distributions, Histograms, Histograms, Shapes of Distributions, Measures of Central Tendency Computing the Mean, Measuring Variability, Measures of Relationship, Regression, Reliability Indices, Standard Scores (Z-scores), Inferential Statistics, Populations and Samples

Unit-II

The Null Hypothesis, Chi-Square and T-Test, Statistical Decisions, Statistical Decision Process, Testing for Mean Differences, Power of a Statistical Test, Statistical versus Practical Significance, Effect Size, Meta-Analysis.

Unit-III

Data Visualization: Meaning and significance, Traits of Meaning full Data, Brief History of Information Visualization, Power of visual perception, Making abstract data Visible, Building Blocks of information Visualization. Analytical Techniques.

Unit-IV

Big Data, In-Memory Processing, limitations of In Memory Processing. Big Data Privacy, Big data Visualization, Map Reduce algorithm, OLAP and its applications, Data Mining Process, Knowledge Discovery, Decision Support Systems

Text Books

“Now You See It: Simple Visualization Techniques for Quantitative Analysis” by Stephen Few
 Publisher: Jonathan G Koomey

Big Data Analytics: Turning Big Data into Big Money by **Frank J. Ohlhorst** Publisher :
Wiley

References Books

Gelman, Andrew, and Jennifer Hill. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. 1st ed. Cambridge, UK: Cambridge University Press, 2006. ISBN: 9780521867061.

Gelman, Andrew, John B. Carlin, Hal S. Stern, and Donald B. Rubin. *Bayesian Data Analysis*. 2nd ed. New York, NY: Chapman & Hall, 2003. ISBN: 9781584883883

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 404B LINUX ADMINISTRATION
B. Tech. Semester - VIII (Computer Science and Engg.) Elective-IV

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

Unit-I

Introduction: History of Unix and Linux, Architecture of Linux, Advantages of Linux.

Installation and Hardware configuration: Creating an Installation Diskette, Booting Linux Installation Program, Partitioning Hard Drive(s), Setting up Swap Space Choosing Partitions to Format Booting with LILO, Multi-boot with Other Operating Systems

Unit-II

Introduction to Kernel, Introduction to Linux Shell: Types of Shell, Feature and benefits of Shell. I/O redirection and Piping, pipes, filters, Introduction to various text editor, various Vi editing modes, scrolling, yank and paste, put and delete, set commands, Comparison of EmacsEditor, vi Editor, Pico Editor.

Unit-III

Introduction to Linux Files: Rules for creating files, Linux Files system, File printing, searching files using grep, change permission to set files and change owner of the files. Process, Listening with ps, killing with kill, PID, UID, GID, Signals, nice, renice.

Unit-IV

General Administration issues: root account, Creating user in Linux, Changing password, deleting user, disabling user account, Linux Password & Shadow File Formats System Shutdown and Restart creating groups, Custom

Configuration and Administration Issues, Simple commands **Introduction to devices:** IDE, SCSI, USB and its interface, pin configuration of various devices, Disk Geometry, Configuration of web server, FTP and Telnet. Shell programming, network configuration.

Text Books:

Ellen Siever, Robert Love and Arnold Robbins, Linux in Nutshell, Fifth Edition, O'Reilly Media.
Kurt Wall, Mark Watson, Mark Whitis, Linux Programming, Third Edition, SAMS Techmedia.
Mark Sobell, Practical Guide to Linux Programming, Pearson Education.

Reference Books:

Machtelt Garrels, Introduction to Linux-A Hands on Guide, Addison Wisley.
J.Purcell, Linux Complete Command Reference, Red Hat Software, Mcgrawhill.

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 452B SOFT COMPUTING
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-III

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

UNIT 1:

Fuzzy Logic: Crisp set and Fuzzy set, Basic concepts of fuzzy sets, membership functions. Basic operations on fuzzy sets, Properties of fuzzy sets, Fuzzy relations. Propositional logic and Predicate logic, fuzzy If – Then rules, fuzzy mapping rules and fuzzy implication functions, Applications.

UNIT 2:

Neural Networks: Basic concepts of neural networks, Neural network architectures, Learning methods, Architecture of a back propagation network, Applications. Genetic Algorithms: Basic concepts of genetic algorithms, encoding, genetic modeling.

UNIT 3:

Hybrid Systems: Integration of neural networks, fuzzy logic and genetic algorithms. Adaptive Neuro-Fuzzy Inference Systems, Architecture, Hybrid Learning Algorithm, Learning Methods that Cross-fertilize ANFIS and RBFN, Coactive Neuro Fuzzy Modeling, Neuro Fuzzy Spectrum.

UNIT 4:

OPTIMIZATION: Derivative-based Optimization – Descent Methods – The Method of Steepest Descent – Classical Newton’s Method – Step Size Determination – Derivative-free Optimization – Simulated Annealing – Random Search – Downhill Simplex Search. Applications of computational intelligence: Printed Character Recognition, Soft Computing for Color Recipe Prediction.

Text Books:

S. Rajasekaran and G.A.Vijaylakshmi Pai.. Neural Networks Fuzzy Logic, and Genetic Algorithms, Prentice Hall of India.

Reference Books:

J.S.R.Jang, C.T.Sun and E.Mizutani, “Neuro-Fuzzy and Soft Computing”, PHI, 2004, Pearson Education 2004.

K.H.Lee.. First Course on Fuzzy Theory and Applications, Springer-Verlag.

J. Yen and R. Langari.. Fuzzy Logic, Intelligence, Control and Information, Pearson Education.

Davis E.Goldberg, “Genetic Algorithms: Search, Optimization and Machine Learning”, Addison

Wesley, N.Y., 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.

CSE 454B DIGITAL IMAGE PROCESSING
**B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-III**

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

Unit-1:

Digital Image Processing concepts and Image enhancement: Components of Digital Image Processing System, Image sensing and acquisition, Image sampling, quantization and representation, Basic relationship between pixels.

Image Enhancement in the Spatial Domain & Frequency domain: Background, Basic gray level transformation, Histogram processing, Basics of spatial filtering, Smoothing and Sharpening Spatial filters, Introduction to Fourier Transform and the Frequency Domain, Discrete Fourier Transform. Smoothing and Sharpening Frequency-Domain filters.

Unit-2:

Image Restoration: Image Degradation/Restoration Process, Noise models, Restoration in presence of noise, Inverse Filtering, Minimum Mean Square Filtering, Geometric mean filter, Geometric transformations.

Color Fundamentals, Color models, Basis of full color image processing, Color transformations.

Unit-3:

Image Compression: Fundamentals, Image compression models, Error free compression, Lossy compression.

Detection of Discontinuities, Edge linking and boundary detection, Thresholding, Region oriented segmentation.

Unit-4:

Representation, Description and Recognition: Representation-chain codes, polygonal approximation and skeletons, Boundary descriptors-simple descriptors, shape numbers, Regional descriptors- simple, topological descriptors, Pattern and Pattern classes- Recognition based on matching techniques.

Text Book:

Digital Image Processing by Rafael C.Gonzalez& Richard E. Woods -2002, Pearson Education

Reference Book:

Digital Image Processing by A.K. Jain, 1995,-PHI

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 456 B WIRELESS COMMUNICATION
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-III

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

UNIT 1:

INTRODUCTION TO WIRELESS COMMUNICATION SYSTEMS: Evolution of mobile radio communications, examples of wireless comm. systems, paging systems, Cordless telephone systems, comparison of various wireless systems.

MODERN WIRELESS COMMUNICATION SYSTEMS: Second generation cellular networks, third generation wireless networks, wireless in local loop, wireless local area networks, Blue tooth and Personal Area networks.

UNIT 2:

INTRODUCTION TO CELLULAR MOBILE SYSTEMS: Spectrum Allocation, basic Cellular Systems, performance Criteria, Operation of cellular systems, analog cellular systems, digital Cellular Systems. **CELLULAR SYSTEM DESIGN FUNDAMENTALS:** Frequency Reuse, channel assignment strategies, handoff Strategies, Interference and system capacity, tracking and trade off service, improving coverage and capacity.

UNIT 3:

MULTIPLE ACCESS TECHNIQUES FOR WIRELESS COMMUNICATION: Introduction to Multiple Access, FDMA, TDMA, Spread Spectrum multiple Access, space division multiple access, packet ratio, capacity of a cellular systems.

UNIT 4:

WIRELESS NETWORKING: Difference between wireless and fixed telephone networks, development of wireless networks, fixed network transmission hierarchy, traffic routing in wireless networks, wireless data services, common channel signaling, ISDN (Integrated Services digital Networks), advanced intelligent network.

INTELLIGENT CELL CONCEPT AND APPLICATION: Intelligent cell concept, applications of intelligent micro-cell Systems, in-Building Communication, CDMA cellular Radio Networks.

TEXT BOOKS:

Wireless Communications: Theodore S. Rappaport; Pearsons.
Mobile Cellular Telecommunication: W.C.Y.Lee; McGraw Hill

REFERENCE BOOK:

Mobile Communications: Jochen Schiller; Pearson

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 458B NATURAL LANGUAGE COMPUTING
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-III
Credit

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

Unit-1:

Components of natural language processing: Linguistic Essentials: lexicography, parts of speech and morphology, syntax, semantics, pragmatics: word level representation of natural languages prosody & natural languages.

Unit-2:

Grammar formalisms and treebanks: chomsky hierarchy, Left-Associative grammars, ambiguous grammars, resolution of ambiguities, Efficient parsing for context-free grammars (CFGs), Statistical parsing and probabilistic CFGs (PCFGs), Lexicalized PCFGs. Computation linguistics: recognition and parsing of natural language structures: ATN & RTN, General techniques of parsing: CKY, Earley & Tomitas algorithm.

Unit-3:

Semantics-knowledge representation semantic networks logic and inference pragmatics, graph models and optimization, prolog for natural language semantic.

Unit-4:

Application of NLP: intelligent work processors: Machine translation and learning, user interfaces, Man-Machine interfaces, natural language querying, tutoring and authoring systems, speech recognition, commercial use of NLP, Natural Language Generation.

Text Book:

"Natural Language Understanding" James Allen ,Benjamin-1995, cummings Pub. Comp. Ltd., Reference Books

- 0 "Speech And Language Processing: An Introduction to Natural Language Processing " Dan Jurafsky, James H. Martin, Prentice Hall, 2009.
- 1 "Foundations of Statistical Natural Language Processing" Christopher D. Manning, Hinrich Schütze, MIT press 1999.
- 2 Radford, Andrew et. al., Linguistics, An Introduction, Cambridge University Press, 1999.

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 460B GREEN COMPUTING
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-IV

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

Unit-I

Definition of the term, Origins, Fundamentals, Regulations and industry initiatives- Government, Industry. Approaches to green computing- Middleware Support, Compiler Optimization, Product longevity.

Unit-II

Algorithmic efficiency, High performance computing, Sustainable computing, Resource allocation, Virtualization, Server Consolidation.

Unit III

Terminal servers, Power management, Operating system support, Power supply, Storage, Video card, Display, Tools for monitoring.

Unit IV

Green mobile, optimizing for minimizing battery consumption, Web, Temporal and Spatial Data Mining Materials recycling, Telecommuting, metrics for green computing.

Text Book:

Green Computing and Green IT Best Practices on Regulations and Industry Initiatives, Virtualization, Power Management, Materials Recycling and Telecommuting by Jason Harris, Emereo Publishing

Reference Books:

Green Data Center: The steps for the journey by A. Galea, M. Schafer, M. Ebbers, IBM Press
The Greening of IT: How companies can make a difference for the environment by John Lamb, IBM Press
Green Computing: Large-Scale Energy Efficiency by Wu-chun Feng, Virginia Polytechnic Institute and State University, Blacksburg, USA (Eds.), CRC Press
Green Computing with Emerging Memory: Low-Power Computation for Social Innovation by Kawahara, Takayuki; Mizuno, Hiroyuki (Eds.), Springer Press
Sustainable ICTs and Management Systems for Green Computing by Wen-Chen Hu (University of North Dakota, USA) and Naima Kaabouch (University of North Dakota, USA), IGI Global Press
Green IT for Sustainable Business Practice: A Foundation Guide by Mark O'Neill, British Informatics Society Limited.

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 462B HIGH PERFORMANCE COMPUTING
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-IV
Credit

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

Unit-1:

Parallel Computer Models:The state of computing, Flynn’s classification of various computer architectures, system attributes to performance, multiprocessors (shared memory and distributed memory) multicomputers, multivector and SIMD computers.

Programs and Network Properties:Parallelism: Conditions of parallelism, data dependence, resource dependence and control dependence, hardware and software parallelism, program partitioning and scheduling

Program flow mechanisms: control flow, data flow and demand driven.

System Interconnect Architectures: Network properties and routing, static interconnection networks and dynamic interconnection networks.

Unit-2:

Processors and Memory Hierarchy:Advanced processor technology: CISC, RISC, Superscalar, VLIW, Vector, and symbolic processors.

Memory hierarchy technology: memory hierarchy, inclusion, coherence and locality, write policies. Virtual memory organization, mapping and management techniques (TLB, paging and segmentation), memory replacement policies

Unit-3:

Cache and Shared Memory:Cache memory organization: Direct, fully associative, set associative and sector caches, cache performance issues.

Shared memory organization: Interleaved memory organization.

Instruction Pipelining processing:Principals of pipelining, linear Pipeline Processors (synchronous and asynchronous), Nonlinear Pipeline processors

Instruction Pipeline Design: pipelined instruction processing, prefetch buffers,Internal data forwarding, hazard avoidance, branch handling techniques, Arithmetic Pipeline Design

Unit-4:

Parallel and Scalable Architecture:Multiprocessors System Interconnects, Cache Coherence and Synchronization Mechanisms, Vector Processing Principles, Multivector Multiprocessors and Data Flow Architecture.

Tex Book:

Kai Hwang “Advanced Computer Architecture”, McGraw Hill.

Reference Books:

J.P.Hayes “Computer Architecture and Organization”, McGraw Hill.

Harvey G. Cragon, “Memory Systems and Pipelined Processors”, Narosa Publication.

V. Rajaranam & C.S.R. Murthy, “Parallel Computers”, PHI.

R. K. Ghose, Rajan Moona & Phalguni Gupta, “Foundation of Parallel Processing”, Narosa Publications.

Kai Hwang and Zu, “Scalable Parallel Computers Architecture”, McGraw Hill.

Stalling W., "Computer Organization & Architecture", PHI.

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 464B SOFTWARE STANDARDS AND QUALITY
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-IV

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

Unit-I

Concepts and Overview: Concepts of software quality, quality attributes, software quality control and software quality assurance, evolution of SQA, major SQA activities, major SQA issues, zero defect software.

Software Quality Assurance: The philosophy of assurance, the meaning of quality, the relationship of assurance to the software life cycle, SQA techniques. Tailoring the Software Quality Assurance Program: Management review process, technical review process, walkthrough, software inspection process, configuration audits, document verification.

Unit-II

Evaluation: Software requirements, preliminary design, detailed design, coding and unit test, integration and testing, system testing, types of evaluations.

Error Reporting: Identification of defect, analysis of defect, correction of defect, implementation of correction, regression testing; Categorization of defect, relationship of development phases.

Unit-III

Trend Analysis: Error quantity, error frequency, program unit complexity, compilation frequency. **Corrective action as to Cause:** Identifying the requirement for corrective action, determining the action to be taken, implementing the corrective action, documenting the corrective action, periodic review of actions taken.

Unit-IV

CASE tools and their effect on Software Quality, Software Quality Metrics, Standards, certification and assessment, Quality management standards, Quality standards with emphasis on ISO approach, Capability Maturity Models-CMM and CMMI, TQM Models, Bootstrap methodology, The SPICE project, ISO/IEC 15504, Six Sigma Concept for Software Quality.

Text Books

Mordechai Ben-Manachem, Garry S. Marliss, Software Quality: Producing Practical, Consistent Software, International Thomson Computer Press (1991).
Daniel Galin, Software Quality Assurance from Theory to Implementation, Pearson Education (2003).
Robert Dunn, Software Quality: Concepts and Plans, Prentice Hall (1990).

Reference Books

1. Watts Humphery, A discipline for Software Engineering, Addison Wesley, Massachusetts (1995)

Kamna Malik, Praveen Choudhary, Software Quality - A Practitioner's Approach, Tata McGraw Hill (1999).

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 466 B EMBEDDED SYSTEMS
B. Tech. Semester - VIII (Computer Science and
Engg.) Elective-IV

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

Unit 1:

INTRODUCTION OF EMBEDDED SYSTEMS: Definition, ingredients of embedded system,

requirements & challenges of embedded system design, different types of microcontrollers: Embedded

microcontrollers, external memory microcontrollers etc., processor architectures: Harvard V/S Princeton, CISC V/S RISC, microcontrollers memory types, microcontrollers features: clocking, i/o pins, interrupts, timers, and peripherals.

SOFTWARE FOR EMBEDDED SYSTEM DESIGN: Development tools/ environments, Assembly language programming style, Interpreters, High level languages, Intel hex format object files, Debugging.

Unit 2:

8051 MICROCONTROLLER: pin diagram explanation, internal diagram 8051, Instruction Set, Addressing mode, data transfer instruction, logical, arithmetic instruction, bit instruction, branching instruction.

TIMERS, SERIAL INTERFACE & INTERRUPTS OF 8051 MICROCONTROLLER: Timer: Control Word, mode of timers, simple programming, generation of square wave, Serial interface: Introduction, Control Word, mode of serial interface, simple programming, Interrupts: Introduction, Control word Simple Programming, generation of waveforms using interrupt, serial interface using interrupt.

Unit 3:

PIC MICROCONTROLLER: Introduction to PIC microcontrollers, features of PIC family microcontrollers, architecture and pipelining, program memory considerations, addressing modes, CPU registers, Instruction set, and simple operations.

FEATURES OF PIC MICROCONTROLLER: Timer: Control Word, mode of timers, simple programming, generation of square wave, Watch-dog timer, Serial interface: Introduction, Control Word, mode of serial interface, simple programming, Interrupts: Introduction, Control word Simple Programming, generation of waveforms using interrupt, serial interface using interrupt.

Unit 4:

APPLICATIONS BASED ON 8051 MICROCONTROLLER: Interfacing of memory, intelligent LCD, 8255, ADC, DAC, LED display, Memory Card, Bio-metric system.

APPLICATION BASED ON PIC MICROCONTROLLERS: Interfacing of Graphical Display, Memory Card, Bio-metric system Music box, Applications like Mouse wheel turning, PWM motor control, ultra sonic distance measuring, Temperature Sensor, Pressure Sensor, Magnetic Field Sensor.

BOOKS:

8051, Scott Mackenzie, PHI, Englewood Cliffs, New Jersey.

Programming & Customizing the 8051 Microcontroller, Myke Predko, Tata McGraw-Hill
Pub. Co. Ltd., New Delhi.

8051 Architecture Programming & Applications, K. J. Ayala, Penram International Publishers, India.

Programming & Customizing the PIC Microcontroller, MykePredko, Tata McGraw-Hill Pub. Co. Ltd., New Delhi.

Note:

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**CSE 422B DATABASE ADMINISTRATION
LAB
B. Tech. Semester - VIII (Computer Science
and Engg.)**

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

- To Study architecture of the oracle DBMS.
- To study the installation of the Oracle and MySQL DBMS.(standalone mode and Client Server Mode) in windows environment
- To study the installation of the Oracle and MySQL DBMS.(standalone mode and Client Server Mode) in windows environment
- To study different types of users and create users in Oracle (using command prompt as well as GUI)
- Study of various types of privileges to the users in Oracle.
- Granting and Revoking of privileges to users.
- To study Use of Import/Export utilities in Oracle
- Study of Commit/Rollback of Transactions in Oracle
- Study of concurrency control mechanism of Oracle.
- Study of Recovery technique used by Oracle.

Note: at least 5 more exercise related to the contents of the subject be given to students

CSE 412B SEMINAR

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

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

The objectives of the course remains

To learn how to carry out literature search

To learn the art of technical report writing

To learn the art of verbal communication with the help of modern presentation techniques

A student will select a topic in emerging areas of Engineering & Technology and will carry out the task under the observation of a teacher assigned by the department.

He/ She will give a seminar talk on the same before a committee constituted by the chairperson of the department. The committee should comprise of three faculty members from different specializations. The teacher associated in the committee will be assigned 2 hours teaching load per week.

However, guiding students' seminar will not be considered towards teaching load.

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

**CSE
414B PROJECT
B. Tech. Semester - VIII (Computer Science
and Engg.)**

L	T	P	Credits	Class Work	75
--	--	8	8	Examination	: Marks
				Total	125
				Duration of	Mar
				Examination	: ks
					200
					: Marks
					: 3 Hours

The project started in VII Semester will be completed in VIII Semester and will be evaluated through a panel of examiners consisting of the following:

Chairperson of	: Chairperson
Department Project	: Member
coordinator External	: To be appointed by the University
expert	

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.

**GPCSE
402B**

GENERAL FITNESS FOR THE PROFESSION

L	T	P	B. Tech. Semester - VIII (Computer Science and Engg.) Credits Examination	: 100 Marks
1	--	--	4	Total : 100 Marks

The purpose of this course is to inculcate a sense of professionalism in a student along with personality development in terms of quality such as receiving, responding, temperament, attitude and outlook. The student efforts will be evaluated on the basis of his/ her performance / achievements in different walks of life.

The evaluation will be made by the committee of examiners constituted as under:

- Dean, Faculty of Engineering & Technology/
1. Director
/Principal of affiliated college : Chairperson
2. Chairperson of the department : Member
3. External expert : Appointed by the university

The student will present a written report before the committee with following in view:

The student will present before the committee his/her achievements during the current academic session in the form of a written report highlighting followings:

- | | | |
|-----|--------------------------------------------------------------------|------------|
| I. | Academic Performance ----- | (12 Marks) |
| II. | Extra Curricular Activities / Community Service, Hostel Activities | (12 Marks) |
| III | Technical Activities / Industrial, Educational tour | (16Marks) |
| IV | Sports/games | (s) |

Note: Report submitted by the students should be typed on both sides of the paper.

A student will support his/her achievement and verbal & communicative skill through presentation before the examiners. **Mark (40 s)**

C. Faculty Counselor Assignment (20 s)

It will be the duty of the student to get evaluated by respective faculty counselor and to submit the counselor assessment marks in a sealed envelope to the committee.

A counselor will assess the student which reflects his/her learning graph including followings:

Discipline throughout the year

Sincerity towards study

How quickly the student assimilates professional value system etc.

Moral values & Ethics- Syllabus (one lecture/week on the topics of Human values/Ethics is to be delivered)