SCHEME OF INSTRUCTION & EXAMINATION

B.E. IV - YEAR
(INFORMATION TECHNOLOGY)

SEMESTER - II

Sl. No.	Syllabus Ref. No.	SUBJECT	Scheme of Instruction		Scheme of Examination		
			Periods per week		Duration In Hours	Maximum Marks	
			L	D/P		Univ. Exam	Sessionals
		THEORY					
1.	BIT 451	Embedded Systems	4	-	3	75	25
2.		ELECTIVE-IV	4	-	3	75	25
3.		ELECTIVE-V	4	-	3	75	25
		PRACTICALS					
1.	BIT 481	Embedded Systems Lab	-	3	3	50	25
2.	BIT 482	Seminar	-	3	-	-	25
3..	BIT 483	Main Project	-	6	Viva Voce	Gr*	50
		Total	**12**	**12**	**-**	**275**	**175**

Elective-IV

BIT 452 Information Retrieval Systems
BIT 453 Information Storage and Management
BIT 454 Simulation and Modeling
BIT 455 Advanced Computer Architecture
BIT 456 Natural Language Processing

Elective-V

BIT 457 Soft Computing
BIT 458 Human Computer Interaction
BIT 459 Software Project Management
BIT 460 Cloud Computing
ME 411 Entrepreneurship
CE 461 Disaster Management

BIT 451

EMBEDDED SYSTEMS

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Embedded Computing: Introduction, Complex Systems and Microprocessor, 1be Embedded System Design Process, Formalisms for System Design, Design Examples. The 8051 Architecture: Introduction, 8051 Micro controller Hardware, Input/Output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/Output, Interrupts.

UNIT-II

Basic Assembly Language Programming Concepts: Assembly Language Programming Process, Programming Tools and Techniques, Programming the 8051. Data Transfer and Logical Instructions. Arithmetic Operations, Decimal Arithmetic. Jump and Call Instructions, Further Details on Interrupts.

UNIT-III

Applications: Interfacing with Keyboards, Displays, D/A and NO Conversions, Multiple Interrupts, Serial Data Communication. Introduction to Real- Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment.

UNIT-IV

Basic Design Using a Real-Time Operating System: Principles, Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory and Power, An example RTOS like uC-OS (Open Source); Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System; Debugging Techniques: Testing on Host Machine, Using Laboratory Tools, An Example System.

UNIT-V

Introduction to advanced architectures: ARM and SHARC, Processor and memory organization and Instruction level parallelism; Net advanced

embedded systems: Bus protocols, 12C bus and CAN bus; Internet-Enabled Systems, Design Example-Elevator Controller. 2

Suggested Reading:

1) Wayne Wolt, "Computers and Components", Elsevier.
2) Kenneth J.Ayala, "The 8051 Microcontroller", Third Edition, Thomson.
3) David E. Simon, "An Embedded Software Primer", Pearson Education
4) Raj Kamal, "Embedded Systems", Tata McGraw Hill.
5) Ajay V Deshmllkhi, "Micro Controllers", Tata McGraw Hill.
6) Frank Vahid, Tony Givargis, John Wiley, "Embedded System Design, Wiley Student Edition

BIT452

INFORMATION RETRIEVAL SYSTEMS (ELECTIVE-IV)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Introduction: Basic concepts, Past present and Future of IRS, Retrieval Process. Modeling: Introduction, A Taxonomy of IR Models, Retrieval: Adhoc and Filterig, A formal characterization of IR Models, Classic IR, Set Theoretic Models, Algebraic Models, Probabilistic Models

UNIT-II

Structured Text Retrieval Models, Models for Browsing
Retrieval Evaluation: Introduction, Reference Collections.
Query languages: Introduction, Keyword-based querying, pattern Matching, Structural Queries, Query Protocols.

UNIT-III

Query operations: Introduction, User Relevance Feedback, Automatic Local Analysis, Automatic Global Analysis.

Text and Multimedia Languages and Properties: Introduction, Meta Data, Text, Markup Languages, Multimedia.

UNIT-IV

Text operations: Introduction, Document Preprocessing, Document Clustering, Text Compression, Comparing Text Compression Techniques.

Indexing: Introduction, Inverted Files, Other Indices for Text Searching, Boolean Queries,

UNIT-V

Searching: Sequential Searching, Pattern Matching, Structural Queries, Compression.

Parallel and Distributed IR: Introduction, Parallel IR, Distributed IR.

Suggested Reading:

1) Ricardo, Baeza-yates, Berthier Ribeiro-Neto, "Modern Information Retrieval" Pearson Education, 2008

1) David A. Grossman, Ophir Frieder, "Information Retrieval - Algorithms and Heuristics", Springer, 2nd Edition (Distributed by Universities Press), 2004.

2) Gerald Kowalski, "Information Retrieval Systems: Theory and Implementation", Kluwer Academic Publishers, 1997.

3) William B. Frakes, Ricardo Baeza- Yates, "Information Retrieval – Data Structures & Algorithms", Pearson Education, 2008.

BIT 453

INFORMATION STORAGE AND MANAGEMENT (ELECTIVE-IV)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Introduction to Storage Technology: Data creation and The value of data to a business, Information Lifecycle, Challenges in data storage and data management, Solutions available for data storage, Core elements of a Data Center infrastructure, role of each element in supporting business activities.

UNIT-II

Storage Systems Architecture: Hardware and software components of the host environment, Key protocols and concepts used by each component ,Physical and logical components of a connectivity environment ,Major physical components of a disk drive and their function, logical constructs of a physical disk, access characteristics, and performance Implications, Concept of RAID and its components, Different RAID levels and their suitability for different application environments: RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6, Integrated and Modular storage systems ,high-level architecture and working of an intelligent storage system

UNIT-III

Introduction to Networked Storage: Evolution of networked storage, Architecture, components, and topologies of FC-SAN, NAS, and IP-SAN, Benefits of the different networked storage options, Understand the need for long-term archiving solutions and describe how CAS fulfil the need, Understand the appropriateness of the different networked storage options for different application environments.

UNIT-IV

Information Availability, Monitoring & Managing Data Center: Reasons for planned/unplanned outages and the impact of downtime, Impact of downtime. Differentiate between business continuity (BC) and disaster

recovery (DR), RTO and RPO, Identification of single points of failure in a storage infrastructure and solutions to mitigate these failures, Architecture of backup/recovery and the different backup/ recovery topologies, replication technologies and their role in ensuring information availability and business continuity, Remote replication technologies and their role in providing disaster recovery and business continuity capabilities. Key areas to monitor in a data center, Industry standards for data center monitoring and management, Key metrics to monitor storage infrastructure.

UNIT-V

Securing Storage and Storage Virtualization: Information Security, Critical security attributes for information systems, Storage security domains, Analyze the common threats in each domain. Storage Virtualization: Forms, Configurations and Challenges. Types of Storage Virtualization: Block-level and File-Level.

Suggested Reading:

1) G.Somasundaram, Alok Shrivastava, EMC Education Series, " Information Storage and Management", Wiley, Publishing Inc., 2011.
2) Robert Spalding, "Storage Networks: The Complete Reference", TataMcGraw Hill,Osborne, 2003.
3) Marc Farley, "Building Storage Networks",TataMcGraw Hill, Osborne. 2001.
4) Meeta Gupta, Storage Area Network Fundamentals, Pearson Education Limited, 2002.

BIT 454

SIMULATION AND MODELING (ELECTIVE-IV)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

System and System Environment, Components of a System, Discrete and Continuous Systems, Model of a System, Types of Models Introduction to Simulation. Advantages and Disadvantages of Simulation, Areas of Applications, Discrete-Event System Simulation, Simulation Examples.

UNIT-II

Overview of Statistical Models and Queuing Systems, Programming Languages for Simulation, Continuous and Discrete Simulation Languages - GPSS, SIMAN, SIMSCRIPT, SLAM II and MODSIM III .

UNIT-III

Generation of Pseudo-Random Numbers, Properties of Random Numbers, Tests for Randomness, Generation of Random Variable for Continuous and Discrete Probability Distributions. Uniform, Exponential, Weibul, Possion and Normal Distributions.

UNIT-IV

Input Data Analysis: Data Collection, Identification of the Distribution, Parameter and Estimation. Goodness of Fit Tests. Multivariate and Time Series input models. Output Data Analysis: Stochastic Nature of Output Data. Types of Simulation with respect to Output Analysis. Measures of Performance and their estimation, Comparison and evaluation of alternative system designs.

UNIT-V

Verification, Validation and Calibration of Models, Validation of Model Assumptions, Validation of input/output Transformations, Input/output validation using historical Input Data, Input/output Validation using Turing Test.

SuggestingReading:

1) Anerill M Law and W. David Kelton, "Simulation, Modeling and Analysis", 3rd Edition, McGraw Hill.
2) Jerry Banks, John S. Carson II, Barry L. Nelson, and David M. Nicol, "Discrete-Event System Simulation", Pearson Education Asia, 2001.
3) Narsingh Deo, "System Simulation with Digital Computers", Prentice Hall of India, 1979.

BIT 455

ADVANCED COMPUTER ARCHITECTURE (ELECTIVE-IV)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Measuring Performance and Cost: Performance Measurement, Enhancement to Uniprocessor Models, Benchmarks, Basic Model of Advanced Computer Architectures.

UNIT-II

Pipelining and Superscalar Techniques: Basic Pipelining, Data and Control Hazards, Dynamic Instruction Scheduling, Branch Prediction Techniques, Performance Evaluation, Case Study-Sun Microsystems – Microprocessor.

UNIT-III

Vector Processors: Vector Processor Models, Vector Architecture and Design, Performance Evaluation, Programming Vector Processors.

UNIT-IV

Array Processors: Parallel Array Processor Model, Memory Organization, Interconnection, Networks: Performance Measures, Static and Dynamic Topologies.

UNIT -V

Multiprocessors and Multi Computers: Multiprocessor Models, Shared – Memory and Distributed Memory Architectures, Memory Organization, Cache Coherence and Synchronization Mechanisms, Parallel Computer, Performance Models.

Suggested Reading:

1) John. L. Hennessey and David A Patterson, " Computer Architecture - A Quantitative Approach", 4th Edition, Elsevier, 2007.
2) Sajjan G. Shiva, Taylor Series, " Advanced Computer Architecture", CRC Press, 2006.
3) Kai Hwang, "Advanced Computer Architecture ", McGraw Hill, 1999.

BIT 456

NATURAL LANGUAGE PROCESSING (ELECTIVE-IV)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT- I

Natural Language Processing – Introduction to Natural Language Processing, The study of Language, Applications of NLP, Evaluating Language Understanding Systems, Different levels of Language Analysis, Representations and Understanding, Organization of Natural language Understanding Systems, Linguistic Background: An outline of English syntax Spoken Language input and output Technologies. Written language Input – Mathematical Methods – statistical Modeling and classification Finite State Methods. Grammar for Natural Language Processing – Parsing – Semantic and Logic Form – Ambiguity Resolution, Semantic Representation.

UNIT-II

Introduction to semantics and knowledge representation , Some applications like Machine translation, database interface Semantic Interpretation, word senses and ambiguity, Basic logical form language, Encoding ambiguity in logical from, Thematic roles, Linking syntax and semantics, Recent trends in NLP.

UNIT-III

Grammars and Parsing: Grammars and sentence Structure, Top-Down and Bottom-Up Parsers, Transition Network Grammars, Top- Down Chart Parsing. Feature Systems and Augmented Grammars: Basic Feature system for English, Morphological Analysis and the Lexicon, Parsing with Features, Augmented Transition Networks.

UNIT-IV

Semantic Interpretation, word senses and ambiguity, Basic logical form language, Encoding ambiguity in logical from, Thematic roles, Linking syntax and semantics, Recent trends in NLP.

UNIT-V

Ambiguity Resolution: Statistical Methods, Probabilistic Language Processing, Estimating Probabilities, Part-of-Speech tagging, Obtaining Lexical Probabilities, Probabilistic Context-Free Grammars, Best First Parsing. Semantics and Logical Form, Word senses and Ambiguity, Encoding Ambiguity in Logical Form.

Suggested Reading:

1) James Allen, "Natural Language Understanding", Pearson Education
2) Christopher D Manning and Hinrich Schutze, " Foundations of Statistical Natural Language Processing" MIT Press, 1999.
3) Akshar Bharti, Vineet Chaitanya and Rajeev Sangal, "NLP: A Paninian Perspective", Prentice Hall, New Delhi
4) D. Jurafsky, J. H. Martin, "Speech and Language Processing", Pearson Education.

BIT 457

SOFT COMPUTING
(ELECTIVE-V)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Fuzzy Sets and Fuzzy Logic: Introduction to Classical Sets and Fuzzy Sets. Classical set and Fuzzy sets – Operations and Properties. Fuzzy Relations – Equivalence & Tolerance. Membership Functions, Fuzzification, Membership Value Assignment. Fuzzy to Crisp Conversion. Lambda Cuts for Fuzzy Sets and Fuzzy Relations, Defuzzification Methods. Fuzzy Arithmetic. Fuzzy Logic and Approximate Reasoning. Rule Based Systems and Graphical Techniques of Inference. Fuzzy Associative Memories.

UNIT-II

Rough Sets and Granular Computation: Rough Sets – Definition, Upper and Lower Approximations, Boundary Region, Decision Tables and Decision Algorithms. Properties of Rough Sets. Rough Set Model based on Tolerance Relation. Introduction to Multi-Granulation Rough Set Models.

UNIT-III

Genetic Algorithms: Introduction to Genetic Algorithms, Basic Operators, Terminology and Mathematical Foundations. Computer Implementation of a Genetic Algorithm. Some Applications of Genetic Algorithms. Advanced Operators and Techniques in Genetic Search. Genetic Algorithms based Systems.

UNIT-IV

Artificial Neural Networks: Introduction, Learning Processes, Single Layer Perceptrons, Multilayer Perceptrons, Radial-Basis Function Networks, Support Vector Machines, Self-Organizing Maps. Artificial Neural Networks based Systems.

UNIT-V

Systems and Applications: Fuzzy Systems and Applications. Rough Set based Granular Systems and Applications. Genetic Algorithms based Systems and Applications. Artificial Neural Networks and Applications. Hybrid Systems and Applications.

Suggested Reading:

1. Timoty J. Ross, "Fuzzy Logic with Engineering Applications", McGraw Hill, 1997.
2. Zdzislaw Pawlak, "Rough Sets", Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, University of Information Technology and Management, Poland. *bcpw.bg.pw.edu.pl/Content/2026/RoughSetsRep29.pdf*
3. David E. Goldberg, "Genetic Algorithms in Search, Optimization and Machine Learning", Pearson Education, 1989.
4. Simon Haykin, "Neural Networks: A Comprehensive Foundation", Pearson Education, 2001
6. Lech Polkowski, Shusaku Tsumoto, Tsau Y. Lin, Editiors, "Rough Set Methods And Applications", Springer, 2000.
7. Bargiela Andrzaj and Witold Pedrycz, "Granular Computing – An Introduction", Springer, 2003.
8. Witold Pedrycz (Editor), Andrgej Skowran (Co-editor), Vladik Kreinovich (Co-editor), " Handbook of Granular Computing", Wiley Publications, July 2008.

BIT458

HUMAN COMPUTER INTERACTION
(ELECTIVE-V)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Interaction Paradigms: Computing Environments, Analyzing Interaction Paradigms, Interaction Paradigms

Interaction Frameworks and Styles : Frameworks for Understanding Interaction , Coping with Complexity, Interaction Styles

UNIT- II

Interaction Design Process: Iterative Design, User-Centered Design, Interaction Design Models, Overview of Interaction Design Models

Discovery : Discovery Phase Framework, Collection, Interpretation , Documentation

Design : Conceptual Design, Physical Design, Evaluation, Interface Design Standards, Designing the Facets of the Interface

UNIT- III

Design Principles: Principles of Interaction Design, Comprehensibility, Learnability, Effectiveness/Usefulness, Efficiency/Usability, Grouping, Stimulus Intensity , Proportion , Screen Complexity, Resolution/ Closure, Usability Goals

Interaction Design Models: Model Human Processor , Keyboard Level Model, GOMS, Modeling Structure, Modeling Dynamics, Physical Models
Usability Testing: Usability, Usability Test, Design the Test, Prepare for the Test, Perform the Test, Process the Data

UNIT- IV

Interface Components: The WIMP Interface, Other Components

Icons : Human Issues Concerning Icons, Using Icons in Interaction Design, Technical Issues Concerning Icons

Color: The Human Perceptual System, Using Color in Interaction Design, Color Concerns for Interaction Design, Technical Issues Concerning Color

UNIT- V

Text : Human Issues Concerning Text, Using Text in Interaction Design, Technical Issues Concerning Text

Speech and Hearing : The Human Perceptual System, Using Sound in Interaction Design, Technical Issues Concerning Sound

Touch and Movement: The Human Perceptual System, Using Haptics in Interaction Design, Technical Issues Concerning Haptics

Suggested Reading:

1) Steven Heim, *The Resonant Interface: HCI Foundations for Interaction Design*, Addison-Wesley, 2007.

2) J. Preece, Y. Rogers, and H. Sharp, *Interaction Design: Beyond Human-Computer Interaction*, Wiley & Sons, 2nd Ed., 2007.

3) Ben Shneiderman , Catherine Plaisant, Designing the User Interface: Strategies for Effective Human-Computer Interaction, 5th edition, , Addison-Wesley, 2009.

BIT459

SOFTWARE PROJECT MANAGEMENT (ELECTIVE-V)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Conventional Software Management: The waterfall model, conventional software Management performance, Evolution of Software Economics, Improving Software Economics: Reducing Software product size. The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT-II

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases. Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, pragmatic artifacts, Work Flows of the process, Checkpoints of the process.

UNIT-III

Iterative Process Planning: work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning, Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations.

UNIT-IV

Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, Tailoring the Process: Process discriminants.Managing people and organizing teams.

UNIT-V

Future Software Project Management: modern Project Profiles, Next generation Software economics, modern process transitions. Process improvement and mapping to the CMM.

Suggested Reading:

1) Walker Royce, Software Project Management: A Unified Framework, Pearson Education 1998.
2) Bob Hughes and Mike Cotterell, Software Project Management, 4th Edition – Tata McGraw Hill, 2006.
3) Pankaj Jalote, Software Project Management, Pearson Education, 2002.

BIT 460

CLOUD COMPUTING
(ELECTIVE-V)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

The Evolution of Cloud Computing: Hardware Evolution. Internet Software Evolution. Establishing a Common Protocol for the Internet. Evolution ofIpv6 . Finding a Common Method to Communicate Usingthe Internet Protocol. Building a Common Interface to the Internet .

Cloud Formations: From One Computer to a Grid of Many. Server Virtualization .Parallel
Processing. Vector Processing. Symmetric Multiprocessing Systems. Massively Parallel Processing Systems

UNIT-II

Web Services and the Cloud: Communication-as-a-Service (CaaS). Infrastructure-as-a-Service (IaaS). Monitoring-as-a-Service (MaaS) . Platform-as-a-Service (PaaS) . Software-NIS- a-Service (SaaS)

Building Cloud Networks: The Evolution from the MSP Model to Cloud. Computing and Software- as-a-Service. The Cloud Data Center. Collaboration i . Service-Oriented Architectures as a Step Toward Cloud Computing. Basic Approach to a Data Center-Based SOA

The Role of Open Source Software in Data Centers. Where Open Source Software Is Used

Case studies: Amazon web services. Google App Engine.

UNIT-III

Virtualization: Introduction. Types and Technologies. Accomplishing virtualization. importance of virtualization in Cloud computing.

Case studies: Xen Virtual machine monitors- Xen API. VMware - VMware products - Vmware Features. Microsoft Virtual Server - Features of Microsoft Virtual Server.

UNIT-IV

Federation in the Cloud, Presence in the Cloud I Privacy and Its Relation to Cloud-Based Information System.

Cloud Security Challenges I Software-as-a-Service Security I Security-as-a-Service -the New MSSP.

UNIT-V

Common Standards in Cloud Computing: The Open Cloud Consortium, The Distributed Management Task Force, Standards for Application Developers I Standards for Messaging .Internet Messaging Access Protocol (IMAP) I Standards for Security . Examples of End-User Access to Cloud Computing.

Mobile Internet Devices and the Cloud: Mobile Operating Systems for Smart phones Mobile Platform Virtualization I Collaboration Applications for Mobile Platforms.

Suggested Reading:

1) John W. Rittinghouse, "Cloud Computing: Implementation, Management, and Security ",. James F. Ransome, CRC Press 2009.
2) Virtualization Specialist level complete certification kit - Study guide from www. theartofservice.erg
3) William von Hagen, "Professional Xen Virtualization", Wrox Publications, January, 2008.
4) Chris Wolf, Erick M. Halter, "virtualization: From the Desktop to the Enterprise", A Press 2005.
5) David Marshall, Wade A. Reynolds, "Advanced Server Virtualization: VMware and Microsoft Platform in the Virtual Data Center", Auerbach Publications, 2006.

Web Resources:

1) http://aws.amazon.com
2) http://code.google.com/appengine

ME 411

ENTREPRENEURSHIP
(ELECTIVE-V)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Indian Industrial Environment – competence; Opportunities and Challenges, entrepreneurship and Economic growth, Small Scale Industry in India, Objectives, linkages among small, medium and heavy industries,types and forms enterprises.

UNIT-II

Identification and characteristics of Entrepreneurs, Emergence of First generation entrepreneurs, environmental influence and women entrepreneurs. Conception and evaluation of ideas, their sources and decision making, Choice of Technology – Collaborative interaction for Technology development.

UNIT-III

Project formulation, Analysis of market demand, Demand supply gap, Financial and Profitability analysis and Technical analysis. Project financing in India.

UNIT-IV

Project Management during construction phase, project organization, project planning and control using CPM-PERT techniques. Human aspects of project management. Assessment of tax burden.

UNIT-V

Behavioral aspects of entrepreneurs: Personality – determinants, attributes and models, leadership concepts and models. Values and attitudes. Motivation aspects, change behavior.

Time Management: Various approaches of time management, their strengths and weaknesses. The urgency addiction and the time management matrix.

Suggested Reading:

1) Vasant Desai, Dynamics of Entrepreneurial Development and Management, Himalaya Publishing House, 1997.

2) Prasanna Chandra, Project – Planning, Analysis, Selection, Implementation and Review, Tata Mc Graw Hill Publishing Company Ltd., 1995.

3) B.Badhai, Entrepreneurship for Engineers, Dhanpath rai & Co., Delhi, 2001.

4) Stephen R. Covey and A.Roger Merril, First Things First, Simon and Schuster, 2002.

5) Robert D. Hisrich and Michael P.Peters, Entreneurship, Tata Mc Graw Hill ed., 2002.

6) Sudha G.S., Organizational Behavior, National Publishing House, 1996.

CE 461

DISASTER MANAGEMENT
(ELECTIVE-V)

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

UNIT-I

Introduction : Natural, human induced and human made disasters – international decade of disaster reduction

UNIT-II

Natural Disasters – Hydro metrological based disasters – Tropical cyclones, floods, drought and desertification – Zones Geographical based disasters Earthquake, Tsunammis, Landslides and avalanches

UNIT-III

Human induced hazards – Chemical industrial hazards, major power break downs, traffic accidents etc.

UNIT-IV

Use of remote sensing and GISI disaster mitigation and management

UNIT – V

Rich and vulnerability to disaster – mitigation and management options – warning and forecasting.

Suggested Reading:

1) Notes / Reading material published by National Disaster Management Institute, Ministry of Home Affairs, Govt. of India.

BIT 481

EMBEDDED SYSTEMS LAB

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

A. Use of 8-bit and 32-bit Microcontrollers, (such as 8051 Microcontroller, ARM2148 / ARM2378, LPC 2141/42/44/46/48) Microcontroller and C compiler (Keil, Ride etc.) to:

1. Interface Input-Output and other units such as: Relays, LEDs, LCDs, Switches, Keypads, Stepper Motors, Sensors, ADCs, Timers
2. Demonstrate Communications: RS232, IIC and CAN protocols
3. Develop Control Applications such as: Temperature Controller, Elevator Controller, Traffic Controller

B. Development of Embedded Application using FPGAs, CPLDs, VHDL and Xilinx Programmable Logic Design Tools:

1. Four bit ALU
2. Pseudo Random Number Generator

C. Development and Porting of Real Time Applications on to Target machines such as Intel or other Computers using any RTOS

I. Understanding Real Time Concepts using any RTOS through Demonstration of:

1. Timing
2. Multi-Tasking
3. Semaphores
4. Message Queues
5. Round-Robin Task Scheduling
6. Preemptive Priority based Task Scheduling
7. Priority Inversion
8. Signals
9. Interrupt Service Routines

II. Application Development using any RTOS:

1. Any RTOS Booting
2. Application Development under any RTOS

BIT 482

SEMINAR

Instruction	4	Periods per week
Duration of University Examination	3	Hours
University Examination	75	Marks
Sessional	25	Marks

Oral presentation is an important aspect of engineering education. The objective of the seminar is to prepare the student for a systematic and independent study of state of the art topics in a broad area of his / her specialization.

Seminar *topics* may be chosen by the students with advice from the faculty members. Students are to be exposed to following aspects of seminar presentations; Literature survey, Organization of material, power point presentation, Technical writing

Each student will be required to

1. Submit a one page synopsis of the seminar talk for display on the notice board.
2. Give a 20 minutes presentation through power point presentation followed by 10 minutes of discussion.
3. Submit a report on the seminar topic with list of references.

Seminars are to be scheduled from the 2nd week to the last week of the semester and any change in schedule should be discouraged.

The sessional marks will be awarded to the students by at least 2 faculty members on the basis of an oral and a written presentation as well as their involvement in the discussions.

BIT 483

MAIN PROJECT

Instruction	6	Periods per week
Duration of University Examination		Viva voce
University Examination		Grade*
Sessional	25	Marks

Focus of U.G. Project should be on *Solving a Real Life Problem*.

Faculty members should prepare project briefs well in advance. They should be made available to the students at the departmental library.

A project may be classified as hardware/software/modeling/simulation. It should involve elements of such as analysis, design, coding, testing, etc.,

The department will appoint a project coordinator who will be incharge of the following:

- Grouping of students (a maximum of three in a group)
- Allotment of projects and project guides
- Project monitoring at regular intervals

Project allotments is to be completed by the 4th week of 1st Semester of IV years to that students get sufficient time for completion of their projects.

All projects are to be based on the grade/marks, awarded by a monitoring committee comprising of faculty members as well as by the supervisor.

Efforts are to be made so that some of the projects are carried out in industries.

Projects may also be invited from industries.

Norms for final documentation of the project report are to be provided by the department.

* Excellent I Very Good I Good I Satisfactory I Unsatisfactory.

Note: Three periods of contact load will be assigned to each project guide.