SYLLABI
FOR
VIII SEMESTER
B.TECH.
ELECTRONICS AND
COMMUNICATION
ENGG.
UNIT–I  
Fundamentals of Management – I:  
Management: Evolution, development, characteristics, principles, philosophy, Nature and function, (MBO), (MBE) their importance characteristics and applications.

UNIT–II  
Fundamentals of Management – II:  
Organizational Behaviour, Human behaviour, group dynamics. Leadership theories, styles and modern philosophies, motivation approaches and theories, communication, barriers and breakdowns, management information system, use of Computer in Management.

UNIT–III  
Introduction to Personnel Management:  
Employees, Personnel Management practices, methods, recruitment, selection, interviews, group discussions, training, placement and employees development, wages and incentives, labour welfare, conflict, Negotiations, best practices.

UNIT–IV  
Introduction to Marketing and Sales Management:  
Marketing concept, principles, functions, market survey and research, concepts of sales and distribution, channels of distribution, salesmanship, sales promotions, methods of advertising, copyright, sales management practices.

UNIT–V  
Introduction to Financial Management:  
Nature and scope of Financial Management, goals of financial management, Sources of finance, Permanent long term, Short term Sources, Interest rates, annuity cost of capital, capital structure, decisions, Break-even Analysis, Financial Planning.

Suggested Text books and references:  
1. Management  
   Stonier & Freeman  
2. Principle of Marketing  
   Philip Kotler  
3. Industrial Management  
   K.K. Ahuja  
4. Financial Management  
   S.K. Banerjee

TV & Radar  
EC 451  
Unit – I
Elements of system of television, scanning sequence, interlacing, determination of bandwidth, synchronizing pulse, equalizing pulses, composite video signal.

**Unit – II**
Television camera tube, Monochrome picture tube, Television transmitter, block diagram of T.V. receiver, video detector design and separation of sound signal, transmitting and receiving antennas, DTH Systems.

**Unit – III**
Basic principle of colour T.V. three colour theory, colour mixing, chromaticity chart, colour picture tubes, Delta gun, PIL and Trinitron picture tube, PAL, SECAM and NTSC systems, brief introduction of VCP and VCR.

**Unit – IV**
Introduction to radar, radar frequencies, radar block diagram, radar equations and its performance factors such as cross-section and its fluctuation, transmitter power, pulse repetition frequency, Antenna parameters, system losses and propagation effect.

**Unit – V**
Doppler effect, CW Radar, frequency modulated and multiple Doppler frequency radar, moving target indication radar, delay line canceller, blind speed, duplexer, scanning and tracking radars, lobe switching, monopulse, conical scan, Adcock antenna, instrument landing system (ILS), ground controlled approach (GCA) kit, port surveillance radar (PSR), precision approach radar (PAR).

**Suggested Textbooks and references:**
2. Television Engineering – Grobs

**Elective – IV:** 1. EMBEDDED SYSTEMS
EC461

**Unit – I**
Introduction to embedded systems, their characteristics, modeling of systems, system specifications, specification languages.

**Unit – II**
Study of specification example, specification translation, translation of various features such as state transition, message passing communication, concurrency, exception handling etc.

**Unit – III**
**Unit – IV**
Design quality estimation – quality metrics, hardware estimation, software estimation.

**Unit – V**
Specification refinement – Refining variable grouping, channel refinement, resolving access conflict, refining incompatible interfaces, refining hardware/software interfaces. Study of a system design methodology.

**Suggested text books and references:**

**Elective – IV: 2. FUZZY LOGIC**
EC462

**UNIT-I**
Overview of Crisp sets, Concepts of Fuzzy sets, Types of Fuzzy sets, Properties of Fuzzy sets, Operation on Fuzzy sets.

**UNIT-II**
Fuzzy numbers, Arithmetic operations on Fuzzy numbers, Fuzzy equations, Classical and Fuzzy relations, Fuzzy tolerance and equivalence relations.

**UNIT-III**
Features of Fuzzy membership functions, Fuzzification, Fuzzy to crisp conversion, alpha cut for Fuzzy set Fuzzy relation, Defuzzification methods.

**UNIT-IV**
Classical logic and Fuzzy logic, Logical proofs, approximate reasoning, Implication and Composition operations, Rule base systems, Fuzzy classification methods.

**UNIT-V**

**Reference Books:**

Elective –IV: 3. PATTERN RECOGNITION
EC463

Unit I
Overview of pattern recognition - Discriminant functions - Supervised learning - Parametric estimation - Maximum likelihood estimation - Bayesian parameter estimation - Perceptron algorithm - LMSE algorithm - Problems with Bayes approach

Unit II
Pattern classification by distance functions - Minimum distance pattern classifier. Clustering for unsupervised learning and classification - Clustering concept - C-means algorithm - Hierarchical clustering procedures - Graph theoretic approach to pattern clustering - Validity of clustering solutions.

Unit III
Elements of formal grammars - String generation as pattern description - Recognition of syntactic description - Parsing - Stochastic grammars and applications - Graph based structural representation.

Unit IV

Unit V

References:
Elective –IV: 4. FAULT TOLERANT & REAL TIME SYSTEMS
EC 464

UNIT I

Introduction:

UNIT II
Fault Tolerance
Coding technique-fault tolerant self-checking and fail-safe circuits- fault tolerant in combinatorial and sequential circuits- synchronous and asynchronous fail-safe circuits.

UNIT III
Architecture
Fault tolerant computers- general purpose commercial systems-fault tolerant multiprocessor and VLSI based communication architecture.

UNIT IV
Fault Tolerant Software
Design-N-version programming recovery block - acceptance tests- fault trees- validation of fault tolerant systems.

UNIT V
Real time models, language & operating systems
Event based, process based and models, petrinet models – real time languages – The real time Kernel, OS tasks, task states, task scheduling, interrupt processing, clocking communication and synchronization, control blocks, memory requirements and control, Kernel services.

Suggested Text books and references:
Elective – IV: 5. OPTIMIZATION METHODS
EC 465

Unit – I

Unit – II
Transportation problem, Assignment problem, rectangular games and their solution by linear programming techniques.

Unit – III
Kuhn-Tucker conditions for non-linear programming, Bellman’s optimality principle and some elementary application of dynamic programming.

Unit – IV
Theory of Queues- Analysis of steady state and transient state solutions for queueing system with poisson arrival and exponential service time distribution.

Unit – V
Deterministic replacement model. Sequencing problems (n job two machines, m job three machines, n job m machines)

Suggested Text books and references:
1. Optimization Methods – K.V.Mital
2. Optimization Methods for Engineering design – R.L.For

Elective – V: 1. ADVANCED COMPUTER ARCHITECTURE
EC 471

Unit – I
Evolution of computer architecture, Introduction to multi–process and multi computers, taxonomy and models of computers/super computers. Condition of parallelism, partitioning and scheduling of program.

Unit – II
Advanced processor technology – Design space of processors, instruction set architecture, CISC, RISC processors, superscalar, VLIW architecture, case studies, virtual memory technology, TLB, paging and segmentation.
Unit – III
Cache memory organization, cache performance, shared memory organization, interleaved memory, bandwidth and fault tolerance, memory allocation schemes.

Unit – IV
Pipeline and superscalar techniques: Linear pipeline processor, nonlinear pipeline processor, instruction pipeline design, arithmetic pipeline design, superscalar and superpipeline design.

Unit – V
Multiprocessors and multicomputers– Multiprocessor system interconnect, cache coherence and synchronization, message passing mechanisms.

Suggested Text books and references:
2. M.J. Flynn (Narosa)

Elective – V: 2. INTERNET TECHNOLOGY
EC 472

Unit – I
Internetworking– concept, architecture and protocols, IP addressing scheme, routers and IP addressing principle, binding protocol address (ARP).
IP Datagrams and datagrams forwarding, IP encapsulation, fragmentation and reassembly, IPv6– motivation, frame format and addressing.

Unit – II
Internet control message protocol– introduction and usage for testing reachability, route tracking, MTU determination, TCP– introduction, application, segment format.

Unit – III
Domain name system– Introduction, DNS client server model, server hierarchy, server architectures, optimization of DNS performance, DNS entry types, electronics mail paradigm, message format, SMTP, mail gateways, mailbox access, FTP commands, file name translation, examples, TFTP, NFS.

Unit – IV
World wide web– Introduction, HTML format, client server interaction, browser architecture, CGI, JAVA techniques for dynamic web documents, network management – SNMP,
Unit – V
Network security, protocol startup procedure, BOOTP, DHCP, Intranet contents, security aspects, hardware/software features, setting up internet site and troubleshooting, extranet.

Suggested Text books and references:
1. Computer Networks & Internet by D.E. Comer (Prentice Hall)
2. Internet by Coleman & Dyson (BPB).

Elective – V: 3. MICRO ELECTRO MECHANICAL SYSTEMS
EC 473

Unit I
Historical back ground and motivation of MEMS technology, evolution of Micro–Electro Mechanical System (MEMS) technology from silicon microelectronics technology Planar IC technology, materials, oxidation, diffusion, photolithography, isotropic and anisotropic etching, film deposition, integrated process for smart systems. Bulk silicon micro–machining, surface micro–machining technique, ion etching, reactive ion etching, laser micro–machining, LIGA process.

Unit II
Micro – electro discharge grinding, micro– mechanical machining, comparison between micromachining techniques, materials for reliable micro–mechanical systems.

Unit III
Basic consideration of micro mechanical sensors, mechanical microsensors, thermal microsensors, radiation microsensors, biochemical microsensors, smart sensors.

Unit IV
Electric field driven actuators, piezoelectric actuators, magnetic field driven actuators, mechanical transformers, examples of complete Microsystems.

Unit V
Wafer bonding and packaging of MEMS, industrial potential of Microsystems, overview and state–of–the–art of MRM CAD simulators, energy based micromodels, physical parameter extraction, analog HDL, modeling techniques, simulation examples.
Suggested Text books and references:

Elective –V: 4. NETWORK MANAGEMENT SYSTEM  
EC 474

UNIT I
Network Topology, LAN, Network node components Hubs, Bridges, Routers, gateways, Switches, WAN, SDN Transmission Technology, Communications protocols and standards OSI Network management model-Organizational model-Information model, communication model. Abstract

UNIT II
Syntax Notation - Encoding structure, Macros Functional model CMIP/CMIS SNMP-Organizational model-System Overview, The information model, communication model-Functional model, SNMP proxy server, Management information ,protocol remote monitoring

UNIT III
Broadband networks and services, ATM Technology-VP, VC, ATM Packet, Integrated service, ATM LAN emulation, Virtual LAN. ATM Network Management-ATM Network reference model, Integrated local

UNIT IV
Management Interface. ATM Management Information base, Role of SNMND and ILMIin ATM Management,M1,M2,M3,M4 Interface. ATM Digital Exchange Interface Management Configuration management, Fault management, performance management, Event Correlation Techniques security

UNIT V
Management, Accounting management, Report Management, Policy Based Management Service Level Management

Suggested Text books and references:

Elective –V: 5. ENTREPRENEURSHIP  
EC 475
UNIT I
Motivation, Entrepreneur's Skills And Awareness:
Definition, various theories and models of motivation, Achievement Motivation training, Entrepreneur’s essential skills i.e. communication and Negotiation skills, inter-personal skills, Decision making, creativity, risk taking ability, problem solving techniques etc. Awareness for self-employment.

UNIT II
Project Report, Market Survey And Financing of Enterprise:
Preparation of detailed project report including market survey financial implications, feasibility of project, break-even point, future scope etc. Various sources of finance, salient features of various financial institutions and Govt. Departments.

UNIT III
Production & Marketing Materials And Financial Management:
Plant and Machinery, Raw Materials & energy requirements etc. product selection, product mix, production planning, production control, Marketing management, sales and advertisement product cost. Financial Management, fixed and working capital, Accounts/Books keeping etc.

UNIT IV
Organizational Structures And Organizational Development:
Various forms of business and commercial organization, their merits and demerits etc.

UNIT V
Legal System And General Topics of Interest:

Suggested Text books and references:
1. Handbook of Practical Administrative skills: By - Debra Allcock
2. Developing Entrepreneurship for Economic Growth:By - P.N.Singh

Lab (TV & RADAR)
EC 491