VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E.-III (Electronics Engg.)

Semester - V

SCHEME FOR TEACHING & EXAMINATION

B.E.III (Electronics) 5th Semester		Teaching Scheme			Examination Scheme						
					Theory Exam University Exam.		Practical/Quiz/Viva/T.W. etc.				
							University Exam.		Tutorial	Cont. Evaluation	Total Marks
Course	Course No.	L Hrs.	T Hrs.	P Hrs.	Duration Hrs.	Marks	Duration Hrs.	Marks			
Economics and Business Management	HU 501 EC	3	0	0	3	100	-	-	-	-	-
Control System Engineering	ELE 502 EC	3	0	2	3	100	3	30	-	20	50
Pulse and Switching Circuits	EC 503 EC	3	1	2	3	100	,	30	25	20	75
Microprocessor Programming and Interfacing	EC 504 EC	3	1	2	3	100	3	30	25	20	75
Digital Microelectronics and Circuits	EC 505 EC	3	1	2	3	100	3	30	25	20	75
Antenna and Wave Propagation	EC 506 EC	3	1	0	3	100	3	-	25	-	25
TOTAL :		18	4	8	-	600	-	120	100	80	300
Total Contact Hours : 30 Total Marks : 900											

VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E.-III (Electronics Engg.)

Semester - V

ENGINEERING MANAGEMENT : EC 501 EC

B.E.III (EC) 5th Semester

	Lecture	Tutorial	Practical
Teaching Hours	3	0	0
Examination Scheme Marks	100	0	Cont. Evaluation : 00 Examination : 00

Operations Research:

1. Introduction: Evolution of OR, team approach, quantitative approach, application.
2. Linear Programming: Basic concepts, formulation of models, limitations of LP, LP Methods, Graphical & Simple Method, Degeneracy, multiple optimal solution, unbounded problem, infeasible problem, Transportation problem and transportation models, Assignment problem & assignment method.
3. Decision Theory: Decision making under different situation (certainty, uncertainty, under risk), Decision tree model.
4. Queuing System: Queuing problem, assumptions, *M/M/1 Model.
5. Simulation: Analytical and simulation models, Monte Carlo simulation model and Computer simulation.

   (* denotes Poisson arrival, Poisson departure, single server, infinite capacity and FIFO service discipline).

Business Management:

1. Introduction: Engineering Management and Organization, Evolution process.
2. Business Organization: Types, individual, proprietorship, partnership, joint stock company, Co-operative and State owned organization.
3. Management: Definitions, concepts and principles, Management process, Functional (Production, Finance, Marketing, and Personnel) Management, Co,ordination and its importance.
4. Trade Unions and Industrial Relations: Collective bargaining, industrial dispute act and social security measures in India.

References:

1. O. P. Khanna: Industrial Engg. & Management, Dhanpatrai & Sons, New Delhi, 1990
2. S. D. Sarma: Operations Research, Kedarnath Ramnath & Co., Meerut, 1992
3. K. V. Rao: Management Science, McGraw Hill Co., New Delhi, 1990
4. R. D. Agrawal: Organization & Management, Tata McGraw Hill, New Delhi, 1993

VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E.-III (Electronics Engg.)

Semester - V

CONTROL SYSTEM ENGINEERING: ELE 502 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Introduction to Control Systems: Open loop and closed loop control, Examples of control systems.
2. Mathematical Background: Laplace transformation, Laplace transform theorems, Inverse Laplace transformation, Solution of linear differential equations using Laplace transformation.
3. Mathematical Models of Physical Systems: Linear and non,linear systems, transfer functions for mechanical, electrical systems, Block,diagram representation of control,system, Block,diagram reduction, potentiometers and synchros as error sensing devices, transfer function of armature control and field control DC servomotors and 2,phase AC servomotors, Block diagram representation of DC and AC position control system, Signal flow graphs and Mason's gain formula.
4. Time Domain Analysis of Control Systems: Typical test signals, response of first order systems, transient response of second order system due to step input, time domain specification, impulse and ramp response of a second order system, Routh's stability criteria, steady state errors, static errors constants, error series and dynamic error coefficients.
5. Frequency Domain Analysis of Control Systems: Steady state response of a system due to sinusoidal input, Frequency response, Logarithmic plots or Bode Diagrams, Log,magnitude v/s phase plots, Resonance peak and resonance frequency of a second order system, Polar plots, Nyquist stability criteria, stability analysis, Relative stability, Gain margin and Phase margin, closed loop frequency response, M,circles and N,circles, Nichol's chart.
6. Control System Components: Detailed studies of construction, operation and transfer function of 2,phase AC servomotors, DC servomotors, Synchros and their applications in various systems, Magnetic Amplifiers, its operating principle, series and parallel connections.

Practical work shall be based upon the theory course.

References**:**

1. I.J. Nagarath and M. Gopal: Control system engineering, Wiley Eastern Limited, 1992
2. B.C. Kuo : Automatic Control Systems, Prentice,Hall of India, 1990
3. K. Ogata : Modern control engineering, Prentice,Hall of India, 1990
4. K.K. Agarwal: Control system Analysis and Design, Khanna Publishers, 1994

VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E.-III (Electronics Engg.)

Semester - V

Pulse & Switching Circuit: EC 503 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Linear Wave Shaping: High pass RC circuit and its response to sinusoidal, step, pulse, square wave, exponential and ramp inputs, High pass RC circuit as a differentiator, Double differentiation, Low pass RC circuit and its response to sinusoidal, step, pulse, square wave, exponential and ramp inputs, Low pass RC circuit as an integrator Attenuators.
2. Clipping and Comparator Circuit: Diode clippers, Transistor clipper, Clipping at two independent level, Emitter-coupled clipper, Compensation for temperature changes in diode, Comparators, Applications of voltage comparators.
3. Clamping & Switching Circuits: Clamping operation, Clamping circuit, Clamping circuit theorem, Practical clamping circuits, Effect of diode characteristics, Clamping in base, Synchronous clamping circuit, Transistor as a switch, Two stage overdriven amplifier, Damper diodes, Switch with inductive and capacitive load, Collector catching diode, Nonsaturating switches, Emitter follower with capacitive load.
4. Bistable Multivibrators: Fixed biased transistor binary, Self biased transistor binary, Commutating capacitors, Methods of improving resolution, Methods of triggering, Schmitt trigger.
5. Monostable & Astable Multivibrators, Collector-coupled monostable multivibrator, Emitter-coupled monostable multivibrator, Gate width calculation & waveforms, Influence of VB on waveforms in Emitter-coupled monostable, Triggering of monoshot, Astable collector coupled & emitter-coupled multivibrator.
6. Synchronization and frequency division: General features of a Time, Base signal, Exponential sweep circuit, Pulse synchronization of relaxation devices, Frequency division in sweep circuit, Astable & Monostable multivibrators as frequency dividers.

Practical work shall be based upon the theory course.

References:

1. Millman & Taub: Pulse, Digital and Switching waveforms, McGraw Hill, IS Edition, 1994.
2. Mitchell B.B.: Semiconductor pulse circuits with experiments, Holt, Rhinehart & Winston,1990.
3. Bell David A : Solid State Pulse Crcuits, Reston Publishing Company, 4th Edition , PHI EEE 1993.
4. Strauss L : Waveform generation and shaping, McGraw Hill,2/e.1990.

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B.E.-III (Electronics Engg.)

Semester - V

Microprocessor Programming & Interfacing : EC 504 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Microprocessor Architecture: Introduction, operation, memory, input/output and Interfacing Devices

2 Instructions and Timings: Instruction classification, timings and operation status, overview of 8085 instruction set.

3 Programming Methods and Techniques: Assembly language programming using different programming techniques like looping, counting and indexing, subroutines parameter passing, time delay programs.

4 Interrupts:8085 Interrupts, restart as software instruction, Additional I/O concepts

5 Parallel Input /Output and Interfacing Applications: Basic interfacing concepts, 8255 Programmable Peripheral Interface, Interfacing displays, keyboards, 8279 Programmable Keyboard/Display Interface, Interfacing memory, Memory, mapped I/O.

6 General Purpose Programmable Peripheral Devices: 8253 Programmable Timer 8257 DMA controller, 8259 Interrupt controller.

Practical work shall be based upon the theory course.

References:

1. Gaonkar R S: Microprocessor Architecture, Programming and Applications with 8085 Wiley Eastern Limited, New Delhi, 1996
2. Leventhal Lance: Introduction to Microprocessor: Software,Hardware and Programming. pHI, 1992
3. Mathur A. P.: Introduction to Microprocessor. Tata McGrawHill 3/e, 1996
4. Short K. L.: Microprocessors and Programmed Logic, Phi (EEE), 1992

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B.E.-III (Electronics Engg.)

Semester - V

Digital Microelectronics & Circuits : EC 505 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1 RTL and IIL Circuits: RTL logic gates and DCTL gates, current hogging and Fan, out and Fan, in RTL and DCTL, RTL buffer, Manufacturer's specifications, concept and physical layout of IIL.

2 DTL and TTL Circuits: DTL and TTL gates, High threshold logic, input, output characteristics of DTL and TTL gates, wired AND connection, active pull, up, Schottky TTL and other logic with TTL gates.

3 Emitter, coupled logic and MOS gates :Transfer characteristics fan, out, speed of operation, logic versatility of ECL gates, ECL gates interconnection, MOS and CMOS inverters, Rise time and fall time in CMOS gates, Manufacturer's specification, interfacing BJT and CMOS Gates.

4 BiCMOS Logic Circuits: Introduction, BJT structure and operation, Dynamic behavior of BJT, Basic BiCMOS circuits, Static behavior, Switching delay in BiCMOS switching circuits, BiCMOS applications.

5 Circuit Design for LSI and VLSI:CMOS and Bipolar Transistor Gate Arrays and their limitations, Standard Cell, Programmable Logic Array, Circuit Design for VLSI

6 Semiconductor Memories: Types of memories, Implementation of ROM, MOS ROM cells, MOS EPROM and EEPROM, applications, Static and Dynamic Read, Write memories, Organization of RAM, Paralleling of Semiconductor Memory Integrated Circuit chips

Practical work shall be based upon the theory course.

References:

1. Taub and Schilling: Digital Integrated Electronic McGraw Hill, 1992
2. Horenstein: Microelectronic Circuits and Devices, Printice Hall of India,2nd edittion.1996.
3. Hodges & Jackson: Analysis and design of digital integrated circuits. 2nd edition.McGraw Hill, IS, 1992
4. Jaeger Microelectronic Circuit Design, McGraw Hill, IS,1997

VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E.-III (Electronics Engg.)

Semester - V

Antenna & Wave Propagation: EC 506 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	0
Examination Scheme Marks	100	25	Cont. Evaluation : 00 Examination : 00

1. Radiation: Potential functions and the electromagnetic field, Alternating current element, Power radiated by current element, Applications to short antennas, Current distribution, Radiation from a monopole or dipole.
2. Antenna Fundamentals: Directional properties dipole antennas, Two element array, Linear arrays, Multiplication of patterns, Binomial array, Antenna gain, Effective area, Antenna terminal impedance, Transmission loss between antennas, Antenna temperature and S/N ratio, Space communications.

3. Antenna Arrays: Mathematics of linear arrays, Antenna synthesis, Tchebyscheff distribution, Super directive arrays.
4. Microwave Antennas: Loop antennas, Helical antennas, Reflutor antennas, Horn antennas, Lens antennas, TV transmitting and receiving antennas, Microstrip antennas, Broadband antennas.
5. Groundwave Propagation: Plane-earth reflection, Space wave, Surface wave, Spherical-earth propagation, Tropospheric waves.
6. Ionospheric Propagation: Ionosphere, Reflection and refraction waves by the Ionosphere, Regular and irregular variations of the ionosphere, Sky wave transmission calculations.

References :

1. Jordan E. C. & Balmain K.G. : Electromagnetic Waves and Radiating Systems, Prentice Hall (India), 1997

2. Kraus : Antennas, McGraw Hill,2/e, 1992

3. Kennedy George: Electronic Communication Systems. McGraw Hills, 3/e, 1993.

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VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E.-III (Electronics Engg.)

Semester - VI

B.E.III (Electronics) 6th Semester		Teaching Scheme			Examination Scheme						
					Theory Exam University Exam.		Practical/Quiz/Viva/T.W. etc.				
							University Exam.		Tutorial	Cont. Evalua, tion	Total Marks
Course	Course No.	L Hrs.	T Hrs.	P Hrs.	Dura,tion Hrs.	Marks	Duration Hrs.	Marks			
Fundamental of Power System Satellite Communication	ELE 601 EC EC601 ECC	3	0	0	3	100	-	-		-	-
Computer Architecture and Organization	CO 602 EC	3	0	0	3	100	-	-	-	-	-
Analog Integrated Circuit	EC 603 EC	3	1	2	3	100	3	30	25	20	75
Analog and Digital Communication	EC 604 EC	3	1	2	3	100	3	30	25	20	75
Industrial Electronics	EC 605 EC	3	1	2	3	100	3	30	25	20	75
Microprocessor Systems and Applications	EC 606 EC	3	1	2	3	100	3	30	25	20	75
	TOTAL :	18	4	8	-	600	-	120	100	80	300
Total Contact Hours : 30 Total Marks : 900											

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B.E.-III (Electronics Engg.)

Semester - VI

Fundamental Of Power System : ELE 601 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	0	0
Examination Scheme Marks	100	0	Cont. Evaluation : 00 Examination : 00

1. System of Transmission: Different systems of transmission, Comparison of system, Selection of conductor size & transmission voltage.
2. Overhead lines Electrical Features: Conductors. Types of conductors in use, Electrical properties, Bundled conductors, Symmetrical and unsymmetrical spacing, Equivalent spacing, Transposition, Transmission line constants, Calculation of resistance, inductance and capacitance for simple arrangement and multi-circuit lines symmetrical and unsymmetrical spacing G.M.R. of conductors, Skin effect.
3. Underground Power Cables**:** Types and construction of cables, Methods of laying, Insulation resistance, Stress and capacitance of single core cables, Capacitance of three core cables, Sheath effect, Thermal rating of cables, cables testing, faults and fault location by loop tests.
4. Short and medium Transmission Line performance: Effect of capacitance, Charging currents, Short and medium lines, Calculation by nominal T and Π methods, Regulation and efficiency.
5. Distribution**:** Distribution systems in use, Comparison of system choice of feeding points, Calculation of feeders, Kelvin's law, calculation of voltage drop in distributor and service mains, Ring mains, Use of balancer.
6. Economic Aspects of Utilizing Electrical Power: Fixed charges, Interest & sinking fund calculation, Energy cost, Public supply, Two port tariff, Effect of power factor, Measurements, Grid tariff, Reduction of energy cost, Power factor improvement, Improvement of load factor, Off peak loads, Economic choice of equipment, Initial cost & efficiency, Capitalization of losses, Choice of voltage, Cost of renewals.

References:

1. Stevenson.W.D.: Elements of power system analysis, 1990
2. Nagrath & Kothari: Power system Engineering, 1992
3. Openshaw Tayler: Utilization of Electrical Energy, 1992
4. Soni,Gupta & Bhatnagar: A textbook of Power System Engineering, 1993

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B.E.-III (Electronics Engg.)

Semester - VI

COMPUTER ARCHITECHURE AND ORGANIZATION: CO 602 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	0
Examination Scheme Marks	100	25	Cont. Evaluation : 00 Examination : 00

1. Basic Computer Organization And Design:, Introduction, Instruction code, Design of computer instructions, Timing and Control Design, Instruction execution, Input, Output Instruction, Interrupt, Design of Basic Computer
2. Central Processor Organization: Processor bus organization, Arithmetic Logic Unit, Stack Organization, General Instruction Format, Addressing Modes in instruction set, Data transfer instructions, Data Manipulations instructions, Program Control instructions, Microprocessor/Micro computer organization.
3. Micro Program Control Organization: Conventional control/Micro-Program control, Control memory, Address sequencing, Micro-program sequencer, Micro-instruction format, Advantages & Applications.
4. Arithmetic Processor Design: Introduction. Algorithm for Addition, subtraction, Multiplication, Division for, Unsigned number, Signed magnitude numbers, 1's Complement numbers, 2's complement numbers, Floating point numbers, Decimal numbers, Processor configuration and design for different types of number representation, Design a micro programmed calculator.
5. Input Output Organization: Peripheral devices, I/O interfaces, Synchronous data transfer, Asynchronous data transfer, software/hardware approach for data transfer, Direct memory access, Priority interrupt, I/O processor, Multiprocessor system organization.
6. Memory Organization: Auxillary memory, Microcomputer memory, Memory hierarchy, Associative memory, Virtual memory, semiconductor memories, cache memory, memory management hardware.
7. Parallel Processing: Introduction to parallel processing, multiprogramming, time sharing, Pipeline processing, parallel processing with multiple CPUs and Functional units, Race conditions, Semaphores in process, Synchronization, Memory interleaving, RISC processor, CISC processors.

References

1. Morris Mano: Computer Systems Architecture, 3 rd Edition, PHI, 1997

2. Tanenbaum: Structural Computer Organization, PHI EEE, 1995

3. W. Stallings: Computer Organization, PHI EEE ed, 1997

4. Hamacher: Computer Organization, McGraw,Hill IS ed, 1994

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B.E.-III (Electronics Engg.)

Semester - VI

Analog Integrated Circuit. : EC 603 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Differential and Cascode BiCMOS Amplifiers: Differential amplifier, AC and DC analysis of different circuit configurations, Constant current bias and current mirror, Cascaded differential amplifier stages and level translator, AC and DC analysis of cascode amplifier.

2. Introduction to operational amplifier: Block diagram, Analysis of op-amp equivalent circuit, Specifications, Open loop op-amp configurations.

3. Practical Op-Amp: An op-amp with negative feedback, Voltage series and voltage shunt configurations, Differential amplifiers, Offset voltages and currents, CMRR, Slew rate.

4. General Linear Applications: Peaking amplifier, Summing, Scaling and averaging amplifiers, Instrumentation amplifier, Voltage to current converter with floating and grounded load, Current to voltage converter, Integrator and differentiator, Gyrator.

5. Active Filters and Oscillators: First order and second order low pass and high pass Butterworth filter, band, pass and band reject filters, all pass filter, Oscillators, Phase shift and Wien bridge oscillators, square, triangular and saw tooth wave generators.

6. Comparators and Converters: Zero crossing detector, Schmitt trigger, Comparator, Voltage limiters and window detector, Clippers and clampers, Peak detector, introduction to A/D and D/A converters and sample and hold circuit.

7. Specialized IC Applications: The 555 timer, Phase locked loops, ICL8038 function generator, Voltage Controlled Oscillator, XR2240 programmable timer/counter.

Practical work shall be based upon the theory course.

References :

1. Ramakant Gayakwad: Op Amps and Linear Integrated Circuits, pHI 3rd Edition 1993.
2. Laker and Sansen: Analog Integrated Circuits, McGraw Hill, IS, 1993.
3. Franco: Design With Operational Amplifiers And Analog Integrated Circuits. McGraw Hill. 2/e, 1992
4. Coughlin and Driscol: Op Amps and Linear Integrated Circuits, pHI 5th edition 1998.
5. Sedra / Smith: Microelectronic Circuits, Oxford university press, 4th edition 1996
6. Jaggar. Micoelectronics circuit design. McGraw Hill, IS, 1997

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B.E.-III (Electronics Engg.)

Semester - VI

Analog and Digital Communication: **EC 604 EC**

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Spectral Analysis Parameters: Fourier Series, Power Spectral Density, Convolution, Correlation between waveforms, Auto and Cross correlation, Sampling Theorem.
2. Analog Input Analog Output Schemes: Amplitude Modulation: Equation for AM, modulation index, spectrum of AM, DSB and SSB transmission with and without carriers, VSB transmission, DSB,C amplitude modulators, Envelope detectors, Balanced Modulator, SSB signal generation and Demodulation schemes.
3. Frequency modulation: Equations for FM, modulation Index, spectrum calculation for sinusoidal waveform and Bessels function table, phase modulation, relationship between FM and PM, NBFM and WBFM, frequency modulators and demodulators (Armstrong method) Types of noise : Noise in AM and FM systems.
4. Digital Input Analog Output Schemes: ASK, FSK,QAM, BPSK, QPSK, Transmitter and receiver block diagrams.
5. Analog Input Digital Output Schemes: Various pulse modulation methods, Pulse code modulation PCM, Delta modulation DM. Comparison between PCM and DM, Compounding method, Noise in digital systems
6. Digital Input Digital Output Schemes: Line encoding methods : NRZ, RZ, Manchester, and multilevel encoding methods and comparison of these schemes
7. Source coding : Linear predictive coding, Huffman coding
8. Multiplexing : FDM and TDM systems,examples and comparison

Practical work shall be based upon the theory course.

References :

1. B.P.Lathi: Modern digital and analog communication systems. Holt,Sounders (HRW Series) Publication. 1987
2. Dennis Roddy and John Coolen : Electronic communications. Fourth Edition,PHI 1995
3. Taub and Schilling : Principles of communication. Systems. Mc,Graw Hill Publication, 1992.
4. Haykin. Communication systems. 3/E John Wiley, 1994.

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B.E.-III (Electronics Engg.)

Semester - VI

Industrial Electronics: EC 605 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Introduction: Scope of power electronics, power converter specification.
2. Power Semiconductor Devices: Thyristor families, V-I characteristics of SCR, Triac, GTO, Diac, Sources of thyristor triggering, turn ON/ turn OFF characteristic and Gate triggering requirements, series/parallel operation, device ratings.
3. Power transistor devices: Basic structure and V-I characteristics of power MOSFET, IGBT, SIT. Switching characteristic, Gate/Base drive circuits, Safe operating area, di/dt / dv/dt limitation, series/parallel operation, ratings.
4. Phase Control Converters : Single phase central taped transformer connection, half controlled and fully controlled Bridge configuration, three phase half controlled and fully controlled Bridge converters, Use of flywheeling diode operation with resistive, inductive and Back EMF load, line commutated inverter, effect of source inductance on converter performance, power factor, ripple factor calculation, firing scheme, linear alpha and cosine angle control, applications of D.C. motor speed control, regulated power supply, battery charger.
5. Thyristor commutation techniques: Natural commutation, Force commutation, Voltage/Current commutation, DC chopper, Principle of Voltage control, analysis of Morgan chopper circuit, Johns chopper circuit, regenerative chopper circuit.
6. Inverters: Single phase series and parallel inverters, classification of CSI and VSI inverters, single phase and three phase inverter circuit, methods of voltage controlled inverter circuits, comparison of thyristor and transistor based inverters, application to speed control of AC motors, uninterrupted power supply, induction melting,heating furnaces.
7. Power Devices Protection : Protective measure, types of Snubber circuits and their functions, Snubbers circuits for transistors and thyristors, thermal protection, design of heat sinks.

Practical work shall be based upon the theory course.

References :

1. N. Mohan: Power Electronics : Converters, Applications and Design. Wiley Publication, 2/E, 1995.
2. M.H. Rashid: Power Electronics: Circuits, Devices and Applications. PHI,2/E,1994
3. G.K. Dubey: Thyristorized Power Controllers. Wiley Eastern, 1990.
4. S.B. Doway: Power Semiconductors Circuits. John,Wiley. 1994.

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B.E.-III (Electronics Engg.)

Semester - VI

Microprocessor Systems and Applications: EC 606 EC

	Lecture	Tutorial	Practical
Teaching Hours	3	1	2
Examination Scheme Marks	100	25	Cont. Evaluation : 20 Examination : 30

1. Introduction to 16 bit Microprocessor: 8086/8088 Architecture, Machine language instructions, Internal execution and timing
2. 8086/8088 Family Assembly Language Programming: Data transfer instructions, Arithmetic instructions, Logical, shift and rotate instructions, Branch instructions, Loop instructions, NOP,HLT and flag manipulation instructions, Assembler directives.
3. 8086 System Connections And Timings: 8086 Hardware overview, Basic signal flow on 8086 buses, Analyzing a minimum mode system, 8086 addressing and address decoding, 8086 timing parameters.
4. Interrupts And Interrupt Service Procedures: 8086 interrupts and interrupt responses, 8086 Interrupt types, Hardware and software considerations for using interrupts.
5. I/O Programming: Fundamental I/O considerations, Programmed and Interrupt I/O, Block transfers and DMA, I/O design example.
6. Interfacing: Programmable parallel ports and handshake input/output, Interfacing microprocessors to keyboard and displays, D/A converter operation, Interfacing and applications, A/D converter types, Specifications and interfacing, Serial communication interfaces.
7. Introduction to Microcontrollers: Basics of 8031 and 8051 architecture and programming, introduction to 16 bit micro controllers

Practical work shall be based upon the theory course.

Reference:

1. Hall Douglas V*:*Microprocessors and Interfacing, Programming and Hardware (Tata McGraw Hill Publishing Company Limited 1991)
2. Gibson Glenn A. and Liu Yu Cheng*:* Microcomputer Systems: The 8086/8088 Family, Architecture, Programming and Design (Prentice Hall of India Private Limited, New Delhi,Second Edition,1994)
3. MCS,86 User's Manual (Santa Clara, Calif.: Intel Corporation,1993)
4. Morse, Stephen P. *:*The 8086 Premier: An Introduction to It's Architecture, System Design and Programming (Rochelle Park,N.J.: Hayden Book Company, Inc., 1989)

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B.E.-III (Electronics Engg.)

Semester - VI

EC 601 ECC Satellite Communication

B.E. III (Electronics & Communication) 6th Semester

	Lecture	Tutorial	Practical
Teaching Hours	3	0	0
Examination Scheme Marks	100	0	Cont. Evaluation : 00 Examination : 00

1. SATELLITE SYSTEM CONFIGURATIONS AND LINK CALCULATIONS :

   International and Domestic Satellite Communication Systems, Illustrative Earth Station and Satellite Communication Subsystems, System Link Model and Parameters, Link Budget Calculation of Digital Satellite System.

2. POWER-EFFICIENT MODULATION TECHNIQUES :

   Baseband Transmission System Concept, Introduction to Power Efficient Tecjmiques, Equivalence of Low- Pass and Bandpass Channel Models, Coherent and Differentially Coherent BPSK and QPSK Systems, Mininum Shift Keying.

3. SPECTRALLY-EFFICIENT MODULATION TECHNIQUES:

   Introducation, Linearly and Nonlinearly Amplified M-ray PSK and QAM Earth Station and Satellite Modems.

4. CODING FOR ERROR DETECTION AND CORRECTION :

   Introduction, Entropy, Mutual Information And Channel Capicity, Source Encoding Coding For Reliable Communication, Convolutional Codes.

5. TIME-DIVISION MULTIPLE-ACCESS SYSTEMS (TDMA) :

   introduction, basic TDMA architecture, tdma control archiotectures, tdma terminal implementation, ancillary tdma processing, terrestrial interfaces.

6. REGENERATIVE (ON-BOARD PROCESSING) SATELLITE SYSYEMS :

   Introduction, Performance, Comparision of Regenerative and Conventional QPSK Satellite Systems, On-Board-DQPSK Regenerative Satellite Systems.

7. SINGLE-CHANNEL-PER-CARRIER (SCPS) PREASSIGNED AND DEMAND-ASSIGNED, SPADE, DIGITAL SATELLITE EARTH STATIONS :

   Introduction to Frequency Division Multiple Access (FDMA) Digital Satellite System, SCPC-FDMA Digital Satellite Systems, System Capacity and Trade-offs in SPADE and SCPC Systems.

8. SATELLIE EARTH STATION ENGINEERING:

Earth Station Antenna Subsytems, Low Noise Amplifier, High Power Amplifier.

REFERENCES :

1. Digital Communicatios- Satellite/Earth Station Engineering by Kamilo Feher, Prentice-Hall Inc., USA.

2. Satellite Communications by T. Pratt and C.W. Bostian, John Wiley & Sons.

3. Satellite Communications by Gagliardi, CBS Publishers & Distributors, Delhi.
