GOVT. COLLEGE OF ENGINEERING, AMRAVATI
(An Autonomous Institute of Government of Maharashtra)

M. TECH. (Advanced Electronics) (Part-Time)
CURRICULUM

Department of Electronics and Telecommunication

2010 -11
ETP111 MODERN ELECTRONIC DESIGN TECHNIQUES

Teaching Scheme: 03L + 01T  Total: 04  Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE  Total Marks: 100
ESE Duration : 2 Hrs. 30 min.

Methods of solution of network, network equations and formulations, DC, AC and transient analysis of networks, simulation examples using SPICE or MATLAB.
Types of modeling, models of diode, BJT and FET, design and simulation of logic circuits and analog circuits, sensitivity and optimization of networks and functions.
Features, levels of abstraction, elements, simulation process, types of simulators, FSM modeling, test benches, generics & attributes, synthesis tools features & optimization in VHDL, synthesis guidelines, timing issues, terminology, flow diagram, clock, gated clock, setup & hold time, violation, metastability, static & dynamic timing analysis.
CMOS & Bi-CMOS logic families & PLD architecture, power dissipation, noise and ESD issues, clock distribution, signal connections, synchronous and asynchronous design features, and memory system design, classification of CPLD architecture, CPLD 9500 series, Xilinx FPGA –XC4000 series, designing steps in ASIC.

Books Recommended


ETP112 ADVANCED DIGITAL SIGNAL PROCESSING

Teaching Scheme: 03L + 01T  Total: 04  Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE  Total Marks: 100
ESE Duration : 2 Hrs. 30 min.

**Design of FIR Filters:** Design of linear phase FIR filters using windows, frequency sampling method, design of optimum equi ripple linear phase FIR filters, design of FIR differentiators, Hilbert transformers, comparison of FIR filter design methods.

**Design of IIR filters:** Design of IIR filters by approximation of derivatives, impulse invariance by linear transformation, matched Z transform, Design of IIR filter by frequency transformations in analog and digital domain.

parameters, selection of AR Model order.

**Adaptive Signal Processing:** FIR adaptive filters, steepest descent adaptive filter, LMS algorithm, convergence of LMS algorithms, application: noise cancellation, channel equalization, adaptive recursive filters, recursive least squares.

**Multirate Signal Processing:** Decimation by a factor D, interpolation by a factor I, filter design and implementation for sampling rate conversion: direct form FIR filter structures, polyphase filter structure.


**Issues involved in DSP processor design:** Architecture and applications of TMS 320 C6XX, multiprocessing with DSP processors, applications of DSP to speech & radar signal processing.

**Books Recommended**

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**ETP113 ADVANCED COMMUNICATION SYSTEM**

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<td>Total Marks: 100</td>
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<td>ESE Duration : 2 Hrs. 30 min.</td>
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**Base band and Band pass Digital Transmission:** Base band modulation, correlative coding, detection of binary signals in Gaussian noise, ISI, eye pattern and equalization, band pass modulation techniques, coherent and non-coherent detection of signals in Gaussian noise, error performance for binary and M-ary signals.

**Error Control Coding:** Linear block codes, error detecting and correcting capability, cyclic codes, convolution codes, properties of convolution codes, Viterbi decoding algorithm, Turbo code concepts, Trellis codes.

**Synchronization, Multiplexing and Multiple Access:** Carrier and symbol synchronization, Frequency Division Multiplexing/Multiple Access, performance comparison of FDMA & TDMA, Code Division Multiple Access, capacity of multiple access methods, Access algorithm: ALOHA, Slotted ALOHA, Reservation of ALOHA, carrier sense system and protocols.

**Spread Spectrum Techniques:** Model of spread spectrum digital communication system, direct sequence spread spectrum system, frequency hopped spread spectrum system, generation of PN sequences, synchronization of spread spectrum systems.
Books Recommended


ETP114 ELECTRONICS LAB - I

Teaching Scheme: 04P     Total: 04   Credit: 02
Evaluation Scheme: 25 Internal + 25 External   Total Marks: 50

It is representative list of practicals. The instructor may choose experiments as per his requirements (so as to cover entire contents of the course) from the list or otherwise. Minimum 08 experiments should be performed

List

1. Write program in VHDL and its test bench for AND, Ex-Or, NOR and NAND gate.
2. Write program in VHDL and its test bench for 4:1 and 8:1 Mux.
3. Write program in VHDL and its test bench for ALU.
4. Write program in VHDL and its test bench for Full adder.
5. Write program in VHDL and its test bench for D-Flip Flop.
6. Write program in Matlab to model BJT or FET.
7. Write program in Matlab to design Butterworth filter.
8. Write program in Matlab to design Bessel filter.
9. Write program in Matlab to design IIR and FIR filters.
10. Write program in Matlab to design Steepest descent adaptive filter.
11. Synthesis of audio signal using TMS320CXX.

ETP211 EMBEDDED SYSTEM

Teaching Scheme: 03L + 01T     Total: 04   Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE   Total Marks: 100
ESE Duration : 2 Hrs. 30 min.

Introduction to Embedded System: Definition and classification, overview of processors and hardware units in an embedded system, software embedded into the system, exemplary embedded systems, embedded Systems on a Chip (SoC) and the use of VLSI designed circuits

Devices and Busses for Devices Network: I/O Devices - Device I/O types and examples – synchronous - iso-synchronous and asynchronous communications from serial devices,
Examples of internal serial-communication devices, UART and HDLC - parallel port devices, sophisticated interfacing features in devices/ports timer and counting devices, USB, CAN and advanced I/O serial high speed buses- ISA, PCI, PCI-X, ePCI and advanced buses.

**Programming Concepts and Embedded Programming in C, C++:** Programming in assembly language (ALP) vs. high level language - C Program elements, macros and functions, use of pointers, NULL pointers, use of function calls, multiple function calls in a cyclic order in the main function pointers, function queues and interrupt service routines queues pointers, concepts of embedded programming in C++, object oriented programming, embedded programming in C++, C program compilers, cross compiler, optimization of memory codes.

**Real Time Operating System:** Definitions of process, tasks and threads, clear cut distinction between functions, ISRs and tasks by their characteristics, operating system services goals, structures kernel process management, memory management, device management, file system organization and implementation, I/O subsystems, interrupt routines handling in RTOS

**Real Time Operating System:** RTOS task scheduling models - handling of task scheduling and latency and deadlines as performance metrics, co-operative round robin scheduling, cyclic scheduling with time slicing (Rate Monotonic Co-operative Scheduling), preemptive scheduling model strategy by a scheduler, critical section service by a preemptive scheduler, fixed (static) real time scheduling of tasks, study of micro C/OS-II or Vx works

**Inter Process Communication and Synchronization:** Shared data problem, use of semaphore(s), priority inversion problem and deadlock situations, inter process communications using signals, semaphore flag or mutex as resource key, message queues, mailboxes, pipes, virtual (logical) sockets, Remote Procedure Calls (RPCs).

**Books Recommended**


**ETP212 DIGITAL IMAGE AND SPEECH PROCESSING**

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ESE Duration : 2 Hrs. 30 min.

**Digital image fundamentals:** Basic image processing steps, image acquisition, presentation of gray scale and modeling, human visual perception, sampling and quantization, basic relationships between pixels, histogram analysis and equalization.

**Image transforms:** Fourier transforms, DFT, properties of 2d fourier transforms and FFT, orthogonal and unitary transforms, sine, cosine, hartley, hadamard, harr, slant and kl transforms. Image enhancement; basic concept, point processing methods, spatial filtering and frequency domain methods, pseudo color and full colour image processing.

**Image restoration:** Degradation models, algebraic restoration techniques, mean square error restoration, least square error restoration, constraint least square error, restoration by singular
value decomposition, homospheric filtering, inverse & wiener filtering, geometric transformation, image compression methods: lossy; block truncation & vector quantization, lossless; huffman coding, run length coding & block coding, transform coding and hybrid methods.

**Nature of speech signal**: Speech production mechanism, classification of speech, sounds, nature of speech signal, models of speech production, speech signal processing; purpose of speech processing, digital models for speech signal; digital processing of speech signals, significance, short time analysis.

**Time domain and frequency domain methods for speech processing**: Time domain parameters of speech, methods for extracting the parameters, zero crossings, auto correlation function, pitch estimation, frequency domain methods for speech processing; Short time fourier analysis, filter bank analysis, spectrographic analysis, format extraction, pitch extraction; analysis synthesis systems.

**Books Recommended**


**ETP213 ADVANCED INSTRUMENTATION**

**Teaching Scheme**: 03L + 01T  
**Total**: 04  
**Credit**: 04

**Evaluation Scheme**: 15 CT1 + 15 CT2 + 10 TA + 60 ESE  
**Total Marks**: 100

**ESE Duration**: 2 Hrs. 30 min.

**Digital time measurement technique**: Vernier technique for small time interval measurement, Measurement of periodic time, Measurement of phase, capacitance, quality factor, time constant and decibel.

**Digital Frequency Measurement Techniques**: Measurement of ratio, product and difference between two frequencies, high frequency measurement, peak frequency measurement, fast low frequency measurement, time reciprocating circuit.

**Signal Analyzers**: Spectrum analyzer, network analyzer, wave analyzer, distortion analyzer, logic analyzer, protocol analyzer.

**Automated Measurement System**: Need & requirement of automatic test equipment (ATE), computer based & computer controlled ATE switches in ADTE, ATE for PCB, component testing, IEEE-488 electronic instrument bus standard, field bus application, instrumentation in a hazardous area.

**Data acquisition system**: Introduction to smart sensors, digital sensors, case studies of real time PC based instrumentation systems, virtual instruments, intelligent instruments and role of software.
Computer control: Hierarchy of computer control for industry, direct digital control, distributed computer control: system architecture & implementation concepts, buses & communication networks of DCCS, SCADA system.

Advance medical instrumentation Systems: Microprocessor interfacing & computer based instrumentation, real time digital conditioning of monitored bio-medical signals such as EEG, ECG, EMG.

Intelligent controllers: Programmable logic controllers, PLC programming techniques, fuzzy logic controllers, neural networks controllers.

Books Recommended

ETP214 ELECTRONICS LAB - II
Teaching Scheme: 04P Total: 04 Credit: 02
Evaluation Scheme: 25 Internal + 25 External Total Marks: 50

It is representative list of practicals. The instructor may choose experiments as per his requirements (so as to cover entire contents of the course) from the list or otherwise. Minimum 08 experiments should be performed

List

1. To implement a micro controller based intelligent waveform generator
2. To write a program for the development of RPM meter.
3. To implement a micro controller based intelligent burglar alarm system
4. To implement micro controller based intelligent surveillance and security system
5. To implement various memory management algorithms.
6. To implement real time scheduling techniques
7. To implement programming in general Linux Kernel and RT Linux
8. To implement an algorithm for adjusting contrast and brightness of image.
9. To implement different algorithms for linear filtering using convolution and correlation
10. To implement an image analysis technique using
    a) Edge detection  b) Boundary tracing c) Line detection
11. To implement the algorithms for Region based processing: Specifying a region of interest and filtering region
ETP215  SEMINAR - I
Teaching Scheme: 02P Total: 02 Credit: 02
Evaluation Scheme: 50 Internal Total Marks: 50

Seminar I:
1. Student shall select a topic for seminar which is not covered in curriculum. Student shall complete the conceptual study of the selected topic and expected to know functional and technical details of selected topic.
2. Before end of semester students shall deliver a seminar and submit seminar report in proper format consisting of
   - Literature survey
   - Concept
   - Functional and Technical detail
   - Present status
   - Future scope
   - Application
   - Comparison with similar technique
   - References
3. Student shall deliver a seminar on report submitted which shall be assessed by two examiner (one should be guide) appointed by HOD.

ETP311  CMOS VLSI DESIGN
Teaching Scheme: 03L + 01T Total: 04 Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE Total Marks: 100
ESE Duration : 2 Hrs. 30 min.

Introduction to CMOS Circuits, MOS Transistors, switches, CMOS logic, circuit & system representation.
MOS Transistor Theory:
Introduction, MOS device design equations, complementary CMOS inverter, static load, MOS inverter, differential inverter, transmission gate, tristate inverter, bipolar devices.
CMOS Processing Technology:
Silicon semiconductor technology, basic CMOS technology, CMOS process enhancements, layout design rules, latch up.
Circuit Characterization And Performance Estimation:
Resistance, capacitance, estimation switching characteristics, CMOS gate, transistor sizing, power dissipation, sizing routing conductors, charge sharing, design marginity, yield, reliability, scaling of MOS transistor dimensions.
CMOS design Methods:
Introduction, design, strategies, CMOS chip design options, design methods, design capture tools, design verification tools, design economics.
CMOS testing:
Need of testing, manufacturing test principles, design strategies for test, chip level test techniques, system level test techniques, CMOS subsystems design, data path operation, memory elements, control.

Books Recommended

ETP312 ADVANCED COMPUTER NETWORK AND PROGRAMMING
Teaching Scheme:  03L + 01T  Total: 04 Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE                        Total Marks: 100
ESE Duration : 2 Hrs. 30 min.

Internetworking : TCP/IP internet architecture, IPV4, IPV6, IP addressing & related issues, IP address resolution techniques (ARP), IP datagram & forwarding, routing algorithms.
Multiple access techniques: ALOHA, CSMA, CSMA/CD, CSMA/CA, CDMA, OFDM, delay throughput characteristics, WLAN-Protocols, multiple access, ad-hoc networks, bluetooth specifications, WAP.
Network security issues: Ciphers, DES, public key cryptography, RAS algorithm, digital watermarking, attacks and counter measures, service authentication proforma, IP security, SSL/TLS, firewalls

Books Recommended
ETP313 ELECTIVE I
(A) PARALLEL COMPUTING

Teaching Scheme: 03L + 01T  Total: 04  Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE  Total Marks: 100
ESE Duration: 2 Hrs. 30 min.

Introduction
Parallel Computer models, Flynn’s classification, system attributes, multiprocessor and multicomputer, conditions of parallelism, program partitioning and scheduling, program flow mechanisms, performance metrics and measures, parallel processing applications, speed up performance laws.

Pipelining and superscalar Techniques
Linear and nonlinear pipeline processors, reservation and latency analysis, collision free scheduling, instruction pipeline design, arithmetic pipeline design, super scalar and super pipeline design.

Parallel and scalable architectures
Multiprocessor, multicomputers, multi vector and SIMD computers, scalable, multithread and dataflow architecture.

Parallel Program Development and Environment
Programming parallel computers, parallel programming environments, synchronization and multiprocessing modes, multitasking, Micro tasking, auto tasking, shared variable program structure, semaphores and applications, message passing program development, control decomposition techniques, heterogeneous processing.

Books Recommended

ETP313 ELECTIVE I
(B) ARTIFICIAL INTELLIGENCE

Teaching Scheme: 03L + 01T  Total: 04  Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE  Total Marks: 100
ESE Duration: 2 Hrs. 30 min.
Neural networks: Characteristics, history of development in neural networks principles, artificial neural net terminology, model of a neuron, topology, learning, types of learning, supervised, unsupervised, re-inforcement learning, knowledge representation and acquisition.


Fuzzy modeling: adaptive neuro fuzzy inference system, cognitive neurofuzzy modeling, neuro fuzzy control, application of neuro fuzzy control.

Application of neural network: Applications of neural nets such as pattern recognition, optimization, associative memories, speech and decision-making, characters recognition network, neural network control application, network for robot kinematics, hand written numeral recognition.

Books Recommended

ETP313 ELECTIVE I (C) MICROELECTRONICS TECHNOLOGY

Teaching Scheme: 03L + 01T Total: 04 Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE Total Marks: 100
ESE Duration: 2 Hrs. 30 min.

Introduction to CMOS circuits: MOS Transistors and switches, CMOS logic, inverter, combinational logic, and and nor gates, compound gates and multiplexers, memories.

Circuit and System Representation: Behavioral, structural and physical representations, CMOS parasitic , technology scaling, voltage transfer characteristics, basic gates, W/L calculations, static & dynamic power dissipations, PDP, transmission gate, applications of transmission gate, CMOS layout techniques, subsystem design & layout.

Fabrication of CMOS Integrated Circuits: An overview of silicon semiconductor technology, wafer processing, oxidation, epitaxy, deposition, ion-implantation and diffusion, silicon gate process, basic CMOS Technology, CMOS process enhancements, latch-up, technology-related CAD issues, domino logic, NORA logic, transient response, ultra fast VLSI circuits & materials used.

Mixed signal design issues: MOS switch, MOS diode/active resistor; current sinks, current sources; inverters, cascode amplifier, difference amplifier design.

Design entry: Data objects, data types, modeling methods, subprograms, packages, configuration, attributes, synthesizable and non-synthesizable statements, VHDL codes for FSM, Processing elements, memory.

Signal integrity issues: Floor planning methods, global routing, switch box routing, clock distribution, multiphase clock, off chip connections, I/O architectures, pad design, packages.
Books Recommended
5. Integrated Electronics, Jacob Millman, Christos C. Halkias, 3rd edition, 2001,

**ETP314 ELECTRONICS LAB - III**

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<td>25 Internal + 25 External</td>
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It is representative list of practicals. The instructor may choose experiments as per his requirements (so as to cover entire contents of the course) from the list or otherwise. Minimum 08 experiments should be performed

**List**

1. To design a basic CMOS inverter using a CMOS layout design tool.
2. To design a basic logic gate using a CMOS layout design tool.
3. To design an universal logic gate using a CMOS layout design tool.
4. To design a combinational logic using a CMOS layout design tool.
5. To implement the fuzzy logic for the control of audio output of P.A. system.
6. To implement neural network based adaptive control system.
7. To implement algorithm for multilayer feed forward neural network.
8. To implement an algorithm for fuzzy pattern recognition based on neural network.

**ETP315 SEMINAR - II**

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Seminar II:

1. Student shall select a topic for seminar which is not covered in curriculum. Student shall complete the conceptual study of the selected topic and expected to know functional and technical details of selected topic.
2. Before end of semester students shall deliver a seminar and submit seminar report in proper format consisting of

   - Literature survey
   - Concept
   - Functional and Technical detail
   - Present status
   - Future scope
   - Application
   - Comparison with similar technique
   - References
3. Student shall deliver a seminar on report submitted which shall be assessed by two examiner (one should be guide) appointed by HOD

ETP411 ELECTIVE II
(A) COMPUTATIONAL TECHNIQUES

Teaching Scheme: 03L + 01T Total: 04 Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE Total Marks: 100
ESE Duration: 2 Hrs. 30 min.

Numerical Methods and Optimization Techniques (NMOT):
Introduction to higher level mathematics and calculus, integration, differentiation, derivatives, partial derivatives, optimization problems and their solutions, different search methods including GA, different types of models of artificial neural networks, radial basis functions, response surface optimization, statistical modeling - designing of experiments and other methods.

Introduction to computer languages: Machine language, assembly language, higher level languages, compilers and interpreters, problem solving using computers algorithm, flow chart. FORTRAN programming constants and variables, arithmetic expression, I/O statements, specification statement, control statements, subscripted variables, logical expression function and subroutines, examples of programming should include numerical as well as non numeric applications, matrix operations, searching, Sorting (Bubble).

Iterative Techniques for solution of equations: Simple iteration scheme, newton-raphson method, secant method; their rates of convergence, order of errors, roots of polynomial equation, Gaussian elimination, Gauss-Siedel iteration; matrix inversion by Gaussian method; computation of determinant; polynomial approximation.

Lagragian interpolation of polynomial, Aitaken's methods, method, Newton's forward difference formula, curve fitting (least square); trapezoidal method, Simpson's rule, order of errors in integrations; solution of initial value problems - Euler's method 4th order Runge Kutta method (algorithm only).

Books Recommended
2. Computer Oriented Numerical Methods, V. Rajaram, Prentice Hall of India Ltd.
3. Elementary Numerical Analysis, S.D. Conte
4. Introductory Methods of Numerical Analysis, S.S. Shastry
5. Numerical Methods in Engineering, , M.G. Salve

ETP411 ELECTIVE II
(B) FUZZY LOGIC AND NEURAL NETWORK

Teaching Scheme: 03L + 01T Total: 04 Credit: 04
Evaluation Scheme: 15 CT1 + 15 CT2 + 10 TA + 60 ESE Total Marks: 100
ESE Duration: 2 Hrs. 30 min.
**Fuzzy sets**: Crisp sets, fuzzy sets, operation on fuzzy sets, fuzzy relations, ERIC (Extended Rule Based system for intelligent control), FP-3000 digital fuzzy processor, analog fuzzy processor, interface chip, defuzzification chip Fuzzy set Theory, Introduction to Fuzzy sets, Fuzzy Relation, Membership functions,


**Recurrent networks**: Hamming Net & MAXNET, feature mapping, counter propagation networks, cluster discovery network (ART).

**Application of neural network**: characters recognition network, neural network control application, network for Robot kinematics, auto vehicle navigation, speech recognition.

**Application of Fuzzy logic**: fuzzy based washing machine, vacuum cleaners, video equipment, anti-lock breaking system (ABS), automatic train operation.

**Books Recommended**

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**ETP411 ELECTIVE II**

**C) THYRISTOR ENGINEERING**

**Teaching Scheme**: 03L + 01T  
**Total**: 04  
**Credit**: 04

**Evaluation Scheme**: 15 CT1 + 15 CT2 + 10 TA + 60 ESE  
**Total Marks**: 100

**ESE Duration**: 2 Hrs. 30 min.

**Overview of thyristors and triggering devices**: Thyristor characteristics, ratings, turn ON and turn OFF mechanism, thyristor types SCR, BCT, fast switching SCR, LASER, TRIAC, RCT, GTO, MTO, ETO, IGCT, MCT, and SITH. Causes for damage to thyristor, converter faults, sources of voltage transient suppression, over current protection of thyristor.

**Controlled rectifier**: Single phase semi-controlled rectifier with RL load, single phase full wave and dual controlled rectifier with RL load, single phase series controlled rectifier, three phase semi controlled and full controlled rectifier with RL load, three phase semi controlled and full controlled rectifier with RL load, three phase dual converter with RL load, twelve pulse converter, effect of load and source inductance

**AC voltage controller**: Single phase controlled, on-off control, phase control, single phase bidirectional controller, three phase full wave controller, three phase bidirectional controller, single phase and three phase cycloconverter, reduction of output harmonics of output cycloconverter, AC voltage controller with PWM control, effect of source and load inductance.

**Inverter**: series resonant inverters with unidirectional and bidirectional switches, parallel resonant inverters, class E resonant inverters, zero current and zero voltage switching resonant inverters, concept of multilevel inverter, diode clamped multilevel inverter, cascaded multilevel inverter, flying capacitor inverter.
**DC and AC drives:** Basic characteristics of DC motor, single phase drives, three phase drives DC-DC converter drives, induction motor drives, synchronous motor drives, stepper motor control

**Books Recommended**

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**ETP412 DISSERTATION (PHASE I) & SEMINAR**

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Dissertation(Phase I) & Seminar:

1. Student shall complete dissertation work in IV, V & VI semesters individually.
2. In IV semester, student shall complete Literature survey and decide the dissertation topic. He shall complete conceptual study of dissertation topic and submit the progress report in proper format.
3. Student has to deliver a seminar on the selected topic (covering 20% work) which shall be examined by two examiners appointed by HOD (wherein one shall be guide).

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**ETP511 DISSERTATION (PHASE II) & SEMINAR**

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Dissertation(Phase II) & Seminar:

1. Student shall complete at least 50% of dissertation work in 5th semester, and submit a progress report in proper format.
2. Student has to deliver a seminar on the selected topic, which shall be examined by two examiners appointed by HOD (wherein one shall be guide).

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**ETP611 DISSERTATION (PHASE III)**

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Dissertation (Phase III):

1. In continuation with the work completed in IV & V semesters, Student shall complete the implementation of dissertation topic.
2. Student shall submit final dissertation report in proper format which shall include the work completed in previous semesters.
3. Final examination of dissertation shall include demonstration & presentation by student and oral examination based on total dissertation work.
4. Last date of submission of dissertation work will be the end of the semester. (Please see Appendix-C of Rules & Regulation for further information).