

**SHRI G.S. INSTITUTE OF TECHNOLOGY AND SCIENCE
ELECTRONICS&INSTRUMENTATIONDEPARTMENT**

BE II Year (4 YDC) Semester A

SUBJECTCODE:EI-27001

SUBJECTNOMENCLATURE:CIRCUITANALYSISAND SYNTHESIS

CourseOutcomes:-

CO1:DiscussedandenhancedtheknowledgeaboutcircuitsanalysisandsynthesisbyapplyingKVL and KCL.

CO2:Identifythe circuit‘stopologytoreduce complexity.

CO3:ApplytheknowledgeofFourierseriesandLaplaceTransformforcircuit analysis. CO4:

Determine the solutions for differential equations for circuit analysis.

CO5:Understandingtheconceptoftransient andsteadystateresponseofelectricalcircuits. Also the knowledge about Applicability of Foster and Cauer forms.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1		1	1						1
CO2	3	1	2									
CO3	3	2	2									
CO4	3	3	3	1	1	1						
CO5	2	1	2	1								
AVG.	2.8	1.8	2	1	1	1						1

SUBJECTCODE:EI-27002

SUBJECTNOMENCLATURE:FUNDAMENTALSO F MEASUREMENT

CourseOutcomes:

CO1:Todiscuss fundamentalsof measuringinstrumentstheoreticallyaswellaspractically.

CO2:To determineCathoderayoscilloscopeindetailwithitsapplicationsandprobcompensation.

CO3: Attain basic knowledge about Analog instruments.

CO4:Descriptionofmeasurement oflow resistances,voltage,current,phase frequencyetc.

CO5: To implement compensation, calibration and testing of measuring instruments.

CO6:GainknowledgeaboutA.C.bridgesanditsapplications.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2									
CO2	3	2	3		2							
CO3	3	2	1	3					2			
CO4	3	3	3	2	2		2					
CO5	2	2	3	2	1				2			
CO6	3	3	3	2	2							
AVG.	2.8	2.3	2.5	2.3	1.8		2		2			

SUBJECTCODE:EI-27003**SUBJECTNOMENCLATURE:ELECTRONICDEVICESAND CIRCUITS****CourseOutcomes:**

CO1: Todetermine basicsemiconductortheoryandtypesofsemiconductors devices.

CO2: Todeterminecurrenttransportinsemiconductorandtheworkingprincipleofdiodesand bipolar transistor.

CO3: Toapplythemodellingofdiode,BJT,MOS.

CO4: Todiscussfabricationtechniques forintegrated circuits.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	2									
CO2	3	3	2	2								
CO3	2	2	3	1								
CO4	3	3	2									
AVG.	2.75	2.25	2.25	1.5								

SUBJECTCODE:MA-27014**SUBJECTNOMENCLATURE:MATHEMATICS-III****Course Outcomes:**

CO1: Learn advance calculus.

CO2: Understand Fourier series, partial differential equation and their applications in Engg.

CO3: Learn Laplace&Fouriertransforms&theirapplicationsinElectroniccircuit analysis, Communication &control systems.

CO4: Learns calculus for finite differentiation and its applications.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3									3
CO2	3	3	3									3
CO3	3	3	3									3
CO4	3	3	3									3
AVG.	3	3	3									3

SUBJECTCODE:HU-27005**SUBJECTNOMENCLATURE:ECONOMICS FORENGINEERS****COURSEOUTCOMES:**

1. Explain economic cyclic flow and Estimatet he demand and demandelasticityforaproduct.
2. Plantheproduction;chooseappropriateproductiontechnology(combinationofproduction factors); and estimate feasible range of production.
3. Analyzetheproduction-cost-profitrelationandselectthesuitableprojectforinvestment
4. Estimatepriceandtheequilibriumforafirm/organizationindifferentcompetitivemarket situations.
5. Review,summarizeandcomparethefinancialstatementsofanaccountingentityandableto apply financial ratio technique for financial analysis.
6. Identifytheproblems,seetheopportunity,andideatethesolutiontotheproblems

SUBJECTCODE: EI-27498**SUBJECTNOMENCLATURE:ELECTRONICWORKSHOP****CourseOutcomes:**

CO1:To identify about basic electronic component.

CO2:To apply colour coding scheme for resistance (Band 4, Band 5 & band 6)

CO3:To implement methodology for designing PCB (Etching, Drilling & Soldering)

CO4: To become familiar with fundamental electronic circuits.

CO	P0 1	P0 2	P0 3	P0 4	P0 5	P0 6	P0 7	P0 8	P0 9	P0 10	P0 11	P0 12
CO 1	3	3	2	1	3							
CO 2	3	2	1	1	2							
CO 3	3	2	1	1	2							
CO 4	3	2			3							1
Average PO	3	2.25	1.333	1	2.5							1

SUBJECTCODE:OC-I**SUBJECTNOMENCLATURE:INSTRUMENTATION WORKSHOP****CourseOutcomes:**

CO1:To study basic introduction of electronic hardware systems and provides hands-on training with familiarization.

CO2:To implement the circuit on PCB and test it with CRO, Function generator and multimeter.

CO3: Testing of electronics components.

CO4: soldering practice and assembling of electronics circuits.

II Year (4 YDC) Semester B**SUBJECTCODE: EI-27501****SUBJECTNOMENCLATURE: ANALOG ELECTRONICS****Pre-Requisite:-** Knowledge of Network Theory, Basic Electronics and Engineering mathematics**CourseOutcomes:**

CO1:To discuss the frequency response & gain calculation of single/double stage amplifiers. CO2: To apply the fundamentals of feedback amplifier & oscillators.

CO3:To analyse the theory behind Op-amp & application in technology.

CO4: Descriptive view about Op-amp IC's like 74, 324, 308 etc.

CO5:To discuss RFICs & review of regulators using Zener diodes, series and shunt regulators CO6: To describe the role of Multivibrators.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3				2	2	3			1		2
CO2	3	3	2		3	1	2					1
CO3	3			2	2	2				3		2
CO4	3	1	3		3	2				2		3
CO5	3	3	3	3	1	3				2		2
CO6	3		2	1	1		2					3
AVG.	3	2.33	2.5	2	2	2	2.33			2		2.16

SUBJECTCODE:EI-27551**SUBJECTNOMENCLATURE:SENSORS&TRANSDUCERS****CourseOutcomes:-**

CO1:To discuss role of Sensor and transducers in instrumentation

CO2:Descriptive view for the transducer construction, classification, principle of operation and characteristics.

CO3:Gain knowledge about transducers for measurement of displacement, strain, velocity, acceleration etc.

CO4: To analyze transducers for measurement of pressure and force.

CO5:To discuss about bimetallic and temperature measurement system.

CO6: To discuss about transducers for flow and level measurement.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3		1	2						
CO2	3	2	2			2						
CO3	3	2	1									
CO4	3	3	2									
CO5	3	3	2	1								
CO6	3	2	2	1								
AVG.	3	2.5	2	1	1	2						

SUBJECTCODE: EI-27562**SUBJECTNOMENCLATURE:DIGITALELECTRONICS****CourseOutcomes:**

CO1:To apply the Boolean algebra with its postulates-laws, expressions & minimization techniques.

CO2:To discuss the role of logic gates in digital electronics. CO3: To apply combinational logics and circuits.

CO4:To gain the knowledge of sequential circuits with their implementations. CO5:

To adapt with memory classification and devices.

CO6:To implement asynchronous and synchronous circuits fall under digital electronics.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2						1	1		
CO2	3	2	3						1	1		
CO3	3	3	2						1	1		
CO4	3	3	2						1	1		
CO5	3	2	1						1	1		
CO6	3	2	2						1	1		
AVG.	3	2.5	2						1	1		

SUBJECTCODE:MA -27563S**UBJECTNOMENCLATURE:MATHEMATICS-IV****CourseOutcomes:-**

CO1:Learn functioningofcomplex variables.

CO2: Understand statistics &probability &their applications.

CO3:Learnreliability&itsapplicationsinelectronicssystem.

CO4: Understand graph theory & optimization.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3									3
CO2	3	3	3									3
CO3	3	3	3									3
CO4	3	3	3									3
CO5	3	3	3									3
AVG.	3	3	3									3

SUBJECTCODE: EI-27992**SUBJECTNOMENCLATURE:SOFTWAREWORKSHOP****CourseOutcomes:-**

CO1:To implementtheMATLABDesktop,CommandwindowandtheGraphWindow

CO2: Be able to do simple and complex calculation using MATLAB

CO3:Beabletocarryoutnumericalcomputations and analyses

CO4: To applythe mathematicalconcepts uponwhich numericalmethods.

CO5:Todiscussthetoolsthat areessentialinsolvingengineering problems

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	1	2	3	2	3	3
CO2	3	3	3	3	3	2	1	2	3	2	2	2
CO3	3	3	3	2	3	2	1	2	3	3	3	2
CO4	3	3	3	3	3	2	2	2	3	2	2	3
CO5	3	3	3		3	2	2	3	3	2	3	3
AVG.	3	3	3	2.75	3	2.2	1.4	2.2	3	2.2	2.6	2.6

SUBJECTCODE:HU-27881**SUBJECTNOMENCLATURE:VALUES,HUMANITIES& PROFESSIONAL ETHICS****COURSEOUTCOMES:**

ExplainandelaboratethesocialinstitutionsandConstitutionofIndiathroughwhichthe society and nation is governed.

1. Describethekindsofvaluesandethicsandtheirimportance
2. Contextualizetheprofessionalattitudeandapproachesasperneedsofsocietyandvalues.
3. ExplainandillustratetheprocessofSocial,PoliticalandTechnologicalchangesincontextto global changes

SUBJECTCODE:IT-37005**SUBJECTNOMENCLATURE: DATASTRUCTURE****CourseOutcomes:**

CO1:Understand datastructure stack queues, lists,trees, complexityetc. indetail.

CO2:Studymemoryhierarchy,managementtechniquespartitioning,segmentation,paging and comparison of techniques.

CO3:GainknowledgeaboutCPUSchedulingandmultiprogramming

CO4: Understand file systems and Input / Output operations.

CO5:CasestudiesonMS-DOS, UNIXandWINDOWSNT.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	-	-	-	-	-	-	-	-	1
CO2	3	3	1	2	2	-	-	-	-	-	-	1
CO3	3	3	2	2	-	-	-	-	-	-	-	1
CO4	3	2	2	-	-	-	-	-	-	-	-	1
CO5	3	2	2	-	-	-	-	-	-	-	-	1
AVG.	3	2.4	1.6	2	2							1

SUBJECTCODE:EI-37006**SUBJECTNOMENCLATURE:MICROPROCESSOR SYSTEMS****CourseOutcomes:-**

CO1:To describetheevolutionandorganizationofmicroprocessorsand microcomputersalongwith its basic architecture and register set.

CO2: Evaluate different techniques of memory interfacing and I/O devices.

CO3:Developknowledgeaboutinterfacingdevicesandperipheralsub-systems.

CO4:GainknowledgeaboutAnalogand Digitalsub-systemswithdataconverters.

CO5:Developingskillsofdesigningassemblylanguageprogrammingofmicroprocessors. CO6:

To discuss various practical applications of microprocessor system.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	--	--	--	2	2	3	--	--	1	--	2
CO2	3	3	2	--	3	1	2	--	--	--	--	1
CO3	3	--	--	2	2	2	--	--	--	3	--	2
CO4	3	1	3	--	3	2	--	--	--	2	--	3
CO5	3	3	3	3	1	3	--	--	--	2	--	2
	3	--	2	1	1	--	2	--	--	--	--	3
AVG.	3	2.3	2.5	2	2.4	2	2.3			2		2.6

SUBJECTCODE:EE-37003**SUBJECTNOMENCLATURE:CONTROLSYSTEM****Course Outcomes****EE37003(T).1:** Understand the dynamics systems and analyze mathematical modelling of physical systems such as Electrical, Mechanical, Thermal and Hydraulic.**EE37003(T).2:** Evaluate the time domain and frequency domain design specifications of the system and error dynamics of first and second order systems with various inputs.

EE37003(T).3: Application of frequency domain analysis for ascertaining stability in time and frequency domain using Routh Hurwitz analysis, Root Locus, Nyquist and Bode Plots.

EE37003(T).4: Designing of Lead, Lag and Lead-Lag compensators for desired frequency domain closed loop performance, Designing of PID Controllers.

EE37003(T).5: Understanding the concept of controllability and Observability by state space analysis, State feedback Controller design with Pole Placement.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	2	2	1	--	--	--	--	--	--	--
CO2		3	2	2		--	--	--	--	--	--	--
CO3		3	2	2	1	--	--	--	--	--	--	--
CO4			2	2	1	--	--	--	--	--	--	--
CO5		3			1	--	--	--	--	--	--	--
AVG.	1	3	2	2	1							

SUBJECT CODE: EC-37014

SUBJECT NOMENCLATURE: ANALOG AND DIGITAL COMMUNICATION

Course Outcomes:-

CO1: Understand mathematical representation of signals.

CO2: Various transmission schemes used in analog & digital communication. CO3:

Designing a communication system sub parts.

CO4: Performance comparison of various analog & digital communications.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	--	--	--	--	--	--	--	--	--	--
CO2	2	1	2	2	1	--	--	--	--	--	--	1
CO3	2	2	3	2	1	--	--	--	--	1	--	2
CO4	--	--	2	1	1	--	--	--	--	--	--	2
AVG.	2.3	1.3	2.3	1.6	1					1		1.6

SUBJECT CODE: EI-37251

SUBJECT NOMENCLATURE: ELECTIVE 1 (INDUSTRIAL ENGINEERING & MANAGEMENT)

Course Outcomes:-

CO1: Learn workplace design, work measurement tests & technology.

CO2: Understand concept of operations & organization management.

CO3: Learn operational research, linear programming, transportation models and its applications.

CO4: Apply and learn quality control & its economics.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	2	2	1			3	1	3	3
CO2	2	3	2	2	2			2	2	1	3	2
CO3	3	3	2	3	3				3		3	1
CO4	2	2		2	3				2	1	3	2
AVG.	2.5	2.5	2	2.25	2.5	1		2	2.5	1	3	2

SUBJECTCODE:EI-37252**SUBJECTNOMENCLATURE: ELECTIVE1 (INSTRUMENT SYSTEM DESIGN)****CourseOutcomes:**

CO1:To work on PCB designing software's.

CO2:To design Microcontroller based electronic circuit

CO3:To interpret datasheets & specifications of various logic families & IC's

SUBJECTCODE:EI37481**SUBJECTNOMENCLATURE: TEST & CALIBRATION LABORATORY****COURSE OUTCOME:**

CO1. Learn the static and Dynamic Characteristics of Measurement System

CO2:: Understand concept of testing of Measuring equipments

CO3: Analyzing the errors of electronic Equipments

CO4: Apply and learn the calibration of test Equipments

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	1									
CO2	1	1	1	--	--	--	--	--	--	1	2	1
CO3	--	--	3	3	1	2	--	--	1	2	3	2
CO4	--	1	1	3	2	3	--	--	3	2	3	2
AVG.	1	1.6	1.5	3	1.5	2.5			2	1.6	2.6	1.6

SUBJECTCODE:EI-OC-III**SUBJECTNOMENCLATURE: ANALYTICAL INSTRUMENTATION****CourseOutcomes:**

1. To provide various techniques and methods of analysis which occur in the various regions of the spectrum.
2. To give unique methods of separation of closely similar materials, the most powerful being gas chromatography
3. To discuss important methods of analysis of industrial gases. Awareness and control of pollution in the environment is of vital importance.

SUBJECTCODE:EI-37511**SUBJECTNOMENCLATURE: FILTER DESIGN AND SIMULATION****CourseOutcomes:-**

CO1: To discuss various active network elements, control sources and properties of GIC, Nic, gyrators using Op-amp.

CO2: Evaluation of elliptical filters and fundamentals of approximation theory.

CO3: To implement realization of Butterworth filters of first order and second order using Op-amp CO4: Analyzing active networks using IAM approach and its implementation.

CO5: To discuss LC ladder simulation, cascade realization, Kerwin circuit and other filter circuits and its simulation.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	1	--	--	--	--	--	--	--
CO2	2	3	2	2	1	--	--	--	2	--	--	--
CO3	3	2	3	1	1	--	--	--	1	--	--	--
CO4	2	2	3	1	1	--	--	--	1	--	--	--
CO5	2	2	1	1	--	--	--	--	--	--	--	--
AVG.	2.4	2.2	2.2	1.2	1				1.33			

SUBJECTCODE:ME-37502SUBJECTNOMENCLATURE:MECHANICAL MEASUREMENTS

CourseOutcomes:

CO1:Learnthetypesofmeasurement,errors&theiranalysis.

CO2: Understand principle of mechanicalmeasurement, electrical, optical etc.

CO3:Measurementofquantitieslikeforce,torque,vibration,shock,soundetc. CO4: Mechanical elements like dampers, flappers, nozzles, valves etc.

SUBJECTCODE:EI-37513**SUBJECTNOMENCLATURE:HIGH FREQUENCY ENGINEERING****Course Outcomes:**

CO1:To describe Maxwell's equation & wave equation & their interpretation.

CO 2:To discuss concepts of waves.

CO3:Gainknowledgeoftransmission lines& waveguides.

CO4:To discuss working and operation of high frequency components like magnetron,klystron, TWT.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	--	--	--	--	--	--	--	--
CO2	3	2	2	1	--	--	--	--	--	--	--	--
CO3	3	3		2	1	--	--	--	--	--	--	--
CO4	3	3	3	2	3	--	--	--	--	--	--	--
AVG.	3	2.75	2.3	2	2							

SUBJECTCODE:EC-37512**SUBJECTNOMENCLATURE:DIGITALSIGNAL PROCESSING****CourseOutcomes:-**

CO1:Learn characteristics of signals &systems like time invariant,linear nonlinear,causal etc.

CO2: Gain knowledge of Z-transform & analyzing discrete system using Z-transform.

CO3: Evaluation of DFT and FFT

CO4: Realization and Implementation of digital Filters.

CO5:Designing digital filters& their implementation.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2		--	--	--	1	--	--	--
CO2	3	3	3	3	1	--	--	--	2	--	--	--
CO3	3	3	3	3	1	--	--	--	2	3	2	2

CO4	3	3	3	3	1	--	--	--	2	3	2	2
CO5	3	3	3	3	1	--	--	--	2	3	2	2
AVG	3	3	2.8	2.8	1				1.8	3	2	2

**SUBJECTCODE:EI-37701SUBJECTNOMENCLATURE:MICROCONTROLLER&
EMBEDDED SYSTEM (ELECTIVE -I)**

CourseOutcomes:

CO1:Analyze the basic concepts and architecture associated with different microcontrollers Families.

CO2:Descriptive view about 8051 family of microcontrollers and designing assembly language programs for Different scenarios and calculations.

CO3:Illustration of different devices interfacing with 8051 microcontroller. CO

4: Brief overview of Motorola series microcontrollers.

CO5:Evaluation of embedded system, its characteristics and applications by using few case studies.

CO6:To discuss various software architecture of embedded systems.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1											1	
CO2	2	1	2	2	1	1		1	1	2	2	
CO3							1	1		2	1	1
CO4												
CO5	2	2	3	2	1	1	2	1	1	2	2	1
CO6	1			1								
AVG	1.6	1.5	2.5	1.6	1	1	1.5	1	1	2	1.5	1

SUBJECTCODE:EI-47053

SUBJECTNOMENCLATURE:PROCESS INSTRUMENTATION

CourseOutcomes:

CO1:To Analyze process control system and evaluation.

CO2: Application of pneumatic and electronic controller in control systems.

CO3:To describe PLC and ladder programming for designing various logics.

CO4: To discuss final control elements

CO5:To employ PLC and ladder programming to real world scenario.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			1	2			1				1	1
CO2				3	2						1	1
CO3					1							
CO4												
CO5			2	3	3	1	1				2	
AVG			1.5	2.6	2	1	1				1.33	2

SUBJECTCODE:BM-470012

SUBJECTNOMENCLATURE: MEDICAL INSTRUMENTATION

Course Outcomes:

CO1:Introduction to general human physiology.

CO2:Illustration of measurement of physiological signals from detection to display.

CO3: Understand theory and design aspects of different therapeutic equipments.

CO4:Practica l analysis of different therapeutic equipments.

CO5:Gain knowledge about advanced microprocess or and PC based biomedical instruments.

CO6: Perform the analytical experiments; improve analytical skills and attitude which help them to apply these skills in their field of engineering.

CO7:Understand different analytica ltechniques

SUBJECTCODE:EE-47002

SUBJECTNOMENCLATURE:POWER ELECTRONICS

COURSEOUTCOMES:

EE47002(T).1:Acquireknowledgeaboutfundamentalconceptsandswitchesusedinpower electronics

EE47002(T).2:Abilitytoanalyzevariousinglephaseandthreephaselinecommutatedpower converter circuits and understand their applications.

EE47002(T).3:Nurturetheabilitytoidentifybasicrequirementsforlinecommutatedconverter based design application.

EE47002(T).4:Todevelopskillstobuild,andtroubleshootpowerelectronics circuits.

EE47002(T).5:Understandthefiringcircuitdesignforlinecommutatedconverters

EE47002(T).6:Fosterability tounderstandtheuseof linecommutatedconvertersin professional engineering.

SUBJECTCODE:EI-47257

SUBJECTNOMENCLATURE:FIBER OPTICS & PHOTONICS (ELECTIVE-I)

CourseOutcomes:-

CO1:Todiscussopticalfiberanditstypeswithitsadvantagesanddisadvantages.

CO2: Gain knowledge about optical instrumentation.

CO3:Descriptive viewaboutopticalcommunicationandbreak-throughinopticalnetworkdesign.

CO4: Illustration of optoelectronics, lasers and band-gap engineering

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	--	--	--	--	--	--	--	--	1
CO2	3	2	1	--	--	--	--	--	--	--	--	2
CO3	2	2	3	--	--	--	--	--	--	--	--	3
CO4	2	1	3	--	--	--	--	--	--	--	--	1
AVG	2.5	2	2.25									1.75

SUBJECTCODE:XX47201**SUBJECTNOMENCLATURE:DATA STRUCTURES (ELECTIV-I)****CourseOutcomes:**

CO1:Understand dat astructures tackqueues, lists, trees, complexityetc. indetail.

CO2:Study emory hierarchy,management echniques partitioning, segmentation, paging and comparison of techniques.

CO3:Gain knowledge out CPU schedulingandmultiprogramming

CO4: Understand file systems and Input / Output operations.

CO5:CasestudiesonMS-DOS, UNIXandWINDOWSNT.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	-	-	-	-	-	-	-	-	1
CO2	3	3	1	2	2	-	-	-	-	-	-	1
CO3	3	3	2	2	-	-	-	-	-	-	-	1
CO4	3	2	2	-	-	-	-	-	-	-	-	1
CO5	3	2	2	-	-	-	-	-	-	-	-	1
AVG.	3	2.4	1.6	2	2							1

SUBJECTCODE:EI-47322**SUBJECTNOMENCLATURE:VLSI TECHNOLOGY (ELECTIVE-II)****CourseOutcomes:-**

CO1:Todescribecrystalgrowthandwaferpreparationmetho

ds. CO2: To discuss layering in terms of chip fabrication.

CO3:Illustrationofvariouspatterningmethods.

CO4:Gainknowledgeaboutlayoutdesignrules,stickdiagramsetc.

CO5: Illustration of subsystem design and memories.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1				2								1
CO2				2	3	1	2	3	1	1	2	1
CO3				3	3	1					2	
CO4	2	1	2		1	1				2	3	2
CO5	2	2	3	3	2	2	3	2	3	2	3	1
AVG	2	1.5	2.5	2.5	2.25	1.25	2.5	2.5	2	1.6	2.5	1.25

SUBJECTCODE:EI-47301**SUBJECTNOMENCLATURE: INTELLIGENT INSTRUMENTATION (ELECTIVE- II)****Course Outcomes:-**

CO1: To discuss concepts of robotics, robot mechanism and its Classification.

CO2: To describe mechanical and electrical elements involved in robotics.

CO3: Practical analysis of robotic mechanism and its functioning at different abstraction levels.

CO4: Designing of smart systems and its study interms of interfacing and Intelligent instrumentation.

CO5: To discuss real time systems and its scheduling.

CO6: Evaluation of expert system for realtime control applications.

CO7: Brief overview of artificial intelligence and its requirement in instrumentation.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	1							
CO2	3	3	3	3								
CO3	3	3	3	3	2	2	2					2
CO4	3	2	3	2	2	1	1					3
CO5	3	2	2	2	2	2						
CO6	2	2	2	2	2							2
CO7	3	3	2	2	2							2
AVG	3	2.57	3	2.28	1.57	0.71	0.4					1.28

SUBJECTCODE:EI-47655/EI4755**SUBJECTNOMENCLATURE: VLSI DESIGN (ELECTIVE-III)****Course Outcomes:**

CO1: Illustration of VLSI design flow for PLD based system.

CO2: Discussion about HDLs and its features and introduction to VHDL

CO3: Develop skills of designing digital circuit using different HDLs.

CO4: Examine different case studies of Xilinx 4000/3000 series FPGA.

CO5: To discuss CMOS, its characteristics and different logic circuits.

CO6: To discuss the basics of VLSI design and implementation of logic functions on basis of different properties such as rise/fall/delay time, fan-in, fan-out etc.

CO7: To describe FSM design using Mealy and Moore machines.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	2	--	3	--	--	--	--	--	--	--
CO2	3	2	1	1	3	--	--	--	--	--	--	--
CO3	3	3	3	3	3	2	--	--	--	--	2	2
CO4	3	--	--	--	3	--	--	--	--	--	--	2
CO5	3	1	--	2	3	2	--	--	--	--	2	2

CO6	3	3	3	2	3	--	--	--	--	--	--	3
CO7	3	1	2	--	3	--	--	--	--	--	--	--
AVG	3	1.8	1.8	2	3	2					2	2.5

SUBJECTCODE:EI-47601**SUBJECTNOMENCLATURE:DIGITAL IMAGE PROCESSING (ELECTIV-III)****CourseOutcomes:**

CO1:Understandthefundamentalsofimageprocessing.

CO2: Study of various image transform.

CO3:Studyofdifferentfiltersusedinimageprocessing.

CO4: Different types of image reconstruction process.

CO5:Studyofcodingandalgorithms

SUBJECTCODE:EI-47602**SUBJECTNOMENCLATURE:COMPUTER NETWORKS (ELECTIV-III)****CourseOutcomes:-**

CO1: To Analysetheconceptsofnetworks,typesandarchitectures.

CO2:To Identifyerrorfreetransmissionofdataandanalsedatacollisionswithvariousprotocols

CO3: To Apply various routing algorithms over a network to provide optimal path

CO4: Illustratethe realtime applicationsof networks.

CO5:Examinetheaddressing entitiesofanetworkwith implementationofTCP,UDPprotocols.

SUBJECTCODE:EI-47776**SUBJECTNOMENCLATURE: AUTOMATION IN INSTRUMENTATION (ELECTIV-IV)****CourseOutcomes:-**

CO1:Introduction to automationitstypesandapplicationininstrumentation.

CO2:Develop good senseofunderstandingtowardscomputerizedautomationbasedinstrumentation industry.

CO3:Illustrate the concepts of Microcomputer based numerical control system.

CO4:To analyseevolutionofelectronicsystemandinstrumentationintermsofautomation.

CO5: Illustrate the concepts of Virtual instrumentation with a few case studies.

CO – PO ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	--	--	--	--	--	--	--	--	1
CO2	2	3	2	1	--	--	--	--	--	--	--	2
CO3	2	3	1	1	--	--	--	--	--	--	--	1
CO4	2	3	1	3	--	--	--	--	--	--	--	1
CO5	1	3	3	2	--	--	--	--	--	--	--	3

AVG	2	2.8	1.6	1.75	--	--	--	--	--	--	--	1.6
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SUBJECTCODE:EI-47701

SUBJECTNOMENCLATURE:DATA ACQUISITION SYSTEM (ELECTIVE-IV)

CourseOutcomes:

CO1:Reviewof Fundamentals of Data Acquisition System.

CO2: Data Acquisition Systems: Hardware & software.

CO3:To discuss about Power Management &Timing System.

CO4: Review of Analog and Digital Signal Processing.

CO5: Design of Data Acquisition Systems.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1							2	
CO2	3	3	3	1	3	2					3	
CO3	3	3	2	3		3	3				2	3
CO4	3	3	1	1							1	
CO5	3	3	3	3	3	2					3	3
AVG	3	2.8	2.5	1.8	3	2.33	3				2.2	2