SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

S3 ECE

MAT201	Partial Differentiation Equations & Complex Analysis	4	Savitha Paul

CO1	Students will be able to create and solve partial differential equations which are widely used in different engineering situation and modelling.
CO2	Students will be able to apply partial differential equation in the analysis of various physical phenomina
CO3	Students will be able to analyse complex variables and comformality to transform functions from one domain to another
CO4	Students will be able to demonstrate mathematical reasoning through the concepts of complex analysis

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1			
CO1			
CO2			
CO4			

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

ECT 201	Solid State Devices	4	Chinchu Jose

CO1	Find the key concepts involved in semiconductor and their characteristics .(with the help of quantum physics)
CO2	Analyze carrier flow and associated fields due to drift, diffusion, generation, and recombination.
CO3	Examine the processes in diodes and transistors(BJT AND FETS)
CO4	Apply mathematical methods for the analysis of solid state devices.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2	2	2
CO2	2		2
CO3	3	3	3
CO4	3	2	3

ECT 203	Logic Circuit Design	4	Jisha Jacob

CO1	Operate on various positional number systems and binary codes.
CO2	Design combinational and sequential circuits by applying Boolean algebra in logic circuit design.
CO3	Synthesize digital circuits using hardware description languages.
CO4	Evaluate the basic requirements for a design application and implement a solution.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO2	3	2	
CO3	3	3	3
CO4	3	3	

ECT205	Network Theory		

CO1	Apply Mesh / Node analysis to obtain steady state response of the linear time invariant networks.

CO2	Analyze the behavior of AC and DC circuits using Network Theorems
CO3	Apply Laplace Transforms to determine the transient behavior of RLC networks
CO4	Apply Network functions and Network Parameters to analyze the single port and two port networks.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO2	3		
CO3	3		
CO4	3		

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EST200	Design and Engineering		Deepak Joseph

CO1	To identify the significance of Engineering Design and apply it for real time problem
CO2	To apply design thinking while learning and practicing engineering.
CO3	To develop innovative, reliable, sustainable and economically viable designs incorporating knowledge in engineering.
CO4	To analyze the prototype models and appraise various design aspects

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO2	2		
CO3	2		
CO4	2		

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

MCN201	Sustainable Engineering		Saran K B

CO1	Understand the concept of sustainability, its relevance in societal context and the global initiatives taken in this direction
CO2	Analyze the different sustainable solutions addressing various environmental pollution problems.
CO3	Understand and assess the environmental regulations and standards
CO4	Demonstrate the broad perspective of sustainable practices by utilizing engineering knowledge and principles

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1			
CO1			
CO2			
CO4			

ECL 201	Scientific Computing Lab	2	Vidyamol K, Binet Ros Devassy

CO1	Familiarize programming language for scientific computing applications
CO2	Analyze an array/matrix with matrix decomposition
CO3	Implement numerical integration and differentiation and Solve ordinary differential equations for engineering applications
CO4	Execute Data analysis and perform its visualization in different modes

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1		2	2
CO2		2	2
CO3		2	2
CO4		2	2

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

ECL203	Logic Design Lab	2	Dr.Silpa P A, Jisha Jacob

CO1	Design and demonstrate the functioning of various combinational circuits
CO2	Design and demonstrate the functioning of various sequential circuits using Flip flop Ics
CO3	Apply an industry compatible HDL (Verilog) to design and simulate combinational digital circuits
CO4	Apply an industry compatible HDL (Verilog) to design and simulate sequential digital circuits

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	3	2
CO1	3	3	2
CO2	3	3	3
CO4	3	3	3

S4

MAT204	Probability ,Random Process And Numerical Methods	4	Savitha Paul

CO1	Analyze suitable random phenomena by understanding the concept of discrete and continuous probability distributions.
CO2	Analyze the concepts of random processes in interdisciplinary environments.
CO3	Apply numerical techniques in interpolation, definite integral evaluation and in finding roots of equation.
CO4	Solve linear system of equations, ordinary differential equations and curve fitting using numerical methods.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO1	2		
CO2	2		
CO4	2		

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

ECT202	Analog Circuits	3	Jisha Jacob

CO1	Design and analyze RC filters and BJT amplifier circuits
CO2	Analyze the frequency response of BJT and MOSFET amplifiers.
CO3	Apply the concept of feedback for the design of oscillators and amplifiers
CO4	Design and develop power amplifiers, switching circuits and voltage regulators

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	2	
CO1	3	2	
CO2	3	2	
CO4	3	2	

ECT 204	Signals and Systems	4	Dr.Arun Thomas

CO1	Perform the basic operations on the signals and systems.
CO2	Apply the convolution in linear time invariant systems.
CO3	Design continuous and discrete time systems by analyzing spectral characteristics using fourier analysis.
CO4	Design continuous and discrete time systems using Laplace transform and Z-transform.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO1	3		
CO2	3		3
CO4	3		3

ECT 206	CAM	3	Binet Ros Devasssy

CO1	Analyze functional units, I/O, Memory management with respect to a typical computer architecture.
CO2	Develop simple programs based on assembly language/ C programming.
CO3	Interface 8051 microcontroller with peripheral devices using assembly language/ Embedded C.

CO4	Analyze system software and advanced RISC Machine architecture

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO1	2		
CO2	3		3
CO4	3		3

HUT 200	Professional Ethics		Dr.Silpa P A

CO1	Relate the core values that shape the ethical behaviour of a professional.
CO2	Analyse and intepret moral and ethical problems through exploration and assessment by established experiments.
CO3	Explain the role and responsibility in technological development by keeping personal ethics and legal ethics.
CO4	Apply the knowledge of human values and social values to contemporary ethical values and global issues.

CO - PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1								2	3	3		

CO2								3	3	3	
CO3								3			
CO4						3		3	3	3	

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1			
CO1			
CO2			
CO4			

MCN 202	Constitution of India		Dr.Gnana King

CO1	Understand the background of our constitution and create patriotism and national feeling
CO2	Utilize the fundamental rights and duties
CO3	Understand the working of state and central legislature,executive and judiciary
CO4	Utilize the special provision and statutory institutions

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3

CO1			
CO1			
CO2			
CO4			

ECL202	Analog Circuits and Simulation lab	2	Dr.Silpa P A, Dr.Arun

CO1	Design and demonstrate the functioning of basic analog circuits using discrete components.
CO2	Design and simulate the functioning of basic analog circuits using simulation tools.
CO3	Function effectively as an individual and in a team to accomplish the given task.
CO4	Analyze and comprehend the work done through report writing and oral communication.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		2
CO1	3	2	2
CO2			
CO4			

S5 ECE

ECT301	Digital Signal Processing	4	Dr.Gnana King

CO1	Acquire knowledge about the principles, algorithms and applications of DSP
CO2	Design digital filters
CO3	Analyze Multi-rate Signal Processing and its applications
CO4	Understand the architecture of DSP processors and the utilization of DSP in electronics engineering

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		3
CO2	3	2	3
CO3	3		2
CO4	2	2	3

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 303	AEMT	4	Dr.Vishnu Rajan

CO1	To develop a solid foundation and a fresh perspective in the analysis and application of electromagnetic fields.
CO2	To analyse the propagation of electromagnetic waves in different media.
CO3	To analyze the characteristics of transmission lines.
CO4	To understand the different modes of propagation in waveguides.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO2			
CO3		2	3
CO4		2	3

EC 305	Microprocessors and Microcontrollers	3	Santhoshkumar

CO1	Develop programming skills in assembly language for 8085
CO2	Analyze architectures, memory organization and operating concepts of 8085, 8086 and 8051
CO3	Develop basic programing skills in assembly language for 8051
CO4	Develop assembly language programs for interfacing peripheral devices with 8051

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2	2	2
CO2	2	2	2
CO3	2	2	2
CO4	2	2	2

EC 307	Power Electronics and Instrumentation	3	Vidyamol K

CO1	Apply the knowledge of electronic circuits to describe the concepts of various power electronic devices and their application.
CO2	Analyze various power electronic converter circuits and identify their applications.
CO3	Analyze the operating principle of DC/AC bridges and transducer based systems.
CO4	Discuss the configuration and characteristics of various electronic instruments.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1		2	2
CO1		2	2
CO2			2
CO4			

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 365	Biomedical Engineering	3	Dr.Caren Babu

CO1	Summarize the diagnosis and therapy related equipments.
	Infer the scenario and identify the necessity of equipment for diagnosis and therapy
CO2	Investigate the importance of electronics engineering in medical field.
CO3	Illustrate medical imaging techniques and importance of telemetry in patient care
CO4	Summarize the diagnosis and therapy related equipments.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO2	2		
CO3	2		
CO4	2	2	

EC 341	Design Project	2	Dr.Vishnu Rajan

CO1	Discuss innovatively on the development of components, products, processes and select a design problem
CO2	Envisage applications of the corresponding problem for societal needs
CO3	Analyse the problem requirements and arrive workable design solutions
CO4	Develops ability to write Technical / Project reports and oral presentation of the work done to an audience

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	3	
CO2		3	3
CO3	3	3	3
CO4			

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 333	Digital Signal Processing Lab	2	Ambily Francis, Dr.Gnana King

CO1	Students are able to perform the signal generations in MATLAB/ DSP Processor
CO2	Students are able to perform linear and circular convolution in MATLAB/DSP Processor
CO3	Students are able to implement the sampling theorem in MATLAB.
CO4	Students are able to design and anlayse various filters in MATLAB.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	3	3
CO3	3		2
CO4	3		2

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 335	Power electronics and Instrumentation Lab	2	Dr.Silpa P A, Santhoshkumar

CO1	Familirise the basic power electronics trainer kits ans instrumentation status
CO2	Realise various transducers and sensor circuits to measure outside world parameters
CO3	Implent various power electronics circuit by trainer kits
CO4	electrically characterise transducers to obtain various parameters

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		3
CO2	2	2	3
CO3	2		3
CO4	2	2	

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

S6 ECE

EC 302	Digital Communication	4	Saran K B

CO1	Illustrate the Digital representation of analog source and Compare the performance of various Pulse Modulation Schemes
CO2	Apply the knowledge of ISI problems and analyse the need for introducing ISI in Digital Communication in a controlled manner
CO3	Analyze various digital modulation schemes and find the probability of error in the signal transmission.
CO4	Apply the spread spectrum technique in digital signal transmission and analyze the different multiple access techniques.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO2	3		
CO3	3		
CO4	3	2	2

EC 304	VLSI	3	Jisha Jacob

CO1	Apply concepts from basic semiconductor physics present their understanding of CMOS VLSI concepts
CO2	Analyse basic CMOS circuits from a mathematical perspective and design layouts for circuits
CO3	Discuss basic memory cells and compare different architectures
CO4	Examine various architectures of Adders and compare efficiency
CO5	Apply concepts from basic semiconductor physics present their understanding of CMOS VLSI concepts

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2	3	
CO2	3	3	
CO3	3	2	
CO4	3	3	

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 306	Antenna and wave propagation	3	Dr.Vishnu Rajan

CO1	Analyze how different antenna parameters affects the working of an antenna
CO2	Design antenna arrays using pattern multiplication or point source concept
CO3	Design various common antennas and analyse their parameters
CO4	Inspect the propagation of radio waves in the atmosphere

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO1	2	2	2
CO2	3	3	3
CO4			2

EC 308	Embedded Systems	3	Anju Babu

CO1	To Analyze the structure of an embedded system
CO2	To Develop program for an embedded system
CO3	To Design, implement and test an embedded system
CO4	To analyze the architecture of a Real Time OS

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	3	2
CO2	3	3	2
CO3	3	3	2
CO4	3	3	2

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 370	Digital Image Processing	3	Binet Ros Devassy

CO1	Distinguish / Analyse the various concepts and mathematical transforms necessary for image processing
CO2	Differentiate and interpret the various image enhancement techniques
CO3	Illustrate image segmentation algorithm
CO4	Analyse basic image compression techniques

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1		2	
CO2		3	2
CO3		2	2
CO4		3	2

EC 352	Comprehensive Viva	2	Jisha Jacob, Deepak Joseph

CO1	Apply the knowledge gained in basic core courses of electronics and communication
CO2	Analyse the fundamental aspects of engineering problem and find solutions
CO3	Develop disciplined self-learning habits and become good professionals
CO4	Develop inter-personal skills through discussions.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		2
CO2	3		2
CO3			
CO4			

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 334	Microcontroller Lab	2	Anju Babu, Binet Ros Devassy

CO1	To design and implement Assembly Language/embedded C programming of Microcontroller
CO2	To interface simple peripheral devices to a Microcontroller.
CO3	To equip student groups to design and implement simple embedded systems.
CO4	Analyze typical problems and implement solution using microcontroller

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	3	3
CO3	3	3	3
CO4	3	3	3

EC 332	Communication Engineering Lab	2	Saran K B, Vidyamol K

CO1	To design modulators and demodulators
CO2	To examine frequency translators
CO3	To verify sampling theorem
CO4	To design digital modulators and demodulators

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		
CO2	3	2	
CO3	3		2
CO4	2	2	2

S7 ECE

EC 401	Information theory and coding	4	Ambily Francis

CO1	Apply the basics of information theory on source coding techniques.
CO2	Apply the knowledge of Shannon's coding theorem for designing an efficient and error free communication link
CO3	Analyze various coding schemes for error detection and correction
CO4	Design an optimum decoder for various coding schemes.

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		2
CO2	3		2
CO3	3	3	3
CO4	3	2	2

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA
Department of Electronics & Communication Engineering

EC 403	Microwave and Radar Engineering	3	Chinchu Jose

CO1	Analyze Microwave active devices such as amplifiers and oscillators.
CO2	Analyze Microwave passive devices such as couplers, dividers and tee junctions .
CO3	Examine SSDs in microwave frequencies and to measure the microwave parameters.
CO4	Examine the working of RADAR system

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO2	3		
CO3	3	3	
CO4	3	3	

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EC 405	Optical Communication	3	Vidyamol K

CO1	Disscuss the concepts and construction of optical fiber cables
CO2	Compare the performance of various optical devices and optical modulation schemes
CO3	Apply the knowledge of optical amplifiers in the design of optical link
CO4	Justify the concepts of WDM and LiFi

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO2	3		2
CO3	3		2
CO4	3	2	

EC 409	Control Systems	3	
			Saran K B

CO1	Design mathematical models of control systems and thereby develop solutions
CO2	Investigate stability constraints of a control system and provide valid conclusions
CO3	Design control system with suitable compensation techniques.
CO4	Analyze the control systems under discrete domain

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		3
CO2	3		2
CO3	3	2	3
CO4	3	2	

EC 465	MEMS	3	
			Dr.Silpa P A

CO1	Design mems using multidisciplinary principles
CO2	Apply various laws of electronics and mechanical for the design of micro sensors and actuators
CO3	Conduct investigations on typical materials suitable for mems
CO4	Assess various fabrication process and packaging technologies

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	3	
CO2	3	3	
CO3	3	3	
CO4	2	3	

EC 431	Communication Systems Lab	2	Chinchu Jose, Ambily Francis

CO1	**Analyze the performance of microwave active and passive devices such as reflex klystron, Gunn diode,directional coupler etc.**
CO2	**Examine the various parameters such as impedance,frequency and wavelength associated with microwave circuits .**
CO3	**Generate the antenna radiation pattern .**
CO4	**Test the performance of optical light sources (LEDs and Lasers), and to assess the characteristics of optic fibres.**

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		2
CO2	3		
CO3	3		
CO4	3		

EC 402	Nanoelectronics		

CO1	To understand and relate various laws of physics to nanoelectronics
CO2	To analyze the characterization techniques used in Nanoelectronics
CO3	Design various Nanodevices using new techniques
CO4	Conduct investigations on commonly using nanostructures

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3	2	
CO2	2	3	
CO3	3	3	
CO4	3	3	

EC 404	Advanced Communication Systems	4	Vidyamol K

CO1	Characterise and compare various radio communication systems.
CO2	Apply the communication Principles in Digital TV transmission and satelitte communication systems.
CO3	Analyse various wireless propagation mechanisms incorporated with wireless communication systems.

CO4	Discuss various concepts and technologies incorporated with wireless networks.	

CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	3		
CO2	3	2	
CO3	3		
CO4	3	2	2

EC 468	Secure Communication	3	Ambily Francis

CO1	To expose to the different approaches that handle security and the algorithms in use for maintaining data integrity and authenticity.
CO2	To enable student to appreciate the practical aspects of security features design and their implementation
CO3	To master fundamentals of secret and public cryptography
CO4	To be familiar with information security awareness and a clear understanding of its importance

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CO - PO Mapping

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

CO-PSO Mapping

	PSO1	PSO2	PSO3
CO1	2		3
CO2	2		3
CO3			3
CO4		3	3