

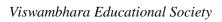


#### **UGC-Autonomous**

#### **Department of Electronics and Communication Engineering**

### <u>Course Outcomes for B.Tech – ECE-R15 for the academic year 2015-16</u> <u>onwards</u>

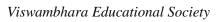
Course	Year/Semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4		
Outcome	I/I Sem	MATHEMATICS-I (A9001)			
After the	completion of this	course, the students should be able to			
1	dentify order and li	nearity of differential equation for classical prob	lems.		
2	Develop different models for first order and higher order differential equations manually and technological based methods.				
3	ludge the consequences and geometrical approach to the mean value theorems and engineering applications to mathematical problems.				
4	Formulate, test diffe	erent geometries using integral form to compute	areas and volumes.		
5	technique and de	ution for initial and boundary value problems uneveloping advanced aspects in Laplace transpers to solve second order ordinary differential equations.	sform, Adopt Laplace		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4		
Outcome	I/I Sem	PROBLEM SOLVING & COMPUTER PROGRAMMING(A9501)			
After the	the completion of this course, the students should be able to				
1	Understand how problems are posed and how they can be analyzed for obtaining solutions.				
2	Learn of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.				





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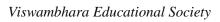
3	mplement different operations on arrays and Pointers and creating and using of functions to solve problems.		
4	Exercise user defined data types such as structures and union.		
5	Design and impleme	ent different types of file structures using standar	d
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENGLISH(A9012)	L: 3 T: 0 P: 0 C: 3
After the	completion of this c	course, the students should be able to	
1	Equip the components of different forms of communication skills.		
2	Able to guess meanings of words from context and grasp the effective vocabulary.		
3	Recall the enrichment of comprehension and fluency will be adaptable.		
4	Gain confidence in using language in varied situations		
5	Develop and Communicate by stating main ideas relevantly and coherently in speaking & writing.		
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code) ENVIRONMENTAL STUDIES(A9014)	L: 3 T: 0 P: 0 C: 2
After the	completion of this c	course, the students should be able to	
1	Recall previously learned ecosystem and find how the biodiversity changes went in the environment.		
2	Demonstrate outlines of types of pollutions and explain in related to day to day life.		





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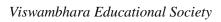
3	Apply models of food chains and energy flow models to solve the identified parameters.				
4	Classify the types of pollutants and distinguish the functions of sustainable development that take part in the environment.				
5		ents with BOD, COD, and OD and estimate the son and can propose solutions.	micro organisms which		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4		
Outcome	I/I Sem	APPLIED PHYSICS(A9007)			
After the	completion of this c	course, the students should be able to			
1	Expertise statistical	mechanics and quantum mechanics and apply fo	r new innovations.		
2	Develop classical free electron theory of metals and its successes along with its drawbacks.  Interpret to calculate number of charge carriers in a semi conductor.				
3	Compare dielectrics and magnetic materials along with their engineering applications.				
4	Compare different types of lasers, their construction and applications in engineering field.				
5	Understand fundame	Understand fundamentals of optical fibers and apply their applications.			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code)  PROBLEM SOLVING AND COMPUTER PROGRAMING LAB(A9502)	L: 0 T: 0 P: 3 C: 2		
After the	completion of this o	course, the students should be able to			
1	Perceive basic struc	ture of the C Programming, declaration and usage	e of variables.		





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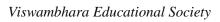
2	Exercise conditional and iterative statements to solve scientific and engineering problems.				
3	implement different operations on arrays and creating and using of functions to solve problems.				
4	Exercise pointers, fi	ile structures to write C programs			
Course Outcome	Year / semester I/I Sem	Subject Name (Subject Code)  APPLIED PHYSICS LAB(A9008)	L: 0 T: 0 P: 3 C: 2		
After the	completion of this c	course, the students should be able to			
1	Co relate principles with applications of CR, LCR, Circuits.				
2	Enlighten the student about modern equipment like solar cell, optical fiber etc.,				
3	Have the exposure to these experiments, and the student can compare the theory and correlate with experiment.				
4	Meliorate the knowledge of Lasers, & Light properties.				
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2		
Outcome					
After the	After the completion of this course, the students should be able to				
1	Capable in Better Understanding of nuances of language through audio-visual experience and group activities.				
2	Able to develop Neutralization of accent for intelligibility.				





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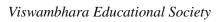
3	Capable to Speak out with clarity and confidence thereby enhances the employability skills of the students by acquiring knowledge and techniques.			
4	Extends to speak fluent English, through advanced vocabulary to improve quality in speaking.			
Course Outcome	Year / semester I/II Sem	Subject Name (Subject Code) MATHEMATICS-II(A9002)	L: 3 T: 1 P: 0 C: 4	
After the	completion of this c	course, the students should be able to		
1	Find rank of the matrix by solve system of simultaneous linear system equations.			
2	Find Eigen values and Eigen vectors and analyze the properties of matrix.			
3	Find Fourier Series and Fourier Transforms. Apply Fourier Series and Fourier Transforms con interpret in respective engineering fields.			
4	Evaluate physical quantities involving in engineering fields related to vector valued functions. Categorize the basic properties of vector valued functions and able to solve line, surface and volume integration.			
5	Apply a range of techniques to find solutions from standard partial differential equations to diverse situations in Physics, Engineering and other Mathematical contents.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 4	
Outcome	I/II Sem	ELECTRICAL CIRCUITS(A9202)		
After the	completion of this c	course, the students should be able to	1	
1	Learn basics of electrical circuits such as laws, transformation and network reduction techniques.			





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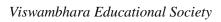
2	Understand various network theorems and its applications in electrical circuits.			
3	Analyze the complex electrical circuits using Two port networks.			
4	Design filters and attenuators with the help of electrical circuits.			
5	Understand variou	s RL, RC, RLC circuits(series and parallel) for D	OC and AC	
Course	Year / semester   Subject Name (Subject Code)   L: 4 T: 0 P:			
Outcome	I/II Sem	ELECTRONIC DEVICES AND CIRCUITS(A9401)		
	completion of this c	ourse, the students should be able to		
1.	Explain the semicor diode.	nductor theory and characteristics of the PN jur	nction diode and Zener	
2.	Compare and contrast the rectifiers with and without filters.			
3.	Juderstand the construction and voltage- current characteristics of Junction Transistor and illustrate the different configurations of transistor			
4.	Design and analyze the different biasing circuits and amplifier circuits.			
5.	Acquire knowledge about the construction, theory and characteristics of FET and MOSFET.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	I/II Sem	ENGINEERING CHEMISTRY(A9011)		
After the o	completion of this c	ourse, the students should be able to		
1	Design polymeric er	Design polymeric engineering materials.		
2	Construct batteries and classify different electronics and electrical like cells. electrodes, e. t.			





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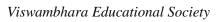
	chelp them to construct different electrical/ electronic part.			
3	Examine which type of impurities is present in water, specification of drinking water.			
4	Apply phase rule and adsorption to construct the materials by analyzing their compositions.			
5	Explain the corrosio	on behavior of metals/ activity of metals.		
Course	Year / semester	L: 2 T: 0 P: 4 C: 4		
Outcome	I/II Sem	ENGINEERING GRAPHICS(A9303)		
After the	completion of this	course, the students should be able to		
1	Learn the developm	ent of surfaces.		
2	Understand the projections of solids			
3	Understand the isometric projections.			
4	Understand the orth	Understand the orthographic projections.		
5	Make the use of dra	wings, dimensioning, scales and conic sections.		
6	Know the application	Know the applications of this knowledge in production of machine parts.		
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 2	
Outcome	I/II Sem			
		COMPUTATIONAL MATHEMATICS(A9004)		
After the	completion of this	course, the students should be able to		
Aitel the		course, the students should be able to		
1	Make use of porgran	mmes to find numerical solutions.		





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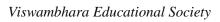
2	Develop interpolation techniques.				
3	Develop fitting of curves through the given data by software.				
4	Find the iterations f	Find the iterations for different numerical integration problems.			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2		
Outcome	I/II Sem	BASIC ELECTRONICS LAB(A9402)			
After the	completion of this	course, the students should be able to			
1	dentify and find the values of resistors, capacitors and inductors.				
2	Measure voltage, frequency and phase of any waveform using CRO				
3	Demonstrate the characteristics and operation of electronic devices.				
4	Make use of differe	nt theorems to analyze the circuits.			
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2		
Outcome	I/II Sem	ENGINEERING WORKSHOP & IT WORKSHOP(A9307)			
After the	er the completion of this course, the students should be able to				
1	Know the usage of various tools and their application in carpentry, tin smithy.				
2	Know the usage of various tools and their application in black smithy, foundry, welding and				





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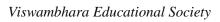
	house wiring		
3	Make lap joint and dove tail joint in carpentry.		
4	Make scoop, funnel and tray like items in tin smithy		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 3
Outcome	II/I Sem	MATHEMATICS-III(A9003)	
After the	completion of this	course, the students should be able to	
1	Illustrate to explain the Fundamental concepts of complex analysis by analyzing their role in modern Mathematics and Applied contents.		
2	Classify what are trigonometric functions and algebraic functions and able to transform the trigonometric functions in to the algebraic functions		
3	Study the complex variables and predict to identify ordinary point, singular point and regular point for the given ordinary differential equations. Explain the residue concepts and utilize its relation to express in terms of Taylor's and Laurent's series. Plan to calculate very complicated Integrals through the use of Residue Theorem.		
4	Understand the concept of translation, magnification and rotation. Transformation from z-plane to w-plane in conformal mapping		
5	Juderstand Z-Transforms to solve the particular solution of the differential equation without finding the General Solution and are able to solve the applications of differential equations with boundary and initial conditions.		
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4





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		SIGNALS AND SYSTEMS(A9453)				
After the	After the completion of this course, the students should be able to					
1.	Apply the knowledge of vectors, orthogonal basis to signals. Analyze the spectral characteristics of continuous-time periodic signals using Fourier series.					
2.	Demonstrate and apply Fourier transform on various signals.					
3.	Analyze systems based on their properties and determine the response of LSI system using convolution.					
4.	Apply the Laplace transform and Fourier transform for analyze of continuous-time and discrete-time signals and systems.					
5.	Select and combine the necessary Laplace transform techniques to solve ordinary differential equations.					
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code)  ELECTRONIC CIRCUIT ANALYSIS (A9404)	L: 4 T: 0 P: 0 C: 4			
After the completion of this course, the students should be able to						
1.	Construct and analyze the Low frequency model of transistor and evaluate the h-parameter.					
2.	Analyze the single	and multi stage amplifiers in high frequency region	ons.			





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3.	Design and construct the negative feedback amplifiers and oscillators according to the required specifications.			
4.	Determine the efficiencies of large signal amplifiers.			
5.	Compare and contra	ast various tuned amplifiers.		
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code)  DATA STRUCTURES THROUGH  C++(A9506)	L: 4 T: 0 P: 0 C: 4	
After the	completion of this c	ourse, the students should be able to		
1	Find the difference between structured programming and object oriented programming language and understanding the features of C++ supporting object oriented programming.			
2	Explain and apply the major object oriented concepts to implement object oriented programs in C++.			
3	Build the basic knowledge to handle operations like insertions, searching, deletions and traversing mechanisms in linear Data Structures.			
4	Examine with advanced Data Structure such as hash tables and priority queue Data Structures.			
5	Have knowledge on Data Structures.	trees, balanced trees, graphs and developing C	++ code for non-linear	



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## VAAGDEVI COLLEGE OF ENGINEERING

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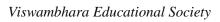
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 1 P: 0 C: 3
Outcome	II/I Sem	ELECTRICAL TECHNOLOGY(A9209)	
After the	completion of this o	course, the students should be able to	,
1	Understand the concept of network topology.		
2	llustrate the operati	on and concept of DC machines	
3	Analyze the magnet	ic circuits in series and parallel	
4	llustrate single pha	se transformer and three phase induction motor.	
5	Construct the synch	ronous motor and single phase induction motor	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2
Outcome	II/I Sem	ELECTRONIC CIRCUITS LAB(A9405)	
After the	completion of this o	course, the students should be able to	
1	Understand the concept of multistage amplifiers, analysis of multistage amplifier and Construct frequency response.		
2	Design, construct and test amplifier circuits and interpret the results.		
3	Operate electronic test equipment and hardware/software tools to characterize the behavior		
4	Synthesize and eva	luate single stage and two stage amplifiers.	





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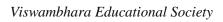
Course Outcome	Year / semester II/I Sem	Subject Name (Subject Code)  DATA STRUCTURES THROUGH C++	L: 0 T: 0 P: 3 C: 2
		LAB(A9507)	
After the	completion of this of	course, the students should be able to	
1	Design and implem	ent object oriented programming concepts.	
2	Select the appropria	te data structure for given problem.	
3	llustrate operations like searching, insertion, deletion and traversing mechanism on various Data Structures.		
4	Have practical knowledge on the applications of Data Structures.		
5	Understand and app	ly hashing techniques.	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2
Outcome	II/I Sem	Electronic Simulation Lab (A9406)	
After the	completion of this	course, the students should be able to	
1	Illustrate different types of signals and methods of generating them using MATLAB.		
2	Demonstrate the importance of convolution and correlation for different applications.		
3	Capable to underst	and the characterization of random signals and e	xplains the concept and





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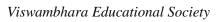
		relevance of noise in signal procession applications.			
4	Design and develop functional simulation, timing analysis using MATLAB.				
Course Outcome	Year / semester II/II Sem	Subject Name (Subject Code) SWITCHING THEORY AND LOGIC DESIGN (A9407)	L: 3 T: 0 P: 0 C: 3		
After the o	completion of this c	course, the students should be able to			
1.	Utilize and explain XNOR, NOT).	the functionality of logic gates (AND, NAM	ND, OR, NOR, XOR,		
2.	Design different combinational circuits using minimization techniques.				
3.	Explain various flip flops, and design of registers and counters.				
4.	Apply the design procedures to design basic sequential circuits.				
5.	Analyze and design of small sequential circuits and to use standard sequential functions/building blocks to build more complex circuits.				
Course Outcome	Year / semester II/II Sem	Subject Name (Subject Code) PULSE AND DIGITAL CIRCUITS(A9408)	L: 4 T: 0 P: 0 C: 4		
After the o	After the completion of this course, the students should be able to				
1.	Design the circuits for generating desired wave shapes (non-sinusoidal) for different applications like computers, control systems and counting and timing systems.				





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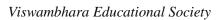
2.	Analyze the application circuits.	cations of diode as Integrator, differentiator,	clippers and clamper	
3.	Analyze the switching characteristics and applications of diode and transistor.			
4.	Analyze and desig	n Multivibrators for various applications, sync	chronization techniques	
5.	Design the time principles	base generators and sampling gates with th	e knowledge of basic	
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4	
Outcome	II/II Sem	ELECTRO MAGNETIC THEORY AND TRANSMISSION LINES(A9409)		
After the	completion of this o	course, the students should be able to		
1.		Explain and illustrate the concepts of electrostatics.		
2.	Elaborate magneto s	Elaborate magneto static fields and Maxwell's equations.		
3.	Implement applications of Maxwell's equations in plane waves and their propagation in different media.			
4.	Apply power concept associated with waves. The knowledge is used to study the behavior of transmission lines & their parameters.			
5.	Determine the various parameters such as VSWR, Impedances of transmission lines			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	II/II Sem	PROBABILITY AND STOCHASTIC		





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		PROCESS(A9410)		
After the o	completion of this c	course, the students should be able to		
1.		Understand the basic concepts of probability theory and random processes.		
2.	Solve simple engi variables.	neering problems with the knowledge of two	o dimensional random	
3.	Compare and contra	st the various random processes.		
4.	Analyze the autocor	relation and cross correlation functions and their	properties.	
5.	Apply the knowledge of spectral density to calculate the impulse response of the system.			
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4	
Outcome	II/II Sem	ANALOG COMMUNICATIONS(A9411)		
After the o	After the completion of this course, the students should be able to			
1.	Explain the genera	Explain the generation and detection of AM and DSBSC modulation schemes.		
2.	Understand variou	s types of SSB transmission and reception.		
3.	Analyze different	methods of generation and detection of Frequence	ey modulation	
4.	Evaluate the performance	rmance of analog communications in the presenc	e of noise	
5.	Analyze and alloca systems	ate performance objectives to components of an a	analog communication	
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 0	
Outcome	II/II Sem	GENDERSENSITIZATION		
		A9019) (Mandatory Elective)		
After the o	completion of this c	course, the students should be able to		
1	Define the need and	importance of women empowerment.		





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2	Extend the levels of understanding and classification of gender disparities.		
3	dentify the need of	equal distribution of work in all the sector irresp	pective of gender.
4	Construct the emerg	gency needs of saving girl child.	
5	mproves thinking l society.	evels to find solution to the missing women and	bring realization in the
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2
Outcome	II/II Sem	PULSE AND DIGITAL CIRCUITS	
		LAB(A9412)	
After the	completion of this	course, the students should be able to	
1	Understand the applications of diode as integrator, differentiator, clippers and clamper circuits.		
2	Demonstrate basic logic gates and sampling gates.		
3	Design and analyze various multivibrator circuits and schmittrigger circuit.		
4	Design and analyze UJT relaxation oscillator and boot-strap sweep circuits		
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2
Outcome	II/II Sem	ANALOG COMMUNICATIONS LAB (A9413)	



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After the	completion of this o	course, the students should be able to		
1	Comprehend the fur environment	omprehend the fundamentals in explain the functionality of modulation and demodulation environment		
2	Analyze and simula process in commu	te the concepts of AM, FM and AM-Demodulation	on, FM-Demodulation	
3	Interpret with vario	us angle modulation and demodulation systems		
4	Create the writing a	and simulation environments in PWM, PPM, Mixe	r and ring modulation	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2	
Outcome	II/II Sem	ELECTRICAL TECHNOLOGY LAB (A9210)		
After the	completion of this o	course, the students should be able to		
1	Verify network the	eorems.		
2	Select range of app	paratus based on the ratings of DC machines.		
3	Determine charact	eristics of DC machines by analyzing test results.		
4		Study speed control methods for DC machines		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4	
Outcome	III/I Sem LINEAR & DIGITAL IC APPLICATIONS (A9414)			
After the co		rse, the students should be able to		
1	Define operation	Define operational amplifiers with linear integrated circuits.		
2	Explain differen	Explain different families of digital integrated circuits and their characteristics.		



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3	Develop skills to	design various waveform generation circuits and	circuits to implement
	some special function ICs.		
	some special function ICs.		
4	Compare the working of multivibrators using special application of IC 555 and		
5	Analyze circuits for inverting and non inverting amplifiers, diff. Amps, and Evaluate		
	the ADC and DA	AC using OPAMP.	
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3
Outcome	semester	ANTENNAS AND WAVE PROPAGATION	
	III/I Sem	(A9415)	
After the co	mpletion of this o	course, the students should be able to	
1		neters like antenna efficiency, beam efficiency, rac	liation resistance etc.
	in the design of a		
2		gned antenna and field evaluation under various co	
		ectric as well as the magnetic fields Equation set for	or Far field and near
	field conditions.		
3	_	ucture and also the bench step for antenna parameter	ter measurement of
	testing for their effectiveness.		
4	Analyse the Electric and Magnetic field emission from various basic antennas and		
	mathematical formulation of the analysis		
5		lesign issues, operation of fundamental antennas li	=
	antennas and hel	ical structure and also their operation methodology	y in practice.
Course	Year /	Subject Name (Subject Code)	L: 3T: 1 P: 0 C: 3
Outcome	semester	DIGITAL COMMUNICATIONS(A9416)	
	III/I Sem		
After the co	mpletion of this o	course, the students should be able to	
1	Define basic components of digital communication systems.		
2	Design optimum receivers for digital modulation techniques.		
3	Demonstrate the understanding of various digital modulation and demodulation		
	techniques.		
4	Explain different error detection and error correction codes like block codes, cyclic		
	codes and convo	lution codes.	
5	Analyze the per	formance of spread spectrum, PN codes in jammin	g, noise etc and



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	various applications of different modulation techniques.			
Course Outcome	Year / semester III/I Sem	Subject Name (Subject Code) LINEAR CONTROL SYSTEMS(A9249) (Professional Elective-I)	L: 3 T: 0 P: 0 C: 3	
After the co		course, the students should be able to		
1	Analyse Open	loop and closed loop systems, concept of feedback	in control Systems.	
2	Determine Mat	nematical modelling and transfer function derivation	ons of	
	translational and	d rotational systems		
3	Apply Transfer	function representation through block diagram alg	gebra and signal flow	
	graphs			
4	Develop Time i	esponse analysis of different ordered systems thro	ugh their	
	characteristic ed	quation and time-domain specifications		
5	Explain Stabilit	y analysis of control systems in s-domain through	R-H criteria and root-	
	locus technique	locus techniques, with which he/she can be able to apply the above conceptual things to		
	real world elect	rical and Electronic problems and applications.		
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	semester	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION(A9418)		
	III/I Sem	(Professional Elective-I)		
After the co		course, the students should be able to		
1	Determine the fu	indamental concepts and principles of instrumental	tion.	
2	Explain the oper	ations of the various instruments required in measurable	arements.	
3	Apply the measu	Apply the measurement techniques for different types of tests.		
4	To select specific instrument for specific measurement function.			
5	Learners will ap	ply knowledge of different oscilloscopes like CR	O, DSO and different	
	AC and DC bridges for measurement			
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	semester	OOPS THROUGH JAVA(A9512) (Professional Elective-I)		
	III/I Sem	(1 1016581011d1 E16Ct1vc-1)		



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After the co	mpletion of this c	course, the students should be able to	
1	Describe the concepts of Java Programming language		
2	Demonstrate the concepts of Polymorphism and Inheritance		
3	Develop robust a	applications using Exception handling.	
4	Develop multith	readed applications with synchronization.	
5	Design GUI base	ed applications and Applets for web applica	ntions.
Course Outcome	Year / Subject Name (Subject Code) semester III/I Sem  Subject Name (Subject Code) COMPUTER ORGANIZATION (A9417)  L: 4 T: 0 P: 0 C: 4		L: 4 T: 0 P: 0 C: 4
After the co	mpletion of this c	course, the students should be able to	
1	Explain the I/O a	and memory organization in depth.	
2	Develop assemb	oly language programs for various applicati	ons.
3	Estimate the basi	ic components of computers and Extend the	e design of Digital Logic
	Circuits and apply to Computer Organisation.		
4	Analyse the men	nory organization and Evaluate the perform	nance of Computer systems
5		basic chip design and organization of 8086 d Compare RISC and CISC Architectures.	with assembly language
Course Outcome	Year / Subject Name (Subject Code) semester III/I Sem  Subject Name (Subject Code) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS (A9621)  L: 3 T: 1 P: 0 C: 3		L: 3 T: 1 P: 0 C: 3
After the co	_	course, the students should be able to	
1	Understand the nature, scope and importance of Managerial Economics.		
2	Evaluate methods for forecasting demand, and analyze demand and how elasticity of		
	demand is used f	for pricing decisions.	
3	Know how produ	uction function is carried out to achieve lea	st cost combination of Inputs
	and how to analyze cost.		
4	Understand the c	characteristics of different kinds of markets	and outline different form of



### **UGC-Autonomous**

	business organiz	ation.	
5	Analyze how cap	pital budgeting techniques are used for investment	decisions and
	interpret financial statements uses Ratio analysis technique.		
Course	Year / semester	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 0
Outcome	III/I Sem	PERSONALITY DEVELOPMENT AND	
		SOFT SKILLS (A9020)	
		(Mandatory Elective-II)	
After the cor	<del>-</del>	rrse, the students should be able to	
1		s own personality and enhances successful living	
2	life deas on pn	ysical, emotional, social, cognitive, moral to achiev	ve the objectives of
3	Identify the indi	vidual skill and learn the balanced living	
4	Develop commu	nication skills, integrate class room learning with	real life behaviour
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2
Outcome	III/I Sem	IC APPLICATIONS LAB(A9419)	
		course, the students should be able to	1
1	Design circuits using operational amplifiers for various applications practically.		
2	Understand the different logical gates & decoders, flip-flops.		
3	Apply the know	ledge of OP-AMPS to design various analog circui	ts.
4	Compare linear	and digital integrated IC's	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2
Outcome	III/I Sem	DIGITAL COMMUNICATIONS LAB(A9420)	
After the cor	npletion of this cou	rrse, the students should be able to	
1	Assess different	digital modulation and demodulation techniques.	
2	Evaluate the ban	dwidth and transmission power by analyzing time	and frequency
	spectra of signal	under various modulation schemes.	
3	Apply suitable modulation schemes and coding techniques for various applications.		
4	Analyze and Implement Analog to digital converters like PCM and DM		
Course	Year / semester	Subject Name (Subject Code)	L: 4 T: 0 P: 0 C: 4
Outcome	III/II Sem	MICROPROCESSORS AND	
		MICROCONTROLLERS (A9421)	
After the cor	npletion of this cou	rse, the students should be able to	



### **UGC-Autonomous**

1	Illustrate the internal organization of popular 8086/8051 microprocessors/microcontrollers.		
2	Contrast hardware and software interaction and integration.		
3	Design microprocessors and microcontrollers based systems and develop microcontroller based systems for real time applications		
4	Develop knowledge about microcontroller 8051 and its programming.		
5	Explain the Memory organization, classification and their applications and Assess programming, interfacing etc of various devices with microprocessors and external world.		
Course Outcome	Year / semester III/II Sem Subject Name (Subject Code) DIGITAL SYSTEM DESIGN THROUGH VERILOG (A9456) L: 4 T: 0 P: 0 C: 4		
After the con	appletion of this course, the students should be able to		
1	Describe Verilog hardware description languages(HDL) , standard cell libraries and FPGAs		
2	Design digital circuits.		
3	Asses Behavioural models of digital circuits.		
4	Estimate Register Transfer Level (RTL) models of Digital Circuits, Interpret RTL models on FPGAs and Testing and Verification		
5	Identify Behavioural and RTL models and Analyze RTL models to standard cell libraries and FPGAs		
Course Outcome	Year / semester III/II Sem Subject Name (Subject Code) DIGITAL SIGNAL PROCESSING (A9423) L: 4 T: 0 P: 0 C: 4		
After the con	npletion of this course, the students should be able to		
1	Explain the time domain and frequency domain representation of the signals.		
2	Identify the different types of the systems and their responses.		
3	Understand the inter relationship between DFT and various transforms and fast computation of DFT and appreciate the FFT processing.		
4	Classify the different types of windowing techniques.		
5	Design a digital filters for a given specifications and Apply the knowledge to real world processing applications.		



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Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3
Outcome	III/II Sem	OPERATING SYSTEMS (A9518)	
		(Open Elective-II)	
After the cor	npletion of this cou	rse, the students should be able to	
1	Compare various	s Operating Systems architectures, IO structures, N	Jetwork Structure
2	Analyze the virtuapplications.	ual memory, paging and memory allocation technic	ques for various
3	Apply Deadlock	prevention and Deadlock Detection algorithms an	d Perceive the
	working of an or	perating system as a File manager, I/O manager, Pr	rocess manager.
4	1	overview of Disk Storage Structure.	Ü
5	Analyze assess	access controls to protect files.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3
Outcome	III/II Sem	DATACOMMNICATIONS(A9457)	200 100 100 000
Outcome	III/II Selli	(Professional Elective-II)	
After the cor	npletion of this cou	rse, the students should be able to	
1	Examine the bas	sic communication systems and Evaluate alternative	ve models of
	communication	system design	
2	Adapt the knowl	edge of various analog and digital modulation and	demodulation
	techniques.		
3	Explain the various	ous multiplexing schemes and Data communication	n protocols.
4		ndards and mechanisms of television systems.	
5	Illustrate the per transmission.	formance of error detection and error correction co	odes for digital data
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3
Outcome	III/II Sem	COMPUTER NETWORKS(A9566)	
o accorne		(Professional Elective-II)	
After the cor	npletion of this cou	rse, the students should be able to	
1	Learn the basic concepts of OSI and TCP IP layers.		
2	Compare and contrast the address formats		
3	Design and im	plement data link or network layer protocols	within a simulated
3		ironment and Demonstrate the contemporary	
	networks.		
4		ures and Operations of TCP/UDP, FTP, HTTP, SM	MTP,SNMP etc.
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### **UGC-Autonomous**

5	Categorize the hardware and software commonly used in data communications and networking.					
Course Outcome	Year / semester III/II Sem	Subject Name (Subject Code) SATELLITE COMMUNICATIONS(A9425) (Professional Elective-III)	L: 3 T: 0 P: 0 C: 3			
After the con	pletion of this cou	upletion of this course, the students should be able to				
1	Understand the	historical background, basic concepts and frequency	uency allocations for			
	satellite commur	nication				
2	Demonstrate orb	ital mechanics, launch vehicles and launchers.				
3	Define the desig	n of satellite links for specified CI N wh system de	sign examples.			
4	Examine the sat	ellite sub systems like Telemetry, tracking, com	mand and monitoring			
	power systems e	tc. And Explain satellite access techniques				
5	Judge the vario	us multiple access systems for satellite commun	nication systems and			
	satellite packet c	ommunications.				
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3			
Outcome	semester III/II Sem	TELECOMMUNICATION SWITCHING SYSTEMS AND NETWORKS(A9424) (Professional Elective-III)				
After the co	mpletion of this o	course, the students should be able to				
1	_	nain concepts of telecommunicating network design	gn and Relate			
	adequate knowle	adequate knowledge about telecommunication network				
2	Analyze and eva	luate fundamental telecommunication traffic mode	els.			
3	Conclude themselves through the evolution of switching systems from manual and					
	electromechanical systems to stored-program-controlled digital systems.					
4	Apply the knowledge of basic modern signalling system.					
5	Examine the concept of packet switching.					
Course Outcome	Year / semester III/II Sem	Subject Name (Subject Code) NEURAL NETWORKS AND APPLICATNS(A9463) (Professional Elective-III)	L: 3 T: 0 P: 0 C: 3			



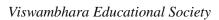
#### **UGC-Autonomous**

After the co	mpletion of this o	course, the students should be able to			
1	demonstrate the concepts of set theory				
2	Relate adequate	knowledge about feedback networks.			
3	Analyze the con-	cept of networks involved in various systems and C	Gain the Original		
	knowledge abou	t neural networks			
4	Appraise the sur	vey of attractive applications of artificial neural ne	tworks.		
5	Assume the prac	tical approach for using artificial neural networks	in various technical,		
	organizational a	nd economic applications			
Course	Year /	Subject Name (Subject Code)	L: 2 T: 0 P: 0 C: 0		
Outcome	semester	LOGICAL REASONING AND			
	III/II Sem	QUALITATIVE ANALYSIS(A9018)			
	(Mandatory Elective-III)				
After the co		course, the students should be able to			
1	Improve logical	thinking with general applications using mathemat	cical concepts like		
	sequences, series, number theory and probability				
2	Analyze data int	erpretation			
3	Improve mathem	natical skills in various general aspects like coding	and decoding, puzzle		
	solving etc.,				
4	Improve in acad	lemic and competitive levels in tackling real work	l problems		
Course	Year /	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2		
Outcome	semester	TECHNICAL COMMUNICATIONS SKILLS			
	III/II Sem	LAB(A9024)			
After the con	npletion of this cou	rrse, the students should be able to			
1	, <del>-</del>	e and appropriate vocabulary to get focused in the	new patterns of		
	Learning.				
2	Infer flair for writing and felicity in written expression.				
3	Enhance job prospects with basic facts and concepts on the new patterns.				
4	Formulate effect	ive speaking abilities to improve quality in their sp	eaking by		
	evaluating.				
1	Develop effectiv	e and appropriate vocabulary to get focused in the	new patterns of		
1	1				



### **UGC-Autonomous**

	Learning.				
Course Outcome	Year / semester III/II Sem	Subject Name (Subject Code) MICROPROCESSORS AND MICROCONTROLLERS LAB(A9428)	L: 0 T: 0 P: 3 C: 2		
After the con	npletion of this cou	rse, the students should be able to			
1	Demonstrate exp	perimentally basic programming of Microprocessor	r.		
2		processor interfacing with various peripherals for	various applications.		
3	Apply the basic	programming of microcontroller.			
4	Examine microp	rocessor interfacing with various peripherals for various	arious applications.		
Course Outcome	Year / semester III/II Sem	Subject Name (Subject Code) DIGITAL SIGNAL PROCESSING LAB(A9429)	L: 0 T: 0 P: 3 C: 2		
After the con	npletion of this cou	rse, the students should be able to			
1	Analyze signals	using the discrete Fourier transform (DFT).			
2	Understand circular convolution, its relationship to linear convolution, and how circular convolution can be achieved via the discrete Fourier transform.				
3	Analyze the decorporate of the DFT.	Analyze the decimation in time and frequency FFT algorithms for efficient computation of the DFT.			
4	Design digital fil	ters on paper and implement the design by using M	MATLAB.		
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) VLSI DESIGN (A9422)	L: 3 T: 1 P: 0 C: 3		
1	Understand IC technology and basic electrical properties of MOS and BiCMOS.				
2	Discuss the design process of VLSI circuits				
3	Develop and design the gate level circuits				
4	Gain the knowleds	ge to design data path subsystems like Adders, Shi	fters, ALUs etc.		





### **UGC-Autonomous**

5	llustrate different programmable logic devices and CMOS testing.					
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) MICROWAVE ENGINEERING (A9431)	L: 3 T: 1 P: 0 C: 3			
After the completion	on of this course, the studen	ats should be able to				
1.	Explain microwav	e bench for measuring microwave parameter	s.			
2.	Measure paramete	rs like attenuation, VSWR, etc.,				
3.	Gain knowledge about Various components used for Microwave communication and their applications					
4.	Analyze the charac	Analyze the characteristics of all microwaves engineering component.				
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) DIGITAL IMAGE PROCESSING Professional Elective-IV(A9433)	L: 3 T: 0 P: 0 C: 3			
After the cor	npletion of this co	urse, the students should be able to				
1	Gain the knowledge of digital image fundamentals and image transforms.					
2	Discuss the analysis of image enhancement in spatial and frequency domain.					
3	Understand the different methods to restore an image.					
4	nspect different image segmentation techniques and understand morphological image					



### **UGC-Autonomous**

	processing.		
5	Analyze the differ	ent image compression techniques.	
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3
Outcome	semester	BIOMEDICAL INSTRUMENTATION Professional Elective-IV(A9426)	
After the co	IV/I Sem	ourse, the students should be able to	
1		unctions of bio amplifiers, characteristics of m	edical instruments and
2	Discuss the various mechanical activ	ous internal, external Bio electrodes and relationities of heart.	ns between electrical and
3	_	concepts of Cardiac Instrumentation and gain	the knowledge about
4	•	rapeutic Equipment and their operation.	
5	Acquires knowle	edge about neuro-muscular Instrumentation lik	e ECG EMG and EEG.
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) FPGA ARCHITECTURE & APPLICATIONS Professional elective-IV (A9427)	L: 3 T: 0 P: 0 C: 3
After the con	npletion of this cou	rse, the students should be able to	I.
1	<del>, -</del>	nt types of PLD's and architectures of Xilinx,	CPLD's.
2	Develop the prog	gramming Technology skills of FPGA	
3	Demonstrate var	ious types of FPGA's used for memories and a	rchitectures
4	Conclude about	Anti fused FPGA and their programming.	
5	Explain the importance of programming various FPGA and CPLD using simulators like Xilinx.		
Course Outcome	Year / semester IV/I Sem	Subject Name (Subject Code) DIGITAL SIGNAL PROCESSORS AND ARCHITECTURES Professional elective-V (A9432)	L: 3 T: 0 P: 0 C: 3
After the con	,*	rse, the students should be able to	1505
1	_	een the architectural features of General purpo	se processors and DSP
	processors.		



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2	Discuss and understand the architectures of TMS320054xx and ADSP 2100 DSP			
2	devices.			
3	Explain the DSP computational building blocks and addressing capabilities.			
4	•	nple assembly language programs using inst		
4	TMS32OC54xx.			
5		face of various devices to DSP Processors.		
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	semester	RADAR SYSTEMS		
	IV/I Sem	Professional elective-V (A9436)		
After the con	npletion of this cou	rse, the students should be able to		
1	Illustrate the imp	ortance of radar fundamentals and analysis	of the radar signals.	
2	Distinguish vario	ous radar transmitters and receivers.		
3	List the function	of various radars like MT1, Doppler and tra	cking radars and their	
	comparison.			
4	Summarize the in	mportance of other communications systems	with RADAR	
	communications.			
5	Elaborate the Ra	dar systems under standard NOISE Scenario	and design simple Radar	
C	system with avai	lable discrete components.		
Course	Year /	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	semester	EMBEDDED SYSTEMS		
	IV/I Sem	Professional elective-V (A9430)		
After the con	npletion of this cou	rse, the students should be able to		
1	Understand the d	ifference between Embedded system and Ge	eneral computing systems	
	and their characteristics.			
2	Explain the requi	irement of memories, sensors and actuators	to develop embedded	
	system.			
	Identify the importance of embedded firmware design approaches.			
3	Identify the imp	ortance of embedded firmware design appro	aches.	



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5	Develop the required communication and synchronization techniques for An Embedded			
	system.			
Course	Year /	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2	
Outcome	semester	MICROWAVE ENGINEERING LAB		
	IV/I Sem	(A9438)		
After the con		se, the students should be able to		
1		crowave bench for measuring microwave par	ameters.	
2	Measure paramete	ers like attenuation, VSWR, etc.,		
3	Gain knowledge a	about Various components used for Microway	ve communication and	
	their applications			
4	Analyze the chara	acteristics of all microwaves engineering comp	ponent.	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2	
Outcome	IV/I Sem	VLSI & ECAD LAB(A9439)		
After the con	mpletion of this course, the students should be able to			
1	Develops the kno	wledge of working with High end Simulation	tools like Mentor	
	Graphics, Tanner EDA etc.			
2	Design digital circ	cuits at different levels using programming co	oncepts.	
3	Implement any ty	pe of digital systems.		
4	Program any avai	lable FPGA and CPLD using implementation	tool.	
Course	Year / semester	Subject Name (Subject Code)	L: 0 T: 0 P: 3 C: 2	
Outcome	IV/I Sem	MINI PROJECT(A9440)		
After the con	_	se, the students should be able to		
1	Demonstrate a sound technical knowledge of their selected project topic.			
2	Identify and summarize an appropriate list of literature review, analyze previous			
	researchers' work and relate them to current project.			
3	Present the project	t outlining the approach and expected results	using good oral and	
	written presentation skills.			
4	Apply critical and	creative thinking in the design of engineering	g projects not only	
	limited to electron	nics and communication engineering domain l	but if possible to other	



### **UGC-Autonomous**

	interdisciplinary domains as well.			
5	Design and develop a functional product prototype while working in a team			
6	Communicate with engineers and the community at large in written and oral forms.			
7	Consider the business context and commercial positioning of designed devices or systems			
Course Outcome	Year / semester IV/II Sem	Subject Name (Subject Code) CELLULAR AND MOBILE COMMUNICATIONS Professional elective-VI(A9441)	L: 3 T: 0 P: 0 C: 3	
After the con	·	se, the students should be able to		
1	Estimate the impa	irments due to multi path fading channel.		
2	Explain an Import	ance of the fundamental techniques to overco	ome the different fading	
	effects.			
3	Distinguish the co	-channel and Non co-channel interference.		
4	Inspect cell covers	age for signal and traffic, diversity techniques	and mobile antennas.	
5	Relate and explain	the functioning of frequency management, C	Channel assignment and	
	types of handoff.			
Course Outcome	Year / semester IV/II Sem Subject Name (Subject Code) LOW POWER VLSI DESIGN Professional elective-VI(A9458) L: 3 T: 0 P: 0 C: 3		L: 3 T: 0 P: 0 C: 3	
After the con	npletion of this cour	se, the students should be able to		
1	Develop the know	ledge of Low power CMOS designs, for digit	tal circuits.	
2	_	er circuit design styles for VLSI circuits.		
3		Justify software power estimation and optimization methods for VLSI circuits.		
4	Outline the Low-Voltage Low-Power Memories.			
5	Demonstrate the fabrication process of integrated circuit using VTCMOS, MTCMOS.			
Course Outcome	Year / semester IV/II Sem	Subject Name (Subject Code) WIRELESS COMMUNICATION NETWORKS Professional elective-VI(A9443)	L: 3 T: 0 P: 0 C: 3	
After the con	npletion of this cour	se, the students should be able to		



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1	Understand the	principles of wireless communications a	nd get an idea about
	fundamentals of wireless networking and cellular system design concepts.		
2	Discuss various multiple access schemes used in wireless communication.		
3	Analyze differen	t wireless wide area networks and their perform	mance.
4	Demonstrate wir	eless local area networks and their specification	ns.
5	Relate some of the	he existing and emerging wireless standards.	
Course Outcome	Year / semester IV/II Sem	Subject Name (Subject Code) SEMINAR(A9444)	L: 0 T: 0 P: 3 C: 3
After the con		rse, the students should be able to	
1	Write technical of	locuments and give oral presentations related to	o the work completed.
2	Demonstrate the	ability to collaborate with others as they work	on intellectual projects
	(reading, writing	, speaking, researching).	
3	Explain the role	of self-efficacy, personal goals, and motivation	in improving academic
	life		
4	Describe the behaviors and characteristics of an effective learner		
5	Gain knowledge of fast and rapidly changing by self learning		
6	Develop the inte	rpersonal skills, soft skills and creativity.	
Course	Year /	Subject Name (Subject Code)	L: 0 T: 0 P: 0 C: 3
Outcome	semester IV/II Sem	COMPREHENSIVE VIVA VOCE(A9445)	
After the con	npletion of this cou	rse, the students should be able to	
1	Confidently discuss the fundamental aspects of any engineering problem/situation related to electronics & communication engineering domain and give answers in dealing with them.		
2	Articulate knowledge on various fundamentals.		
3	Recalls to answer questions from all the courses of the semesters comprehensively		
4	Attain Oral Prese	entation skills by answering questions in precis	e manner



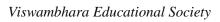
### **UGC-Autonomous**

5	Attain Oral Presentation skills by answering questions in concise manner			
6	Prepare the students to face interview at the academic level			
Course Outcome	Year / semester Subject Name (Subject Code) IV/II Sem Subject Name (Subject Code) MAJOR PROJECT(A9446) L: 0 T: 0 P: 15 C: 12			
After the con	npletion of this course	e, the students should be able to		
1	Demonstrate a sour	nd technical knowledge of their selected pro	oject topic.	
2		marize an appropriate list of literature and relate them to current project.	review, analyze previous	
3	Formulate clearly a	work plan and procedures.		
4	Present the project written presentation	outlining the approach and expected real skills.	sults using good oral and	
5	Undertake problem	identification, formulation and solution.		
6	Apply critical and creative thinking in the design of engineering projects not only limited to electronics and communication engineering domain but if possible to other interdisciplinary domains as well.			
7		o a functional product prototype while work	king in a team	
8		Demonstrate the knowledge, skills and attitudes of a professional engineer when working in a team or working as a team leader.		
9	Communicate with	engineers and the community at large in w	ritten and oral forms.	
10	Consider the busi systems	ness context and commercial positioning	g of designed devices or	
Course Outcome	Year / semester IV/I Sem OR IV/II Sem	Subject Name (Subject Code) NANO TECHNOLOGY Open elective (A9023)	L: 3 T: 0 P: 0 C: 3	
After the con	npletion of this course	e, the students should be able to		
1	Understand the fundamentals of Nanotechnology			
2	Identify the importance of different classes of Nano materials			
3	Develop an opinion Nanotechnology	on various synthesis and characterization	techniques involved in	



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4	Summarize the general scientific concepts required for technology, Apply the concepts			
4				
	in solving engineering problems,			
5	List the new developr	ments in engineering and technology, and	Get familiarized with the	
	concepts, theories, an	d technological applications.		
Course	Year / semester	<b>Subject Name (Subject Code)</b>	L: 3 T: 0 P: 0 C: 3	
Outcome	IV/I Sem	PRINCIPLES OF COMMUNICATION		
	OR	SYSTEMS Open elective (A9455)		
	IV/II Sem	Open elective (A9455)		
After the com	pletion of this course, t	he students should be able to		
1	Understand the conce	pts of spectral analysis and Random proce	ess.	
2	Develop the analog m	nodulation systems of different types of FM	I, PM transmitters &	
	Receivers.			
3	Design a Base Band I	Data Communication using sampling and (	Quantization Techniques.	
4	Gain the Knowledge	of different Digital modulation techniques	for digital transmission.	
5	Learn the fundamenta	als and concepts of spread spectrum comm	unication.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	IV/I Sem	INTRODUCTION TO		
	OR	MICROCONTROLLER & APPLICATIONS		
	IV/II Sem	Open elective (A9459)		
After the com	pletion of this course, t	he students should be able to		
1	Learn the internal org	anization of 8051 microcontrollers.		
2	Write software programs using different types of instructions.			
3	Develop the Real time control using interrupts and timers/counters.			
4	Gains knowledge of interfacing various devices with microcontroller and the external			
	world.			
5	Understand the Real t	ime operating systems required for microc	controller for real time	
	applications.			
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	IV/I Sem	INDUSTRIAL ELECTRONICS		





### **UGC-Autonomous**

	OR IV/II Sem	Open elective (A9460)		
After the con	   inletion of this course, the	e students should be able to		
1		acteristics communication firing and pro-	tection of various power	
	semiconductor devices.			
2	Explain R, RL, and RL	E loads for different power inputs.		
3	Convert AC- to- DC ar	nd DC- to – AC power through 1-phase	and 3-phase controlled	
	rectifiers and dc- to- ac	power through step-up and step down c	hoppers.	
4	Explain different types	of PWM techniques.		
5	Explain steady state an	d transient state analysis of the power co	onverters.	
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	IV/I Sem	SENSOR AND NETWORKS		
	OR	Open elective (A9461)		
	IV/II Sem			
After the con		e students should be able to		
1	Gain the knowledge of wireless sensor networks.			
2	Discuss the architecture	es of various sensor networks.		
3	Understand the various	protocols used for networking sensors.		
4	Develop the infrastruct	ure establishment for wireless sensors no	etworks.	
5	Learn the different tool	s for sensors networks.		
Course	Year / semester	Subject Name (Subject Code)	L: 3 T: 0 P: 0 C: 3	
Outcome	IV/I Sem	4G TECHNOLOGY Open elective (A9462)		
	OR	Open elective (A9402)		
	IV/II Sem			
After the con	_	e students should be able to		
1	Demonstrate the design and functionality of 4G architecture.			
2	Discuss about the Physical Layer and Multiple Access.			
3		area networks and their performance for	4G.	
4	Form opinion on existing	ng and emerging wireless standards.		



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#### Viswambhara Educational Society

### VAAGDEVI COLLEGE OF ENGINEERING

#### **UGC-Autonomous**

#### **Department of Electronics and Communication Engineering**

Name and explain various multiple access schemes present in 4G technology