

PROGRAM AND COURSE OUTCOMES

DEPARTMENT OF ELECTRONICS



WMO Arts & Science College, Muttil

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BSc ELECTRONICS

Program Outcomes

- PO1 Be able to communicate effectively in term of oral and written communication skills
- PO2 Be passionate to attain professional excellence through lifelong learning
- PO3 Apply the knowledge of Electronics, Computer application and mathematics to analyze, design and develop solutions for real time electronics problems
- PO4 Be able to function as a member of a multidisciplinary team with sense of ethics, integrity and social responsibility.
- PO5 Be able to use techniques, skills and modern technological/scientific/engineering software/tools for professional practices
- PO6 Be competent to pursue higher learning and research

Course Outcomes

Semester	Course	Course Outcome	
1	Basic Electronics	 Demonstrate the operation of passive components in filters, integrator and differentiator Describe the basic semiconductor principles , working of p-n junction diode and transistors Demonstrate the operation of diodes in clamper and clipper Apply standard device models to explain/calculate critical internal parameters of semiconductor devices Explain the behavior and characteristics of power devices such as SCR/UJT etc 	
	Electronic devices LAB	 Choose the appropriate equipment for measuring electrical quantities and verify the same for different circuits Examine the characteristics of basic semiconductor devices. Perform experiments for studying the behavior of semiconductor devices for circuit design applications. Calculate various device parameters' values from their IV characteristics. 	

3. Basic Numerical Skills • Interpret the experimental data for better understanding the device behavior. 3. Basic Numerical Skills • Study circuits in a systematic manner suitable for analysis and design and analysis and design and systematic manner suitable for analysis and design and systematic manner suitable for analysis and design and the concepts of feedback and construct feedback amplifiers and scillators. Electronic Circuits lab • Explain the concepts of feedback and construct feedback amplifiers and analyze electronic circuits using passive components. Electronic Circuits lab • Understand and analyze electronic circuits using passive components. Illustrate about various wave shaping circuits using passive components. • Understand and analyze electronic circuits using electrical quantities and verify the same for different circuits. 3. Basic Numerical Skills • Understand the common numerical methods and how they are used to obtain approximate solutions to mathematical problems. General Informatics • Updates and expands basic informatics skills and attitudes relevant to the emerging knowledge of socciety Analog & Digital Integrated Circuits • Updates and expland basic informatics solutions to mathematics of parating informatics applications (ICs SS and general purpose op-amp.) Updates and design the linear and nonlinear applications of an op-amp and special application (ICs SS and general purpose op-amp.)			-
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			 Understand and represent numbers in powers of
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			arithmetic operations
		•	Understand basic logic gates, concepts of Boolean
			algebra and techniques to reduce/simplify
			Boolean expressions
		•	Analyze and design combinatorial as well as
			sequential circuits
	Digital electronics LAB	•	Construct basic combinational circuits and verify their
			functionalities
		•	Apply the design procedures to design basic sequential circuits
		•	Learn about counters
			Linderstand the basic digital circuits and to verify their
			operation
1	Entrepreneurshin Development	•	Approciate the importance of ombarking on colf
4		•	Appreciate the importance of embarking on sen-
			employment and has developed the confidence and personal skills for the same.
		•	Identify business opportunities in chosen sector / sub-
			sector and plan and market and sell products / services
		•	Start a small husiness enterprise by liaising with
			different stake holders Effectively manage small
			hucinoss optorpriso
	Desire of Audia Q Midea Media		
	Basics of Audio & video Media	•	To study audio recording systems such CD/DVD
			recording, Audio Standards, and Acoustics principles
	Microprocessors	•	Understand the basic blocks of microcomputers
			i.e CPU, Memory, I/O and architecture of
			microprocessor's
		•	Apply knowledge and demonstrate proficiency of
			designing hardware interfaces for memory and
			I/O as well as write assembly language programs
			for target microprocessor
		•	Derive specifications of a system based on the
			requirements of the application and select the
			appropriate Microprocessor
	Microprocessor 8085 LAB	•	Interface various I/O devices and design and evaluate
			systems that will provide solutions to real-world
			problem
		•	Prepare the technical report on the experiments
			carried
	Electromagnetic Theory	•	Understand the fundamentals of Electrostatics and
			Magnetostatics hence get the insight of the
5			characteristics of materials and their interactions with
			electric and magnetic fields
		•	Understand the application of Vector Differential and
			Integral operators in Electromagnetic Theory
		-	Internet Maxwall's assistant in differential and
		•	interpret Maxwell's equations in differential and
			integral forms, both in time and frequency domains.

	•	Describe the complex $\epsilon,\mu,$ and $\sigma,$ plane waves, Snell's
		laws from phase matching, and calculate the reflection
		and transmission coefficients at the interface of simple
		media
	•	Calculate input impedance and reflection coefficient of
		an arbitrarily terminated transmission-line and can use
		Smith chart to convert these quantities.
Microcontroller 8051	•	Understand the basic blocks of microcomputers
		i.e CPU, Memory, I/O and architecture of
		microcontroller
	•	Apply knowledge and demonstrate proficiency of
		designing hardware interfaces for memory and
		I/O as well as write assembly language programs
	•	Derive specifications of a system based on the
	•	requirements of the application and select the
		appropriate microcontroller
Network Theory	•	Understands how to formulate circuit analysis
		problems in a mathematically tractable way with
		an emphasis on solving linear systems of
		equations
	•	Analyze the electric circuit using network
		theorems
	•	Determine Sinusoidal steady state response.
Analog Integrated Circuits LAB	•	Interpret op-amp data sheets.
	•	Analyze and prepare the technical report on the
		experiments carried out.
	•	Design application oriented circuits using Op-amp and 555 timer ICs
	•	Create and demonstrate live project using ICs.
Microcontroller 8051 LAB	•	Interface various I/O devices and design and evaluate
		systems that will provide solutions to real-world
		problem
	•	Prepare the technical report on the experiments
		carried
Digital Fundamentals (Open	٠	Understand and represent numbers in powers of
Course)		base and converting one from the other, carry out
		arithmetic operations
	•	Understand basic logic gates, concepts of Boolean
		algebra and techniques to reduce/simplify
		Boolean expressions
	•	Analyze and design combinatorial as well as
Project		sequential circuits
	•	Survey and study of published literature on the
		assigned topic

		 Working out a preliminary Approach to the Problem relating to the assigned topic Conducting preliminary Analysis/ Modelling/
		Simulation/ Experiment/ Design/ Feasibility
6	Communication System	 Design basic digital communication systems to solve a given communications problem and they become conversant with the requirements and the protocols employed in the fundamental components in a communication network. Understand simple block forward error correction codes and basic dispersion compensation concepts and also the concepts of up/down conversion and modulation
		 Determine the suitability of a particular communication system to a given problem
		 Describe the concept of "noise" in analog and digital communication systems. Also, get insight on the trade-offs (in terms of bandwidth, power, and complexity requirements) in basic digital communication systems.
	Principles of DSP	 Represent various types of continuous-time and discrete-time signals
		 Understand the basic concepts related to discrete time signals, systems, Z transform and Fourier transform
		 Apply knowledge and demonstrate proficiency of analyzing signals in time as well as frequency domain using Fourier and Z transform
		 Design and analyze IIR/FIR filters with given specifications
		 Apply transform methods for representing signals and systems in time and frequency domain
	Control Systems	 Understand the concepts of closed loop control systems
		 Analyse the stability of closed loop systems.
		 Apply the control techniques to any electrical systems
		 Compute and assess system stability
	Microwave and radar engineering (Elective)	 Identify the use of microwave components and devices in microwave applications.
		 Understand the working principles of all the microwave tubes
		 Understand the working principles of all the solid state devices

		•	Choose a suitable microwave tube and solid state device for a particular application
Com	munication System LAB	•	Understand basic elements of a communication system
		•	Analyze the baseband signals in time domain and in frequency domain
		•	Build understanding of various analog and digital modulation and demodulation techniques
		•	Prepare the technical report on the experiments carried.
DSP	LAB	•	Learn the practical implementation issues stemming from the lecture material
		•	Simulate, synthesize and process signals using software tools
		•	Learn to work in groups and to develop MATLAB/ Scilab simulations of various signals and systems.
		•	Prepare the technical report on the experiments carried
Proje	ect	٠	Implement the working model
		•	Preparing a Written Report on the Study conducted