"Education for Knowledge, Science, and Culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous)

KOLHAPUR (AUTONOMOUS)

Department of Electronics

Course Outcomes (Cos): Electronics Department

B.Sc. III Electronics (Implemented from JUNE 2020)	
Semester V	
Paper- DSE 1005E1 Linear Integrated Circuits, 8051 Microcontroller Interfacing and Embedded C	
CO No.	**After completion of the courses, students will be able to:**
CO1:	Understand the fundamentals and areas of applications for the integrated circuits and 8051microcontroller.
CO2:	Analyze important types of integrated circuits and various interfacing circuits.
CO3:	Demonstrate the ability to design practical circuits that perform the desired operations.
CO4:	Understand the differences between theoretical, practical results in integrated and interfacing circuits.
Paper- DSE 1005E2 Instrumentation, Antenna and Wave Propagation	
CO1:	Classify and explain transducers with examples, including those for measurement of temperature, flow, motion, position and light.
CO2:	Knowledge of sensor and Actuators
CO3:	Analyze the performance characteristics of each instrument
CO4:	Illustrate basic Digital instruments such as Digital voltmeters and Multimeter, Bio- Medical Instrument
CO5:	Apply the principles of electromagnetic to explain antenna characteristics such as radiation pattern and directivity.
CO6:	Understand the structure and working of special antennas such as Dipole antenna, Yagi-Uda antenna and Microstrip patch antennas.

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416 003

CO7:	Identify the suitable antenna for a given communication system.
CO8:	Be familiar with the basic propagations namely ground wave propagation, free space propagation and sky wave propagation.
Paper- SEC 3 Renewable energy	
CO1:	To understand the Need, importance and scope of non-conventional and alternate energy resources.
CO2:	To understand role significance of solar energy.
CO3:	To provides importance of Wind Energy.
CO4:	To understand the role of ocean energy in the Energy Generation.
CO5:	To understand the concept of energy Conservation.

Semester: VI	
Paper- DSE 1005 F1 Industrial Process Control, PLC Programming and Advanced Microcontroller and Embedded System	
CO No.	**After completion of the courses, students will be able to:**
CO1:	Describe typical concepts and components of a Programmable Logic Controller.
CO2:	Use timer, counter, and other intermediate programming functions.
CO3:	Design and program basic PLC circuits for entry-level PLC applications.
CO4:	Explain and apply the concept of electrical ladder logic, its history, and its relationship to programmed PLC instruction.
CO5:	Understand the architecture and function of each pin of AVR 8-bit Microcontroller.
CO6:	Write, debug and simulate embedded C language programs.
CO7:	Understand Timer operation, Interrupt environment and Serial Communication.

CO8:	Understand the interfacing of various systems with AVR microcontroller
Paper- DSE 1005F2 Power Electronics, FPGA & VHDL Programming	
CO1:	Understand the basics of Power Electronics
CO2:	Learn the detail of power semiconductor switches (Construction, Characteristics and Operation).
CO3:	Understand the working of various types of converters.
CO4:	Learn how to analyze the converters and design the components of them, under various load types.
CO5:	Understand single-phase and three-phase Supply converters
CO6:	Design and Analyze Three phase uncontrolled and controlled Rectifier.
CO7:	Understand the syntax and behaviour of the VHDL language.
CO8:	Use modern development tools to design complex digital circuits.
CO9:	Simulate and make a synthesis of extensive designs in so called "Field Programmable Gate Array" (FPGA).
Paper- SEC 4 Introduction to Arduino and IoT	
CO1:	Familiarizing with Arduino Board & Accessories.
CO2:	Familiarizing with interfacing with display devices.
CO3:	Design some IoT based prototypes.
CO4:	Understand the physical and logical design of IoT.

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(Mr. D. M. Panhalkar)
HEAD
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