AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER
DEPARTMENT OF ELECTRONICS ENGINEERING
COURSE OUTCOMES (CO)
TE 2015 COURSE

Power Electronics and Applications (304201), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C301.1	**Explain** basic of power Electronics Engineering, **Describe** the VI and switching characteristics MOSFET, IGBT and its application in power circuits.	2
C301.2	**Design** triggering circuits for power devices. To **discuss** the importance of protection circuit and its use in power circuits.	2, 6
C301.3	**Compare** uncontrolled and controlled rectifiers, **Classify** the types of controlled rectifiers, Study **Examine** the working of three phase converter and its applications in regulated power supplies.	2, 3, 4
C301.4	**Explain** the working of single phase inverter, **Describe** the working of PWM inverter, and Study various voltage control methods in inverter.	1, 2
C301.5	**Understand** the concept of DC to DC converter, **Design** and **test** step down and step up chopper, **Explain** the concept of AC voltage controller.	2, 4, 6
C301.6	**Identify** the critical areas in power electronics application. **Recognize** the role of power electronics play in the improvement of energy usage efficiency and the applications in emerging areas. **Compare** AC and DC transmission system, **Describe** various methods of DC transmission, to study various applications of power electronics.	1, 2,

Instrumentation Systems (304202), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C302.1	**Classify** sensors/transducers and **describe** important performance measures, terminology of sensors/instrumentation systems.	2
C302.2	**Compare** various temperature sensors, **design** signal conditioning circuits for temperature sensors and describe working principles of chemical sensors.	4,6
C302.3	**Compare** various flow and level sensing techniques and **select** appropriate technique for a specific application.	4
C302.4	**Describe** working principles of motion, light and radiation detectors.	2
C302.5	**Describe** construction and working principle of MEMS and SMART sensors.	2
C302.6	**Select** appropriate Switches and final control elements for a specific application.	1,2

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Electromagnetics and Wave Propagation (304203), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C303.1	**Apply** the basics of Electrostatics in different applications	1,2,3
C303.2	**Apply** the basics of Electrostatics, Laplace and Poissons equations in different applications such as capacitor	1,2,3
C303.3	**Apply** the basics of Magnetostatics in different applications	1,2,3
C303.4	**Interpret** the given electromagnetic problem and solve it for different fields (Static, Time Varying, Free Space, conductor, Dielectric) using Maxwell's Equations	1,2,3,4
C303.5	**Formulate** the wave equation and solve it for uniform plane wave in different media.	1, 2,3,4
C303.6	**Explain** the **effect** of different parameters on wave propagation in wireless channel	1,2,3

Microcontroller & Applications (304204), TE-Sem-V,
After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C304.1	**Learn** importance of microcontroller in **designing** embedded application.	2
C304.2	**Describe** the 8051 microcontroller architectures and its feature.	1,2
C304.3	**Develop** interfacing to real world devices using 8051 microcontroller.	6
C304.4	**Describe** the PIC18FXX microcontroller architectures and its feature.	1,2
C304.5	**Develop** interfacing to real world devices using PIC18FXX microcontroller.	6
C304.6	**Learn** use of hardware & software tools.	2

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Data Communication (304205), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C305.1	**Define** and **explain** terminology of data transmission and OSI model.	1, 2
C305.2	**Identify** and **explain** error detection and correction using appropriate techniques.	1, 2, 3
C305.3	**Illustrate** the concept of Information and entropy coding techniques.	2, 3
C305.4	**Describe** the quantization process and elaborate digital representation techniques (PCM, DPCM, DM and ADM).	1, 2
C305.5	**Illustrate** the impact and limitations of various modulation techniques.	2, 3
C305.6	**Identify** and **explain** the need and limitations of various multiple access techniques & spread spectrum schemes.	1, 2, 3

DSP and Applications (304206), TE-Sem-VI, 2020-2021

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C306.1	**Analyze** the discrete time signals to resolve different frequency and **Design** and **implement** multistage sampling rate converter.	4,5,6
C306.2	**Understand** use of different transforms and **apply** DFT for the analysis of discrete time signals and systems	2,3
C306.3	**Analyze** and **resolve** the signals in frequency domain using Z Transform	4,5
C306.4	**Design** & **analyse** IIR Filter for filtering different real world signals.	4,6
C306.5	**Design** & **analyse** linear phase FIR Filter for filtering different real world signals.	4,6
C306.6	**Understand** architecture of DSP and **Select** a suitable DSP Processor for different applications.	2,5

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Electronics system Design Practice (304213), TE-Sem-V,

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C313.1	**Interpret** data sheet specification to **design** and simulate power supply .	2,6
C313.2	**Explain** selection criteria of component in data acquisition system and make use an EDA tool for circuit schematic and **simulation.**	2,4
C313.3	**Select** appropriate components for **design** of solar power system for own home .	1,6
C313.4	**Explain** PCB artwork components and **design** practices for high frequency signal PCB.	2,6
C313.5	**Understand** what is IoT and **develop** any applications.	2,6

Embedded Processor (304207), TE-Sem-VI

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C307.1	**Describe** variants of MSP430 family and their targeted application, **Explain** low power aspects of MSP430, **illustrate** the instruction set and addressing modes of MSP430.	1,2,3
C307.2	**Design** real world interfacing for various devices of MSP430 Microcontroller.	6
C307.3	**Describe** ARM Processor and also **compare** ARM7,ARM9 and ARM11, **explain** suitability in Embedded Application.	1,2
C307.4	**Define** architecture of ARM7, **explain** data flow and Program flow model.	1,2
C307.5	**Design** real world interfacing for various devices of ARM7 based Microcontroller.	6
C307.6	**Describe** various ARM Cortex series and its applications, **Identify** need of Operating System and **Survey** of Cortex M3 based microcontroller and its **comparison.**	2,3

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Business Management & Organization (304208), TE-Sem-VI

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C308.1	**Review** of Industry**, Find** out the trends of Business Industry.	2, 4
C308.2	**Identify** the idea about new developments in business and its management. **Classify** the business firms. **Understand** business forms, procedures.	2, 3, 4
C308.3	**Understand** the basic concepts in commerce, trade and industry. Students will be exposed to modern business world.	2
C308.4	To enable them to **analyze** and **understand** the environment of the organization.	2, 4
C308.5	**Understand** Basic principles of management - will **Describe** himself with management process, functions and principles	1, 2
C308.6	**Identify** modern business practice and functioning of various business organizations. **Demonstrate** the roles & responsibility of management.	1, 2

Fundamentals of HDL (304209), TE-Sem-VI

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C309.1	**Understand** the role of HDL in digital system design using latest tools like VHDL & Verilog.	1
C309.2	**Describe & Test** digital logic circuit in data flow, structural & behavioral descriptions using VHDL.	1,4
C309.3	**Describe** the organization of various PLD & **compare** them.	1,4
C309.4	**Apply** advanced constructs like as Procedure, Task & functions to make model of digital logic system using VHDL & Verilog.	3
C309.5	**Describe** digital circuits utilizing various constructs of Verilog.	1
C309.6	**Develop** Verilog code to make model and simulate digital system design.	6

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PLC & Applications (304210), TE-Sem-VI

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C310.1	**Identify** the main parts of a PLC and **describe** their functions, uses and applications, **construct** relation of digital gate logic to relay and PLC logic.	1, 2, 3, 6
C310.2	**Define** and **identify** the functions of a PLC memory map and ladder diagram instructions, **describe** the operation of electromagnetic control relays, switches, sensors and output control devices and **develop** PLC ladder program for control logic of basic industrial applications.	1, 2, 3, 6
C310.3	**Apply** the concept of PLC timers and counters for the control of industrial processes, **illustrate** the advanced PLC functions and **develop** PLC ladder program for control logic of advance level industrial applications.	2, 3, 6
C310.4	**Identify** and **describe** the knowledge of Installation, troubleshooting & maintenance of PLC to provide solution for industrial automation problems.	1, 2, 3
C310.5	**Describe** the concepts of Process control, SCADA and HMI and **develop** the PLC interfacing technique with HMI.	1, 2, 6
C310.6	**Classify** the different types of communication interface and Industrial networks.	3, 4

Mini Project (304216) TE-Sem-VI

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C316.1	**Conduct** literature search to **identify** and **formulate** the engineering problem	1,3,5
C316.2	**Apply** mathematical ,science engineering concept to **solv**e the identified problem	3,6
C316.3	**Select** the proper engineering tools/components for **solving** the identified engineering problem	3,6
C316.4	**Prepare** the budget for hardware requirement	1
C316.5	**Demonstrate** the project with effective oral communication	2
C316.6	**Perform** in team, **contribute** to the team and lead the team	3

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