SRI VASAVI ENGINEERING COLLEGE (Autonomous)

(Permanent Affiliation to JNTUK, Kakinada), PEDATADEPALLI, TADEPALLIGUDEM-534 101

Department of Electronics & Communication Engineering

Program: M.Tech
Specialization: Embedded Systems & VLSI

Course Outcomes (V21 Regulation)

Year & Semester	Course Code & Name	Course Outcomes
I Semester	**V21ESVT01** **System Design Through VERILOG**	**After successful completion of the course, the student will be able to:** • CO1: Outline basic concepts of RTL code for digital circuits **[K2]** • CO2: Model RTL codes for digital circuit at gate and data flow level **[K3]** • CO3: Model RTL codes for digital circuit at behavioural level **[K3]** • CO4: Model RTL codes for digital circuit at switch level modelling and outline the concepts of task, function and complier directives **[K3]** • CO5: Analyze Synthesize of Combinational and Sequential Circuits **[K4]**
I Semester	**V21ESVT02** **Embedded System Design**	**After successful completion of the course, the student will be able to:** • CO1: Illustrate the ARM architecture and its memory management.**(K2)** • CO2: Describe the ARM instruction set for ARM programming.**(K2)** • CO3: Describe Thumb instruction set for ARM programming.**(K2)** • CO4: Explain the basics of ARM Cortex-M3 **(K2)** • CO5: Explain ARM Cortex-M3 interfacing.**(K2)**
I Semester	**V21ESVT05** **System on Chip & Applications (Elective I)**	**After successful completion of the course, the student will be able to:** • CO1: Describe SOC System Approach, design and its Architecture –**[K2]** • CO2: Discuss the selection of processor and its micro architecture for SOC –**[K2]** • CO3: Discuss Memory Design for SOC –**[K2]** • CO4: Explain the concepts of bus models and Interconnect Architectures –**[K2]** • CO5: Explain SOC based Applications –**[K2]**
I Semester	**V21ESVT06** **Digital System Design (Elective II)**	**After successful completion of the course, the student will be able to:** • CO1: Describe the algorithms for minimization of functions • CO2: Describe the algorithms for minimization of PLDs. • CO3: Design large scale digital systems. • CO4: Discuss the fault model and diagnosis in combinational and sequential Circuits.
I Semester	**V21ESVT07** **CPLD & FPGA Architectures and Applications (Elective II)**	**After successful completion of the course, the student will be able to:** • CO1: Describe the Programmable Logic Devices • CO2: Distinguish the various types of Field Programmable Gate Arrays • CO3: Apply the typical applications on FPGAs
I Semester	**V21ESVT08** **VLSI Signal Processing (Elective II)**	**After successful completion of the course, the student will be able to:** • CO1: Ability to modify the existing or new DSP architectures suitable for VLSI. • CO2: Understand the concepts of folding and unfolding algorithms and applications. • CO3: Ability to implement fast convolution algorithms. • CO4: Low power design aspects of processors for signal processing and wireless Applications.
I Semester	**V21ESVL01** **System Design through VERILOG Lab**	**After successful completion of the course, the student will be able to:** • CO1: Develop the simulation of combinational and sequential circuits using HDL Language.**[K3]** • CO2: Develop the synthesis of combinational and sequential circuits using HDL Language.**[K3]** • CO3: Analyze the implemented of digital logics with hardware module kit FPGA **[K4]**

I Semester	**V21ESVL02** **Embedded Systems Design Lab**	**After successful completion of the course, the student will be able to:** • CO1: Develop applications based on ARM Cortex-M3 processor using Cortex-M3 Development boards on the platform of co-coox and Arduino IDE.-**(K3)** • CO2: Develop the applications based on DSP C6713 evaluation kits and using Code Composer Studio (CCS).-**(K3)**
II Semester	**V21ESVT09** **Analog and Digital CMOS VLSI Design**	**After successful completion of the course, the student will be able to:** • CO1: Describe the concept of MOS structure and physical design of CMOS **(K2)** • CO2: Design the CMOS Inverters and various CMOS combinational logic circuits **(K4)** • CO3: Design the CMOS different Sequential logic circuits **(K4)** • CO4: Describe the concept of modelling of MOS and Analog CMOS Sub-Circuits **(K2)** CO5: Describe the CMOS Op-Amps & it's Applications. **(K2)**
II Semester	**V21ESVT10** **Real Time Operating Systems**	**After successful completion of the course, the student will be able to:** • CO1: Illustrate real time programming concepts. • CO2: Apply RTOS functions to implement embedded applications • CO3: Understand fundamentals of design consideration for embedded Applications.
II Semester	**V21ESVT11** **MEMS Technology and its Applications (Elective-III)**	**After successful completion of the course, the student will be able to:** • CO1: Describe the concepts of MEMS and Microsystems. • CO2: Describe various possible materials for MEMS based devices. • CO3: Describe various process steps involved in fabrication of MEMS devices. • CO4: Describe various micro sensors and micro actuators. • CO5: Describe various MEMS devices and their applications.
II Semester	**V21ESVT12** **Design for Testability (Elective-III)**	**After successful completion of the course, the student will be able to:** • CO1: Interpret the concepts of modelling digital circuits and simulation. • CO2: Describe modelling of faults and its testing for SSF. • CO3:Explain various techniques of testing
II Semester	**V21ESVT15** **Embedded Computing (Elective-IV)**	**After successful completion of the course, the student will be able to:** • CO1: Interpret the concepts of modelling digital circuits and simulation. • CO2: Describe modelling of faults and its testing for SSF. • CO3:Explain various techniques of testing
II Semester	**V21ESVL03** **Analog and Digital CMOS VLSI Design Lab**	**After successful completion of the course, the student will be able to:** • CO1 -Analyse the Characteristics of MOS Device **(K3)** • CO2 -Analyse the basic MOS Amplifiers and current mirrors **(K3)** • CO3 -Design the various MOS Amplifiers. **(K4)** • CO4 -Demonstrate various CMOS combinational Digital circuits **(K2)** • CO5- Demonstrate various CMOS Sequential Digital circuits **(K2)**
II Semester	**V21ESVL04** **Real Time Operating Systems Lab**	**After successful completion of the course, the student will be able to:** • The Students are required to write the programs using C-Language according to the Experiment requirements using RTOS Library Functions and macros ARM-926 developer kits and ARM Cortex. • The following experiments are required to develop the algorithms, flow diagrams, source code and perform the compilation, execution and implement the same using necessary hardware kits for verification. The programs developed for the implementation should be at the level of an embedded system design. •The students are required to perform at least SIX experiments from Part-I and TWO experiments from Part-II.

III Semester	**V21ESVT17** **IoT and its Applications**	**After successful completion of the course, the student will be able to:** • CO1: Describe M2M and IOT Technologies. **[K2]** • CO2: Explain the layers, protocols and communication technologies in IOT. **[K2]** • CO3: Illustrate various hardware components required for IOT applications. **[K2]** • CO4: Discuss the cloud technologies and their services. **[K2]** • CO5: Explain the IoT Applications. **[K2]**
III Semester	**V21ESVT18** **Low Power VLSI Design**	**After successful completion of the course, the student will be able to:** • CO1: Identify various sources of power consumption • CO2: Estimate the power consumption sing simulation and probabilistic Approaches. • CO3: Discuss low power design at various levels of abstraction. • CO4: Discuss clock distribution for low power dissipation.