SRI SRINIVASA EDUCATIONAL AND CHARITABLE TRUST®

SAPTHAGIRI COLLEGE OF ENGINEERING

(Affiliated to Visvesvaraya Technological University, Belagavi and Approved by AICTE, New Delhi)

(Accredited by NAAC with "A" grade)

(An ISO 9001:2015 & ISO 14001:2015 Certified)

Electronics and Communication Engieering

1.3.2 Number of courses that include experiential learning through project work/field work/internship during the Academic Year 2021-22

Name of the Course that include experiential learning through project work/field	Course code	Year of offering	Details of experiential learning through project work/field work/internship
Network Theory	18EC32	2021	Generation of power to a vehicle using solar energy or its own kinetic energy
Electronics Devices	18EC33	2021	A real time Pot hole detection and clearence robot
Digital System Design	18EC34	2021	A blind stick navigator with Braille system and obstacle detection for visually and hearing impaired persons
Computer Organisation	18EC35	2021	Human Image Captioning using Deep Learning
Power Electronics & Instrumentation	18EC36	2021	Driver dormant Monitoring system to alert fatal accidents using image processing
Electronic Devices and Instrumentation	18ECL37	2021	Crowd Management in Public Transport
Digital System Design Lab	18ECL38	2021	Implementation of Abstractive Summarization & translation using deep learning technique
Analog CIrcuits	18EC42	2022	Design & Development of IC sorting and dispensing system
Engineering Statistics and Linear Algeb	18EC44	2022	Flood and earthquake detection and alert using IOT technology
Signals & Systems	18EC45	2022	Automatic floor cleaning Robot using Arduino and Ultrasonic Sensor
Micocontroller	18EC46	2022	Multipurpose agriculture robot
Microcontroller Lab	18ECL47	2022	Design and analysis of different SRAM cell Topologies using CMOS and FinFET Technologies
Analog CircuitsLab	18ECL48	2022	Smart Cradle system
Technological Innovation Management	18ES51	2021	Forest monitoring system
Digital Signal Processing	18EC52	2021	Design of 5G base band filter decimator unit
Principles of Communication System	18EC53	2021	an intelligent packing system for E- commerce
Information Theory & Coding	18EC54	2021	FPGA Implementation of EXUDATE detection in FUNDUS Images
Electromagnetic waves	18EC55	2021	VLSI Implementation for low power high speed DAC
Verilog HDL	18EC56	2021	Design & Performance analysis of 8*8 NOC for high traffic & streaming application
DSP Lab	18ECL57	2021	FPGA Implementation of high speed lowenergy RNS based reconfigurable FIR filer

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HDL Lab	18ECL58	20[illegible]	Android controlled wild life observation rol
Digital Communication	18EC61	20[illegible]	Virtual doctor obstacle detection
Embedded Systems	18EC62	2022	IOT based Hydroponics
Microwave & Antennas	18EC63	2022	Controlled environment for protection of crops
Python Programming	18EC646	2022	Automatic solar powered grass cutter incorportated with alphabet printing and pesticide sprayer
Open Electives	18XX65X	2022	Design and Implementation of neural network on FPGA using verilog
Embedded Controller Lab	18EC66	2022	Implementation of machine learning frame work for detecting cyber attack in online banking
Communication Lab	18ECL67	2022	Metal Detector robotic vehicle operated by android application
Mini Projects	18ECL68	2022	Smart mirror with innovative features
Computer Networks	18EC71	2021	IOT based smart water purification system
VLSI Design	18EC72	2021	Smart trolley automatic shopping billing
Satellite Communication	18EC732	2021	Smart advertising systems in modern public transport
Multimedia Communiction	18EC743	2021	Solar Pwered wheel chair with voice controller for physically challanged persons
Machine Learning with PYTHON	18EC745	2021	Design and Implementation of images and video processing application using xilinx on FPGA
Computer Networks Lab	18ECL76	2021	Navigation Assistance for Blind and Visually Impaired People
VLSI Lab	18ECL77	2021	Fire detection & extinguish using DIP
Project Work Phase - 1	18ECP78	2021	Solar Floor Cleaner
Wireless and Cellular Communication	18EC81	2022	Indoor Plants Recommedation System to Improve Air Quality
Optical Communication Networks	18EC824	2022	Smart Petrol Dispensing System
Project work	18ECP83	2022	Design and Implementation of Automated Security System for Industry and Campus
Technical Seminar	18ECS84	2022	
Internship	18ECI85	2022	Locker Security System Using Keypad and RFID
			16 Bit RISC Processor using Verilog HDL
			Adaptive Noise Cancellation using Improved LMS
			Hybrid technique for voice Recognition, Encryption and Analysis using MATLAB
			Common Source Amplifier Design using CADENCE tool (180nm)
			Using Convolutional Neural Network for Character Verification on IC Components of PCB
			Vedic Multiplier using Verilog HDL
			Traffic Light Controller using Verilog HDL
			Design of Operational Amplifier with 180nm Technology
			TIA Noise Less RF
			Automatic Hand Sanitizer Dispenser

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			Design of Horn Antenna
			Irrigation System CNN
			Design of Encoding and Decoding of Hamming Code Based on VHDL
			Multisim-Based Digital Clock Design
			Design of Differential Amplifier using 180nm Digital CMOS Technology
			Analysis and Design of Micro-strip Patch Antenna for Radar Communication
			Automatic Fracture Detection in X- ray Images
			CMOS Operational Transconductance Amplifier
			Design and implementation of a Bluetooth Based MCU and GSM for Wetness
			Plant Leaf Disease Using Convolutional Neural Network (MATLAB)
			IOT Based Home Automation Using Android Application (microcontroller based work)
			A Novel Op-Amp Based Oscillator for Wireless Communication
			Speech and Emotion Recognition using MATLAB
			Liver Cancer Detection using Image Processing
			Health Monitoring System using STM32 Platform
			Study and Simulation of Five Story Elevator Using VHDL
			Precision Agriculture System Using Hardware Description Language to Design an
			Low Power, Low-Noise Edge-Race Comparator for SAR ADCs
			An Academic Approach to FPGA Design Based on a Distance Meter Circuit
			Fire Detection System Using MATLAB
			Fingerprint Recognition system using MATLAB
			Synthesis of Synchronous Gray Code Counters by Combing Mentor Graphics HDL designer & Xilinx VIVADO FPGA flow
			Flipflop Led Flasher Circuit
			Single 2n2222 Npn Bjt Led Flasher Circuit
			Fm Transmitter
			Solar Fountain
			Flip Flop Led Blinking Circuit Using Transistor Bc547
			Simple Touch Sensor
			Light Sensing Security System Using Photo Diode
			Fm Receiver
			Automatic Night Light Sensror
			Basiclogic Gates Ic Tester
			Binary To Gray Code Conversion
			Audio Amplifier
			Rain Water Alarm
			Oops Concept
			Implementation Of Booth Algorithm In C Programe

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			Stack Implementation
			Door Alram Using Scr
			Dark Sensor Circuit Using Ldr
			Door Alarm Using Scr
			Mobile Phone Detector
			Automatic Night Light Using Ldr
			Voltage Multiplier
			Flipflop Flasher Using Bc547
			Laser Light Security Alarm Sysetem
			Obstacle Detector
			Non-Contact Voltage Tester
			Pov Dispaly Using Arduino
			Fm Radio Transmitter
			Door Alarm Using Scr
			Voltage Multiplier
			Music Rythm Led Light
			Human Touch Detector

HOD, ECE

Head of the Department
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: B.E: Electronics & Communication Engineering

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18EC32	Network Theory		3	2	--	03	40	60	100	4
3	PCC	18EC33	Electronic Devices		3	0	--	03	40	60	100	3
4	PCC	18EC34	Digital System Design		3	0	--	03	40	60	100	3
5	PCC	18EC35	Computer Organization & Architecture		3	0	--	03	40	60	100	3
6	PCC	18EC36	Power Electronics & Instrumentation		3	0	--	03	40	60	100	3
7	PCC	18ECL37	Electronic Devices & Instrumentation Laboratory		--	2	2	03	40	60	100	2
8	PCC	18ECL38	Digital System Design Laboratory		--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for Communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39/49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	**17 OR 18**	**10 OR 08**	**04**	**24 OR 26**	**420 OR 360**	**480 OR 540**	**900**	**24**

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IV SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT41	Complex Analysis, Probability and Statistical Methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18EC42	Analog Circuits		3	2	--	03	40	60	100	4
3	PCC	18EC43	Control Systems		3	0	--	03	40	60	100	3
4	PCC	18EC44	Engineering Statistics & Linear Algebra		3	0	--	03	40	60	100	3
5	PCC	18EC45	Signals & Systems		3	0	--	03	40	60	100	3
6	PCC	18EC46	Microcontroller		3	0	--	03	40	60	100	3
7	PCC	18ECL47	Microcontroller Laboratory		--	2	2	03	40	60	100	2
8	PCC	18ECL48	Analog Circuits Laboratory		--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for Communication)	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39/49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	**17 OR 18**	**10 OR 08**	**04**	**24 OR 26**	**420 OR 360**	**480 OR 540**	**900**	**24**

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V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18ES51	Technological Innovation Management and Entrepreneurship		3	0	--	03	40	60	100	3
2	PCC	18EC52	Digital Signal Processing		3	2	--	03	40	60	100	4
3	PCC	18EC53	Principles of Communication Systems		3	2	--	03	40	60	100	4
4	PCC	18EC54	Information Theory & Coding		3	--	--	03	40	60	100	3
5	PCC	18EC55	Electromagnetic Waves		3	--	--	03	40	60	100	3
6	PCC	18EC56	Verilog HDL		3	--	--	03	40	60	100	3
7	PCC	18ECL57	Digital Signal Processing Laboratory		--	2	2	03	40	60	100	2
8	PCC	18ECL58	HDL Laboratory		--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
				TOTAL	**19**	**8**	**4**	**26**	**360**	**540**	**900**	**25**

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC61	Digital Communication		3	2	--	03	40	60	100	4
2	PCC	18EC62	Embedded Systems		3	2	--	03	40	60	100	4
3	PCC	18EC63	Microwave and Antennas		3	2	--	03	40	60	100	4
4	PEC	18XX64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18XX65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18ECL66	Embedded Systems Laboratory		--	2	2	03	40	60	100	2
7	PCC	18ECL67	Communication Laboratory		--	2	2	03	40	60	100	2
8	MP	18ECMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	**15**	**10**	**6**	**24**	**320**	**480**	**800**	**24**

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under 18XX64X	Course Title
18EC641	Operating System
18EC642	Artificial Neural Networks
18EC643	Data Structures using C++
18EC644	Digital System Design Using Verilog
18EC645	Nanoelectronics
18EC646	Python Application Programming

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Programme: B.E: Electronics & Communication Engineering

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC71	Computer Networks		3	--	--	03	40	60	100	3
2	PCC	18EC72	VLSI Design		3	--	--	03	40	60	100	3
3	PEC	18XX73X	Professional Elective - 2		3	--	--	03	40	60	100	3
4	PEC	18XX74X	Professional Elective - 3		3	--	--	03	40	60	100	3
5	OEC	18XX75X	Open Elective -B		3	--	--	03	40	60	100	3
6	PCC	18ECL76	Computer Networks Lab		--	2	2	03	40	60	100	2
7	PCC	18ECL77	VLSI Laboratory		--	2	2	03	40	60	100	2
8	Project	18ECP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	**15**	04	**06**	**21**	**38**	**420**	**800**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2

Course code under 18XX73X	Course Title
18EC731	Real Time Systems
18EC732	Satellite Communication
18EC733	Digital Image Processing
18EC734	DSP Algorithms & Architecture

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Course code under 18XX74X	Course Title
18EC741	IOT & Wireless Sensor Networks
18EC742	Automotive Electronics
18EC743	Multimedia Communication
18EC744	Cryptography
18EC745	Machine Learning with Python
Open Elective –B	
18EC751	Communication Theory
18EC752	Neural Networks
18EC753	**ARM Embedded Systems**
18EC754	**Digital Systems Design using VHDL**

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

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