SREE VIDYANIKETHAN ENGINEERING COLLEGE
(AUTONOMOUS)
SreeSainath Nagar, Tirupati

Department of Electrical and Electronics Engineering

Supporting Document for 1.1.2

Syllabus revision carried out in 2020

Program: B. Tech, Electrical and Electronics Engineering

Regulations: SVEC-20

This document details the following:

1. Courses where syllabus has been changed 20% and more.
2. Course wise revised syllabus with changes highlighted.

Note: For SVEC-20 revised syllabus, SVEC-19 (previous syllabus) is the reference.

List of the courses where the syllabus content has been changed (20% and more)

S. No	Course code	Name of course	Percentage of content changed	Page number in which details are highlighted
1.	20BT30232	Signals and Networks Lab	30	3
2.	20BT50232	Electrical Auditing and conservation Practice Lab	100	7
3.	20BT60233	ARM Processor and its Interfacing Lab	100	9
4.	20BT50233	Summer Internship-1	100	11
5.	20BT70233	Summer Internship-2	100	12
		Average %**(A)**	88.3	
		Total No. of Courses in the Program **(T)**	119	
		No. of Courses where syllabus (more than 20% content) has been changed **(N)**	05	-
		Percentage of syllabus content change in the courses **(C)=(A x N)/100**	4.416	
		Percentage of Syllabus Content changed in the Program (P)=C/T*100	**3.71**	

DEAN (Academics)

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SREE VIDYANIKETHAN ENGINEERING COLLEGE
Sree Sainath Nagar, A. RANGAMPET
CHITTOOR (DT.)-517 102, A.P.

PRINCIPAL

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II B. Tech. – I Semester
(20BT30232) SIGNALS AND NETWORKS LAB

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
30	70	100	-	-	3	1.5

PRE-REQUISITES:

Courses on Transformation techniques and linear algebra and Electric circuits.

COURSE DESCRIPTION:

Practical investigations through simulation on signals and systems; Spectral analysis of signals, and analysis of Circuits, transients and two-port networks.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. evaluate the characteristics/responses of various signals and systems and draw conclusions for validation.

CO2. analyze spectral characteristics of signals/response in frequency domain using Fourier, Laplace and z-Transforms.

CO3. Analyze characteristics of various DC and AC circuits and draw conclusions for validation.

CO4. analyze transient behaviour of DC & AC circuits using mathematical methods and design timer circuits for desired specifications.

CO5. analyze network parameters of an isolated and interconnected two-port networks and design impedance and gain matching networks.

CO6. Work independently or in teams to solve problems with effective communication.

Practical Exercises/List of Experiments: Minimum Ten experiments are to beconducted (Minimum Three experiments are to be conducted from Part-B and Part-C).

PART-A: Signals and Systems

1. Generation of continuous and discrete time signals.
2. Basic operations on continuous and discrete time signals — Time scaling and amplitude scaling.
3. Systems and their properties — Linearity, causality and stability.
4. Response of LTI systems for different excitations.

PART-B: Circuits

5. Current locus diagram of RL and RC circuits.
6. Analysis of Series and Parallel resonance.
7. Verification of Superposition theorem.
8. Verification of Maximum Power transfer theorem for DC & AC excitations.

PART-C: Networks

9. Transient response of RL and RC circuit and design of timer circuit.
10. Transient response of RLC circuit and applications.
11. Determination of two-port network parameters in an isolated networks — Z, Y, ABCD and h-Parameters.
12. Determination of two-port network parameters in an interconnected networks — Series-Series, Parallel-Parallel and cascaded interconnections.

TEXT BOOKS:

1. Lathi&BhagwandasPannalal, *Principles of Linear Systems and Signals,* Oxford University Press, 2nd edition, 2009.
2. Charles K. Alexander & Matthew N. O. Sadiku, *Fundamentals of Electric Circuits,* McGraw-Hill education PrivateLimited, New Delhi, 5th edition, 2013.

REFERENCE BOOKS

1. Matthew N Sadiku, and Warsame Hassan Ali, *Signals and Systems: A Primer with MATLAB,* CRC Press, 2016.
2. Alex Palamides Anastasia Veloni, *Signals and Systems Laboratory with MATLAB*, CRC Press Taylor & Francis Group, 2011.

ADDITIONAL LEARNING RESOURCES:

1. http://ssl-iitg.vlabs.ac.in/
2. https://nptel.ac.in/courses/117/101/117101055/
3. https://ocw.mit.edu/resources/res-6-007-signals-and-systems-spring-2011/video-lectures/

II B. Tech. – I Semester
(19BT30232) SIGNALS AND NETWORKS LAB
(EEE)

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
50	*50*	*100*	*-*	*-*	*2*	*1*

PRE-REQUISITES:

Transformation techniques and linear algebra and Electric circuits.

COURSE DESCRIPTION:

Practical investigations through simulation on signals and systems; Spectral analysis of signals, and analysis of transients and two-port networks.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. evaluate, analyze the characteristics/responses of various signals and systems, and interpretthe practical observations for validation.

CO2. analyze spectral characteristics of signals/response in frequency domain using Fourier, Laplace and z-Transforms.

CO3. analyze transient behavior of DC & AC circuits using mathematical methods and design timer circuits for desired specifications.

CO4. analyze network parameters of an isolated and interconnected two-port networks and design impedance and gain matching networks.

CO5. work independently / in groups, and communicate effectively in oral and written forms.

Practical Exercises/List of Experiments:

Minimum Five experiments are to be conducted from each part.

PART-A:

1. Generation of continuous and discrete time signals.
2. Basic operations on continuous and discrete time signals — Time scaling and amplitude scaling.
3. Systems and their properties — Linearity, causality and stability.
4. Response of LTI systems for different excitations.
5. Analysis of signals — Amplitude and Phase spectrum.
6. Convolution in frequency domain — Laplace and z-transforms.

PART-B:

7. Transient response of RL circuit and design of timer circuit.
8. Transient response of RC circuit and design of timer circuit.
9. Transient response of RLC circuit and applications.

10. Determination of two-port network parameters in an isolated networks — Z, Y, ABCD and h-Parameters.
11. Determination of two-port network parameters in an interconnected networks — Series-Series, Parallel-Parallel and cascaded interconnections.
12. Design of impedance matching two-port network.

TEXT BOOKS:

1. Lathi&BhagwandasPannalal, *Principles of Linear Systems and Signals,* Oxford University Press, 2nd edition, 2009.
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ADDITIONAL LEARNING RESOURCES:

1. http://ssl-iitg.vlabs.ac.in/
4. https://nptel.ac.in/courses/117/101/117101055/
5. https://ocw.mit.edu/resources/res-6-007-signals-and-systems-spring-2011/video-lectures/

III B. Tech. – I Semester

(20BT50232) ELECTRICAL AUDITING AND CONSERVATION PRACTICE LAB

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
30	70	100	-	1	2	2

PRE-REQUISITES: A course on Electrical measurements.

COURSE DESCRIPTION: Experimental investigations on behavior of insulators, performance of synchronous and asynchronous machines, relay testing and fault analysis.

COURSE OUTCOMES: On successful completion of the course, student will be able to:

CO1. Demonstrate skill in identifying an appropriate auditing tool for measuring appropriate electrical and non-electrical preliminary quantities for auditing.
CO2. Demonstrate skills to apply the auditing principles for illumination, house hold utilities and suggest a suitable conservation methods for economic benefits.
CO3. Demonstrate skills to audit various industrial drives and suggest suitable methods for energy conservation adhering the protocols of auditing.
CO4. Perform auditing by following the auditing protocols in various commercial, agricultural and domestic class of customers and suggest an appropriate energy conservation practices for economic benefits.
CO5. Work independently or in teams to solve problems with effective communication.

Practical Exercises/List of Experiments: Conduct any **TEN** Experiments from the following:

1. Demonstration of auditing instruments for measuring electrical and non-electrical quantities for auditing purpose.
2. Measurement of active, reactive power and energy for auditing purpose.
3. Assess power quality problems using power quality analyser and suggest a suitable conservative measures to mitigate.
4. Testing of an electric motor drive for energy conservation.
5. Analyze star labelled electrical apparatus and compare the data sheet of various star ratings.
6. Determine energy consumption by fluorescent/incandescent lamp and evaluate net energy savings and payback period by replacing with energy efficient lamp.
7. Evaluate energy conservation in a ceiling fan with and without an electronic regulator.
8. Conserve the energy consumption in a three phase induction motor by applying an appropriate energy conservation method.
9. Determine the energy conservation in an induction motor operating in star and delta mode of operation.

10. Estimate energy and economic savings by improving power factor for a given class of consumer.
11. Estimate the economic benefits of improving load factor for a domestic consumer.
12. Audit the energy of a commercial consumer and suggest an appropriate energy conservation practice to reduce energy bill.

ADDITIONAL LEARNING RESOURCES:

1. https://sites.google.com/a/venusict.org/energy-conservation-and-management/ntpl-video-links
2. https://nptel.ac.in/courses/108/105/108105058/
3. https://www.youtube.com/watch?v=Nd_EL_B3JBQ
4. https://www.youtube.com/watch?v=lkNIuFkzxBk
5. https://www.youtube.com/watch?v=730netBSZKY
6. https://www.youtube.com/watch?v=R_FdTPbgzTs

III B. Tech. – II Semester
(20BT60233)ARM PROCESSOR AND ITS INTERFACING LAB

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
30	70	100	-	1	2	2

PRE-REQUISITES: A course on Computer Organization and Architecture.

COURSE DESCRIPTION: Study of ARM development board and its pin configuration, Installing and usage of Keil IDE, ARM processor programming using Keil, Interfacing and building basic applications using ARM processor and external peripherals.

COURSE OUTCOMES: After successful completion of this course, the students will be able to

CO1. Design an interface for an embedded systems using real time sensors and ARM Processor.
CO2. Develop applications to capture the data generated by sensors.
CO3. Develop real time applications using Keil IDE.
CO4. Design applications to store and visualize sensor data.
CO5. Work independently or in teams to solve problems with effective communication.

Hardware and software requirements:
1. ARM processor-based development board.
2. Open-source ARM development platform, KEIL IDE.
3. Proteus for simulation.

Practical Exercises/List of Experiments: Conduct any **TEN** Experiments from the following:

Study Experiment:

1. Introduction to ARM Board: Brief overview of ARM Architecture, ARM Operating modes, System Initialization (Runtime Environment), ARM board description.
2. KEIL IDE tool Cross Compiler/Assembler, ARM tools, writing program, Project structure, Making Utility and make file, building applications, downloading the Hex file onto ARM microcontroller/onto target.

Simulation Experiments:

3. To write and simulate ARM assembly language programs for data transfer, arithmetic and logical operations.
4. To write and simulate C Programs for ARM microprocessor using KEIL.

Hardware Experiments:

5. Design and develop an assembly program to display messages "FIRE" and "HELP" alternately with flickering effects on a 7-segment display interface for a suitable period of time. Ensure a flashing rate that makes it easy to read both the messages.
6. Design an multitasking system using interrupts in ARM Processor.
7. Design and develop an assembly program to drive a Stepper Motor

interface and rotate the motor in specified direction (clockwise or counter-clockwise) by N steps and introduce suitable delay between successive steps. (Any arbitrary value for the delay).

8. Generation of PWM wave with different duty cycles using ARM development board.
9. Interfacing DC Motor with ARM processor and write program to control speed using PWM technique.
10. To interface LCD with ARM processor and execute programs in C language for displaying text messages and numbers on LCD.
11. To interface Accelerometer with ARM processor and write a program to find the angle of tilt.
12. Interfacing of temperature sensor with ARM board and display temperature on LCD.
13. Design a real time clock using internal peripherals of ARM Processor.

III B.Tech. - I semester

(20BT50233) **SUMMER INTERNSHIP-1**

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
-	100	100	-	-	-	1.5

PREREQUISITES: -

COURSE DESCRIPTION: Expose students to the industrial environment; Create competent professionals for the industry; sharpen the real time technical / managerial skills required at the job; Gain professional experience and understand engineer's responsibilities and ethics; Familiarize with latest equipment, materials and technologies; Gain exposure to technical report writing; Gain exposure to corporate working culture.

COURSE OUTCOMES: After successful completion of the course, the students will be able to:

CO1. Analyze latest equipment, materials and technologies that are used in industry to solve complex engineering problems following relevant standards, codes, policies and regulations.

CO2. Analyze safety, health, societal, environmental, sustainability, economical and managerial factors considered in industry in solving complex engineering problems.

CO3. Perform individually or in a team besides communicating effectively in written, oral and graphical forms on practicing engineering.

IV B.Tech. - I semester

(20BT70233) **SUMMER INTERNSHIP-2**

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
-	100	100	-	-	-	1.5

PREREQUISITES: -

COURSE DESCRIPTION: Expose students to the industrial environment; Create competent professionals for the industry; sharpen the real time technical / managerial skills required at the job; Gain professional experience and understand engineer's responsibilities and ethics; Familiarize with latest equipment, materials and technologies; Gain exposure to technical report writing; Gain exposure to corporate working culture.

COURSE OUTCOMES: After successful completion of the course, the students will be able to:

CO1. Analyze latest equipment, materials and technologies that are used in industry to solve complex engineering problems following relevant standards, codes, policies and regulations.

CO2. Analyze safety, health, societal, environmental, sustainability, economical and managerial factors considered in industry in solving complex engineering problems.

CO3. Perform individually or in a team besides communicating effectively in written, oral and graphical forms on practicing engineering.

IV B. Tech. – II Semester
(20BT80232) **INTERNSHIP**

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
-	-	-	-	-	-	-

PREREQUISITES: -

COURSE DESCRIPTION: Expose students to the industrial environment; Create competent professionals for the industry; sharpen the real time technical / managerial skills required at the job; Gain professional experience and understand engineer's responsibilities and ethics; Familiarize with latest equipment, materials and technologies; Gain exposure to technical report writing; Gain exposure to corporate working culture.

COURSE OUTCOMES: After successful completion of the course, the students will be able to:

CO1. Analyze latest equipment, materials and technologies that are used in industry to solve complex engineering problems following relevant standards, codes, policies and regulations.

CO2. Analyze safety, health, societal, environmental, sustainability, economical and managerial factors considered in industry in solving complex engineering problems.

CO3. Perform individually or in a team besides communicating effectively in written, oral and graphical forms on practicing engineering.