

# **Department of Electronics**

## **Sri Y N College(Autonomous)-Narsapur**

### **Teaching Plan for the Academic Year 2018-19**

Faculty/Instructor: **Mr. Vinaya Phaneendhra K**

Department: **Electronics**

Programme: **B.Sc. MPE & B.Sc. MECS**

Course: **CC-6E: Electronic Communication Systems**      Semester: **V**

Credits: **4 + 2**                      Marks: **100 + 50**                      Class Size: **62**

#### **Learning Objectives of the Course:**

- This Course aims to describe the concepts of Electronics in Communication.
- Basic Concept & Block Diagram of Communication System, types of Noise & Noise parameters.
- Need of modulation, AM, types of AM & their comparison , block diagram of AM Transmitter & Receiver.
- Basics of Frequency Modulation, Bandwidth Requirements of FM, Block Diagram of FM Transmitter & Receiver, Comparison of AM & FM.
- Need for Sampling & types of Pulse Communication, types of Digital Communication techniques, concepts of TDMA, FDMA and their comparison.
- Basic Block Diagram & Introduction to Fiber Optic and Satellite communications.
- Basic Concepts of Cellular Mobile Communication, Architecture of Cellular Mobile Network, techniques like GSM, CDMA, Concepts of 4G & 5G.

Course Structure	
Unit- I (12 Lectures)	Unit- II: (12 Lectures)
<b>Basics of Communication Systems:</b> Introduction, Block diagram, Noise in Communication Systems, Types of Noise, Signal-to-Noise (S/N) ratio, Figure of Merit.	<b>Transmitters:</b> Introduction, AM Transmitters: AM Broadcast Transmitter; FM Transmitters: Directly Modulated FM Transmitter, FM Stereo Transmitter.
<b>Modulation &amp; Demodulation (Qualitative only):</b> Introduction, Need for Modulation, Types, Amplitude Modulation: AM Modulating Amplifier, Amplitude Demodulation: AM Diode detector; Frequency Modulation: Varactor Diode Modulator, FM Discriminators: Ratio Detector.	<b>Receivers:</b> Introduction, AM Broadcast Receivers: Superheterodyne Receiver; FM Receivers: Stereo FM receiver.
	<b>Antennas:</b> Introduction to Antennas, Basic Principle, Types of Antennas
Unit- III: (14 Lectures)	Unit- IV: (10 Lectures)
<b>Digital Communications:</b> Introduction, Elements of Digital Communication System, Advantages, PCM, Sampling Theorem, Quantization, Digital Modulation Techniques: Concepts of ASK, FSK, PSK, QPSK(Qualitative only), Multiplexing: Frequency Division Multiplexing, Time Division Multiplexing, Pulse Modulation: Concepts of PAM, PWM, PPM	<b>Satellite Communications:</b> Introduction to Satellite Communication, Satellite Orbits, Basic Components, Constructional features.
	<b>Fiber Optic Communications:</b> Basic Fiber Optic System, Advantages, Modes of propagation, Concept of Numerical Aperture, Basic Optical Communication System.
Unit- V: (12 Lectures)	
<b>Cellular Mobile Communications:</b> Basic Concept, Concept of Cell Sectoring and Cell Splitting, SIM number, IMEI number, Block Diagram of Mobile Communication Network, Idea of GSM, CDMA, TDMA and FDMA technologies., Block diagram of Mobile Phone handset, 4G and 5G Concepts.	

<b>Detailed Course Plan</b>							
<b>Unit/ Module</b>	<b>Topic</b>	<b>Number of related Learning Objectives</b>	<b>Month &amp; Week</b>	<b>Resources</b>	<b>Activity</b>	<b>ICT Tool/Platform/ LMS</b>	<b>Number of Hours available</b>
Unit-I	Block diagram of Communication Systems, Noise in Communication Systems, Types of Noise, Signal-to-Noise (S/N) ratio, Figure of Merit.	1	June -2018 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	7
Unit-I	Introduction to Modulation & Demodulation, Need for Modulation, Types, AM Modulating Amplifier, AM Diode detector, Varactor Diode Modulator, Ratio Detector	2	June -2018 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-1	LCD Projector	7
Unit-II	Introduction to Transmitters AM Transmitters: AM Broadcast Transmitter; FM Transmitters: Directly Modulated FM Transmitter, FM Stereo Transmitter.	2	July -2018 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6
Unit-II	Introduction to Receivers, AM Broadcast Receivers: Superheterodyne Receiver; FM Receivers: Stereo FM receiver.	2	July -2018 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	5

Unit-II	Introduction to Antennas, Basic Principle, Types of Antennas	1	July -2018 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-2	LCD Projector	6
Unit-III	Elements of Digital Communication System, Advantages, PCM, Sampling Theorem, Quantization, Concepts of ASK, FSK, PSK, QPSK,	1	July -2018 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	8
Unit-III	Frequency Division Multiplexing, Time Division Multiplexing, Pulse Modulation: Concepts of PAM, PWM, PPM	1	August -2018 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-3	LCD Projector	5
Unit-IV	Introduction to Satellite Communication, Satellite Orbits, Basic Components, Constructional features.	1	August -2018 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	7
Unit-IV	Basic Fiber Optic System, Advantages, Modes of propagation, Concept of Numerical Aperture, Basic Optical Communication System.	1	August -2018 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-4	LCD Projector	7
Unit-V	Basic Concept, Concept of Cell Sectoring and Cell Splitting, SIM number,	1	September -2018 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions	LCD Projector	7

	IMEI number, Block Diagram of Mobile Communication Network,				2. Weekend Student Seminar		
Unit-V	Idea of GSM, CDMA, TDMA and FDMA technologies., Block diagram of Mobile Phone handset, 4G and 5G Concepts.	1	September -2018 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-5	LCD Projector	5

# **Department of Electronics**

## **Sri Y N College(Autonomous)-Narsapur**

### **Teaching Plan for the Academic Year 2018-19**

Faculty/Instructor: **Mr. Vinaya Phaneendhra K**

Department: **Electronics**

Programme: **B.Sc. MPE & B.Sc. MECS**

Course: **CC-7E: Microcontrollers & Interfacing**

Semester: **VI**

Credits: **4 + 2**

Marks: **100 + 50**

Class Size: **62**

#### **Learning Objectives of the Course:**

- This Course familiarizes students to the designing and development of Microcontroller Systems.
- Here, students will learn about the 8051 programming and Interfacing.

Course Structure	
<b>Unit- I (12 Lectures)</b>	<b>Unit- II: (12 Lectures)</b>
<b>Introduction to Microcontrollers:</b> Introduction to Microcontrollers, Harvard vs Von Neumann Architectures, RISC & CISC Microcontrollers.	<b>Programming of 8051: Part-1:</b> Introduction, Program Counter, PSW Register, Stack, Addressing Modes, Instruction Set, Jump, Loop & Call Instructions.
<b>The 8051 Microcontroller:</b> Overview of 8051 family, Key Features of 8051, Block Diagram of 8051 Microcontroller, Architecture of 8051, Pin Diagram & Memory Organization of 8051.	<b>Programming of 8051: Part-2:</b> Programs in Assembly Language: Addition, Multiplication, Division, Largest/Smallest & Ascending/Descending Order (all 8-bit data).
<b>Unit- III: (12 Lectures)</b>	<b>Unit- IV: (12 Lectures)</b>
<b>I/O Port Programming of 8051:</b> Introduction, I/O Ports Pins Description and their functions.	<b>Serial Port Programming of 8051:</b> Basics of Serial Communication, 8051 Serial Communication, 8051 Connection to RS232, 8051 Serial Communication Modes.
<b>Timer &amp; Counter Programming of 8051:</b> Introduction to Timers & Counters, Timer/Counter Operation Modes.	<b>Interrupts Programming of 8051:</b> Introduction to 8051 Interrupts, 8051 Interrupt Structure, Timer Interrupts, External Hardware Interrupts & Serial Communication Interrupts. .
<b>Unit- V: (12 Lectures)</b>	
<b>Interfacing 8051 Microcontroller to Peripherals: Part-1:</b> ADC & DAC Interfacing.	<b>Interfacing 8051 Microcontroller to Peripherals: Part-2:</b> LCD, LED & Stepper Motor Interfacing.

<b>Detailed Course Plan</b>							
<b>Unit/ Module</b>	<b>Topic</b>	<b>Number of related Learning Objectives</b>	<b>Month &amp; Week</b>	<b>Resources</b>	<b>Activity</b>	<b>ICT Tool/Platform/ LMS</b>	<b>Number of Hours available</b>
Unit-I	Introduction to Microcontrollers, Harvard vs Von Neumann Architectures, RISC & CISC Microcontrollers.	1	November-2018 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6
Unit-I	Overview of 8051 family, Key Features of 8051, Block Diagram of 8051 Microcontroller, Architecture of 8051, Pin Diagram & Memory Organization of 8051.	1	December-2018 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-1	LCD Projector	6
Unit-II	Introduction, Program Counter, PSW Register, Stack, Addressing Modes, Instruction Set, Jump, Loop & Call Instructions.	2	December-2018 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6
Unit-II	Programs in Assembly Language: Addition, Multiplication, Division, Largest/Smallest & Ascending/Descending Order (all 8-bit data).	2	December-2018 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-2	LCD Projector	5
Unit-III	Introduction, I/O Ports Pins	2	December-2018	PPT & Virtual	1. Face-to-Face	LCD Projector	6



	Description and their functions.		Week-4	Lab	Mode Teaching with Interactive sessions 2. Weekend Student Seminar		
Unit-III	Introduction to Timers & Counters, Timer/Counter Operation Modes.	2	January -2019 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-3	LCD Projector	6
Unit-IV	Basics of Serial Communication, 8051 Serial Communication, 8051 Connection to RS232, 8051 Serial Communication Modes.	2	February -2019 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6
Unit-IV	Introduction to 8051 Interrupts, 8051 Interrupt Structure, Timer Interrupts, External Hardware Interrupts & Serial Communication Interrupts.	2	February -2019 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-4	LCD Projector	6
Unit-V	ADC & DAC Interfacing.	2	February -2019 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6
Unit-V	LCD, LED & Stepper Motor Interfacing	2	February -2019 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-5	LCD Projector	6

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## **Sri Y N College(Autonomous)-Narsapur**

### **Teaching Plan for the Academic Year 2018-19**

Faculty/Instructor: **Mr. Vinaya Phaneendhra K**

Department: **Electronics**

Programme: **B.Sc. MPE & B.Sc. MECS**

Course: **CE-8EA: Embedded Systems Design**

Semester: **VI**

Credits: **4 + 2**

Marks: **100 + 50**

Class Size: **31**

#### **Learning Objectives of the Course:**

- To make student familiar with principles, features, classification, architectures and design issues involved in embedded system.
- The selection criteria for choosing microcontroller based on system requirement in embedded systems is also discussed.
- A balance between hardware and software exposure is maintained. Syllabus covers both assembly and C programming. Latest protocols like SPI and TWI are also included.

Course Structure	
Unit- I (12 Lectures)	Unit- II: (12 Lectures)
<b>Introduction to Embedded Systems:</b> Overview of Embedded Systems, Features, Applications, Architecture of an Embedded System, Development and Testing Tools, Introduction to Application Software & Communication Software.	<b>The Process of Embedded System Development:</b> The Development Process using Waterfall Model. <b>Advanced Communication Principles:</b> Need for communication interfaces, Parallel Communication, Serial Communication, Wireless Communication, Serial Protocols: I <sup>2</sup> C, CAN and USB. Parallel Protocols: PCI BUS and ARM BUS. Wireless Protocols: Bluetooth, and IEEE 802.11.
Unit- III: (12 Lectures)	Unit- IV: (12 Lectures)
<b>Embedded Systems Using AVR Microcontrollers:</b> Introduction to AVR Microcontrollers, Features of AVR ATmega32 Microcontroller, Architecture of AVR ATmega32, General Purpose Registers (GPRs), Status Register, Memories of AVR ATmega32	<b>DSP-based Embedded Systems:</b> Need for DSP-based Embedded Systems, An Overview of Digital Signal Processing, Applications of DSP, Digital Signal Processor Architecture, DSP-based Embedded System Design Process.
Unit- V: (12 Lectures)	
<b>Robotics:</b> Overview of Robotics, Components of Robot, Robot Locomotion-Types of robot Locomotion, ,Types of Robot, Use of Embedded Systems in Robotics ,Applications of Robotics. <b>Artificial Intelligence (AI):</b> Introduction, contributions of AI, Applications of AI, Research areas of AI.	

<b>Detailed Course Plan</b>							
<b>Unit/ Module</b>	<b>Topic</b>	<b>Number of related Learning Objectives</b>	<b>Month &amp; Week</b>	<b>Resources</b>	<b>Activity</b>	<b>ICT Tool/Platform/ LMS</b>	<b>Number of Hours available</b>
Unit-I	Overview of Embedded Systems, Features, Applications, Architecture of an Embedded System,	2	November-2018 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	7
Unit-I	Development and Testing Tools, Introduction to Application Software & Communication Software.	1	December-2018 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-1	LCD Projector	5
Unit-II	The Development Process using Waterfall Model. Need for communication interfaces, Parallel Communication, Serial Communication,	1	December-2018 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	4
Unit-II	Wireless Communication, Serial Protocols: I <sup>2</sup> C, CAN and USB. Parallel Protocols: PCI BUS and ARM BUS. Wireless Protocols: Bluetooth, and	1	December-2018 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-2	LCD Projector	7

	IEEE 802.11.						
Unit-III	Introduction to AVR Microcontrollers, Features of AVR ATmega32 Microcontroller, Architecture of AVR ATmega32	2	December-2018 Week-4	PPT & Virtual Lab	1. Online Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	7
Unit-III	General Purpose Registers (GPRs), Status Register, Memories of AVR ATmega32	3	January -2019 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-3	LCD Projector	5
Unit-IV	Need for DSP-based Embedded Systems, An Overview of Digital Signal Processing	1	February -2019 Week-1	PPT & Virtual Lab	1 Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	5
Unit-IV	Applications of DSP, Digital Signal Processor Architecture, DSP-based Embedded System Design Process	1	February -2019 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-4	LCD Projector	6
Unit-V	Overview of Robotics, Components of Robot, Robot Locomotion-Types of robot Locomotion, ,Types of Robot, Use of Embedded Systems in Robotics ,Applications of Robotics.	1	February -2019 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	7

Unit-V	Introduction, contributions of AI, Applications of AI, Research areas of AI.	1	February -2019 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-5	LCD Projector	5

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### **Teaching Plan for the Academic Year 2018-19**

Faculty/Instructor: **Mr. Vinaya Phaneendhra K**

Department: **Electronics**

Programme: **B.Sc. MPE & B.Sc. MECS**

Course: **CE-8EC: Power Electronics**

Semester: **VI**

Credits: **4 + 2**

Marks: **100 + 50**

Class Size: **31**

#### **Learning Objectives of the Course:**

- This course deals with use of electronics for control and conversion of electrical power.
- The concept of high power devices, their construction and their applications is discussed.
- The concept of converters and inverters is important to evolve their applications for DC to AC and AC to AC conversion.
- Its importance carries good relevance with regard to the high demand of battery operated vehicles. Electric motors are discussed in detail.

Course Structure	
Unit- I (12 Lectures)	Unit- II: (12 Lectures)
<b>Power Electronics:</b> Introduction, Need for Semiconductor Power devices, Block diagram of Power Electronic System, Semiconductor Power Devices -Thyristor family, Classification of Power Electronic Systems and Applications. <b>Silicon Controlled Rectifier (SCR) or Thyristor-</b> Structure and basic operation, Static V-I characteristics, Two transistor analogy, Snubber Circuit.	<b>Power Devices: DIAC and TRIAC:</b> Basic structure, working and V-I characteristics of DIAC and TRIAC. <b>Power MOS FET:</b> Basic structure, Operation modes, Switching characteristics. <b>Power BJT:</b> Basic Structure, Static(Study State) Characteristics, Second break down. <b>Insulated Gate Bipolar Transistors (IGBT):</b> Basic structure, I-V Characteristics, Switching characteristics
Unit- III: (12 Lectures)	Unit- IV: (12 Lectures)
<b>DC Choppers:</b> Introduction to DC choppers, Types of DC choppers, Block diagram of DC chopper and Principle of operation, Classification of DC Choppers, principle of operation and analysis of Step-down (Buck), Step-up (Boost), Step down-up (Buck-boost) choppers without isolation, Morgan Chopper	<b>Power Inverters:</b> Principle of operation of single phase Inverter, Applications and Classification of Inverters, Series and Parallel Inverters – Circuit description, Operation modes with wave forms. Single phase Half bridge and Full Bridge Inverters with R load. Performance parameters of Inverters, Simple Pulse Width Modulation(PWM) Techniques used in Inverters.
Unit- V: (12 Lectures)	
<b>Applications of Power Electronics Devices:</b> Need and function of UPS, Block diagram of UPS system, Need and function of SMPS, Block diagram and working of SMPS system. Static AC and DC circuit breakers- HVDC Transmission, Advantages. RF heating - Principle of Induction heating and Dielectric heating, Applications. Automatic Battery Charger. Simple Emergency Light System	



<b>Detailed Course Plan</b>							
<b>Unit/ Module</b>	<b>Topic</b>	<b>Number of related Learning Objectives</b>	<b>Month &amp; Week</b>	<b>Resources</b>	<b>Activity</b>	<b>ICT Tool/Platform/ LMS</b>	<b>Number of Hours available</b>
Unit-I	Introduction to Power Electronics, Need for Semiconductor Power devices, Block diagram of Power Electronic System, Semiconductor Power Devices -Thyristor family, Classification of Power Electronic Systems and Applications.	1	November-2018 Week-4	PPT & Virtual Labs	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	5
Unit-I	Silicon Controlled Rectifier (SCR) or Thyristor-Structure and basic operation, Static V-I characteristics, Two transistor analogy, Snubber Circuit	2	December-2018 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-1	LCD Projector	7
Unit-II	Power Devices: DIAC and TRIAC: Basic structure, working and V-I characteristics of DIAC and TRIAC. Power MOS FET: Basic structure, Operation	2	December-2018 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6

	modes, Switching characteristics						
Unit-II	Power BJT: Basic Structure, Static(Study State) Characteristics, Second break down. Insulated Gate Bipolar Transistors (IGBT): Basic structure, I-V Characteristics, Switching characteristics	1	December-2018 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-2	LCD Projector	6
Unit-III	Introduction to DC choppers, Types of DC choppers, Block diagram of DC chopper and Principle of operation, Classification of DC Choppers,	3	December-2018 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	7
Unit-III	Principle of operation and analysis of Step-down (Buck), Step-up (Boost), Step down-up (Buck-boost) choppers without isolation, Morgan Chopper.	3	January -2019 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-3	LCD Projector	5
Unit-IV	Principle of operation of single phase Inverter, Applications and Classification of Inverters, Series and Parallel Inverters – Circuit description, Operation modes with wave forms.	2	February -2019 Week-1	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	5

Unit-IV	Single phase Half bridge and Full Bridge Inverters with R load. Performance parameters of Inverters, Simple Pulse Width Modulation(PWM) Techniques used in Inverters.	1	February -2019 Week-2	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-4	LCD Projector	6
Unit-V	Need and function of UPS, Block diagram of UPS system, Need and function of SMPS, Block diagram and working of SMPS system.	2	February -2019 Week-3	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar	LCD Projector	6
Unit-V	Static AC and DC circuit breakers- HVDC Transmission, Advantages. RF heating - Principle of Induction heating and Dielectric heating, Applications. Automatic Battery Charger. Simple Emergency Light System	2	February -2019 Week-4	PPT & Virtual Lab	1. Face-to-Face Mode Teaching with Interactive sessions 2. Weekend Student Seminar 3. Assignment-5	LCD Projector	6

DEPT. OF ELECTRONICS, SRI Y.N.COLLEGE (Autonomous), NARSAPUR, W.G.Dt.

## ANNUAL CURRICULAM PLAN-YEAR: 2018-19

**Subject: Electronics      Class: I B.Sc.    Paper: I (Basic Circuit Theory) - Semester -I**

**Name of the Faculty:** *Dr.Ch Kanaka Rao Lecturer in Electronics*

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**DEPT. OF ELECTRONICS, SRI Y.N.COLLEGE (Autonomous), NARSAPUR, W.G.Dt.**

**ANNUAL CURRICULAM PLAN-YEAR: 2018-19**

**Subject: Electronics    Class: III B.Sc.    Paper: IVA (The 8085 Microprocessor & Applications) - Semester -V**

**Name of the Faculty: *Dr.Ch kanaka Rao, Lecturer in Electronics.***

				Curricular Activity					Co-curricular Activity			
S.No.	Month & week	Hours Available	Syllabus-topic	Additional Inputs Value Addition	Activity	Hours Allotted	whether Conducted	If not alternate dates	Activity	Hours Allotted	Weather Conducted	if not alternate dates
1	June,'18 2,3&4	9	<i>Introduction to Microprocessor:</i> Intel 8085 Microprocessor: Architecture of 8085 - Central Processing Unit (CPU)- Arithmetic and Logical Unit – Timing and Control Unit - Registers organization Address, Data and Control Buses - Pin configuration of 8085 and its description - Instruction cycle, Machine cycle, Fetch and Execute cycles. Timing diagrams.	PPT's on Architecture of 8085  PPT on Pin configuration	Teaching Unit test	8 1			Assignment			
2	July,'18 1,2,3&4	12+24	<i>Instruction set of Intel 8085:</i> Instruction and Data formats, Instruction types, Addressing modes –Direct addressing, Register addressing, Immediate addressing, Register Indirect addressing, and implicit addressing. Classification of Instruction set: Data transfer group, Arithmetic group, Logical group, Branch group, and Stack, I/O and Machine control group	PPT class on Addressing modes PPT on instruction set.	Teaching Unit test Practical	11 1 24			Assignment	Student seminars will be conducted 2 <sup>nd</sup> week of this month.		
3	Aug,'18 1 &2	6+12	<i>Assembly Language Programming:</i> Writing Assembly language programs (Examples of 8- and 16- bit Addition, Subtraction, Multiplication and Division - Finding the Largest and Smallest number in an 8-bit data array)		Teaching Unit test practical	5 1 12						
4	Aug,'18 3&4	6+12	Programming examples using Stacks and Subroutines. Debugging a program, Assembler directives - Interrupts and Interrupt structure of 8085	PPT on interrupts	Teaching Unit test Practical	5 1 12						
5	Sep,'18 1,2,3&4	12+24	<i>Interfacing peripherals:</i> Programmable Interfacing devices 8255, 8259, 8257, 8251 their important features,	PPT on all Ic's	Teaching Unit test Practical	9 1			Assignment			

			pin diagrams and block diagrams			24			Remedial Classes.	2		
6	Octo,'18 1&2	6+12	. Introduction to Data converters -A/D converter - Successive approximation type, D/A converter-R-2R ladder resistive type.		Teaching Practical	6 12			Assignment	Prepare students to MID and Semester END exams by evaluating old question papers.		
<p align="center"><b>Mid II exams for semesters I, III and V will be commenced from 17-10-2018 and Follows Semester END exams from 22-10-2018.</b></p>												

**DEPT. OF ELECTRONICS, SRI Y.N.COLLEGE (Autonomous), NARSAPUR, W.G.Dt.**

**ANNUAL CURRICULAM PLAN-YEAR: 2018-19**

**Subject: Electronics    Class: III B.Sc.    Paper: VIIIB    Title of the Paper: Consumer Electronics CE-3**

**Name of the Faculty:** Dr.Ch Kanaka Rao, Lecturer in Electronics.

				Curricular Activity					Co-curricular Activity			
S.No.	Month & week	Hours Available	Syllabus-topic	Additional Inputs Value Addition	Activity	Hours Allotted	whether Conducted	If not alternate dates	Activity	Hours Allotted	Weather Conducted	if not alternate dates
1	NoV,'18 3& 4	6+12	<u>Microwave Ovens:</u> Microwaves (range used in Mircrowave Ovens), Microwave Oven block diagram, LCE timer with Alarm, Single Chip controllers. Types of Microwaves, Wiring and Safety instructions, Care and Cleanings.	PPT on Microwave Oven	Teaching Unit test Practicals	5 1 12			Seminars			Student seminars will be conducted 2 <sup>nd</sup> week of this month.
2	Dec,'18 1,2,3&4	12+24	<u>Washing machines:</u> Electronics controller for washing machines, Block diagram and its working. Washing machine hardware and software, Types of washing machines, Fuzzy logic Washing machines.	PPT on Washing machine.You tube lecture on washing machine	Teaching Unit test Practicals	11 1 24			Quiz  Guest lecture			Quiz competition may be conducted in the 2 <sup>nd</sup> week of this month.  Guest lecture may be conducted in the 3 <sup>rd</sup> week of this month
3	Jan 18 1	3+6	Revision of the Mid syllabus		Teaching Unit test. Practicals	2 1 6			Assignment			Assign simple study projects using Internet
Mid-I exams for the Semesters II, IV and VI Will be starts from 22-01-2019												
4	Jan 19 3 & 4	6+12	<u>Air conditioners and Refrigerators:</u> Air conditioning, components of Air conditioning systems, All water Air conditioning system, All Air conditioning systems, Concepts of Unitary and Central Air Conditioning Systems, Split Air Conditioners	PPT on Air conditioning system You tube lecture is arranged	Teaching Unit test Practicals	5 1 12			Seminar  Projects			Guide students to prepare PPTs on some important topics
5	Feb'19 1,2,3,& 4	12+24	Electronic Gadgets and Office Appliances: Barcode Scanner and Decoder, Xerox, Fax, Automated Teller machine (ATMs), Calculator, Concepts of GPRS ,GPS	PPT on FAX Machine, Xerox machine and also You tube	Teaching Unit test Practicals	9 1 24			Remedial Classes.	2		

			Navigation systems <u>Audio and Video systems:</u> P A system Set Top box, Block diagram of CATV and Dish TV Block diagrams and their working	lectures for the same					Assignment.			
6	Mar,'19 1,	6+12	Block diagram of CCTV, concepts of LCD and LED Displays , Block diagram of Remote control switch and its working <b>Revision of the Mid syllabus</b>		Teaching Practicals	6 12	Prepare students to MID and Semester END exams by evaluating old question papers.					
<p align="center"><b>Mid-II exams for Semesters- II, IV&amp;VI will be commenced from 19-03-2019. Semester End exams for II,IV&amp;VI exams will starts from 28-03-2019</b></p>												



**DEPT. OF ELECTRONICS, SRI Y.N.COLLEGE (Autonomous), NARSAPUR, W.G.Dt.**

**ANNUAL CURRICULAM PLAN-YEAR: 2018-19**

**Subject: Electronics    Class: II B.Sc.    Paper: II (Electronic Devices and Circuits) - Semester -II**

**Name of the Faculty: Dr.Ch Kanaka Rao Lecturer in Electronics**

S.No.	Month & week	Hours Available	Syllabus-topic	Curricular Activity					Co-curricular Activity			
				Additional Inputs Value Addition	Activity	Hours Allotted	whether Conducted	If not alternate dates	Activity	Hours Allotted	Whether Conducted	if not alternate dates
1	NoV,'18 3 & 4 1,2	10 +6	<i>Semiconductor diodes:</i> P-type and N-type semiconductors. P-N-junction, theory, Depletion region, barrier potential working in forward & reverse bias conditions, - Junction capacitance. Diode equation (No derivation) - Effect of temperature on reverse saturation current. V-I characteristics. Zener and Avalanche break down mechanisms. Zener diode, V-I characteristics, Regulated power supply using zener diode. Varactor Diode and Tunnel diode-Principle, Working & Applications- construction, working	PPT on semiconductors.  Animations of diodes working	Teaching Unit test Practical's  Demonstrations	9 1 6  1	Yes yes yes  yes		Seminar			Student seminars will be conducted 2 <sup>nd</sup> week of this month, November ,2016
8	Dec,'18 1,2,3& 4	19+12	<i>Bipolar Junction Transistor (BJT):</i> PNP and NPN transistors-current components in BJT - BJT static characteristics (Input and Output) - CE, CB configurations (cut off, active, and saturation regions), CE configuration as two port network - h-parameters - h-parameter equivalent circuit of transistor in CE configuration. The CE amplifier analysis and parameters. Biasing and load line analysis - Fixed bias and voltage divider bias arrangements. Thermal runaway, concept of stability and stability factor, factors affecting stability.	PPT on BJT's	Teaching Unit test Practicals	17 2 6			Assignment  Quiz  Guest lecture			Quiz competition may be conducted in the 2 <sup>nd</sup> may be conducted. Guest lecture in the 3 <sup>rd</sup> week of this month.
9	Jan 19 1 & 2	10+6	<i>Field Effect Transistors (FETs):</i> Types of FETs. Construction, working and characteristics of JFETs and FET parameters. Enhancement MOSFET and Depletion MOSFETs construction, working and drain characteristics.Comparison of BJT& FET and JFET &	Animations are shown	Teaching Unit test Practicals	9 1 6	yes yes	.	Assignment			Assign simple study projects using Internet  Prepare students to MID exams

			MOSFET Unijunction Transistor (UJT), construction, working and characteristics. Application of UJT as a relaxation oscillator.							
<b>Mid-I exams for the Semesters II, IV and VI Will be starts from 19-01-2018</b>										
10	Jan 19 3 & 4	10+6	Photoelectric devices: Structure and operation, characteristics spectral response and applications of LDR, Photo-Voltaic cell, Solar cell, Photoconductive cell, Photodiode, LED and LCD	PPt on Photo conductive devices	Teaching Unit test Practicals	9 1 6			Seminar	Prepare students to prepare PPTs on some important topics.
11	Feb'19 1,2,3,& 4	19+12	Rectifiers- Half wave , full wave and bridge rectifiers, Efficiency, ripple factor and Regulation. Filters-Types of filters, Shunt capacitance filter, L-sections and $\pi$ -section filters working (no derivation for ripple factor). Transistor series and shunt voltage regulators, Block diagram of regulated power supply. Three terminal IC regulators (78XX and 79XX) . Principle and working of Switch Mode power supply (SMPS) (Elementary ideas)	Demonstration on half and full wave rectifies	Teaching Unit test Practicals  Demo	14 1 12  2			Remedial Classes.  Assignment	3   
12	Mar,'19 1,2	10+6	Revision of the Mid syllabus Old questions papers discussion and solutions to problems		Teaching Unit test Practicals	9 1 6			Assignment  Prepare students to MID and Semester END exams by evaluating old question papers.	
<b>Mid-II exams for Semesters- II, IV&amp;VI will be commenced from 19-03-2019. Semester End exams for II,IV&amp;VI exams will starts from 28-03-2019</b>										

DEPT. OF ELECTRONICS, SRI Y.N.COLLEGE (Autonomous), NARSAPUR, W.G.Dt.

## ANNUAL CURRICULAM PLAN-YEAR: 2018-19

**Subject: Electronics      Class: II B.Sc.      Paper: III: (Analog Electronics and Digital Principles) - Semester -III**

**Name of the Faculty:** *Dr.Ch. Kanaka Rao Lecturer in Electronics.*

				Curricular Activity					Co-curricular Activity			
S.No.	Month & week	Hours Available	Syllabus-topic	Additional Inputs Value Addition	Activity	Hours Allotted	whether Conducted	If not alternate dates	Activity	Hours Allotted	Weather Conducted	if not alternate dates
1	June,'17 2,3&4	6	<b>Operational Amplifier: (10 Hrs)</b> Basic Op-amp, Characteristics of an ideal and practical Op-amp (IC 741), Block diagram of Op-Amp, Op-amp Parameters, Virtual Ground, differential amplifier.	ppt on op-amp block diagram	Teaching Unit test	5 1			Assignment			
2	July,'17 1,2,3&4	8+12	Inverting, Non-Inverting amplifiers, Adder, subtractor Voltage follower, Integrator, Differentiator, Voltage to current and Current to voltage converters., Logarithmic amplifier. Numerical problems.	PPT on Integrator & differentiator	Teaching Unit test Practical	7 1 12			Assignment			
3	Aug,'17 1 & 2	4+6	Mid syllabus revision and problems on Mid syllabus		Teaching Unitest practical	3 1 6						
<b>Mid -I Exams for Semesters I, III, &amp; V will be starts from 08-08-2017.</b>												
4	Aug,'17 3&4	4+6	<b>Applications of Op-amps:</b> Voltage regula Comparator & Zero crossing detector, Schmitt Trigge		Teaching Practical.	4 6			Student seminars will be conducted 2 <sup>nd</sup> week of this month, November ,2016			
5	Sep,'17 1,2,3&4	8+12	. Wien's bridge Oscillator, Triangular Wave Generato Active filters (Basics): low pass, high pass & Band pas filters. <b>IC555 Timer:</b> Functional block Diagram, Astable, Monostable, and Bi-stable multivibrator circuits working and their applications. Numerical problems		Teaching Unit test Practical	5 1 12			Assignment Remedial Classes.	2		
6	Oct,'17 1&2	2+3	Revision of Mid II syllabus		Teaching Practical	2 3			Assignment	Prepare students to MID and Semester END exams by evaluating old question papers.		
<b>Mid II exams for semesters I,III and V will be commenced from 07-10-2018 and Follows Semester END exams from 22-10-2018</b>												