

DANTULURI NARAYANA RAJU COLLEGE(AUTONOMOUS)

(A College with Potential for Excellence)

Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2013-14

Department : ELECTRONICS

Class: IB.SC

Paper :CIRCUIT ANALYSIS-IA

Semester: I

Limitations of Ohm's Law.,Construction,
Types & Applications of Resistor.
Capacitor and Inductor, Energy stored in C
Energy stored in L, series & parallel connections.
Concept of Voltage & current sources-KVL & KCL
Application to simple circuits consisting of resistors and sources
Mesh analysis with examples, Nodal analysis with examples
The sine wave-Average value and RMS value, The j-operator, phasor diagram
Complex impedance and admittance, power in A.C & Power factor, wattless I
Superposition, Thevenins theorem
Norton's theorem, Maximum power transfer theorem, Milliman theorem
Reciprocity theorem, series and parallel resonance RLC circuits
Resonant factor, Q-factor, B.W, Selectivity.

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Syllabus for the Academic Year 2013-14

Department : ELECTRONICS

Paper : ELECTRONIC DEVICES-IB

Class: IB.Sc

Semester: 2

Pn-junction diode –junction capacitance- diode equation
Effect of temperature on reverse saturation current – construction ,working diode
V-I characteristics and applications of diode and zener diode, tunnel diode
V-I characteristics and application, tunnel diode, working
BJT: PNP ,NPN transistors , current components in BJT
Characteristics of CBCE configurations
h-parameter -equivalent circuit
Biasing and load line analysis
FET –working –characteristics ,advantages
UJT–structure-working –characteristics ,advantages,
Applications and problems
SCR–structure-working –characteristics ,advantages,
Applications and problems, photo electric devices, solar cell
structure-working –characteristics ,advantages, LDR, and LED

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Syllabus for the Academic Year 2013-14

Department: ELECTRONICS

Paper: ANALOG CIRCUITS -IIA

Class: IIB.Sc

Semester:III

Topics to be covered
Half wave rectifier and Full Half wave rectifier –efficiency- ripple factor regulation
Bridge rectifier, efficiency- ripple factor regulation
Types of filters –shunt capacitor filter-L-section choke filter-II filter
choke filter-II filter ,Problems
Block diagram of regulated power supply- series and shunt regulated power supplies
Zener diode as voltage regulator, three terminal regulators
Principle and working of switch mode power supply.
Amplifier circuits and working and frequency response
RC coupled CE amplifier ,
Positive and negative ,feedback amplifier
Gain ,Bandwidth, noise, input impedance and output impedance
Oscillators: barkhusen criterion ,RC –phase shift oscillator
Wein’s bridge oscillator, LC Oscillators:
Hartly and Colpitt’s Oscillators
Crystal Oscillator derivations

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Syllabus for the Academic Year 2013-14

Department : Electronics
IIB.Sc Semester: IV

Paper :ANALOG COMMUNICATION -IIB Class:

Square wave generator, second order differential equation
Problem solutions
Holidays
Need for modulation, types of modulation ,AM,FM,PM
Amplitude modulation – side bands- modulation index
AM modulator , diode detector
FM working of simple modulators
Detection of FM waves
Advantages of frequency modulation over AM
Superhetrodyne receiver

DANTULURI NARAYANA RAJU COLLEGE(AUTONOMOUS)

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Syllabus for the Academic Year 2013-14

Department : ELECTRONICS

Paper : DIGITAL ELECTRONICS

Class: IIIA

Semester: V

Introduction to number systems,
Logic gates OR, AND, NOT, X-OR, NAND, NOR gates ,Positive and negative logic
Logic families and their characteristics- RTL, DTL
ECL, TTL and CMOS,
Universal building blocks NAND and NOR gates
Laws of Boolean algebra -De-Morgan's theorem's
simplification of Boolean expressions
Karnaugh Maps- (SOP) and (POS)-Two, three, four variable K-map
Pair, Quads and Octets in Kmap- Overlapping, rolling and redundant groups in K-map
Multiplexer and De- Multiplexer- Decoder,
Flip flops- RS, D, JK and Master-Slave JK flip flop (working and truth tables)
Classification and types of memories (RAM) (ROM),
(RAM) (ROM), Organization and working.
Shift register- serial in-serial-out register, parallel-in, and serial-out register
Synchronous and asynchronous binary counters
Up/Down counters-Decade counter (7490)' working, truth tables and timing diagrams.

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Syllabus for the Academic Year 2013-14

Department : ELECTRONICS Paper : MICROPROCESSOR-IIIB

Class: IIB.Sc Semester:VI

Intel 8085 Microprocessor-central processing unit CPU – arithmetic and logic unit ALU
register organization — pin configuration of 8085 and its description.
Timing diagrams – Instruction cycle, machine cycle, fetch and execute cycles
Instruction and data formats – classification of instructions
classification of instructions
addressing modes, Instruction set (Data transfer, Arithmetic,
Logical, Branch, Stack, I/O machine control groups
Assembly language programming examples of 8 and 16 bit addition, subtraction,
multiplication and division. Finding the largest and smallest in a data array
Programmable peripheral interface (8255),
D/A and A/D converters and their interfacing to the Microprocessor.
Stepper motor control- seven segment LED

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Syllabus for the Academic Year 2013-14

Department : ELECTRONICS Paper : THE 8051 MICROCONTROLLER &
APPLICATIONS-4A Class: IIIB.Sc Semester:V

Topics to be covered
Generations, Architecture of 8051.
Signal description
Register Set, Operational features
Memory & I/O Addressings
Concept of Interrupts
Instruction set
PC&ROM space, Data Types & Directives
Flag bits & PSW Register, Register Bank &Stack
Addressing modes
Loop & Jump Instructions
Arithmetic Instr., Serialization.
BCD,ASCII programs
ALPs of ADD,SUB,MUL,DIV
ALPs of Largest number, Smallest number
ALPs of Ascending & Descending orders
Some Miscellaneous concepts.

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Syllabus for the Academic Year 2013-14

Department : ELECTRONICS Paper : 8051 MICROCONTROLLER & APPLICATIONS-4B

Class: IIB.Sc Semester:VI

Introduction to Interfacing and LCD pin diagram.
LCD Interfacing.
Keyboard Interfacing
Parallel & Serial ADC
DAC Interfacing
Sensor interfacing & Signal Conditioning.
Programming 8255 PPI
8255 Interfacing
Relays & Opto isolators, Stepper motor interfacing
DC Motor Interfacing
PWM
BCD & ASCII programs
Design of μ C based length measurement system for continuously rolling cloth.

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Syllabus for the Academic Year 2014-15

Department : ELECTRONICS

Paper :CIRCUIT ANALYSIS-IA

Class: IB.SC

Semester: I

Limitations of Ohm's Law.,Construction,
Types & Applications of Resistor.
Capacitor and Inductor, Energy stored in C
Energy stored in L, series & parallel connections.
Concept of Voltage & current sources-KVL & KCL
Application to simple circuits consisting of resistors and sources
Mesh analysis with examples, Nodal analysis with examples
The sine wave-Average value and RMS value, The j-operator, phasor diagram
Complex impedance and admittance, power in A.C & Power factor, wattless I
Superposition, Thevenins theorem
Norton's theorem, Maximum power transfer theorem, Milliman theorem
Reciprocity theorem, series and parallel resonance RLC circuits
Resonant factor, Q-factor, B.W, Selectivity.

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Syllabus for the Academic Year 2014-15

Department : ELECTRONICS

Paper : ELECTRONIC DEVICES-IB

Class: IB.Sc

Semester: 2

Pn-junction diode –junction capacitance- diode equation
Effect of temperature on reverse saturation current – construction ,working diode
V-I characteristics and applications of diode and zener diode, tunnel diode
V-I characteristics and application, tunnel diode, working
BJT: PNP ,NPN transistors , current components in BJT
Characteristics of CBCE configurations
h-parameter -equivalent circuit
Biasing and load line analysis
FET –working –characteristics ,advantages
UJT–structure-working –characteristics ,advantages,
Applications and problems
SCR–structure-working –characteristics ,advantages,
Applications and problems, photo electric devices, solar cell
structure-working –characteristics ,advantages, LDR, and LED

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Syllabus for the Academic Year 2014-15

Department: ELECTRONICS

Paper: ANALOG CIRCUITS -IIA

Class: IIB.Sc

Semester:III

Half wave rectifier and Full Half wave rectifier –efficiency- ripple factor regulation
Bridge rectifier, efficiency- ripple factor regulation
Types of filters –shunt capacitor filter-L-section choke filter-II filter
choke filter-II filter ,Problems
Block diagram of regulated power supply- series and shunt regulated power supplies
Zener diode as voltage regulator, three terminal regulators
Principle and working of switch mode power supply.
Amplifier circuits and working and frequency response
RC coupled CE amplifier ,
Positive and negative ,feedback amplifier
Gain ,Bandwidth, noise, input impedance and output impedance
Oscillators: barkhusen criterion ,RC –phase shift oscillator
Wein’s bridge oscillator, LC Oscillators:
Hartly and Colpitt’s Oscillators
Crystal Oscillator derivations

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Syllabus for the Academic Year 2014-15

Department : Electronics

Paper :ANALOG COMMUNICATION

Class:

IIB.Sc

Semester: IV

Operational amplifiers introduction, block diagram of op-amp
Op-amp parameters, virtual ground
Inverting and non-inverting op-amp amplifiers
Summing amplifier ,voltage follower
Integrator and differentiator ,comparator
Square wave generator, second order differential equation
Problem solutions
Need for modulation, types of modulation ,AM,FM,PM
Amplitude modulation – side bands- modulation index
AM modulator , diode detector
FM working of simple modulators
Detection of FM waves
Advantages of frequency modulation over AM
Superhetrodyne receiver

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Department : ELECTRONICS

Paper : DIGITAL ELECTRONICS

Class: IIIA

Semester: V

Introduction to number systems,
Logic gates OR, AND, NOT, X-OR, NAND, NOR gates ,Positive and negative logic
Logic families and their characteristics- RTL, DTL
ECL, TTL and CMOS,
Universal building blocks NAND and NOR gates
Laws of Boolean algebra -De-Morgan's theorem's
simplification of Boolean expressions
Karnaugh Maps- (SOP) and (POS)-Two, three, four variable K-map
Pair, Quads and Octets in Kmap- Overlapping, rolling and redundant groups in K-map
Multiplexer and De- Multiplexer- Decoder,
Flip flops- RS, D, JK and Master-Slave JK flip flop (working and truth tables)
Classification and types of memories (RAM) (ROM),
(RAM) (ROM), Organization and working.
Shift register- serial in-serial-out register, parallel-in, and serial-out register
Synchronous and asynchronous binary counters
Up/Down counters-Decade counter (7490)' working, truth tables and timing diagrams.

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Syllabus for the Academic Year 2014-15

Department : ELECTRONICS Paper : MICROPROCESSOR-IIIB

Class: IIB.Sc Semester:VI

Intel 8085 Microprocessor-central processing unit CPU – arithmetic and logic unit ALU
register organization — pin configuration of 8085 and its description.
Timing diagrams – Instruction cycle, machine cycle, fetch and execute cycles
Instruction and data formats – classification of instructions
classification of instructions
addressing modes, Instruction set (Data transfer, Arithmetic,
Logical, Branch, Stack, I/O machine control groups
Assembly language programming examples of 8 and 16 bit addition, subtraction,
multiplication and division. Finding the largest and smallest in a data array
Programmable peripheral interface (8255),
D/A and A/D converters and their interfacing to the Microprocessor.
Stepper motor control- seven segment LED

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Syllabus for the Academic Year 2014-15

Department : ELECTRONICS Paper : THE 8051 MICROCONTROLLER &
APPLICATIONS-4A Class: IIIB.Sc Semester:V

Generations, Architecture of 8051.
Signal description
Register Set, Operational features
Memory & I/O Addressings
Concept of Interrupts
Instruction set
PC&ROM space, Data Types & Directives
Flag bits & PSW Register, Register Bank &Stack
Addressing modes
Loop & Jump Instructions
Arithmetic Instr., Serialization.
BCD,ASCII programs
ALPs of ADD,SUB,MUL,DIV
ALPs of Largest number, Smallest number
ALPs of Ascending & Descending orders
Some Miscellaneous concepts.

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Syllabus for the Academic Year 2014-15

Department : ELECTRONICS Paper : 8051 MICROCONTROLLER & APPLICATIONS-4B
Class: IIB.Sc Semester:VI

Introduction to Interfacing and LCD pin diagram.
LCD Interfacing.
Keyboard Interfacing
Parallel & Serial ADC
DAC Interfacing
Sensor interfacing & Signal Conditioning.
Programming 8255 PPI
8255 Interfacing
Relays & Opto isolators, Stepper motor interfacing
DC Motor Interfacing
PWM
BCD & ASCII programs
Design of μ C based length measurement system for continuously rolling cloth.

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Syllabus for the Academic Year 2015-16

Department: ELECTRONICS

Paper: BASIC CIRCUIT THEORY-IA

Class: IB.Sc

Semester:I

The sinusoidal V & I – Average & R.M.S values- phasor representation ‘j’ Operator,
polar and rectangular forms of complex numbers, to RC,RL and RLC circuits-
phasor diagrams Concept of impedance power factor in a.c circuits. problems
PASSIVE NETWORKS Concept of ideal as well as practical voltage and current sources
Regulation Kirchhoff’s (KCL,KVL)- method of solving A.C and D.C circuits by
Kirchhoff’s laws , loop analysis-nodel analysis-numerical problems.
Maximum power transfer -Super position theorem- Thevenin’s norton’s theorems
Milliman theorem- Reciprocity theorem- problem solving
RC AND RL CIRCUITS :Transient response of RL and RC circuits with DC source,
Frequency response of RC and RL circuits, their action as low pass & high pass filters
Passive differentiating and integrating circuits, numerical problems.
CRT and its working. Electron gun, electrostatic and magneto static deflections.
Deflection sensitivity. Fluoscent screen. CRO block diagram.
Measurement of voltage , frequency and phase.
Function generator-Block diagram and its description.

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Syllabus for the Academic Year 2015-16

Department : ELECTRONICS

Paper : ELECTRONICDEVICES AND

CIRCUITS-IB

Class: IB.Sc

Semester: II

Depletion region –Junction capacitance –Diode equation (no derivation)
Effect of temperature on reverse saturation current –construction, working i) PN -diode
V-I characteristics and simple applications of ii) Zener diode iii) Tunnel diode.
PNP and NPN transistors–current components in BJT
BJT static characteristics (Input and Output) -CB and cut off, active, saturation regions
CE configurations, h-parameters –h-parameter equivalent circuit.
Biasing and load line analysis, fixed bias and self bias arrangement
Structure and working of JFET-output and transfer characteristics
Advantages of FET over transistor.Structure and working of UJT-Characteristics.
Application of UJT as a relaxation oscillator.Structure and working of SCR.
SCR- Characteristics. Application of SCR for power control
Structure, operation and applications of LDR, Solar cell and LED.

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Syllabus for the Academic Year 2015-16

Department :ELECTRONICS
B.sc

Paper :ANALOG CIRCUITS-2A
Semester:III

Class:II

Half wave Rectifier :Efficiency, Ripple factor and regulation
Full wave Rectifier :Efficiency, Ripple factor and regulation
Filters: Introduction, shunt, L-section, π section filters
Expressions for Ripple factors for all the filters
Block diagram of RPS, Series& Shunt power supplies, Zener diode as a regulator
Three Terminal Regulators(78XX & 79XX)
principle and working of SMPS.
Amplifier circuit, CE Amplifier and its analysis
Working and frequency response curve of RC coupled CE Amplifier.
Mathematical Analysis & explanation of RC Coupled Amplifier.
Concept of positive feed back amplifiers
Concept of negative feed back amplifiers
Effect of negative f/b on gain, noise, B.W, input &output impedences
Barkhusen criteria, RC Phase shift Oscillator.
Weins Bridge Oscillator, Hartley Oscillator
Colpitts and Crystal Oscillator

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Syllabus for the Academic Year 2015-16

Department: ELECTRONICS

Paper : ANALOG COMMUNICATION-2B

Class: IIB.Sc

Semester:IV

Ideal characteristics of OP-amp, Different configuration of op-amp
Block diagram of Op-amp, op-amp parameters, virtual ground
Inverting and Non inverting amplifiers and their analysis.
Summing amplifier, voltage follower-voltage regulator
Integrator-Differentiator- Comparator, square wave [A stable] generators
wein's bridge oscillator, solving simple second order differential equation
Need for modulation- Types of modulation- AM,FM,PM
AM, Modulation Index, Analysis of AM wave, sidebands, Band width
AM modulator analysis. Demodulation simple diode detector and its operation
Analysis of F.M wave, side bands, Band width, simple frequency modulator
(varactor diode).FM demodulation: Necessary of demodulation,
Double tuned discriminator and ratio detector. Advantages of FM over AM.
Super heterodyne receiver [block diagram approach]

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Syllabus for the Academic Year 2015-16

Department : ELECTRONICS

Paper: Digital Electronics -IIIA

Class: IIIB.SC

Semester:V

Introduction to number systems,
Logic gates OR, AND, NOT, X-OR, NAND, NOR gates ,Positive and negative logic
Logic families and their characteristics- RTL, DTL
ECL, TTL and CMOS,
Universal building blocks NAND and NOR gates
Laws of Boolean algebra -De-Morgan's theorem's
simplification of Boolean expressions
Karnaugh Maps- (SOP) and (POS)-Two, three, four variable K-map
Pair, Quads and Octets in Kmap- Overlapping, rolling and redundant groups in K-map
Multiplexer and De- Multiplexer- Decoder,
Flip flops- RS, D, JK and Master-Slave JK flip flop (working and truth tables)
Classification and types of memories (RAM) (ROM),
(RAM) (ROM), Organization and working.
Shift register- serial in-serial-out register, parallel-in, and serial-out register
Synchronous and asynchronous binary counters
Up/Down counters-Decade counter (7490)'working, truth tables and timing diagrams.

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Syllabus for the Academic Year 2015-16

Department : ELECTRONICS

Class: III B.Sc

Paper : IIIB – Microprocessor

Semester: VI

Topics to be covered
Intel 8085 Microprocessor-central processing unit CPU – arithmetic and logic unit ALU
register organization — pin configuration of 8085 and its description.
Timing diagrams – Instruction cycle, machine cycle, fetch and execute cycles
Instruction and data formats – classification of instructions
classification of instructions
addressing modes, Instruction set (Data transfer, Arithmetic,
Logical, Branch, Stack, I/O machine control groups
Assembly language programming examples of 8 and 16 bit addition, subtraction,
multiplication and division. Finding the largest and smallest in a data array
Programmable peripheral interface (8255),
D/A and A/D converters and their interfacing to the Microprocessor.
Stepper motor control- seven segment LED

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Syllabus for the Academic Year 2015-16

Department: ELECTRONICS Paper: IVA –Embedded Systems and Applications

Class: III B.Sc Semester: V

Comparing Microprocessors and Microcontrollers, Block diagram of 8051.
Architecture of 8051, Pin diagram,
Port organization.
Features, Memory & I/O addressing
Register and memory organization- Flag bits
PSW Register, Register banks and Stack –Data types and directives.
Stack –Data types and directives.
Instruction set of 8051: Arithmetic, Logical
Single Bit, Jump, Loop
Call Instructions and their usage
Time Delay Generation and Calculation.
Addressing modes CAT-I
Programming examples: Addition, multiplication
Programming examples other programs
Programming , subtraction, division,
arranging a given set of numbers in ascending / descending order,
picking the smallest / largest number among a given set of numbers.

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Syllabus for the Academic Year 2015-16

Department : ELECTRONICS
Applications

Class: IIIB.Sc

Paper : IV B – Embedded Systems and
Semester:VI

I/O programming:port-A,B,C
I/O Bit Manipulation Programming :port-A,B,C
Concept of Interrupts
Programming of Timers
Programming of Counters
Problems on above concepts
holidays
Interfacing of PPI 8255,DAC
Interfacing of ADC
Basics of Serial Communication and programming
Interfacing & applications of LCD
Stepper motor
Keyboard and LED

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Syllabus for the Academic Year 2016-17

Department : ELECTRONICS

Paper :BASIC CIRCUIT THEORY-1A

Class: I

B.sc

Semester:1

Units and def SI Units electronic charge ,PD,E.M.F ,current ,voltage
Ohms law limitations of ohms laws-construction, types and applications of resistors.
Definition of current and voltage. The sine wave, general format of sine wave for V/I
Phase relations, average value, effective (R.M.S) values. Differences A.C and D.C
Basic elements and phasors: Basic Response of R, L & C elements, frequency response of basic elements. (problems)
PASSIVE NETWORKS:(D.C) Kirchhoff's current and Voltage Law's ,Resistor, Capacitor, and Inductor, series and parallel networks.
R-L and R-L-C Circuits with DC inputs. Branch current method, Mesh Analysis, Nodal Analysis, star to delta & delta to star conversions.
Superposition theorem, thevenin's theorem ,Norton's Theorem,
Maximum Power, Milliman and Reciprocity theorems (problems) .
Transient response of RL and Rc circuits with step input, Time constants, Frequency response of RC and RL circuits
low pass, high pass and Band pass filters. Passive differentiating and integrating ckt
Series resonance parallel resonance circuits, Q - Factor, Selectivity and B/W
Comparison of series and parallel resonance, Tank circuit-LC oscillations.(problems)
Definition of current and voltage. The sine wave, general format of sine wave for V/I

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Syllabus for the Academic Year 2016-17

Department: ELECTRONICS
B.sc

Paper: ELECTRONIC DEVICES & CIRCUITS-1B
Semester:2

Class: I

P-N junction Diode, Depletion region, Barrier Potential, Working in Forward and Reverse bias condition – Junction capacitance
Diode current equation– Effect of temperature on reverse saturation current – construction, working, V-I characteristics and simple applications of varactor
Zener diode and Tunnel diode Introduction, Transistor Construction, Operation.
and characteristics of CB, CE, and CC – Configurations.
Complete hybrid equivalent model, Transistor as a switch. Biasing BJT: Fixed-Bias Circuit, Emitter-Stabilized Bias Circuit,
Voltage-Divider Bias, Bias Stabilization.,CAT-1
Introduction, Construction, Operation and Characteristics of FET/JFET, Drain and Transfer characteristics, Depletion-type, and Enhancement-Type MOSFETs.
FET Biasing: Fixed-Bias Configuration, Self-Bias Configuration, Voltage-Divider Biasing, UJT construction-working, V-I characteristics, UJT as a Relaxation osc.
Structure and working of SCR. Two transistor representation, Char of SCR
Exp. set up to study the SCR characteristics, Application of SCR for power control.
Light-Emitting Diodes (LEDs), IR Emitters, Photo diode, Photo transistors,
Structure and operation of LDR, and Opto-Isolators. Rectifiers::Half wave Efficiency-ripple factor-Regulation, Types of filter-choke input(inductor) filter,
full wave and bridge rectifiers- Efficiency-ripple factor- Regulation, Types of filter-choke input(inductor) filter
shunt L –section & π -section filters. Three terminal fixed voltage I.C. regulators

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Syllabus for the Academic Year 2016-17

Department: ELECTRONICS

Paper : DIGITAL ELECTRONICS-2A

Class: II B.sc

Semester:3

Bridge course
Bridge course
Number system and codes: Decimal Binary ,Hexadecimal , Octal ,BCD conv.
Complements (1's ,2's ,9's, 10s) addition, subtraction, Gray,Excess3code conversion
Boolean algebra and theorems: Boolean theorem's , Demorgan's laws, Digital logic gates
Multi-level NAND-NOR gates ,Standard representation of logic functions (SOP and POS)
Minimization technique (K-map 4 and 5 variables) don't care condition.
Combinational digital circuits: Adders – Half and full , Subtractor- Half and full
Parallel binary adder magnitude comparator, Multiplexer
De-multiplexer, Encoder and Decoder
TTL,DTL,RTL, CMOS Logic families (NAND, NOR gates) BI-CMOS
Sequential Digital circuits: Flip flops,RS-JK- T- D flipFliop
Master –Slave JK flipflop , Excitation Registers-SHL,SRL,Counters Asynchronous ,Mod-16,10,8 counters
Up-Down counter, synchronous 4 bit and ring counter,Memory Devices: General memory operations.
Memory Devices: General memory operations
ROM,RAM (Static & Dynamic) PROM,EPRM.EEPROM, EAROM PLA, PAL

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Syllabus for the Academic Year 2016-17

Department : ELECTRONICS
II B.SC

Paper : ANALOG&DIGITAL IC APPLICATIONS
Semester:4

Class:

Small signal amplifier: Introduction practicals circuit of transistor amplifier, gain , phase reverse classification of amplifier ,CE amplifier.
Operational amplifiers: Definition basic op-amp ,ideal op-amp block diagram of op-amp Inverting , non inverting virtual ground , adders, subtractors, Summing amplifiers , Voltage follower
Op-amp parameters, voltage to current converters ,Integrator , differentiator, differential amplifier log amplifier, Second order differential equation
Op-amp circuits : voltage regulator, Comparator, Zero cross detecting circuit instrumentation amplifier
Multi-vibrators -Astable- Mono stable – bi stable – schimetic trigger- sine wave generator- square wave generator
Triangle wave generator- Active filters (low, High, Band pass). IC 555 functional block diagram and it's applications
Combinational and Sequential Logic circuits: Design of code converters – BCD to seven segment BCD- Gray, Gray to Binary. Design of counters using state machine : Modulus N C
Preset table - Binary up –down counter design of universal shift register
A/D converters Successive approximation ADC , single and Dual slope converters
Sigma and Delta ADC ,D/A converters R-2R ladder network, Binary weighted
Digital system interfacing and applications: interfacing of LED's, applications of counters ; Digital clock
Applications of shift registers – Parallel to serial , serial to parallel , UART

DANTULURI NARAYANA RAJU COLLEGE(AUTONOMOUS)

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Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2016-17

Department : ELECTRONICS Paper : DIGITALELECTRONICS-3A
IIB.Sc Semester: 5

Class:

General concepts
General concepts
Boolean Algebra and Logic Circuits:- Introduction to number systems,
Logic gates OR, AND, NOT, X-OR, NAND, NOR gates - Truth tables – Positive and negative logic
Logic families: Logic families and their characteristics- RTL, DTL
ECL, TTL and CMOS, Universal building blocks NAND and NOR gates
Laws of Boolean algebra -De-Morgan's theorem's. Boolean identities: - simplification of Boolean expressions –Karnaugh Maps- Sum of products (SOP) and Product of sums (POS)-
Two, three, four variable K-map-Pair, Quads and Octets in Kmap- Overlapping, rolling and redundant groups in K-map
Combinational and Sequential circuits: - Multiplexer and De- Mux,Decoder.
Half adder, Full adder and parallel adder circuits.
Flip flops- RS, D, JK and Master-Slave JK flip flop (working and truth tables)
Semiconductor memories: Class. and types of memories (RAM) (ROM), Organi
working Register and Counter: Shift register- serial in-serial-out register, parallel-in, and serial-out register
Synchronous and asynchronous binary counters, Up/Down counters
Decade counter (7490) - working, truth tables and timing diagrams.

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Syllabus for the Academic Year 2016-17

Department : ELECTRONICS
IIB.Sc

Paper :MICROPROCESSOR-3B
Semester: 6

Class:

Introduction to Microcomputer and Microprocessor: Intel 8085 Microprocessor-central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses
pin configuration of 8085 and its description. Timing diagrams – Instruction cycle, machine cycle, fetch and execute cycles.
Instruction set of 8085: Instruction and data formats classification of instructions Data transfer,
Arithmetic instructions with examples
Logical, Branch, Stack, I/O machine control groups
Assembly language programming: Assembly language programming examples of 8 and 16 bit addition, subtraction,
multiplication and division
Largest and smallest number in data array ,
Peripheral devices and their interfacing : address space partitioning ,data transfer schemes (syn & asyn)
PPI (8255) control word format, architecture, pin configuration
Microprocessor based data acquisition system D/A(weight resistor, R-2R ladder)
A/D (successive approximation method) , converters and interfacing
Stepper motor ,seven segment LED and problems

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Syllabus for the Academic Year 2016-17

Department : ELECTRONICS Paper :EMBEDDED SYSTEMS & APPLICATIONS-4A

Class: IIB.Sc Semester: 5

, Port organization. Operational Features, Memory & I/O addressing.
Register organization:-Register and memory organization- Flag bits and PSW Register,
Register banks and Stack –Data types and directives.
Instruction set of 8051: Arithmetic, Logical
Single Bit, Jump, Loop
CALL Instructions and their usage. Time Delay Generation and Calculation.
Addressing modes and accessing memory using various addressing modes.
Introduction to Programming
Programming examples: Addition, multiplication, subtraction
division, arranging a given set of numbers in ascending / descending order,
, picking the smallest / largest number among a given set of numbers.
Additional programs
Time delay functions

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Syllabus for the Academic Year 2016-17

Department :ELECTRONICS

Paper : EMBEDDED SYSTEMS & APPLICATIONS-

4B Class: IIIB.Sc

Semester:6

I/O programming, I/O Bit manipulation.
Interrupts in 8051 μ c, Initialization.
Interrupt priority, Programming of Timer/Counter.
Introduction to Interfacing, PPI of 8255.
Interfacing of PPI 8255 to 8051,DAC
ADC, Basics of serial communication
8051 serial communication programming.
Introduction to Real Time Applications: Pin diagram of LCD.
Working of LCD and interfacing of LCD with 8051.
Concept of Stepper Motor Interfacing.
Concept of Keyboard Interfacing.
Concept of LED interfacing.
Solving of problems in all units.

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS

Paper :BASIC CIRCUIT THEORY-1A

Class: I B.sc

Semester:1

Definition of current and voltage. The sine wave, general format of sine wave for V/I
phase relations, average value, effective (R.M.S) values. Differences A.C and D.C
Basic elements and phasors: Basic Response of R, L & C elements, frequency response of basic elements. (problems)
PASSIVE NETWORKS:(D.C)Kirchhoff's current and Voltage Law's ,Resistor, Capacitor, and Inductor, series and parallel networks.
R-L and R-L-C Circuits with DC inputs. Branch current method, Mesh Analysis, Nodal Analysis, star to delta & delta to star conversions.
Superposition theorem,thevenin's theorem Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems (problems).
Transient response of RL and RL circuits with step input, Time constants, Frequency response of RC and RL circuits
low pass, high pass and Band pass filters. Passive differentiating and integrating ckt
Series resonance and parallel resonance circuits, Q - Factor, Selectivity and B/W
Comparison of series and parallel resonance, Tank circuit-LCoscillations.(problems)
CRT and its working. Electron gun, electrostatic and magneto static deflections. Deflection sensitivity. Fluoscent screen.
CRO block diagram. Measurement of voltage , frequency and phase, Function generator-Block diagram and its description.

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS

Paper : Electronics devices and circuits -1B

Class: I B.sc

Semester:2

P-N junction Diode, Depletion region, Barrier Potential, Working in Forward and Reverse bias condition – Junction capacitance
Diode current equation– Effect of temperature on reverse saturation current – construction, working, V-I characteristics and simple applications of varactor
Zener diode and Tunnel diode Introduction, Transistor Construction, Operation, and characteristics of CB, CE, and CC – Configurations.
Complete hybrid equivalent model, Transistor as a switch. Biassing BJT: Fixed-Bias Circuit, Emitter-Stabilized Bias Circuit,
Voltage-Divider Bias, Bias Stabilization.,
Introduction, Construction, Operation and Characteristics of FET/JFET, Drain and Transfer characteristics, Depletion-type, and Enhancement-Type MOSFETs.
FET Biassing: Fixed-Bias Configuration, Self-Bias Configuration, Voltage-Divider Biassing, UJT construction-working, V-I characteristics, UJT as a Relaxation oscillator
Structure and working of SCR. Two transistor representation, Char of SCR.
Experimental set up to study the SCR characteristics, Application of SCR for power control
Light-Emitting Diodes (LEDs), IR Emitters, Photo diode, Photo transistors,
Structure and operation of LDR, and Opto-Isolators. Rectifiers::Half wave Efficiency-ripple factor- Regulation, Types of filter-choke input(inductor) filter,
full wave and bridge rectifiers- Efficiency-ripple factor- Regulation, Types of filter-choke input(inductor) filter, CAT-II
shunt L –section & π -section filters. Three terminal fixed voltage I.C. regulators
(78XX and &79XX)Principle and working of SMPS,

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS

Paper : DIGITAL ELECTRONICS -2A

Class: II B.Sc

Semester:3

Bridge course
Bridge course
Number system and codes: Decimal Binary ,Hexadecimal , Octal ,BCD conversions
Complements (1's ,2's ,9's, 10s) addition, subtraction, Gray, Excess 3 code conversion
Boolean algebra and theorems: Boolean theorem's , Demorgan's laws, Digital logic gates
Multi-level NAND-NOR gates , Standard representation of logic functions (SOP and POS)
Minimization technique (K-map 4 and 5 variables) don't care condition.
Combinational digital circuits: Adders – Half and full adders , Subtractor- Half and full
Parallel binary adder magnitude comparator, Multiplexer
De-multiplexer, Encoder and Decoder
TTL,DTL,RTL, CMOS Logic families (NAND, NOR gates) BI-CMOS
Sequential Digital circuits: Flip flops,RS-JK- T- D flipFliop
Master –Slave JK flipflop , Excitation Registers-SHL,SRL,Counters Asynchronous ,Mod-16,10,8 counters
Up-Down counter, synchronous 4 bit and ring counter,Memory Devices: General memory operations.
Memory Devices: General memory operations
ROM,RAM (Static and Dynamic) PROM,EPRM.EEPROM, EAROM PLA, PAL

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Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2017-18

Department : : ELECTRONICS

Paper :ANALOG & DIGITAL IC APPLICATIONS-2B

Class: II B.sc

Semester:4

Small signal amplifier: Introduction practicals circuit of transistor amplifier, gain, phase reverse classification of amplifier, CE amplifier.
Operational amplifiers: Definition basic op-amp, ideal op-amp block diagram of op-amp Inverting, non inverting virtual ground, adders, subtractors, Summing amplifiers, Voltage follower
Op-amp parameters, voltage to current converters, Integrator, differentiator, differential amplifier log amplifier, Second order differential equation
Op-amp circuits : voltage regulator, Comparator, Zero cross detecting circuit instrumentation amplifier
Multi-vibrators -Astable- Mono stable – bi stable – schimetic trigger- sine wave generator- square wave generator
Triangle wave generator- Active filters (low, High, Band pass). IC 555 functional block diagram and it's applications
Combinational and Sequential Logic circuits: Design of code converters – BCD to seven segment, BCD- Gray, Gray to Binary. Design of counters using state machine : Modulus N C
Preset table - Binary up –down counter design of universal shift register
Data converters : A/D converters Successive approximation ADC, single slope and Dual slope converters
Sigma and Delta ADC, D/A converters R-2R ladder network, Binary weighted N/W
Digital system interfacing and applications: interfacing of LED's, applications of counters ; Digital clock
Applications of shift registers – Parallel to serial, serial to parallel, UART

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS

Paper :MICROPROCESSOR-3A

Class: III B.sc

Semester: 5

Introduction
Functional block diagram of Intel 8085-Register structure-multiplexing & Demultiplexing of address / data bus - Control Signal Generation and status signals
8085 pin-out diagram & functions - Interrupts - Priority Concept Instruction set classification - addressing modes
Instruction cycle - machine cycle - T-state Op code Fetch Cycle Memory Read, Memory Write, I/O Read, I/O Write, - Functional explanation for RAM, ROM, EPROM, EEPROM.
Addition & subtraction(16-bit), multiplication, division, largest, smallest, block data transfer (all 8-bit data).
Binary to BCD, BCD to Binary, Binary to ASCII, ASCII to Binary, BCD to ASCII, ASCII to BCD (all 8-bit data)
Stack & Subroutines Concept - time delay using single and double register & calculations – Debugging program.
2K X 8, 4K X 8 ROM, RAM to 8085, Interfacing an I/O port in Memory Mapped I/O
I/O Mapped I/O - Difference between I/O mapped
Memory Mapped I/O.8212 I/O port,
MICROPROCESSOR APPLICATIONS -Programmable devices (8255 8253)Pin function.
Block Diagram - Keyboard and Display Interface 8279 (Architecture) –
Simple temperature controller- Simple traffic light controller-
Stepper motor control interface. Interfacing concepts
Additional programs

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Bhimavaram, W.G.Dist, A.P
Syllabus for the Academic Year 2017-18

Department : ELECTRONICS Paper : : Microcontroller & Interfacing(ELECTIVE)
Class: III B.SC Semester: 6

Introduction, comparison of Microprocessor and micro controller
Evolution of microcontrollers from 4-bit to 32 bit ,
Development tools for micro controllers
Assembler-Compiler-Simulator/Debugger.
Block diagram of 8051, Architecture of 8051.
program counter and memory organization, Data types and directives.
PSW register, Register banks and stack, pin diagram of 8051, Interrupts.
Addressing modes and accessing memory using various addressing modes
Instruction set: Arithmetic, Logical, Simple bit.Jump, loop and call instructions and their usage.
Timer/Counter Programming, ALPS: Addition, Multiplication, Subtraction, division
Arranging a given set of numbers in largest and smallest number, Interfacing of – PPI 8255
DAC (0804), interfacing seven segment displays, displaying information on a LCD.
control of a stepper Motor (Uni-Polar), Interfacing a 4*4 matrix keypad .

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS
III B.Sc

Semester: 5

Paper : CONSUMER ELECTRONICS-4A

Class:

Introduction to Microwave technology
Microwave oven block diagram,LCD Timer with alarm
Single chip controllers, types of ovens
Wiring and safety instructions, care and cleaning.
Introduction to Washing Machines, Washing Machine Hardware.
Washing Machine Software, Types of washing machines.
Fuzzy logic washing machines, features of washing machines.
Introduction to A/C's.
Components of air conditioning systems
All water air conditioning systems
Introduction to digital access devices.
Facsimile machine - Xerographic copier -
Calculators - Structure of a calculator - Internal Organization of a calculator - Digital clocks - Block diagram of a digital clock.
Introduction to Digital access devices: Digital computer-Internet access-Online ticket reservation- Functions and networks - Barcode Scanner and decoder
Electronic Fund Transfer - Automated Teller Machines (ATMs)
Set-Top boxes - Digital cable TV - Video on demand.

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS Paper : EMBEDDED SYSTEM DESIGN-5B(C-1)

Class: III B.Sc Semester: 6

Embedded systems overview, Design Challenge Processor Technology
, IC Technology.Design Technology.
Introduction, Combinational logic.
Sequential logic, Custom Single Purpose Processor Design.
RT-Level Custom Single-Purpose Processor, Introduction to Software Development.
Operation, Programmer's View, ASIPs.
Development Environment: Host and Target Machines, Linker / Locators for Embedded Software.
Getting Embedded Software into the target system, Debugging Techniques.
Pulse Width Modulators, LCD Controllers, Keypad Controllers.
Stepper Motor Controllers, Analog – to – Digital Converters, and Real Time Clocks
Parallel Communication, Serial Communication.
Wireless Communication
Serial Protocols, Parallel Protocols, Wireless Protocols.
Miscellaneous concepts

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS

Paper :ANALOG AND DIGITAL COMMUNICATION-6B(C-

2)

Class: III B.Sc

Semester: 6

Need for modulation, amplitude modulation-frequency spectrum of AM wave
Representation of AM, power relations in the AM wave. Generation of AM- Transistor modulators
Suppression of carrier, balanced modulator, suppression of one side band- phase shift method.
Theory of FM, frequency spectrum of FM wave, narrow band FM
wide band FM, power contents of the carrier and sidebands.
Generation of FM signals – Reactance modulator.
Noise – Thermal, Shot, Super heterodyne Receiver block diagram
FM receiver, discriminators- slope, balanced slope & Ratio detector
Communication bands, Electromagnetic waves-properties and applications.
PULSE MODULATION: Introduction, Sampling theorem, PAM- Generation & Detection
PWM- Generation & Detection, PPM- Generation & Detection .
PCM – Quantization noise, S/N ratio of PCM system, relation between S/N ratio & BW, Companding
Advantages of digital over analog communications. Advantages of shift keying over digital communication,
Types of shift keying, ASK – Generation & Detection, FSK – Generation & Detection

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Syllabus for the Academic Year 2017-18

Department : ELECTRONICS Paper : POWER ELECTRONICS-7B(C-3)
Class: III B.Sc Semester: 6

Power Devices: Need for semiconductor power devices, Power diodes
Introduction to family of thyristors. structure, I-V characteristics, Turn-On and Turn-Off characteristics of SCR. Factors
affecting the characteristics of SCR, Control circuits design and Protection circuits
Diac and Triac: Basic structure, working and V-I characteristics of diac and triac.
Insulated Gate Bipolar Transistors (IGBT): Basic structure, I-V Characteristics, switching characteristics.
Power MOS FETs: operation modes, switching characteristics, power BJT, second break down, saturation and quasi-saturation state.
Basic chopper circuit, types of choppers (Type A-D), step-down chopper, step-up chopper
operation of d.c. chopper circuits using self commutation (A & B-type commutating circuit), Morgan's chopper
Power Inverters: Need for commutating circuits and their various types
d.c. link inverters, Parallel capacitor commutated invertors with and without reactive feedback and its analysis.
Series Inverter, bridge invertors,
DC Motors, Principle of operation, EMF equation, Back EMF Factors controlling motor speed,
Thyristor based speed control of DC motors, AC motor (Induction Motor only),
Rotor and stator, torque & speed of induction motor

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper :BASIC CIRCUIT THEORY-1A

Class: I B.sc

Semester:1

Definition of current and voltage. The sine wave, general format of sine wave for V/I phase relations, average value, effective (R.M.S) values. Differences A.C and D.C
Basic elements and phasors: Basic Response of R, L & C elements, frequency response of basic elements. (problems)
PASSIVE NETWORKS:(D.C) Kirchhoff's current and Voltage Law's ,Resistor, Capacitor, and Inductor, series and parallel networks.
R-L and R-L-C Circuits with DC inputs. Branch current method, Mesh Analysis, Nodal Analysis, star to delta & delta to star conversions.
Superposition theorem, thevenin's theorem,CAT-1
Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems (problems) .
Transient response of RL and RL circuits with step input, Time constants, Frequency response of RC and RL circuits
low pass, high pass and Band pass filters. Passive differentiating and integrating ckt
Series resonance and parallel resonance circuits, Q - Factor, Selectivity and B/W
Comparison of series and parallel resonance, Tank circuit-LCoscillations.(problems)
CRT and its working. Electron gun, electrostatic and magneto static deflections. Deflection sensitivity. Fluoscent screen.
CRO block diagram. Measurement of voltage , frequency and phase, Function generator-Block diagram and its description.

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper : Electronics devices and circuits -1B

Class: I B.sc

Semester:2

P-N junction Diode, Depletion region, Barrier Potential, Working in Forward and Reverse bias condition – Junction capacitance
Diode current equation– Effect of temperature on reverse saturation current – construction, working, V-I characteristics and simple applications of varactor
Zener diode and Tunnel diode Introduction, Transistor Construction, Operation, and characteristics of CB, CE, and CC – Configurations.
Complete hybrid equivalent model, Transistor as a switch. Biasing BJT: Fixed-Bias Circuit,
Emitter-Stabilized Bias Circuit, Voltage-Divider Bias, Bias Stabilization.
Introduction, Construction, Operation and Characteristics of FET/JFET, Drain and Transfer characteristics, Depletion-type, and Enhancement-Type MOSFETs.
FET Biasing: Fixed-Bias Configuration, Self-Bias Configuration, Voltage-Divider Biasing .CAT-II
UJT construction-working, V-I characteristics, UJT as a Relaxation oscillator Structure and working of SCR. Two transistor representation, Char of SCR.
Experimental set up to study the SCR characteristics, Application of SCR for power control
Light-Emitting Diodes (LEDs), IR Emitters, Photo diode, Photo transistors,
Structure and operation of LDR, and Opto-Isolators. Rectifiers::Half wave Efficiency-ripple factor- Regulation, Types of filter-choke input(inductor) filter,
full wave and bridge rectifiers- Efficiency-ripple factor- Regulation, Types of filter-choke input(inductor) filter,
shunt L –section & π -section filters. Three terminal fixed voltage I.C. regulators ,
(78XX and &79XX)Principle and working of SMPS(switch mode power supplies) CAT-II

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper : DIGITAL ELECTRONICS -2A

Class: II B.Sc

Semester:3

Bridge course
Bridge course
Number system and codes: Decimal Binary ,Hexadecimal , Octal ,BCD conversions
Complements (1's ,2's ,9's, 10s) addition, subtraction, Gray, Excess 3 code conversion
Boolean algebra and theorems: Boolean theorem's , Demorgan's laws, Digital logic gates
Multi-level NAND-NOR gates , Standard representation of logic functions (SOP and POS)
Minimization technique (K-map 4 and 5 variables) don't care condition.
Combinational digital circuits: Adders – Half and full adders , Subtractor- Half and full
Parallel binary adder magnitude comparator, Multiplexer
De-multiplexer, Encoder and Decoder
TTL,DTL,RTL, CMOS Logic families (NAND, NOR gates) BI-CMOS
Sequential Digital circuits: Flip flops,RS-JK- T- D flipFliop
Master –Slave JK flipflop , Excitation Registers-SHL,SRL,Counters Asynchronous ,Mod-16,10,8 counters
Up-Down counter, synchronous 4 bit and ring counter,Memory Devices: General memory operations.
Memory Devices: General memory operations
ROM,RAM (Static and Dynamic) PROM,EPROM.EEPROM, EAROM PLA, PAL

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Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2018-19

Department : : ELECTRONICS

Paper :ANALOG & DIGITAL IC APPLICATIONS-2B

Class: II B.sc

Semester:4

Small signal amplifier: Introduction practicals circuit of transistor amplifier, gain, phase reverse classification of amplifier, CE amplifier.
Operational amplifiers: Definition basic op-amp, ideal op-amp block diagram of op-amp Inverting, non inverting virtual ground, adders, subtractors, Summing amplifiers, Voltage follower
Op-amp parameters, voltage to current converters, Integrator, differentiator, differential amplifier log amplifier, Second order differential equation
Op-amp circuits: voltage regulator, Comparator, Zero cross detecting circuit instrumentation amplifier
Multi-vibrators -Astable- Mono stable – bi stable – schimetic trigger- sine wave generator- square wave generator
Triangle wave generator- Active filters (low, High, Band pass). IC 555 functional block diagram and it's applications
Combinational and Sequential Logic circuits: Design of code converters – BCD to seven segment, holidays
BCD- Gray, Gray to Binary. Design of counters using state machine: Modulus N C
Preset table - Binary up –down counter design of universal shift register
Data converters: A/D converters Successive approximation ADC, single slope and Dual slope converters
Sigma and Delta ADC, D/A converters R-2R ladder network, Binary weighted N/W
Digital system interfacing and applications: interfacing of LED's, applications of counters; Digital clock
Applications of shift registers – Parallel to serial, serial to parallel, UART

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper :MICROPROCESSOR-3A

Class: III B.sc

Semester: 5

Introduction
Functional block diagram of Intel 8085-Register structure-multiplexing & Demultiplexing of address / data bus - Control Signal Generation and status signals
8085 pin-out diagram & functions - Interrupts - Priority Concept Instruction set classification - addressing modes
Instruction cycle - machine cycle - T-state Op code Fetch Cycle Memory Read, Memory Write, I/O Read, I/O Write, - Functional explanation for RAM, ROM, EPROM, EEPROM.
Addition & subtraction(16-bit), multiplication, division, largest, smallest, block data transfer (all 8-bit data).
Binary to BCD, BCD to Binary, Binary to ASCII, ASCII to Binary, BCD to ASCII, ASCII to BCD (all 8-bit data)
Stack & Subroutines Concept - time delay using single and double register & calculations – Debugging program.
2K X 8, 4K X 8 ROM, RAM to 8085, Interfacing an I/O port in Memory Mapped I/O
I/O Mapped I/O - Difference between I/O mapped
Memory Mapped I/O.8212 I/O port,
MICROPROCESSOR APPLICATIONS -Programmable devices (8255 8253)Pin function.
Block Diagram - Keyboard and Display Interface 8279 (Architecture) –
Simple temperature controller- Simple traffic light controller-
Stepper motor control interface. Interfacing concepts
Additional programs

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper : : Microcontroller & Interfacing(ELECTIVE)

Class: III B.SC

Semester: 6

Introduction, comparison of Microprocessor and micro controller
Evolution of microcontrollers from 4-bit to 32 bit ,
Development tools for micro controllers
Assembler-Compiler-Simulator/Debugger.
Block diagram of 8051, Architecture of 8051.
program counter and memory organization, Data types and directives.
PSW register, Register banks and stack, pin diagram of 8051, Interrupts.
CAT-I
Addressing modes and accessing memory using various addressing modes
Instruction set: Arithmetic, Logical, Simple bit.Jump, loop and call instructions and their usage.
Timer/Counter Programming, ALPS: Addition, Multiplication, Subtraction, division
Arranging a given set of numbers in largest and smallest number,
Interfacing of – PPI 8255
DAC (0804), interfacing seven segment displays, displaying information on a LCD.
control of a stepper Motor (Uni-Polar), Interfacing a 4*4 matrix keypad .

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Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper : CONSUMER ELECTRONICS-4A

Class:

III B.Sc

Semester: 5

Introduction to Microwave technology
Microwave oven block diagram,LCD Timer with alarm
Single chip controllers, types of ovens
Wiring and safety instructions, care and cleaning.
Introduction to Washing Machines, Washing Machine Hardware.
Washing Machine Software, Types of washing machines.
Fuzzy logic washing machines, features of washing machines.
Introduction to A/C's.
Components of air conditioning systems
All water air conditioning systems
Introduction to digital access devices.
Facsimile machine - Xerographic copier -
Calculators - Structure of a calculator - Internal Organization of a calculator - Digital clocks - Block diagram of a digital clock.
Introduction to Digital access devices: Digital computer-Internet access- Online ticket reservation- Functions and networks - Barcode Scanner and decoder
Electronic Fund Transfer - Automated Teller Machines (ATMs)
Set-Top boxes - Digital cable TV - Video on demand.

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS Paper : EMBEDDED SYSTEM DESIGN-5B(C-1)

Class: III B.Sc Semester: 6

Embedded systems overview, Design Challenge Processor Technology
, IC Technology.Design Technology.
Introduction, Combinational logic.
Sequential logic, Custom Single Purpose Processor Design.
RT-Level Custom Single-Purpose Processor, Introduction to Software Development.
Operation, Programmer's View, ASIPs.
Development Environment: Host and Target Machines, Linker / Locators for Embedded Software.
Getting Embedded Software into the target system, Debugging Techniques.Pulse Width Modulators, LCD Controllers, Keypad Controllers.
Stepper Motor Controllers, Analog – to – Digital Converters, and Real Time Clocks
Parallel Communication, Serial Communication.
Wireless Communication
Serial Protocols, Parallel Protocols, Wireless Protocols.
Miscellaneous concepts

DANTULURI NARAYANA RAJU COLLEGE(AUTONOMOUS)

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS Paper :ANALOG AND DIGITAL COMMUNICATION-6B(C-
2) Class: III B.Sc Semester: 6

Need for modulation, amplitude modulation-frequency spectrum of AM wave
Representation of AM, power relations in the AM wave. Generation of AM- Transistor modulators
Suppression of carrier, balanced modulator, suppression of one side band- phase shift method.
Theory of FM, frequency spectrum of FM wave, narrow band FM
wide band FM, power contents of the carrier and sidebands.
Generation of FM signals – Reactance modulator.
Noise – Thermal, Shot, Super heterodyne Receiver block diagram
FM receiver, discriminators- slope, balanced slope & Ratio detector
Communication bands, Electromagnetic waves-properties and applications.
PULSE MODULATION: Introduction, Sampling theorem, PAM- Generation & Detection
PWM- Generation & Detection, PPM- Generation & Detection .
PCM – Quantization noise, S/N ratio of PCM system, relation between S/N ratio & BW, Companding
Advantages of digital over analog communications. Advantages of shift keying over digital communication,
Types of shift keying, ASK – Generation & Detection, FSK – Generation & Detection

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Syllabus for the Academic Year 2018-19

Department : ELECTRONICS

Paper : POWER ELECTRONICS-7B(C-3)

Class: III B.Sc

Semester: 6

Power Devices: Need for semiconductor power devices, Power diodes
Introduction to family of thyristors. structure, I-V characteristics, Turn-On and Turn-Off characteristics of SCR. Factors
affecting the characteristics of SCR, Control circuits design and Protection circuits
Diac and Triac: Basic structure, working and V-I characteristics of diac and triac.
Insulated Gate Bipolar Transistors (IGBT): Basic structure, I-V Characteristics, switching characteristics.
Power MOS FETs: operation modes, switching characteristics, power BJT, second break down, saturation and quasi-saturation state.
Basic chopper circuit, types of choppers (Type A-D), step-down chopper, step-up chopper
operation of d.c. chopper circuits using self commutation (A & B-type commutating circuit), Morgan's chopper
Power Inverters: Need for commutating circuits and their various types d.c. link inverters,.
Parallel capacitor commutated invertors with and without reactive feedback and its analysis Series Inverter, bridge invertors,
DC Motors, Principle of operation, EMF equation, Back EMF Factors controlling motor speed, Thyristor based speed control of DC motors, AC motor (Induction Motor only),
Rotor and stator, torque & speed of induction motor