Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in
S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE
(Autonomous)
Recognized by UGC as "College with Potential for Excellence"
Accredited by NAAC with "A" Grade
(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)
PENUGONDA-534 320, West Godavari District., (A.P.)

I Semester Syllabus w.e.f (2019-20 Admitted Batch)

SEMESTER-I

BASIC CIRCUIT THEORY

Work load :60 Hrs Per Semester/ 4Hrs/Week

UNIT- 1: (12Hrs)

SINUSOIDAL ALTERNATING WAVEFORMS:

Definition of current and voltage. The sine wave, general format of sine wave for voltage or current, phase relations, average value, effective (R.M.S) values. Differences between A.C and D.C.
Basic elements and phasors: Concept of resistance, capacitance & inductances,combination of Resistor,Inductor & capacitors, V-I relations of R, L & C elements with phasor diagrams, frequency response of basic elements Resistor, Capacitor, and Inductor. **(problems)**

UNIT-II: (12hrs)

PASSIVE NETWORKS: (D.C):

Basics of networks, Node, loop, Mesh, Short circuit and open circuit, Kirchhoff's current and Voltage Law's,Mesh Analysis, Nodal Analysis, star to delta and delta to star conversions.(**Problems**)

UNIT-III: (12hrs)

NETWORKS THEOREMS: (D.C) :

Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems **(problems).**

UNIT-IV: (12hrs)

RC AND RL CIRCUITS:

Concept of Transient response and Steady state response, Transient response of RC and RL circuits with dc input, Time constants, Frequency response of RC and RL circuits, their action as low pass & high pass Filters .Passive differentiating and integrating circuits. (**problems**)

UNIT-V: (12hrs)

SERIES AND PARALLEL RESONANCE CIRCUITS:

Concept of resonance Series resonance expression for Resonance Frequency, Q-factor, Band Width relation between Q-factor & Band Width(β). parallel resonance circuits, expression for resonance Frequency, Q-factor, Band Width (β)relation between Q-factor & Band Width(β) comparison between series and parallel resonance. Related numerical problems.

REFERENCE BOOKS

1. Introduction circuit Analysis (UBS Publications) ---- **Robert L. Boylestad.**
2. Electronic Devices and Circuit Theory --- **Robert L. Boylestad & Louis Nashelsky.**
3. Circuit Analysis by **P.Gnanasivam- Pearson Education**
4. Engineering Circuit Analysis **By: Hayt & Kemmerly - MG.**
5. Networks and Systems – **D.Roy Chowdary.**
6. Unified Electronics (Circuit Analysis and Electronic Devices) **by Agarwal-Arora**
7. Electric Circuit Analysis- **S.R. Paranjothi**- New Age International.

Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in

S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE

(Autonomous)

Recognized by UGC as "College with Potential for Excellence"

Accredited by NAAC with "A" Grade

(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)

PENUGONDA-534 320, West Godavari District., (A.P.)

II Semester Syllabus w.e.f (2019-20 Admitted Batch)

SEMESTER-II

Electronic Devices and Circuits

Work load :60 Hrs Per Semester/ 4Hrs/Week

UNIT 1: (12Hrs)

PN JUNCTION DIODES:

Types of Semi Conductors,Formation of P-N junction, P-N junction Diode, Depletion region, Barrier Potential, Junction capacitance, P-N junction Diode Working and V-I characteristics , construction & working, V-I characteristics of varactor diode, Zener diode and Tunnel diode.

UNIT –II: (12hrs)

BIPOLAR JUNCTION TRANSISTOR AND ITS BIASING (D.C):

Introduction to Transistor,Type of Transistors, Construction & working NPN & PNP Transistors, Transistors characteristics in CB, CE Configurations, Transistor as a amplifier current amplificationfactor α,β,γ and their relations.

BJT Biasing: Need of Stabilization, Stability.Stability Factor, Thermal Run away,Biasing Techniques- Fixed biasing, Voltage-Divider Bias, self biasing.

UNIT-III: (12hrs)

FIELD EFFECT TRANSISTORS,UJT:

Introduction, Construction, working of JFET, Drain and Transfer characteristics, Depletion-type, andEnhancement-Type MOSFETs construction and working, Difference between BJT and FET.

UJT: construction-working, V-I characteristics, UJT as a Relaxation oscillator.

UNIT IV: (12hrs)

PHOTO ELECTRIC DEVICES:

Photo conduction and Photo voltaic effect, Light-Emitting Diodes (LEDs), Photo diode, Phototransistors, Structure and operation of LDR, Solar cell.

UNIT-V: (12hrs)

POWER SUPPLIES:

Block Diagram of regulator power supply ,Rectifiers-Half wave ,full wave and bridge rectifiers-Efficiency-ripple factor Regulation, Types of filters-shunt capacitor, series inductor L-section & π- section filters. Three terminal fixed voltage I.C regulators(78XX and &79XX)-Principle and working of SMPS(switch mode power supplies

Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in

S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE
(Autonomous)
Recognized by UGC as "College with Potential for Excellence"
Accredited by NAAC with "A" Grade
(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)
PENUGONDA-534 320, West Godavari District., (A.P.)

III Semester Syllabus w.e.f (2019-20 Admitted Batch)

SEMESTER-III

DIGITAL ELECTRONICS

Work load :60 Hrs Per Semester/ 4Hrs/Week

UNIT- 1: (09 Hrs)

NUMBER SYSTEM AND CODES:

Decimal, Binary, Hexadecimal, Octal, BCD, Conversions, Complements (1's and 2's,), Addition, Subtraction, Gray, Excess-3 Code conversion.

UNIT-II:(12hrs)

BOOLEAN ALGEBRA AND THEOREMS:

Boolean Theorems, De-Morgan's laws. Digital logic gates, NAND & NOR as universal gates. Standard representat of logic functions (SOP and POS), Minimization Techniques (Karnaugh Map Method: 4 variables),don't care condition.

UNIT-III: (15 hrs)

COMBINATIONAL DIGITAL CIRCUITS:

Adders-Half & full adder, Subtractor-Half and full subtractors, Parallel binary adder. Multiplexers (2:1,4:1)) and Demultiplexers (1:2,4:1), Encoder (8-line-to-3-line) and Decoder (3- line-to-8-line).

IC-LOGIC FAMILIES:

TTL logic (NAND gate), DTL logic (NOR gate), RTL(NAND gate) Logic, CMOS Logic families (NOR gate).

UNIT-IV: (14 hrs)

SEQUENTIAL DIGITAL CIRCUITS:

Flip Flops: S-R FF , J-K FF, T and D type FFs, Master-Slave FFs, Truth tables,
Registers:- shift left register, shift right register,
Counters - Asynchronous-Mod16,Mod-10, Down counter.

UNIT-V: (12hrs)

MEMORY DEVICES:

General Memory Operations, RAM (Static and Dynamic), ROM, PROM, EPROM, EEPROM, EAROM, (Programmable logic Array), PAL (Programmable Array Logic).

TEXT BOOKS:

1. M.Morris Mano, " Digital Design " 3rd Edition, PHI, New Delhi.

2 Ronald J. Tocci. "Digital Systems-Principles and Applications" 6/e. PHI. New Delhi. 1999.(UNITS I to IV)

3. G.K.Kharate-Digital electronics-oxford university press

4. S.Salivahana&S.Arivazhagan-Digital circuits and design

5. Fundamentals of Digital Circuits by Anand Kumar

Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in

S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE

(Autonomous)

Recognized by UGC as "College with Potential for Excellence"

Accredited by NAAC with "A" Grade

(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)

PENUGONDA-534 320, West Godavari District., (A.P.)

IV Semester Syllabus w.e.f (2019-20 Admitted Batch)

SEMESTER-IV

Work load :60 Hrs Per Semester/ 4Hrs/Week

UNIT- 1: (12Hrs)
OPERATIONAL AMPLIFIERS:

Definition, Basic op-amp Ideal opamp,Block diagram of op-amp, inverting, noninverting, virtual ground, Adders, subtractors, s voltage follower, op-amp parameters, voltage to current convertor, integrator, differentiator, differential amplifier, Logarithmic amplifier.

UNIT-II: (12hrs)

OP-AMP CIRCUITS:

voltage regulator, comparator ,zero cross detecting circuit, instrumentational amplifier, multivibrators-astable, monostable, Bistable, Schmitt trigger. sine wave generator, square wave generator, triangular wave generator, Active filters(Basics)-low pass, high pass, band pass filtersIC-555 –functional block diagram and mention it's applications

UNIT-III: (12hrs)
COMBINATIONAL & SEQUENTIAL LOGIC CIRCUITS (ICApplications):

Design of Code convertor: BCD to Seven Segment ,BCD to Grey, Grey to Binary. Design of Counters Mod N counter, Binary Up/Down Counter. Design of Universal Shift Register

UNIT-IV: (12hrs)

DATA CONVERTERS:

A/D converter:-

Successive Approximation ADC,- Single slope and dual slope converter, Sigma-delta ADC, D/A converter: R2R Ladder network, Binary Weighted .

UNIT-V: (12hrs)

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

TEXT BOOKS:

1. G.K.Kharate-Digital electronics-oxford university press

2. M.Morris Mano, " Digital Design " 3rd Edition, PHI, New Delhi.

3. Op Amp and Linear Integrated Circuits By Ramakant Gaykwad

4. Linear Integrated Circuits By Roy Choudary

Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in

S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE
(Autonomous)
Recognized by UGC as "College with Potential for Excellence"
Accredited by NAAC with "A" Grade
(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)
PENUGONDA-534 320, West Godavari District., (A.P.)

V Semester Syllabus w.e.f(2019-20 Admitted Batch)

SEMESTER-V(A)

MICROPROCESSORS(INTEL 8085)

Work load :60Hrs Per Semester/ 4Hrs/Week

UNIT- 1: (12Hrs)

ARCHITECTURE OF 8085 MICROPROCESSOR:
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 OF 8085 -Instruction set classification - addressing modes

UNIT-II:(12hrs)

MEMORY-Instruction cycle - machine cycle - T-state -Timing diagrams for Opcode Fetch Cycle Memory Read, Memory Write, I/O Read, I/O Write, - Functional explanation for RAM, ROM, EPROM

UNIT-III: (12hrs)

PROGRAMMING 8085- addition &subtraction(16-bit), multiplication, division, largest, smallest(all 8-bit data), Binary to BCD, BCD to Binary(all 8-bit data) - Stack & Subroutines Concept - Debugging program.

UNIT-IV: (12hrs)

INTERFACING MEMORY - 2K X 8 ROM, RAM to 8085, Interfacing an I/O port in Memory Mapped I/O and I/O Mapped I/O - Difference between I/O mapped and Memory Mapped I/O.

UNIT-V: (12hrs)

MICROPROCESSOR APPLICATIONS - Programmable peripheral device (8255)-Pin functions, Different Modes & Block Diagram - Keyboard and Display Interface 8279 (Architecture) - Simple temperature controller- stepper motor control interface.

TEXTBOOKS

1. Ramesh S. Gaonakar, Microprocessor Architecture, Programming and Application with the8085-PenramLnternational Publishing, Mumbai.
2. Ram, Fundamentals of microprocessors and microcomputers - Dhanpat Rai Publications, New Delhi.
3. Microprocessors & Microcontrollers by N .Senthilkumar, M. Saravanan& S. Jeevananthan, 1st edition, Oxford press(Helpful for interfacing applications)
4. Microprocessors & Microcontrollers by B.P.Singh, Galgotia publications Pvt.Ltd.

REFERENCE BOOKS

1.Mathur A.P., Introduction to Microprocessors. (3rd edn., Tata McGraw, New Delhi.
2.Leventhal L.A., Microprocessor Organisation and Architecture, Prentice Hall India.
3.Microprocessor lab premier by K.A.Krishnamurthy

Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in
S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE
(Autonomous)
Recognized by UGC as "College with Potential for Excellence"
Accredited by NAAC with "A" Grade
(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)
PENUGONDA-534 320, West Godavari District., (A.P.)

V Semester Syllabus w.e.f(2019-20 Admitted Batch)

SEMESTER-V(B)

CONSUMER ELECTRONICS

Work load :60Hrs Per Semester/ 4Hrs/Week

UNIT 1: (12Hrs)

MICROWAVE OVENS - Microwaves (Range used in Microwave Ovens) – Microwave oven block diagram -LCD timer with alarm - Single-Chip Controllers - Types of Microwave oven - Wiring and Safety instructions -Care and Cleaning.

UNIT –II:(12hrs)

WASHING MACHINES - Electronic controller for washing machines - Washing machine hardware and software- Types of washing machines - Fuzzy logic washing machines Features of washing machines.

UNIT-III:(12hrs)

AIR CONDITIONERS AND REFRIGERATORS - Air Conditioning - Components of air conditioning systems -All water air conditioning systems - All air conditioning systems - Unitary and central air conditioning systems -Split air conditioners.

UNIT IV: (12hrs)

HOME/OFFICE DIGITAL DEVICES - Facsimile machine - Xerographic copier -

Calculators - Structure of a calculator - Internal Organization of a calculator - Digital clocks - Block diagram of a digital clock.
Aditional topics:-working of mobile communication system.

UNIT-V:(12hrs)

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.

TEXT BOOKS
1. S.P. Bali, Consumer Electronics - Pearson Education, New Delhi, 2005.
2. R. G. Gupta Audio and Video systems Tata McGraw Hill (2004

Phone : 08819 - 246126 / 246926 Website : www.svkpandksrajucollege.org.in
S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE
(Autonomous)
Recognized by UGC as "College with Potential for Excellence"
Accredited by NAAC with "A" Grade
(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)
PENUGONDA-534 320, West Godavari District., (A.P.)

VI Semester Syllabus w.e.f(2019-20 Admitted Batch)

SEMESTER-VI

MICROCONTROLLER AND INTERFACING

Work load :60Hrs Per Semester/ 4Hrs/Week

UNIT- 1: (12Hrs)

Introduction, comparison of Microprocessor and micro controller, Evolution of microcontrollers from 4-bit to 32 Development tools for micro controllers, AssemblerCompiler-Simulator/Debugger.
Aditional Topic:-Applications of Micro-Controllers.

UNIT-II:(12hrs)
Microcontroller Architecture: Overview and block diagram of 8051, Architecture of 8051, Pin diagram of 8051. program counter and memory organization, Data types and directives, PSW register, Register banks and stack, Interrupts and timers.
UNIT-III: (12hrs)

Addressing modes, instruction set of 8051: Addressing modes and accessing memory using various addressing mo instruction set: Arithmetic, Logical, Simple bit, jump, loop and call instructions and their usage. Timer/Counter Programming,

UNIT-IV: (12hrs)

Assemble language programming Examples: Addition, Multiplication, Subtraction, division, largest, smallest.
Aditional Topics:-Time dealyprogramin 8081

UNIT-V: (12hrs)

Interfacing and Application of Microcontroller: 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.