



S.K.R. & S.K.R. Govt. College for Women (Autonomous), Kadapa.
Reaccredited with 'B' Grade by NAAC
Y.S.R.Kadapa District – 516001, Andhra Pradesh

Department of Electronics

Syllabus_ Sem I & Sem II

SKR & SKR GOVT. COLLEGE FOR WOMEN (A), KADAPA
B.Sc. 1st Semester Electronics Syllabus under CBCS
Paper I: Circuit Theory and Electronic Devices

Work load: 60 hrs per semester

4 hrs/week

UNIT- 1: (12Hrs)

SINUSOIDAL ALTERNATING WAVEFORMS: Definition of current and voltage. The sine wave, general format of sine wave for voltage or current, average value, effective (R.M.S) values. Differences between A.C and D.C. Phase relation of R, L and C

UNIT-II: (12hrs)

PASSIVE NETWORKS AND NETWORKS THEOREMS (D.C): Kirchoff's laws, Branch current method, Nodal Analysis, star to delta & delta to star conversions. Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems.

UNIT-III: (12hrs)

RC, RL AND RLC CIRCUITS: Frequency response of RC and RL circuits, their action as low pass and high pass filters. Passive differentiating and integrating circuits. Series resonance and parallel resonance circuits, Q – Factor.

UNIT-IV: (12hrs)

BJT, FET and UJT: BJT- Construction, working, and characteristics of CE Configurations. Hybrid parameters and hybrid equivalent circuit of CE Transistor, FET: Construction, working and characteristics of JFET and MOSFET, FET as a switch and amplifier. Advantages of FET over BJT. UJT: Construction, working and characteristics of UJT, UJT parameters. UJT as a Relaxation oscillator.

UNIT-V:(12hrs)

POWER SUPPLIES & PHOTO ELECTRIC DEVICES : Rectifiers-Half wave, full wave rectifiers-Efficiency-ripple factor- Filters-Shunt capacitor filter, series inductor filter L-section & π -section filters. Three terminal fixed voltage I.C. regulators (78XX and 79XX). Light Emitting Diode – Photo diode and LDR.

TEXT BOOKS:

1. Introductory circuit Analysis (UBS Publications) ---- Robert L. Boylestad.
2. Electronic Devices and Circuit Theory --- Robert L. Boylestad & Louisashelsky.
3. Circuit Analysis by P.Gnanasivam- Pearson Education
4. Electronic Devices and Circuit Theory --- Robert L. Boylestad & Louis Nashelsky.
5. Electronic Devices and Circuits I – T.L.Floyd- PHI Fifth Edition

REFERENCE BOOKS:

1. Engineering Circuit Analysis By: Hayt & Kemmerly - MG.
2. Networks and Systems – D.Roy Chowdary.
3. Unified Electronics (Circuit Analysis and Electronic Devices) by Agarwal- Arora
4. Electric Circuit Analysis- S.R. Paranjothi- New Age International.

5. Integrated Electronics – Millmam & Halkias.
6. Electronic Devices & Circuits – Bogart.
7. Sedha R.S., A Text Book Of Applied Electronics, S.Chand & Company Ltd

SKR & SKR GOVT. COLLEGE FOR WOMEN (A), KADAPA
B.Sc. 2nd Semester Electronics Syllabus under CBCS
PAPER-II: Digital Electronics
(w.e.f 2020-21)

Work load: 60 hrs per semester

4 hrs/week

Unit – I (12hrs)

Number System And Codes: Decimal, Binary, Hexadecimal, Octal. Codes: BCD, Gray and Excess-3, ASCII codes- code conversions- Complements (1's, 2's, 9's and 10's), Addition - Subtraction using complement methods.

Unit- II (12hrs)

Boolean Algebra And Theorems: Boolean Theorems, De-Morgan's laws. Digital logic gates, Multi level NAND & NOR gates. Standard representation of logic functions (SOP and POS), Minimization Techniques (Karnaugh Map Method: 2,3 variables).

Unit-III (12hrs)

Combinational Digital Circuits: Adders-Half & full adder, Subtractor-Half and full subtractors, Parallel binary adder, Magnitude Comparator, Multiplexers (4:1),(8:1) and Demultiplexers (1:4)(1:8), Encoder (8-line-to-3- line) and Decoder (3-line-to-8-line). IC- LOGIC FAMILIES: TTL,RTL,DTL logic, CMOS Logic families (NAND&NOR Gates).

Unit-IV (12hrs)

Sequential Digital Circuits: Flip Flops: S-R FF , J-K FF, T and D type FFs, Master-Slave FFs, Registers:-Serial In Serial Out and Parallel In and Parallel Out, Counters Asynchronous- ,Mod-8,Mod-10,Synchronous-4-bit,8-bit&Ring counter.

Unit-V(12hrs)

Memory Devices: General Memory Operations, ROM, RAM (Static and Dynamic), PROM, EPROM, EEPROM, EAROM,

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 universitypress
4. S.Salivahana & S. Arivazhagan-Digital circuits and design
5. Fundamentals of Digital Circuits by Anand Kumar

Reference Books :

1. Herbert Taub and Donald Schilling. “Digital Integrated Electronics” . McGraw Hill. 1985.
2. S.K. Bose. “Digital Systems”. 2/e. New Age International. 1992.
3. D.K. Anvekar and B.S. Sonade. “Electronic Data Converters : Fundamentals & Applications”. TMH. 1994.
4. Malvino and Leach. “ Digital Principles and Applications”. TMG Hill Edition.