STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

TNCF 2017 - DRAFT SYLLABUS

Subject :ELECTRONIC EQUIPMENT-THEORY **Class :** XI

TOPIC	CONTENT
1. Basic Electrical Principles.	Introduction; voltage current; frequency; resistance; Ohm's law;Kirchoff law; resistor types; Colour code; value calculating method; Resistor in Series & Resistor in parallel. Capacitor; types; application.
2. Electrical Devices	Cell (battery); types coil; EMF; Transformer; types; Electricalfuse Uses; Electrical switches safety precaution MCB; ELCB.
3. Basic Electronic Principles	Atomic structure; Atomic Number; Atomic Weight; Conductor;semi conductor; Insulator; types of Semi conductor; carbon; graphite - PN junction; Diode; forward and reversed bias; Breakdown and knee voltage;
4. Power Supply	Zener diode; voltage regulator Rectifiers; types; Filters; voltage doubler; variable types of adoptors.
5. Transistor; Amplifiers	PNP; NPN Transistor; Transistor testing method; Transistor biasing; Transistor as a amplifier - Transistor configuration CB; CE; CC; Application. LED;LDR;- LCD; Photo diode; photo transistor; Solar cell; UJT; FET; BJT; MOSFET; SCR; DIAC; TRIAC; IGBT Functions.

6. Special type Semiconductor Devices	Need of Oscillators Feedback; Feedback types Oscillator types; Hartley Oscillator; Crystal Oscillator; Multi; vibrators; Bi stable Multi vibrator; Application.
7. Oscillators	Analog signal; Digital signal; Numbering systems; Binary; Decimal; Octal;Hexa decimal; Logic Gates.
8. Digital Electronics	Computer Generation language; computer. Functional diagram; Input / output devices.
9. Basic computer Principles	Multi Meter; Multi Meter types; Function Generator; CRO; IC Tester; Spectrum analyzer; Logic probe; Wire Gauge meter; Phase detector.
10. Electronic Measuring Instruments.	

Subject :ELECTRONIC EQUIPMENTS (Theory) **Class :** XII

TOPIC	CONTENT
1. Digital circuits; Applications	Introduction; Digital Circuits, Combinational Circuits. Half Adder, Full Adder; Multiplexer, De-Multiplexer, Encoder, Decoder, Sequential Circuits, Flip-Flop types; counters.
2. Transmission of Reception	Introduction - Modulation Types; Demodulation Antenna; Dish Antenna; Principles of Transmission and Reception.
3. Transmitter & Receivers	Radio Transmitter, TV Transmitter; Radio Receiver; Super Heterodyne Principle; TV Receiver; communication Receiver.
4.Communication Devices	Introduction; Half-duplex, Full-duplex, Cell phone Technology; GSM, CDMA, TDMA, GPS, GPRS, Blue Tooth; 2G, 3G, 4G
5. Communication Systems	OFC; Types; Applications; Satellite communication; microwave; RADAR; SONAR.
6.Digital Photo; Technology	Introduction; Image processing; Photo Sensitivity; Image; transfer; Digital camera (VGA, CCD, CCTV)
7.Sound Engineering	Introduction; microphones; Types; Application; Loudspeakers; Types based on wattage and Ohm's rating; Audio Amplifier using IC TBA810; Audio Effects; Mono Stereo; setups; PA system, Dolphy System Digital Recording.
	Introduction; Operational Amplifier, -555IC; Variable Voltage, Regulator, (LM 317); UPS; Inverter; Relay; Microprocessor, Micro controller.
	Introduction; Mother Board; Internal Circuits - Encoders, I/P,

8.Power Electronics	O/P, Micro processor; EPROM; Networking.
9. Computer Hardware Techniques	Introduction;ECG, Ultra Sound Scan; Endoscopy, CT Scan, MRI, EEG, Pulse-oxi Meter.
10. Medical Equipments	