Paper-1 Syllabus for Electronics & Telecommunication Engineering:

This part is for both objective and conventional type papers:

1) Materials and Components –

Materials and Components are the vertebral column of Electronics and Telecommunication zone. Electronic materials are at the central part of design, expansion of electronic component built-up at the same time electronic components are the empathy of electronic equipment hardware. New-fangled technologies used for trimness of electronic hardware a which are driven by innovations in progression technologies. This includes

Structure and properties of Electrical Engineering materials; Semiconductors , Conductors, and Insulators, Ferroelectric, magnetic,Piezoelectric, Optical, Ceramic and Super-conducting materials. Passive components and characteristics Capacitors , Resistorsand Inductors; Electromagnetic and Electromechanical components , Ferrites, Quartz crystal Ceramic resonators.

2) Physical Electronics, Electron Devices and ICs –

Physical electronics , various electronics devices, ICs form the core of Electronics and Telecommunication branch. This part includes

Electrons and holes in semiconductors, Mechanism of current flow in a semiconductor, Carrier Statistics, Hall effect; Different types of diodes and their characteristics; Junction theory; Bipolar Junction transistor; Power switching devices like GTOs, SCRs, power MOSFETS; MOS and CMOS types , Basics of ICs – bipolar; Field effect transistors; basic of Opto Electronics.

3) Signals and Systems –

A Signal is a description of how one parameter varies with another parameter whereas a system is a process that results an output signal when an input signal is given. This section includes

Classification of systems and signals; System modelling in terms of differential and difference equations; Fourier series; State variable representation; Fourier transforms and their application to system analysis; Convolution and superposition integrals and their applications; Laplace transforms and their application to system analysis; Z-transforms and their applications to the analysis and characterisation of discrete time systems; Correlation functions , Random signals and probability; Response of linear system to random inputs; Spectral density.

4) Network theory –

A network is a anthology of interrelated components. Analysis of network is the method of finding the currents through, voltages across every module in the network. There are diverse techniques for scheming these values .This includes

Network analysis techniques; transient response, Network theorems, steady state sinusoidal response; Tellegen's theorem. Two port networks; Network graphs and their applications in network analysis; Z, Y, h and transmission parameters. Analysis of common two ports , Combination of two ports. Network functions : obtaining a network function from a given part , parts of network functions. Elements of network synthesis. Transmission criteria : Elmore's and other definitions effect of cascading ,delay and rise time.

5) Electromagnetic Theory –

The electromagnetic force is considered to be one of the basic interactions in nature. This force is depicted by electromagnetic forces which has immeasurable physical instances along with the interface of particles charged electrically and the interface of uncharged magnetic force fields

This segment includes

Boundary value problems and their solutions; Laplace's and Poisson's equations; Analysis of magnetostatic and electrostatic fields; Maxwell's equations; Transmission lines : basic theory, matching applications, standing waves, microstrip lines; Basics of wave guides and resonators; application to wave propagation in unbounded and bounded media; Elements of antenna theory.

6) Electronic Measurements and Electronic instrumentation –

Electronic Instrumentation and Measurements represents a inclusive handling of the operation, applications, performance and limitations of both analog and digital instruments. This includes

Basic concepts, standards and error analysis; Electronic measuring instruments and their principles of working : analog and digital, application , comparison, characteristics. Transducers; Measurements of basic electrical quantities and parameters; basics of telemetry for industrial use; Electronic measurements of non electrical quantities like pressure, temperature,humidity etc .

Paper-2 Syllabus for Electronics & Telecommunication Engineering :

This part is for both objective and conventional type papers:

1) Analog Electronic Circuits –

Analog electronics considered to be systems in electronics with aContinuous inconsistent signal .The word “analogue” describes the relative association amid current or voltage and a signal .This includes

Transistor biasing and stabilization. Power amplifiers. Frequency response. Small signal analysis. Feedback amplifiers. Wide banding techniques. Tuned amplifiers. Power supplies and Rectifiers. PLL, Op Amp, other linear integrated circuits and applications. Oscillators. Waveform generators and Pulse shaping circuits .

2) Digital Electronic Circuits –

Digital electronics circuits correspond to signals by distinct bands of analog level. All levels inside a band symbolize the identical signal status. This includes

Transistor as a switching element; Simplification of Boolean functions, Karnaguh map , Boolean algebra, and applications; IC logic families : DTL, ECL, TTL, NMOS, CMOS and PMOS gates and their comparison; Full adder , Half adder; IC Logic gates and their characteristics; Digital comparator; Multiplexer Demulti-plexer; Flip flops. J-K, R-S, T and D flip-flops; Combinational logic Circuits;

Different types of registers and counters Waveform generators. Semiconductor memories.A/D and D/A converters. ROM an their applications.

3) Control Systems –

A control system is said to be a gadget or a lay down of devices that commands, manages, regulates the performance of supplementary systems. In industrial fabricationontrol systems are used . This includes

Transient and steady state response of control systems; Root locus techniques; Concepts of gain and phase margins: Constant-N Nichol's Chart and Constant-M ; Effect of feedback on stability and sensitivity; Approximation of transient response from Constant-N Nichol's Chart; Design of Control Systems, Compensators; Approximation of transient response from closed loop frequency response; Industrial controllers. Frequency response analysis.

4) Communication Systems –

It's a collection of individual communication networks, relay stations,transmission systems and data terminal equipments which are interfaced together to form an integrated system. In communications system its subsystem are said to be a functional assembly of systems . This includes

Basic information theory; Sampling and data reconstructions; Modulation and detection in analogue and digital systems; Quantization & coding; Frequency division multiplexing and Time division ; Optical Communication : in free space & fiber optic; Equalization; Propagation of signals at VHF, HF, UHF and microwave frequency; Satellite Communication.

5) Microwave Engineering –

Microwave engineering deals with the study and planning of microwave components, circuits and systems. Elementary ideology are applied to design , analyze and measure techniques. This includes

Microwave Tubes and solid state devices, Waveguides and other Microwave Components and Circuits, Microwave generation and amplifiers, Microstrip circuits, Microwave Measurements, lasers

,Masers, Microwave Antennas; Microwave Communication Systems terrestrial and Satellite based. Microwave propagation.

6) Computer Engineering –

Computer engineering is a branch that integrates numerous fields of computer science necessary to build up computer software as well as hardware. Computer engineers are mainly concerned with hardware and software aspects of computing from design of computer , microprocessors and other circuit designs. This includes

Number Systems. Programming; Data representation; Elements of a high level programming language PASCAL/C; Control unit design; Fundamentals of computer architecture; Processor design; Use of basic data structures; I/o System Organisation , Memory organisation. Microprocessors : Architecture and instruction set of Microprocessors 8086 and 8085, Assembly language Programming. Personal computers and their typical uses. Microprocessor Based system design : typical examples.