

KIET Group of Institutions, Delhi-NCR, Ghaziabad
Department of Applied Sciences and B. Tech. 1st Year Group-II
CT-2 Syllabus

1. BAS 102: Engineering Chemistry

Unit-3: Electrochemistry and Batteries: Basic concepts of electrochemistry. *Batteries*; Classification and applications of Primary Cells (Dry Cell) and Secondary Cells (Lead Acid battery).

Chemistry of Engineering Materials:

Cement; Constituents, manufacturing, hardening and setting, deterioration of cement, Plaster of Paris (POP).

Unit-4:

Water Technology: Boiler troubles, Techniques for water softening (Ion Exchange and Reverse Osmosis process), Determination of Hardness and alkalinity, Numerical problems.

Fuels and Combustion: Definition, Classification, Characteristics of a good fuel, Calorific Values, Gross & Net calorific value, Determination of calorific value by Bomb Calorimeter, Theoretical calculation of calorific value by Dulong's method, Ranking of Coal, Analysis of coal by Proximate and Ultimate analysis method, Numerical problems, Chemistry of Biogas
Production from organic waste materials and their environmental impact on society.

2. BAS 103: Engineering Mathematics-I

Unit-2: Differential Calculus- I

Curve tracing, Euler's Theorem for homogeneous functions, Total derivative, Change of variables.

Unit-3: Differential Calculus-II

Expansion of functions by Taylor's and Maclaurin's theorems for functions of one and two Variables, Maxima and Minima of functions of several variables, Lagrange's method of multipliers, Jacobians, Approximation of errors.

3. BEC 101: Fundamentals of Electronics Engineering

Unit I - P and N type semiconductor, depletion layer, V I characteristics of diode, Ideal and practical diode, diode equivalent circuit, breakdown mechanism, series and parallel configuration of diode, diode resistance and capacitance.

Unit III - Non inverting amplifier, unity gain amplifier, summer, subtractor, Integrator, differentiator.

Unit V - Basics of signal representation and analysis, Electromagnetic spectrum, Elements of communication system, need of modulation and typical application, fundamentals of amplitude modulation.

4. BME 101: Fundamentals of Mechanical Engineering

Unit 2: Electric vehicles and hybrid vehicles: Components of an EV, EV batteries, chargers, drives, transmission and power devices. Advantages and disadvantages of EVs. Hybrid electric vehicles, HEV drive train components, advantages of HV.

Unit-3: Introduction to Refrigeration and Air-Conditioning Refrigeration: Refrigerating effect, Ton of Refrigeration; Coefficient of performance, methods of refrigeration, construction and working of domestic refrigerator, concept of heat pump.

Air-Conditioning: Its meaning and application, humidity, dry bulb, wet bulb, and dew point temperatures, comfort conditions, construction and working of window air conditioner.

Unit-4: Introduction to Fluid Mechanics and Applications Introduction: Fluids properties, pressure, density, dynamic and kinematic viscosity, specific gravity, Newtonian and Non-Newtonian fluid, Pascal's Law and Continuity Equation.

5. BAS 105: Soft Skills

Unit -2: Ted talk audio listening with script writing. Pronunciation; speaking style; content and sequencing.

Unit-3: Effective writing tools and method Inductive, deductive, exposition, linear, Interrupted, spatial, and chronological. Official Letter: Appreciation & Recommendation Business letter: Complaint & Order Notice writing Agenda and Minutes of meeting

Unit-4: Introduction to oral communication, Nuances and Mode of delivering speech