

Reduced Syllabus of F.Y.B.Tech.2020-21 Sem-I & II

Semester I and II

Reduced Syllabus: Engineering Physics

SECTION – I

Unit 1. Diffraction and Polarization of Light

Laurent's half shade polarimeter.

Unit 2. Laser and Fibre Optics

Fibre Optics:
fibre optic communication system, advantages of optical fibres.

SECTION – II

Unit 4. Crystal Physics:

Bragg's law for X-ray diffraction.

Unit 6. Quantum Mechanic

Wave-particle duality of light, dual nature of matter (De-Broglie's concept of matter waves) Wavelength of matter wave in terms of K.E. and P. D., Properties of matter waves, Heisenberg's uncertainty principle for position and momentum, Compton Effect (Statement, explanation and experimental verification).

Reduced Syllabus of F.Y.B.Tech.2020-21 Sem-I & II

Reduced Syllabus: Engineering Mathematics-I

Unit 5: Expansion of Functions and Indeterminate forms

1. Maclaurin's theorem
2. Standard expansions
3. Taylor's theorem
4. Indeterminate forms and L' Hospital's rule

Unit 6: Partial Differentiation

4. Euler's theorem on homogeneous function of two variables
5. Jacobian and its Properties .
6. Maxima and Minima of functions of two variable

Reduced Syllabus of F.Y.B.Tech.2020-21 Sem-I & II

Reduced Syllabus: Engineering Chemistry

Section -I

Unit 2: Instrumental methods of chemical analysis

Introduction, advantages and disadvantages of instrumental methods-----

A) Spectrometry: Introduction, Laws of spectrometry (Lamberts and Beer-Lambert's law), Single beam spectrophotometer (schematic, working and applications).

B) Chromatography: Introduction, types, gas-liquid chromatography (GLC), basic principle, instrumentation and applications.

Unit 3: Advanced materials

C) Composite materials: Introduction, Composition, properties and uses of fiber reinforced plastics (FRP) and glass reinforced plastic (GRP).

SECTION II

Unit 6: Metallic materials & Green Chemistry

B) Green Chemistry: Definition, Twelve principles of Green Chemistry.

Reduced Syllabus: Engineering Mathematics-II

Section-I

Unit 2: Applications of Ordinary Differential Equations of First Order and First Degree

1. Applications to Orthogonal trajectories (Cartesian and Polar equations)
2. Applications to Simple Electrical Circuits
3. Newton's law of cooling

Section -II

Unit 6: Multiple Integration and its applications:

3. Change into Polar Coordinates
 4. Area enclosed by plane curves
 5. Mass of a plane lamina
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Reduced Syllabus : Basic Electrical Engineering

SECTION- I

Unit 3: Single phase AC Circuits: Significance of power factor.

SECTION- II

Unit 5: Earthing and lamps: Single line diagram of electrical systems.

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Unit 6: Single phase Transformer: Construction, operating principle, Types, emf equation, Ratios of voltage and current, operation on no load and with load, power losses, efficiency, voltage regulation, applications. (Numerical Treatment on E.M.F Equations &Transformer losses and Efficiency)

Reduced Syllabus : Applied Mechanics

SECTION II

Unit 4: Kinetics of Linear:- Introduction to Kinematics of Linear motion (no numerical on kinematics), Kinetics of linear motion, Newton's Laws, D'Alembert's Principle, Work- Energy Principle, Impulse Momentum Principal

Unit 5: Kinetics of Circular Motion:- Introduction to Kinematics of Circular motion (no numerical on kinematics)

Reduced Syllabus : Basic Civil Engineering

SECTION- I

Unit 3: Building Materials and Design:- Use and properties of the following materials Concrete ingredients and grades, plain and reinforced cement concrete and ready mix concrete, bricks, steel, timber, roofing materials etc.

SECTION -II

Unit 6: Introduction to Transportation, Environmental and Irrigation Engineering:- Components of rigid and flexible pavement, components of railway track (Broad Gauge) Components of water supply scheme (flow diagram), Necessity of Irrigation, Types of Dams (Earthen and Gravity Dam)

Reduced Syllabus- Basic Mechanical Engineering

Unit 5: Mechanical Power Transmission and Energy conversion devices

Type of Belt and belt drives, chain drive, Types of gears and gear Trains, (Numerical Treatment on belt drive), Construction, working and applications of centrifugal Pump, Reciprocating compressor and Peloton wheel Turbine.

Unit 6: Manufacturing Processes

Metal Joining Processes – Arc welding, soldering and brazing and their application

Reduced Syllabus of F.Y.B.Tech.2020-21 Sem-I & II

Reduced Syllabus : Engineering Graphics

SECTION- I

Unit 2: Projections of lines & Planes

A) Projections of plane figures inclined to both the planes.

Unit 3: Projections of solids

Inclined to both reference planes

SECTION- II

Unit5: Isometric projections

Isometric projections: Introduction to isometric, Isometric scale, Isometric projections and Isometric views / drawings. Circles in isometric view. Isometric views of simple solids and objects.

Reduced Syllabus :Fundamentals of Electronics and Computer

SECTION- II

Unit 6: Computer Programming and Networks

A) **Computer Programming:** Program Development

Cycle, Algorithm, Flowchart, Programming Control

Structures – Sequence, Selection, and Repetition.

B) **Introduction to Computer Networks:** Definition Of Computer

Network, Need, Standards: OSI, TCP/IP, Types of Networks: LAN,

WAN, MAN, Network Topologies.

Unit 5: Data Representation and Computer Software

A) Unix/Linux Commands: Listing, Changing, Copying, And Moving

Files & Directories (ls, cd, cat, mkdir, rmdir)