

Teaching and Examination Scheme

I Semester: B.Tech Common to all branches of UG Engineering & Technology

| SN | Category | Course Code | Course Title | Hours | | | Marks | | | Cr |
|--------------|------------|---------------------|------------------------------------------------------------------------|-------|---|---|-------|-----|-------------|-------------|
| | | | | L | T | P | IA | ETE | Total | |
| 1 | BSC | 1FY2-01 | Engineering Mathematics-I | 3 | 1 | - | 40 | 160 | 200 | 4 |
| 2 | BSC | 1FY2-02/ 1FY2-03 | Engineering Physics/ Engineering Chemistry | 3 | 1 | - | 40 | 160 | 200 | 4 |
| 3 | HSMC | 1FY1-04/ 1FY1-05 | Communication Skills/ Human Values | 2 | - | - | 20 | 80 | 100 | 2 |
| 4 | ESC | 1FY3-06/ 1FY3-07 | Programming for Problem Solving/ Basic Mechanical Engineering | 2 | - | - | 20 | 80 | 100 | 2 |
| 5 | ESC | 1FY3-08/ 1FY3-09 | Basic Electrical Engineering/ Basic Civil Engineering | 2 | - | - | 20 | 80 | 100 | 2 |
| 6 | BSC | 1FY2-20/ 1FY2-21 | Engineering Physics Lab/ Engineering Chemistry Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| 7 | HSMC | 1FY1-22/ 1FY1-23 | Language Lab/ Human Values Activities | - | - | 2 | 30 | 20 | 50 | 1 |
| 8 | ESC | 1FY3-24/ 1FY3-25 | Computer Programming Lab/ Manufacturing Practices Workshop | - | - | 3 | 45 | 30 | 75 | 1.5 |
| 9 | ESC | 1FY3-26/ 1FY3-27 | Basic Electrical Engineering Lab/ Basic Civil Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| 10 | ESC | 1FY3-28/ 1FY3-29 | Computer Aided Engineering Graphics/ Computer Aided Machine Drawing | - | - | 3 | 45 | 30 | 75 | 1.5 |
| 11 | SODE CA | 1FY8-00 | | | | | | | 25 | 0.5 |
| Total | | | | | | | | | 1025 | 20.5 |

L = Lecture, **T** = Tutorial,

P = Practical, **IA**=Internal Assessment,
ETE=End Term Exam, **Cr**=Credits

Teaching and Examination Scheme

II Semester: B.Tech.

Common to all branches of UG Engineering & Technology

| SN | Category | Course Code | Course Title | Hours | | | Marks | | | Cr |
|--------------|------------|---------------------|------------------------------------------------------------------------|-------|---|---|-------|-----|-------------|-------------|
| | | | | L | T | P | IA | ETE | Total | |
| 1 | BSC | 2FY2-01 | Engineering Mathematics-II | 3 | 1 | - | 40 | 160 | 200 | 4 |
| 2 | BSC | 2FY2-03/ 2FY2-02 | Engineering Chemistry/ Engineering Physics | 3 | 1 | - | 40 | 160 | 200 | 4 |
| 3 | HSMC | 2FY1-05/ 2FY1-04 | Human Values/ Communication Skills | 2 | - | - | 20 | 80 | 100 | 2 |
| 4 | ESC | 2FY3-07/ 2FY3-06 | Basic Mechanical Engineering/ Programming for Problem Solving | 2 | - | - | 20 | 80 | 100 | 2 |
| 5 | ESC | 2FY3-09/ 2FY3-08 | Basic Civil Engineering/ Basic Electrical Engineering | 2 | - | - | 20 | 80 | 100 | 2 |
| 6 | BSC | 2FY2-21/ 2FY2-20 | Engineering Chemistry Lab/ Engineering Physics Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| 7 | HSMC | 2FY1-23/ 2FY1-22 | Human Values Activities/ Language Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| 8 | ESC | 2FY3-25/ 2FY3-24 | Manufacturing Practices Workshop/ Computer Programming Lab | - | - | 3 | 45 | 30 | 75 | 1.5 |
| 9 | ESC | 2FY3-27/ 2FY3-26 | Basic Civil Engineering Lab/ Basic Electrical Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| 10 | ESC | 2FY3-29/ 2FY3-28 | Computer Aided Machine Drawing/ Computer Aided Engineering Graphics | - | - | 3 | 45 | 30 | 75 | 1.5 |
| 11 | SODE CA | 1FY8-00 | | | | | | | 25 | 0.5 |
| Total | | | | | | | | | 1025 | 20.5 |

L = Lecture, **T** = Tutorial,
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ETE=End Term Exam, **Cr**=Credits

I & II Semester
Common to all branches of UG Engineering & Technology

1FY2-02/ 2FY2-02: Engineering Physics

Credit: 4
3L+1T+0P

Max. Marks: 200 (IA:40, ETE:160)
End Term Exam: 3 Hours

| SN | CONTENTS | Hours |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1 | Wave Optics: Newton's Rings, Michelson's Interferometer, Fraunhofer Diffraction from a Single Slit. Diffraction grating: Construction, theory and spectrum, Resolving power and Rayleigh criterion for limit of resolution, Resolving power of diffraction grating, X-Ray diffraction and Bragg's Law. | 9 |
| 2 | Quantum Mechanics: Introduction to quantum Mechanics, Wave-particle duality, Matter waves, Wave function and basic postulates, Time dependent and time independent Schrodinger's Wave Equation, Physical interpretation of wave function and its properties, Applications of the Schrodinger's Equation: Particle in one dimensional and three dimensional boxes. | 6 |
| 3 | Coherence and Optical Fibers: Spatial and temporal coherence: Coherence length; Coherence time and 'Q' factor for light, Visibility as a measure of Coherence and spectral purity, Optical fiber as optical wave guide, Numerical aperture; Maximum angle of acceptance and applications of optical fiber. | 4 |
| 4 | Laser: Einstein's Theory of laser action; Einstein's coefficients; Properties of Laser beam, Amplification of light by population inversion, Components of laser, Construction and working of He-Ne and semiconductor lasers, Applications of Lasers in Science, engineering and medicine. | 6 |
| 5 | Material Science & Semiconductor Physics: Bonding in solids: covalent and metallic bonding, Energy bands in solids: Classification of solids as Insulators, Semiconductors and Conductors, Intrinsic and extrinsic semiconductors, Fermi dirac distribution function and Fermi energy, Conductivity in semiconductors, Hall Effect: Theory, Hall Coefficient and applications. | 7 |
| 6 | Introduction to Electromagnetism: Divergence and curl of electrostatic field, Laplace's and Poisson's equations for electrostatic potential, Bio-Savart law, Divergence and curl of static magnetic field, Faraday's law, Displacement current and magnetic field arising from time dependent electric field, Maxwell's equations, Flow of energy and Poynting vector. | 8 |
| TOTAL | | 40 |

I & II Semester

