Guru Nanak Dev University, Punjab B.E./B.Tech ECE Sem 2 syllabus

Engineering Graphics and Drafting

SECTION - A

1
Introduction: Instruments used, Lettering, Types of Lines used, Scales, Types of
Projections in use, Dimensioning of Figures, etc.; Orthographic Projections of
Points, Lines & Lamina
Lab Work: Introduction to AutoCAD, Practice of 2D commands, Exercises related
to the theory contents of this section.

SECTION - B

2
Projection of Solids: Section of Solids & its Projections; Interpenetration of Solids
& Curve of Interpenetration; Development of Surfaces.
Lab Work: Familiarity with 3D commands, Exercises related to the theory contents
of this section.

SECTION - C

3
Isometric Drawing & Isometric Projection
Lab Work: Lab Exercises related to the theory contents of this section.

SECTION - D

4
Free-Hand sketching of Engineering Components, Advance 3D Commands: Solving
Problems using AutoCAD.
Lab Work: Lab Exercises related to the theory contents of this section.

Suggested / Reference Books:
1 Engineering Drawing, N. D. Bhatt
2 Engineering Graphics with AutoCAD, James D. Bethune
3 Engineering Drawing & Graphics, K. Venugopal
4 Engineering Drawing PS Gill
Engineering Drawing Author: M. B. Shah & B. C. Rana
5 Engineering Drawing, M. B. Shah & B. C. Rana

Physics

SECTION - A
Introduction: Force system, dimensions and units in mechanics, laws of
mechanics,vectoralgebra, addition and subtraction of forces, cross and dot products
of vectors, moment of aforceabout a point and axis, couple and couple moment,
transfer of a force to a parallelposition,resultant of a force system using vector
method, Problems involving vectorapplication. Equilibrium: Static and dynamic
equilibrium, static in determinacy, general equationsofequilibrium, Varingnon’s
theorem, Lami’s theorem, equilibrium of bodies under a forcesystem,Problems.

SECTION - B
Truss and Frames: Truss, classification of truss, assumptions in truss analysis,
perfect truss, analysis of perfect plane truss using method of joints and method of
sections, Problems. Centroid, Centre of mass and Centre of gravity, Determination
of centroid, centre of mass and centre of gravity by integration method of regular
and composite figures and solid objects, Problems.

SECTION - C

Moment of Inertia: Area moment of inertia, mass moment of inertia, parallel axis and perpendicular axis theorems, radius of gyration, polar moment of inertia, product of inertia, principle axis, problem based on composite figures and solid objects. Kinematics: Concept of rigid body, velocity and acceleration, relative velocity, translation and rotation of rigid bodies, equations of motion for translation and rotation, problems.

SECTION - D

Particle Dynamics: Energy methods and momentum methods, Newton's laws, work energy equation for a system of particles, linear and angular momentum equations, projectile motion, problem. Shear Force and Bending Moment Diagram for statically determinant beams Classification of beams, types of loads, shear force and bending moment calculation and their graphical presentation, point of inflection, problem.

Suggested / Reference Books:

1 Engineering Mechanics – Irving H. Shames, PHI Publication.
2 Engineering Mechanics – U.C. Jindal, Galgotia Publication.
3 Mechanics–Berkeley Physics Course, Vol–I (Second Edition): C. Kittel, W.D. Knight, M.A. Ruderman, C.A. Helmholtz and R.J. Moyer–Tata McGraw Hill Publishing Company Ltd., New Delhi.

Engineering Mechanics

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