LOK JAGRUTI UNIVERSITY (LJU)

INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Mechanical Engineering (710)

Bachelor of Engineering (B.E.) – Semester – II

Course Code:	017102293
Course Name:	**Engineering Graphics - II**
Category of Course:	Engineering Science Course (ESC)
Prerequisite Course:	Engineering Graphics -I (017102191)

Teaching Scheme				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Total Hours
3	**1**	**0**	**4**	**40**

Syllabus				
Unit No.	Topic	Prerequisite Topic	Successive Topic	Teaching Hours
01	**Projection of Solids - 1** 1.1 Classification of solids 1.2 Definitions of different types of solids 1.3 Projections of pyramid with its inclination with one reference planes 1.4 Projections of pyramid with its inclination with two reference planes	Projections of planes (017102191-Unit-09)	--- --- --- ---	**4 (10%)**
02	**Projection of Solids - 2** 2.1 Projections of prism with its inclination with one reference planes 2.2 Projections of prism with its inclination with two reference planes	Projections of solids-1 (017102293-Unit-01)	--- ---	**3 (7.5%)**
03	**Projection of Solids - 3** 3.1 Projections of cone and cylinder with its inclination with one reference planes 3.2 Projections of cone and cylinder with its inclination with two reference planes	Projections of solids-1 (017102293-Unit-01)	--- ---	**3 (7.5%)**
04	**Sections of Solids** 4.1 Introduction of various cutting planes 4.2 Concept of Auxiliary Inclined Plane and Auxiliary Vertical plane 4.3 Section of cube, cylinder, cone, pyramid and prism and the true shape of the section with its inclination with one and two reference planes	Projections of solids-1 (017102293-Unit-01), Projections of solids-2 (017102293-Unit-02), Projections of solids-3 (017102293-Unit-03)	--- --- ---	**5 (12.5%)**
05	**Development of Surfaces -1** 5.1 Concept of different methods of development of lateral surfaces 5.2 Parallel line development method 5.3 Development of cube 5.4 Development of cylinder 5.5 Development of prisms	Sections of solids (017102293-Unit-04)	--- --- --- --- ---	**3 (7.5%)**
06	**Development of Surfaces -2** 6.1 Radial line development method 6.3 Development of cone 6.4 Development of pyramids and tetrahedron	Sections of solids (017102293-Unit-04)	--- --- ---	**4 (10%)**
07	**Orthographic Projections** 7.1 Principles of projector, projections and planes of projections 7.2 Concepts of methods of projections 7.3 Front view, top view and side views using first angle projection method 7.4 Front view, top view and side views using third angle projection method	Projections of solids-1 (017102293-Unit-01), Projections of solids-2 (017102293-Unit-02), Projections of solids-3 (017102293-Unit-03)	Nomenclature and geometry of single point cutting tool, tool maker's microscope (017103302-Unit-2.1), Nomenclature and geometry of twist drill. (017103302-Unit-5.3), Fundamentals of computer aided manufacturing (017103503-Unit-03)	**6 (15%)**
08	**Sectional Orthographic Projections** 8.1 Introduction 8.2 Types of section 8.3 Full sectional views	Orthographic projections (017102293-Unit-07)	--- --- ---	**4 (10%)**
09	**Isometric Projections and Isometric View or Drawing** 9.1 Isometric scale 9.2 Conversion of orthographic views into isometric view or drawing 9.3 Conversion of orthographic views into isometric projection	Orthographic projections (017102293-Unit-07)	--- --- ---	**6 (15%)**

10	**Plan layout Drawing**				**2 (5%)**
	10.1 Symbols for plant layout	Orthographic projections (017102293-Unit-07)	---	
	10.2 Line layout of building		---	
	10.3 Plan layout of building		---	

<table>
<tr><td colspan="7" align="center">Proposed Theory + Practical Evaluation Scheme by Academicians
(% Weightage Category Wise and it's Marks Distribution)</td></tr>
<tr><td colspan="2" align="center">L:</td><td align="center">3</td><td align="center">T:</td><td align="center">1</td><td align="center">P:</td><td align="center">0</td></tr>
<tr><td colspan="7">Note: In Theory Group, Total 4 Test (T1+T2+T3+T4) will be conducted for each subject.
Each Test will be of 25 Marks.
Each Test Syllabus Weightage: Range should be 20% - 30%</td></tr>
<tr><td>Group (Theory or Practical)</td><td>Group (Theory or Practical) Credit</td><td>Total Subject Credit</td><td colspan="2">Category</td><td>% Weightage</td><td>Marks Weightage</td></tr>
<tr><td>Theory</td><td rowspan="4">4</td><td rowspan="6">4</td><td colspan="2">MCQ</td><td>20%</td><td>20</td></tr>
<tr><td>Theory</td><td colspan="2">Theory Descriptive</td><td>10%</td><td>10</td></tr>
<tr><td>Theory</td><td colspan="2">Formulas and Derivation</td><td>0%</td><td>0</td></tr>
<tr><td>Theory</td><td colspan="2">Numerical</td><td>70%</td><td>70</td></tr>
<tr><td>Expected Theory %</td><td>100%</td><td colspan="2">Calculated Theory %</td><td>100%</td><td>100</td></tr>
<tr><td>Practical</td><td rowspan="5">0</td><td colspan="2">Individual Project</td><td>0%</td><td>0</td></tr>
<tr><td>Practical</td><td colspan="2">Group Project</td><td>0%</td><td>0</td></tr>
<tr><td>Practical</td><td colspan="2">Internal Practical Evaluation (IPE)</td><td>0%</td><td>0</td></tr>
<tr><td>Practical</td><td colspan="2">Viva</td><td>0%</td><td>0</td></tr>
<tr><td>Practical</td><td colspan="2">Seminar</td><td>0%</td><td>0</td></tr>
<tr><td>Expected Practical %</td><td>0%</td><td></td><td colspan="2">Calculated Practical %</td><td>0%</td><td>0</td></tr>
<tr><td>Overall %</td><td>100%</td><td></td><td colspan="2"></td><td>100%</td><td>100</td></tr>
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Course Outcome

	Upon completion of the course students will be able to
1	Develop the ability to visualize solid geometry and project different positions relative to the horizontal and vertical planes.
2	Understand and apply techniques for the lateral surface development of different solid models.
3	Demonstrate the capability to draw and project 3D models and intricate machine components using various orthographic views. Develop the skill to visualize the internal structures of complex bodies through the effective use of sectional views.
4	Acquire the skill to construct 3D isometric views from orthographic pictorial drawings. Create comprehensive architectural drawings, including plans, layouts, and line layouts of buildings, incorporating symbols representing different architectural elements.

Suggested Reference Books

1	Elementary Engineering Drawing by N.D. Bhatt, Charotar Publishing House, Anand.
2	Engineering Graphics by P.J. Shah, S. Chand and Company Ltd., New Delhi.
3	Engineering Graphics by P.B. Patel and P.D. Patel, Mahajan publishing house. Ahmedabad.
4	Engineering Drawing by P.S. Gill, S.K. Kataria and sons, Delhi.
5	Engineering Drawing by R.K. Dhawan, S. Chand and Company Ltd., New Delhi.
6	Engineering Drawing by B. Agrawal and C M Agrawal, Tata McGraw Hill, New Delhi.
7	Engineering Graphics – I and II", by Arunoday Kumar, Tech – Max Publication, Pune, 3rd Edition 2010.
8	Engineering Drawing and Graphics, by K. Venugopal, New Age International Publication, 5th Edition.
9	Building drawing, by M.G.Shah, C.M.Kale and S.Y.Patki Publisher: Tata McGraw Hill.

List of Open Source Software/Learning Website

1	http://nptel.ac.in/
2	Autodesk AutoCAD