

**Name of Institute: Indus Institute of Technology
and Engineering Name of Faculty: Dr.Bansi Raja**

Course code: ME0019

Course name: Engineering Graphics

Pre-requisites: None

Teaching Scheme					Examination Scheme				
L*	T*	P*	Cr	Hrs	Theory		Practical		TOTAL
					CIE	ESE	CIE	ESE	
1	0	4	3	5	60	40	60	40	200

Credit points: 3

Offered Semester: II

Course Coordinator

Full name: Dr.Bansi Raja

Department with siting location: HMT Lab,FF,Bhanwar

Building

Telephone: 3113,

Email: bansiraja.me@indusuni.ac.in

Consultation times: Friday (9.30am to
11.00 am)

Students will be contacted throughout the session via mail with important information relating to this course.

Course Objectives

- 1) To make students understand the conventions and the methods of engineering drawing.
- 2) To make students interpret engineering drawings using fundamental technical mathematics.
- 3) To improve visualization skills of students so that they can apply these skills in developing new products.
- 4) To improve student's technical communication skill in the form of communicative drawings.
- 5) To make students comprehend the theory of projection.

Course Outcomes (CO)

After learning the course, the students should be able to,

1. Understand the conventions and the methods of engineering drawing.
2. Interpret engineering drawings using fundamental techniques of mathematics.
3. Construct basic and intermediate geometry.
4. Improve their visualization skills so that they can apply these skills in developing new products.
5. Improve their technical communication skill in the form of communicative drawings.
6. Comprehend the theory of projection.

Course Outline

Key in topics to be dealt:

1. Engineering curves
2. Projection of various geometries.
3. Orthographic Projection
4. Isometric view.

Method of delivery

(Face to Face Lecture), PPT & Video, Self-study material, Problem Based Learning)

Study time

(How many hours per week including class attendance)

	Lecture	Tutorial	Practical
No of hours	1	0	4

CO-PO Mapping (PO: Program Outcomes)

PO/PSO CO	PO											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3					2	1	-				
CO2	3	-	-	1	3	-	-	-	-	-	-	-
CO3	3	2	2	2	3	-	-	-	-	-	-	-
CO4	2	2	1	-	-	-	-	-	-	-	-	-
CO5	3	-	3	1	3	-	-	-	-	-	-	-
CO6	2	3	-	1	-	-	-	-	-	-	-	-

Blooms Taxonomy and Knowledge retention (For reference)
 (Blooms taxonomy has been given for reference)

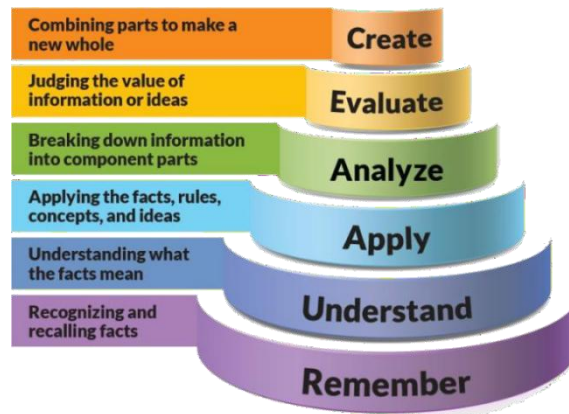


Figure 1: Blooms Taxonomy

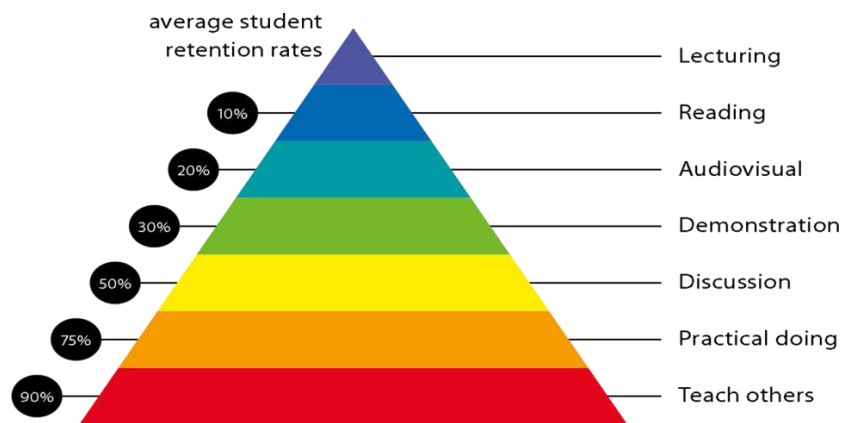


Figure 2: Knowledge retention

Graduate Qualities and Capabilities covered
 (Qualities graduates harness crediting this Course)

General Graduate Qualities	Specific Department of Graduate Capabilities
<p>Informed Have a sound knowledge of an area of study or profession and understand its current issues, locally and internationally. Know how to apply this knowledge. Understand how an area of study has developed and how it relates to other areas.</p>	<p>1 Professional knowledge, grounding & awareness</p>

<p>Independent learners Engage with new ideas and ways of thinking and critically analyze issues. Seek to extend knowledge through ongoing research, enquiry and reflection. Find and evaluate information, using a variety of sources and technologies. Acknowledge the work and ideas of others.</p>	<p>2 Information literacy, gathering & processing</p>
<p>Problem solvers Take on challenges and opportunities. Apply creative, logical and critical thinking skills to respond effectively. Make and implement decisions. Be flexible, thorough, innovative and aim for high standards.</p>	<p>4 Problem solving skills</p>
<p>Effective communicators Articulate ideas and convey them effectively using a range of media. Work collaboratively and engage with people in different settings. Recognize how culture can shape communication.</p>	<p>5 Written communication</p>
	<p>6 Oral communication</p>
	<p>7 Teamwork</p>
<p>Responsible Understand how decisions can affect others and make ethically informed choices. Appreciate and respect diversity. Act with integrity as part of local, national, global and professional communities.</p>	<p>10 Sustainability, societal & environmental impact</p>

Practical work: LIST OF PRACTICALS (SHEETS)

1. Engineering curves – I (Ellipse, parabola and Hyperbola)
2. Engineering curves – II (Cycloid, Hypocycloid, Epicycloids, Involutives, Spirals)
3. Projections of Points and Line
4. Projections of Planes
5. Projections of solids
6. Orthographic projection
7. Section Orthographic projection
8. Isometric Projection/view

Lecture/tutorial times

(Give lecture times in the format below)

As per Time Table

Attendance Requirements

The University norms states that it is the responsibility of students to attend all lectures, tutorials, seminars and practical work as stipulated in the course outline. Minimum attendance requirement as per university norms is compulsory for being eligible for semester examinations.

Details of referencing system to be used

in written workText books

1. P. J. Shah, "A Text Book of Engineering Graphics" Publication: S. Chand.
2. P. D. Patel, "Engineering Graphics" Publication: Mahajan

Reference Books

1. N. D. Bhatt, "Elementary Engineering Drawing", Charotar Publishing House, Anand
2. A text book of Engineering Drawing by R. K. Dhawan, S. Chand & Company Ltd., New Delhi
3. A text book of Engineering Drawing by P. S. Gill, S. K. Kataria & sons, Delhi
4. A Text Book of Machine Drawing By P. J. Shah S. Chand & Company Ltd., New Delhi

Additional Materials

<http://nptel.ac.in/courses/112103019/>

ASSESSMENT GUIDELINES

Your final course mark will be calculated from the following:

Tentative CIE Theory 60 Marks Bifurcation		Tentative Duration
10 Marks	Attendance	Academic Session
10 Marks	Assignment/Class Participation	Academic Session
40 Marks	Mid Sem exam	As per academic Calendar
Tentative CIE Practical 60Marks Bifurcation		Tentative Duration
10 Marks	Attendance	Academic Session
20 Marks	File work/Drawing sheet - Drawing etc. in lab. itself	After completion of Topic
30 Marks	Practical Performance /Lab Participation/Q &A/ Skill Test	Week 4,6,8

SUPPLEMENTARY ASSESSMENT

Students who receive an overall mark less than 40% in internal component or less than 40% in the end semester will be considered for supplementary assessment in the respective components (i.e internal component or end semester) of semester concerned. Students must make themselves available during the supplementary examination period to take up the respective components (internal component or end semester) and need to obtain the required minimum 40% marks to clear the concerned components.

Practical Work Report/Laboratory Report:

A report on the practical work is due the subsequent week after completion of the class by each group.

Late Work

Late assignments will not be accepted without supporting documentation. Late submission of the reports will result in a deduction of -% of the maximum mark per calendar day

Format

All assignments must be presented in a neat, legible format with all information sources correctly referenced. **Assignment material handed in throughout the session that is not neat and legible will not be marked and will be returned to the student.**

Retention of Written Work

Written assessment work will be retained by the Course coordinator/lecturer for two weeks after marking to be collected by the students.

University and Faculty Policies

Students should make themselves aware of the University and/or Faculty Policies regarding plagiarism, special consideration, supplementary examinations and other educational issues and student matters.

Plagiarism - Plagiarism is not acceptable and may result in the imposition of severe penalties. Plagiarism is the use of another person's work, or idea, as if it is his or her own - if you have any doubts at all on what constitutes plagiarism, please consult your Course coordinator or lecturer. Plagiarism will be penalized severely.

**Do not copy the work of other students.
Do not share your work with other students (except where required for a group activity or assessment).**

Course schedule (subject to change)

Week #	Topic & contents	CO Addressed	Teaching Learning Activity (TLA)
Week 1	Principles of Engineering Graphics and their Significance - Drawing Instruments and their Use - Conventions in Drawing - Lettering -	1 , 2	Assignment Submission
Week 2	BIS Conventions- Dimensioning systems - polygons-types of lines. Classification and application of Engineering Curves, Construction of different methods of Ellipse, parabola and Hyperbola.	1 , 2	Worksheet Submission
Week 3	construction of Conics, Cycloid Curves - Cycloid, Hypocycloid, Epicycloids, Involute and Spirals.	2 , 3	Worksheet submission, Quiz
Week 4	Introduction to principal planes of projections, Projections of the points located in same quadrant and different quadrants, Projections of line with its inclination to one reference plane and with two reference planes.	3 , 4	Assignment and Worksheet Submission
Week 5	True length and inclination with the reference planes.	3 , 4	Assignment and Worksheet Submission
Week 6	Projections of planes (polygons, circle, and ellipse) with its inclination to one reference plane and with two reference planes, Concept of auxiliary plane method for projections of the plane.	4	Assignment and Worksheet Submission
Week 7	Classification of solids. Projections of solids (Cylinder, Cone, Pyramid, Prism) along with frustum of cone and pyramid with their inclinations to one reference plane and with two reference planes.	4 , 6	Assignment and Worksheet Submission

Week 8	Fundamental of projection along with classification, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method.	4 , 6	Assignment and Worksheet Submission, Quiz
Week 9	Fundamental of projection along with classification, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method.	5 , 6	Assignment and Worksheet Submission, Quiz
Week 10	Introduction of section of objects, fullsectional view.	4 , 5 , 6	Assignment and Worksheet Submission, Quiz
Week 11	Isometric orthographic projection. Scale, views Conversion of into isometric	5 , 6	Assignment and Worksheet Submission, Quiz
Week 12	Isometric view or drawing	4 , 6	Assignment and Worksheet Submission, Quiz

B.TECH MECHANICAL ENGINEERING

