Course Information Sheet

Program: UG	**Degree:** B. Tech (Common for all Branches)	
Course Code: 23BS1102M	**Course Title: Engineering Graphics**	
Year: I **Sem:** I **A.Y. :2025-26**	**Regulation: IS23** **College: ISTS (an Autonomous Institution)**	
L T/P/D C: 3/0/0/3	**Credits: 3**	**Contact Hrs.: 6**
Mid Marks: 30	**External Marks: 70**	**Total Marks: 100**
Teaching Hrs.: 60	**Exam Duration:** 3 hrs.	

Course Information:

Course Code	Course Name	Description	Year-Sem
23BS1102M	Engineering Graphics	Engineering Graphics is the language of communication for all engineers, architects, interior decorators, apparel designers and many others. This is needed right from conceiving the design of any product, up to the mass production stage and beyond for modification and restructuring of Engineering Graphics finds its use in all fields work relating to various products and their design.	I B. Tech (Common for Group-B Branches) Semester -1s

Course outcomes:
Student will able to

SUBJECT: ENGINEERING GRAPHICS		
CO.NO	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C112.1	CO1: Prepare drawings as per standards (BIS) Conic curves, cycloids and involutes.	Analyzing
C112.2	CO2: Solve specific geometrical problems involving points and lines	Understanding
C112.3	CO3: Solve specific geometrical problems in plane geometry involving plane figures.	Understanding
C112.4	CO4: Produce orthographic projection of engineering components working from pictorial drawings	Understanding
C112.5	CO5: Understand the basic development of surfaces	Understanding
C112.6	CO6: To understand the component drawings in industrial applications Isometric to ortho graphic	Understanding

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO) and Program Specific Outcomes (PSO's):

Course Outcomes (CO)	Program Outcomes (PO)												Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2
C112.1	3	3	_	--	3	_	_	_	_	_	_	2	_	_
C112.2	3	2	2	_	_	_	_	_	_	_	_	2	_	_
C112.3	3	3	3	_	_	_	_	_	_	_	_	2	_	_
C112.4	3	2	2	_	_	_	_	_	_	_	_	2	_	_
C112.5	3	2	2	_	_	_	_	_	_	_	_	2	_	_
C112.6	3	2	--	--	--	2	--	--	--	--	--	2	--	--
	3	**2.3**	**1.5**	**--**	**0.5**	**0.3**						**2**		

Level: 3–Strongly linked | 2–Moderately linked | 1–Weakly linked

JUSTIFICATIONS OF CO –PO MAPPING

C121.1		
C112.1-P01	3	Understanding the need of engineering graphics in engineering. Identifying the applications in the field of engineering.
C112.1-P02	3	Analysis and different types of conic sections and their applications
C112.1-P03	--	
C112.1-P04	--	
C112.1-P05	3	Illustrate the concept of ortho graphic projection and normal projection
C112.1-P06	--	
C112.1-P07	--	
C112.1-P08	--	
C112.1-P09	--	
C112.1-P010	--	
C112.1-P011	--	.
C112.1-P012	2	Isometric to ortho graphic and ortho graphic to isometric view and their application

C112.2		
C112.2-P01	3	Understand the basic concepts of engineering drawing projection of lines and points
C112.2-P02	2	Orthographic projections of points and lines
C112.2-P03	-	
C112.2-P04	--	
C112.2-P05	--	
C112.2-P06	--	
C112.2-P07	--	
C112.2-P08	--	
C112.2-P09	--	
C112.2-P010	--	
C112.2-P011	--	
C112.2-P012	**2**	Identifying the applications of projection in engineering sector

C112.3		
C112.3-P01	3	Projection of planes with respect to hp and vp in first angle projection
C112.3-P02	3	Projection of planes surface inclination and side inclination
C112.3-P03	3	Projection of planes surface inclination with HP and VP
C112.3-P04	--	
C112.3-P05	--	
C112.3-P06	--	
C112.3-P07	--	
C112.3-P08	--	
C112.3-P09	--	
C112.3-P010	--	
C112.3-P011	--	
C112.3-P012	2	Projection top view and front view of planes

C112.4		
C112.4-P01	3	Projection of solids with respect to hp and vp in first angle projection
C112.4-P02	2	Projection of solids surface inclination and side inclination
C112.4-P03	2	Projection of solids surface inclination with HP and VP
C112.4-P04	--	
C112.4-P05	--	
C112.4-P06	--	
C112.4-P07	--	
C112.4-P08	--	
C112.4-P09	--	
C112.4-P010	--	
C112.4-P011	--	
C112.4-P012	2	Projection top view and front view of solids

C112.5		
C112.5-P01	3	Explanation of Development of surfaces
C112.5-P02	2	Explanation of types of Development of surfaces
C112.5-P03	2	Explanation of components of Development of surfaces
C112.5-P04	--	
C112.5-P05	--	
C112.5-P06	--	
C112.5-P07	--	
C112.5-P08	--	
C112.5-P09	--	
C112.5-P010	--	
C112.5-P011	--	
C112.5-P012	2	Applications of Development of surfaces

C112.6		
C112.6-P01	3	Isometric view to orthographic projections
C112.6-P02	2	Orthographic projection to isometric projection
C112.6-P03	--	
C112.6-P04	--	
C112.6-P05	--	
C112.6-P06	2	Different isometric
C112.6-P07	--	
C112.6-P08	--	
C112.6-P09	--	
C112.6-P010	--	
C112.6-P011	--	
C112.6-P012	2	Explain the applications of projections in engineering.

Justification for CO-PSO Mapping

Mapping	Level	Justification
C112.PO1	--	
C112.PO2	--	
C112.PO3	--	
C112.PO4	--	
C112.PO5	--	
C112.PO6	--	
C112.PO7	--	
C112.PO8	--	
C112.PO9	--	
C112.PO10	--	
C112.PO11	--	
C112.PO12	--	

Topics beyond Syllabus

Justification for Avg CO-PO Mapping		
Mapping	**Level**	**Justification**
C112.PO1	3.0	Solve specific geometrical problems involving points and lines
C112.PO2	2.3	In modern technology, Impart Knowledge of Solve specific geometrical problems in plane geometry involving plane figures.
C112.PO3	1.5	Produce orthographic projection of engineering components working from pictorial drawings
C112.PO4	--	
C112.PO5	0.5	To understand the component drawings in industrial applications Isometric to ortho graphic
C112.PO6	0.3	The engineering application
C112.PO7	--	
C112.PO8	--	
C112.PO9	--	
C112.PO10	--	
C112.PO11	--	
C112.PO12	2	Lifelong applications orthographic projection of engineering components

S.No.	Description	Proposed Actions
1	Sectional views	Assignments
2	Axillary views	Assignments

TOPICS BEYOND SYLLABUS/ASSIGNMENT/INDUSTRY VISIT/PROJECTS/NPTEL ETC

Topic beyond Syllabus: Mapping with PO and PSO:

Topic beyond syllabus	Program Outcomes (PO)												Program Specific Outcomes (PSO's)	
1.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	3	3	2	3	3	-	-	-	-	-	-	2	-	-

Justification for Topic beyond the Syllabus (TBS) -PO Mapping.

Mapping	Level	Justification
TBS-PO1	3	Students could apply the acquired real time knowledge engineering graphics
TBS-PO2	3	Able to analyze applications of Engineering Graphics
TBS-PO3	2	Able to knowledge various types of orthographic projection
TBS -PO4	3	Use research-based knowledge for development of surfaces.
TBS -PO5	3	Use aid of software tool AUTOCAD for various applications

Justification for Topic Beyond the Syllabus (TBS) -PSO Mapping.

Mapping	Level	Justification
TBS-PSO1	--	PPT
TBS-PSO2	--	PPT

WEB SOURCE REFERENCES:

1	http://nptel.ac.in/courses/112103019/1
2	http://nptel.ac.in/courses/105104148/

Syllabus / Lesson Plan:

Sl.No	Unit	Topic	No. of Periods	Text Book / Reference Book	Teaching Aid Used / Methodology	Hours
Unit-I						
1	**1**	Introduction drawing equipment's	**1**	TB.1	CHALK/TALK	**18**
2		Lettering and dimensioning practice	**1**	TB.1	CHALK/TALK	
3		Geometrical construction	**1**	TB.1	CHALK/TALK	
4		Conical curves	**2**	TB.1	CHALK/TALK	
5		cycloids	**2**	TB.1	CHALK/TALK	
6		Involutes	**2**	TB.2	CHALK/TALK	
7		**Practice**	**9**			
Unit-II						
8	**2**	Introduction of normal projection and orthographic projections	**1**	TB.1	CHALK/TALK	**18**
9		Projection of points	**1**	TB.1	CHALK/TALK	
10		Projection of lines	**2**	TB.1, TB.2	CHALK/TALK	
11		Projection of plains introduction	**2**	TB.1	CHALK/TALK	
12		Projection inclined to both the planes	**3**	TB.1	CHALK/TALK	
		Practice	**9**			
Unit-III						
16	**3**	Introduction to solids	**1**	TB.1	CHALK/TALK	**16**
17		Projections of solids axis inclination, side inclination, surface inclination	**3**	TB.1	CHALK/TALK	
18		Projections of solids axis inclination both the planes side inclination, surface inclination	**3**	TB.1, TB.2	PPT	
19		**Practice**	**9**	TB.1	CHALK/TALK	
20						
Unit-IV						
21	**4**	Development of surfaces introduction	**2**	TB.1	CHALK/TALK	**14**
22		Types of development of surface of two types	**3**	TB.1	CHALK/TALK	
23		DOS of truncated solids and frustums	**3**	TB.1	CHALK/TALK	
24		**Practice**	**6**	TB.1, TB.2	CHALK/TALK	
Unit-V						
28	**5**	Orthographic projection's introduction	**1**	TB.1	CHALK/TALK	

29		Isometric Projection introduction	**1**	TB.1	CHALK/TALK	**5**
30		Isometric to orthographic	**1**	TB.1	CHALK/TALK	
31		Orthographic to isometric	**1**	TB.1	PPT	
32		**Practice**	**1**	-----	CHALK/TALK	

Topic Beyond Syllabus:

S.No.	Topic Beyond Syllabus Planning	PERIODS	Methodology	Text book/references/web references and additional text book reference
1	Sectional views	**2**	**Assignment**	**T1, T3**
2	Axillary views	**2**	**Assignment**	

Note: Bloom's Taxonomy Levels

BTL1-Remember	**BTL2 – Understand**	**BTL3 –Apply**
BTL4-Analyze	**BTL5 –Evaluate**	**BTL6–Create**

Text books (T) / Reference books (R)/Additional text books (A):

T/R/A	Book Title/Author/Publication
T1	Bhatt N. D., "Engineering Drawing", Charotar publishing House, 1998.
T2	Engineering Drawing by KL Narayna & P. Kannaiah.
R1	French and Vierk, "Fundamentals of Engineering Drawing", McGraw Hill, 2002.
R2	John K.C., "Engineering Graphics for Degree", PHI Learning Private Limited, New Delhi, 2010.
R3	Kulkarni D.M., Rastogi A.P. and Sarkar A.K., "Engineering Graphics with AutoCAD", PHI Learning Private Limited, New Delhi, 2010.

ASSESSMENT METHODOLOGIES-DIRECT

☑ASSIGNMENTS	☑ STUD. SEMINARS	☑TESTS/MODEL EXAMS	☑UNIV. EXAMINATION
☐ STUD. LAB PRACTICES	☐ STUD. VIVA	☐ MINI/MAJOR PROJECTS	☐ CERTIFICATIONS
☐ ADD-ON COURSES	☐ OTHERS		

ASSESSMENT METHODOLOGIES-INDIRECT

☑ ASSESSMENT OF COURSE OUTCOMES (BY FEEDBACK, ONCE)	☑ STUDENT FEEDBACK ON FACULTY (TWICE)
☐ ASSESSMENT OF MINI/MAJOR PROJECTS BY EXT. EXPERTS	☐ OTHERS

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