DEPARTMENT OF MECHANICAL ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	B. Tech. – Mechanical Engineering		
Course Title	Engineering Graphics		
Course Code	MEIR12	**No. of Credits**	3
Course Code of Pre-requisite subject(s)	NIL		
Session	July 2023	**Section**	A
Name of Faculty	Mr. Turaka Srinivasa Rao	**Department**	Mechanical Engineering
Email	411121055@nitt.edu	**Telephone No.**	+91 8688708807
Name of Course Mentor (if, applicable)	Dr. Ashok Kumar Nallathambi		
E-mail	nashok@nitt.edu	**Telephone No.**	+91 6383501906
Course Type	✓ **Core course** ☐ **Elective course**		

Syllabus (approved in BoS)

Fundamentals Drawing standard - BIS, dimensioning, lettering, type of lines, scaling- conventions.

Orthographic projection Introduction to orthographic projection, drawing orthographic views of objects from their isometric views - Orthographic projections of points lying in four quadrants, Orthographic projection of lines parallel and inclined to one or both planes Orthographicprojection of planes inclined to one or both planes. Projections of simple solids - axis perpendicular to HP, axis perpendicular to VP and axis inclined to one or both planes.

Sectioning of solids Section planes perpendicular to one plane and parallel or inclined to otherplane.

Intersection of surfaces Intersection of cylinder & cylinder, intersection of cylinder & cone, and intersection of prisms.

Development of surfaces Development of prisms, pyramids and cylindrical & conical surfaces.

Isometric and perspective projection Isometric projection and isometric views of different planes and simple solids, introduction to perspective projection.

REFERENCE BOOKS

1. Bhatt, N. D. and Panchal, V.M, Engineering Drawing, Charotar Publishing House, 2010.
2. Ken Morling, Geometric and Engineering Drawing, 3rd Edition, Elsevier, 2010
3. Jolhe, D. A., Engineering drawing, Tata McGraw Hill, 2008
4. Shah, M. B. and Rana, B. C., Engineering Drawing, Pearson Education, 2009
5. K.V. Natarajan, A text book of Engineering Graphics, Dhanalakshmi Publishers, Chennai, 2006.

COURSE OBJECTIVES

- Irrespective of engineering discipline, it has become mandatory to know the basics of Engineering Graphics. The student is expected to possess the efficient drafting skill depending on the operational function in order to perform day to day activity.
- Provide neat structure of industrial drawing.
- Enables the knowledge about position of the component and its forms Interpretation of technical graphics assemblies.
- Preparation of machine components and related parts.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
1. At the end of the course student will be able to visualize the engineering components. A number of chosen problems will be solved to illustrate the concepts clearly.	1, 2, 3, 5

COURSE PLAN – PART II

COURSE OVERVIEW

This course teaches the basics of engineering drawing utilizing free hand sketching and mechanical drawing. The fundamental principles of orthographic projectionas well as the topics of dimensioning, sectional views, development of surfaces, isometric and perspective pictorial views are taught.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	Week 1	Lettering according to standard practice with various heights (Upper and Lower Case, Numbers)	PPT Presentations / Chalk & Talk
2.	Week 2	Division of lines, arcs and angles Construction of polygons (inscribed andcircumscribed in a circle)	PPT Presentations / Chalk & Talk
3.	Week 3	Conversion of pictorial views into orthographic views of simple mechanical components	PPT Presentations / Chalk & Talk
4.	Week 4	Points available in different quadrants	PPT Presentations / Chalk & Talk
5.	Week 5, 6 & 7	➢ Straight line parallel to both planes ➢ Straight line parallel to one andperpendicular to other plane ➢ Straight line parallel to one plane andinclined to other plane Straight line incline both the planes	PPT Presentations / Chalk & Talk

6.	Week 7	Concept of Traces, straight positioned with reference to its traces	PPT Presentations / Chalk & Talk
7.	Week 8	➢ Plane parallel to one plane andperpendicular to other ➢ Plane inclined to one plane butperpendicular to other plane Plane inclined to both the planes.	PPT Presentations / Chalk & Talk
8.	Week 9 & 10	Projection of simple solids like Prism, Pyramid, Cone and Cylinder in various positions (Axis parallel to both HP and VP, Axis parallel to one plane but inclined to other, Axis inclined to both HP and VP)	PPT Presentations / Chalk & Talk
9.	Week 11	Sectioning of simple solids like Prism, Pyramid,Cone and Cylinder in various positions (singleand multiple section planes) and obtaining thetrue shape of the sectioned area.	PPT Presentations / Chalk & Talk
10.	Week 11	Development of lateral surfaces of simple solidslike Prism, Pyramid, Cone and Cylinder (Both cut and uncut views)	PPT Presentations / Chalk & Talk
11.	Week 12	Isometric views of basic solids and combination of solids.	PPT Presentations / Chalk & Talk
12.	Week 12	Perspective projection simple solids usingsingle and double vanishing point method.	PPT Presentations / Chalk & Talk

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/ Date	Duration	% Weightage
1.	Assignment-1	Week 3	-	20%
2.	Assignment-2	Week 6		20%
3.	Assignment-3	Week 9	-	20%
4.	End-SEM	As per the institute's policy		40%
CPA	CompensationAssessment*		NIL	

COURSE EXIT SURVEY

- Express, explain and defend ideas in the form of pictorial representation
- Produce and understand engineering drawings.
- Neatness and usage of appropriate drawing tools are highly required.

COURSE POLICY

MODE OF CORRESPONDENCE (email/ phone etc)

- All the communication (schedule of assessment/ course material/any other information regarding this course) will be intimated through the class representative.
- The Faculty is available for consultation after contact hours with prior intimation through Phone: 8074817555,8688708807 / email: 411120051@nitt.edu, 41121055@nitt.edu.

COMPENSATION ASSESSMENT POLICY

- 75% attendance is mandatory for appearing in End Semester Examination
- Students who secured 65 – 75% attendance may be permitted to write the end semester examinations on submission of valid certificates (Medical Ground / Sports / ExtraCurricular activity representing our Institute)
- Securing 60 – 65 % attendance may be given an opportunity to attend the compensationclasses.
- Those who secured less than 60% attendance will not be permitted to write the final examinations and they will be awarded with 'F' grade and will be directed to **REDO** the course

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- All the students are expected to attend all the contact hours. Students should maintain 75% minimum physical attendance by the end of the course to attend the end semester examination.
- Absence due to medical reason and institutional activities will be considered when the student falls below 75% of physical attendance and it should be supported by a letter (in professional letterhead) from the concerned authorities. Any preparatory works in view of institution activities should not be taken up in class contact hours.
- Students not having 75% minimum attendance at the end of the semester will be awarded 'V' Grade and have to REDO the course.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.

➢ The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office. ➢ The above policy against academic dishonesty shall be applicable for all the programmes.

FOR APPROVAL

T. Srinivasa Rao	04/09/23		
Mr. T. Srinivasa Rao (RS/ME)	**Dr. Ashok Kumar Nallathambi**	**Dr. S. Venkatachalapathy**	**Dr. K. Pannirselvam**
Course Faculty	**Course Mentor**	**CC - Chairperson**	**HOD (ME)**

Guidelines:

a) The number of assessments for a course shall range from 4 to 6.

b) Every course shall have a final assessment on the entire syllabus with at least 30% weightage.

c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered. Details of compensation assessment to be specified by faculty.

d) The passing minimum shall be as per the regulations.

e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.

f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.

g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.