



# NATIONAL INSTITUTE OF TECHNOLOGY

## TIRUCHIRAPPALLI - 620 015, TAMIL NADU, INDIA

### DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN (PART I)			
Name of the programme and specialization	B.Tech. in Civil Engineering		
Course Title	Engineering Graphics		
Course Code	MEIR12	No. of Credits	3
Course Code of Pre-requisites	-		
Session	July / January 2022	Section (if applicable)	A
Name of the Faculty	Dr. Vanama Raghava Kumar Dr. C. Vinay Kumar	Department	Civil Engineering
E-Mail	vanama@nitt.edu chandaluri@nitt.edu	Telephone No.	9494771420 9528020326
Name of Course Coordinator(s) (if applicable)	-		
E-Mail	-		Telephone No.
Course Type	✓	<b>General Institute Requirement (GIR)</b>	
		Programme Core (PC)	
		Programme Elective (PE)	
		Open Elective (OE)	
		Minor (MI)	
		Essential Laboratory Requirement (ELR)	

#### COURSE CONTENT (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 Orthographic projection 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 and both planes. **Sectioning of solids** Section planes perpendicular to one plane and parallel or inclined to other plane. **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.

#### COURSE LEARNING OBJECTIVES (CLO)

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		Course Articulation Matrix												
On completion of the course, the students will be able to:		COs	Programme Outcomes (PO)											
			1	2	3	4	5	6	7	8	9	10	11	12
C01	Recall BIS standards and conventions while drawing lines, letters and dimensions	3	-	-	-	-	-	-	-	2	1	-	2	
C02	Construct Orthographic projections of lines, planes and solids with respect to a given reference plane.	2	2	-	-	1	-	-	-	-	1	-	-	
C03	Draw the sections and intersections of solids	2	2	1	-	-	-	-	-	-	1	-	-	
C04	Develop 3D isometric view from 2D orthographic views and vice versa	2	2	2	-	-	-	-	-	1	1	-	-	
C05	Read an engineering drawing	-	2	2	-	1	-	-	-	2	2	-	-	
		1. Engineering Knowledge						2. Problem analysis						
		3. Design / development of solutions						4. Conduct investigations of complex problems						
		5. Modern tool usage						6. The engineer and society						
		7. Environment and Sustainability						8. Ethics						
		9. Individual and Team Work						10. Communication						
		11. Project Management and Finance						12. Life-long learning						

## COURSE PLAN (PART II)

### COURSE OVERVIEW

This course provides the basic principles of the instrumental drawing.

### COURSE TEACHING AND LEARNING ACTIVITIES

Sl. No.	Week / Contact Hours	Topic	Mode of Delivery
1.	23-November-2022 (3 Contact Hours)	Introduction to Engineering Drawing course – CLO, Syllabus, COs, Attendance policy – Importance of Engg. Dwg., Drawing Instrumentations, Uses - Drawing Standards, BIS – Types of Lines	Power Point Presentation, Chalkboard
2.	30-November-2022 (3 Contact Hours)	Lettering as per IS 9609– Theory and Practice	Power Point Presentation, Chalkboard
3.	7-December-2022 (3 Contact Hours)	Dimensioning, Scaling Conventions -Theory and Practice	Power Point Presentation, Chalkboard
4.	14-December-2022 (3 Contact Hours)	Introduction to orthographic projection, drawing orthographic views of objects from their isometric views - Orthographic projections of points lying in four quadrants-Theory and Practice	Power Point Presentation, Chalkboard
5.	21-December-2022 (3 Contact Hours)	Orthographic projection of lines parallel and inclined to one or both planes -Theory and Practice	Power Point Presentation, Chalkboard
6.	28-December-2022 (3 Contact Hours)	Orthographic projection of planes inclined to one or both planes. -Theory and Practice	Power Point Presentation, Chalkboard
7.	4-January 2023 (3 Contact Hours)	Projections of simple solids – axis perpendicular to HP, axis perpendicular to VP and axis inclined to one and both planes. -Theory and Practice	Power Point Presentation, Chalkboard
8.	11-January 2023 (3 Contact Hours)	Sectioning of solids Section planes perpendicular to one plane and parallel or inclined to other plane. - Theory and Practice	Power Point Presentation, Chalkboard
9.	18-January 2023 (3 Contact Hours)	Intersection of surfaces Intersection of cylinder & cylinder-Theory and Practice	Power Point Presentation, Chalkboard
10.	25-January 2023 (3 Contact Hours)	Intersection of cylinder & cone, and intersection of prisms. -Theory and Practice	Power Point Presentation, Chalkboard
11.	1-February 2023 (3 Contact Hours)	Development of surfaces Development of prisms, pyramids and cylindrical & conical surfaces. -Theory and Practice	Power Point Presentation, Chalkboard
12.	8-February 2023 (3 Contact Hours)	Isometric projection and isometric views of different planes and simple solids-Theory and Practice	Power Point Presentation, Chalkboard
13.	15-February 2023 (3 Contact Hours)	Introduction to perspective projection -Theory	Power Point Presentation, Chalkboard
<b>15<sup>th</sup> February 2023</b>		<b>Closure of all class work</b>	

### COURSE ASSESSMENT METHODS

Sl. No.	Mode of Assessment	Week / Date	Duration	% Weightage
1.	Continuous Assessment (CA)	All Classes	-	50%
2.	Cycle Test-1/Assessment 1	21-Dec-2022 (Within Class hours)	45 Minutes	10%
3.	Cycle Test-2/Assessment 2	18-Jan-2023 (Within Class hours)	45 Minutes	10%
4.	End Assessment	Last week of Feb 2023	3 hours	30%

### ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc

- Bhatt, N. D. and Panchal, V.M, Engineering Drawing, Charotar Publishing House, 2010.
- Ken Morling, Geometric and Engineering Drawing, 3rd Edition, Elsevier, 2010
- Jolhe, D. A., Engineering drawing, Tata McGraw Hill, 2008
- Shah, M. B. and Rana, B. C., Engineering Drawing, Pearson Education, 2009
- K.V. Natarajan, A text book of Engineering Graphics, Dhanalakshmi Publishers, Chennai, 2006.
- NPTEL materials <https://nptel.ac.in/courses/>

### COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

The purpose of this survey is to find out from students, about their learning experiences and their thoughts about the course. Students' replies are very important to assist us in better serving our graduate students. Students are assured that their comments will remain absolutely confidential and I/we will not be able to identify any individuals from other participants.

- Direct feedback from the students by face-to-face meeting individually and as the class as a whole.
- Feedback from the students during class committee meetings (CCM)
- Exit survey from the students at the end of the session through questionnaire - MIS

### COURSE POLICY (including Compensation assessment)

- Attending all the assessments are MANDATORY for every student.
- The continuous assessment (CA) consists of 10 to 12 Drawing sheets throughout the course.

3. Every student is expected to attend all the class sessions and are required to submit the completed drawing sheet on or before the commencement of the consecutive class (deadline).
4. On failing to submit within the deadline, no marks will be awarded for that exercise.

#### Compensation Assessment (CPA):

1. Only one instance of absence in continuous assessment (CA) is permitted. Only one compensation assessment for absentees in continuous assessments will be conducted.
2. If any student is not able to attend Assessment-1 and/or Assessment-2 due to genuine reason, student is permitted to attend the respective assessment as compensation assessment (CPA) with the same weightage.
3. At any case, CPA will not be considered as an improvement test.
4. The passing minimum for the course shall be 35% or Class Average/2, whichever is maximum. Also minimum of 20% in the final assessment.
5. The award of "S" grade in the course restricted to a maximum of 10% of the total number of students appeared for the theory courses.

#### ATTENDANCE POLICY

The attendance will be taken in all the contact hours. Students are encouraged to attend all the classes without absence. Also, the students are encouraged to participate in various co-curricular and extracurricular activities to enrich the academic / campus life.

- a) At least 75% attendance in the course is mandatory.
- b) A maximum of 10% shall be allowed under On Duty (OD) category
- c) Students with less than 65% of attendance shall be prevented from writing the end assessment and shall be awarded 'V' grade.

The percentage of attendance shall be computed as:

For calculation of attendance in normal cases:

$$\text{Percentage of Attendance} = \frac{\text{Actual no. of classes attended}}{\text{Total no. of classes held}} \times 100$$

This should be 75% for the student to appear for end assessment.

#### Academic Dishonesty and Plagiarism

##### Academic Dishonesty

- 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.

##### Plagiarism

It means knowingly presenting another person's ideas, findings or work as one's own by copying or reproducing them without due acknowledgement of the source, with intent to deceive the examiner into believing that the content is original to the student. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work.

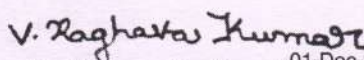
All of the following are considered plagiarism:

- copying words or ideas from someone else without giving credit
- changing words but copying the sentence structure of a source without giving credit
- copying so many words or ideas from a source that it makes up the majority of your work
- Failing to give credit for ideas and concepts, date and information, statements and phrases, and/or interpretations and conclusions derived by another.

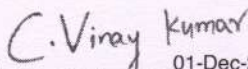
#### ADDITIONAL INFORMATION

1. All the students are advised to check their NIT-T webmail regularly to know the updates.
2. All the correspondence (schedule of classes / schedule of assessment / course material / any other information regarding this course) will be communicated through **Class Representatives**
3. Queries / Clarifications / Discussions (if required) may be e-mailed to us / contact us (Room C-19 or C-3, Dept. of Civil Engg., NITT) during 9:30 AM to 6.00 PM on all working days with **prior intimation**.

#### FOR APPROVAL



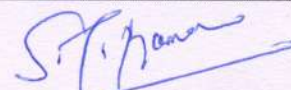
Dr. Vanama Raghava Kumar  
Course Faculty



Dr. C. Vinay Kumar  
Course Faculty



Dr. Senthil Kumar R  
Chairperson (Class Committee)



Dr. S. T. Ramesh  
HoD