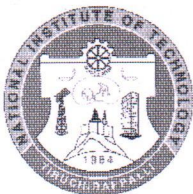


DEPARTMENT OF MECHANICAL ENGINEERING

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 2019	Section (if, applicable)	-
Name of Faculty	Dr. N. Siva Shanmugam	Department	Chemical Engineering
Official Email	nsiva@nitt.edu	Telephone No.	9443649278
Name of Course Coordinator(s) (if, applicable)	Dr. K.M. Maera S. Bagum		
Official E-mail	maera@nitt.edu	Telephone No.	0431-2503109
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
<p>Fundamentals Drawing standard - BIS, dimensioning, lettering, type of lines, scaling-conventions.</p> <p>Geometrical constructions Dividing a given straight line into any number of equal parts, bisecting a given angle, drawing a regular polygon given one side, special methods of constructing a pentagon and hexagon – conic sections – ellipse – parabola – hyperbola - cycloid – trochoid.</p> <p>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 or both planes.</p> <p>Sectioning of solids Section planes perpendicular to one plane and parallel or inclined to other plane.</p> <p>Intersection of surfaces Intersection of cylinder & cylinder, intersection of cylinder & cone, and intersection of prisms.</p> <p>Development of surfaces Development of prisms, pyramids and cylindrical & conical surfaces.</p> <p>Isometric and perspective projection Isometric projection and isometric views of different planes and simple solids, introduction to perspective projection.</p> <p>Computer aided drafting Introduction to computer aided drafting package to make 2-D</p>			



drawings.

Self-study only, not to be included in examinations. Demonstration purpose only, not to be included in.

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

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
➤ The students should be proficient in using engineering drawing apparatus, materials and techniques.	1,2,5,7,8,10,11,12
➤ Students should be able to use and interpret standard conventions used in engineering drawing.	1,2,5,7,8,10,11,12

COURSE PLAN – PART II

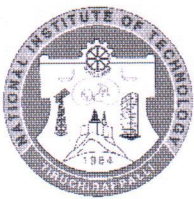
COURSE OVERVIEW

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

COURSE TEACHING AND LEARNING ACTIVITIES

(Add more rows)

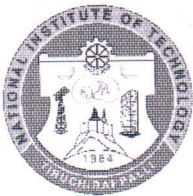
S.No	Week/Cont ct Hours	Topic	Mode of Delivery
1	Week 1	Lettering according to standard practice with various heights (Upper and Lower Case, Numbers)	Lecture + Tutorials
2	Week 2	Division of lines, arcs and angles Construction of polygons (inscribed and circumscribed in a circle)	Lecture + Tutorials
3	Week 3	Conversion of pictorial views into orthographic views of simple mechanical components	Lecture + Tutorials



4	Week 4	Points available in different quadrants	Lecture + Tutorials
5	Week 5, 6 & 7	<ul style="list-style-type: none"> ➤ Straight line parallel to both planes ➤ Straight line parallel to one and perpendicular to other plane ➤ Straight line parallel to one plane and inclined to other plane ➤ Straight line incline both the planes 	Lecture + Tutorials
6	Week 7	Concept of Traces, straight positioned with reference to its traces	Lecture + Tutorials
7	Week 8	<ul style="list-style-type: none"> ➤ Plane parallel to one plane and perpendicular to other ➤ Plane inclined to one plane but perpendicular to other plane ➤ Plane inclined to both the planes. 	Lecture + Tutorials
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)	Lecture + Tutorials
9	Week 11	Sectioning of simple solids like Prism, Pyramid, Cone and Cylinder in various positions (single and multiple section planes) and obtaining the true shape of the sectioned area.	Lecture + Tutorials
10	Week 12	Development of lateral surfaces of simple solids like Prism, Pyramid, Cone and Cylinder (Both cut and uncut views)	Lecture + Tutorials
11	Week 13	Isometric views of basic solids and combination of solids.	Lecture + Tutorials
12	Week 14	Perspective projection simple solids using single and double vanishing point method.	Lecture + Tutorials
13	Week 15	Introduction to AUTOCAD, Dimensioning, Layering, Creation of simple shapes, Editing Features, layering concept etc.	Lecture

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assignment 1	4, 5, 6 & 7	—	20
2	Assignment 2	8, 9, 10 & 11	—	20



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3	Assignment 3	12, 13, 14 & 15	—	20
Total Internal Assessment				60
CPA	Compensation Assessment*	NIL		
4	Final Assessment *	1 - 15	3 hrs.	40

***mandatory; refer to guidelines on page 4**

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

- 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 (including compensation assessment to be specified)

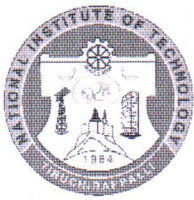
- 75% attendance is mandatory for appearing in End Semester Examination
- Students who secured 65 – 75% attendance may be permitted to write the end semester examinations on submission of valid certificates (Medical Ground / Sports / Extra Curricular activity representing our Institute)
- Securing 60 – 65 % attendance may be given an opportunity to attend the compensation classes.
- 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)

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

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.

ADDITIONAL INFORMATION, IF ANY

ESSENTIAL READINGS

1. Text Book

1. Bhatt, N. D. and Panchal, V.M., Engineering Drawing, Pub.: Charotar Publishing House, 2010.
2. Natarajan, K. V., A text book of Engineering Graphics, Pub.: Dhanalakshmi Publishers, Chennai, 2006.

2. Reference Books

1. Venugopal, K. and Prabhu Raja, V., Engineering Drawing and Graphics + AutoCAD, Pub.: New Age International, 2009.
2. Jolhe, D. A., Engineering drawing, Pub.: Tata McGraw Hill, 2008
3. Shah, M. B. and Rana, B. C., Engineering Drawing, Pub.: Pearson Education, 2009.
4. Trymbaka Murthy, S., Computer Aided Engineering Drawing, Pub.: I.K. International Publishing House, 2009.

FOR APPROVAL

Course Faculty 

CC- Chairperson 

HOD 

16/9/2019