ENGINEERING DRAWING - II

For 1st. year students of Mechanical Engineering

~: Lecture by :~

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SECOND SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
2.1	*Applied Mathematics - II	5	-	-	4	20	-	20	50	2 ½	-	-	50	70
2.2	*Applied Physics -II	5	-	2	5	20	10	30	50	2 ½	20	3	70	100
2.3	+Applied Mechanics	5	-	2	5	20	10	30	50	2 ½	20	3	70	100
2.4	General Engineering	6	-	2	5	20	10	30	50	2 ½	20	3	70	100
2.5	*Engineering Drawing -II	-	-	8	2	-	40	40	60	3	-	-	60	100
2.6	General Workshop Practice-II	-	-	8	2	-	40	40	-	-	60	4	60	100
#Student Centred Activities (SCA)		-	-	5	1	-	30	30	-	-	-	-	-	30
Total		21	-	27	24	80	140	220	260	-	120	-	380	600

* Common with other diploma programmes

\+ Common with diploma in Chemical Engg. and Civil Engg.

\# Student Centred Activities will comprise of co-curricular activities like extension lectures, self study, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, disaster management and safety etc.

2.5 ENGINEERING DRAWING - II

L	T	P
-	-	8

RATIONALE

Drawing is the language of engineers and technicians. Reading and interpreting engineering drawing is their day-to-day responsibility. The subject is aimed at developing basic graphic skills in the students so as to enable them to use these skills in preparation of engineering drawings, their reading and interpretation. The emphasis, while imparting instructions, should be to develop conceptual skills in the students following BIS SP 46 – 1988.

Note:

1) First angle projection is to be followed.
2) Minimum 16 sheets to be prepared. At least 2 sheets in AutoCAD.
3) Instructions relevant to various drawings may be given along with appropriate demonstration, before assigning drawing practice to the students.
4) Continuous evaluation be done by the teachers for exercises/work done on CAD software. For this proper record may be maintained for its inclusion in the internal assessment.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Draw and learn different types of wooden joints used in furniture.
- Draw the assembly from part details of objects
- Identify and draw different types of screw threads used in various machines and assemblies as per domestic and international standards
- Draw different types of nuts, bolts and washers
- Draw various locking devices and foundation bolts
- Draw different section of various types of keys and cotter joints
- Draw various riveted joints
- Draw various types of couplings used in power transmission.

- Prepare drawing of given joints/couplings using AutoCAD

DETAILED CONTENTS

1. Detail and Assembly Drawing (02 sheets)

Principle and utility of detail and assembly drawings

1.1 Wooden joints i.e. corner mortice and tenon joint, Tee halving joint, Mitre faced corner joint, Tee bridle joint, Crossed wooden joint, Cogged joint, Dovetail joint, Through Mortice and Tenon joint, furniture drawing - freehand and with the help of drawing instruments.

2. Screw Threads (03 sheets)

2.1 Thread Terms and Nomenclature

2.1.1 Types of threads-External and Internal threads, Right and Left hand threads (Actual and Conventional representation), single and multiple start threads.

2.1.2 Different Forms of screw threads-V threads (B.S.W threads, B.A thread, American National and Metric thread), Square threads (square, Acme, Buttress and Knuckle thread)

3. Nuts and Bolt (02 sheets)

3.1 Different views of hexagonal and square nuts. Square and hexagonal headed bolt
3.2 Assembly of Hexagonal headed bolt and Hexagonal nut with washer.
3.3 Assembly of square headed bolt with hexagonal and with washer.

4. Locking Devices (02 sheets)

4.1 Different types of locking devices-Lock nut, castle nut, split pin nut, locking plate, slotted nut and spring washer.
4.2 Foundations bolts-Rag bolt, Lewis bolt, curved bolt and eye bolt.
4.3 Drawing of various types of studs

5. Keys and Cotters (03 sheets)

5.1 Various types of keys and cotters - their practical application, drawings of various keys and cotters showing keys and cotters in position
5.2 Various types of joints
- Spigot and socket joint
- Gib and cotter joint
- Knuckle joint

6. Rivets and Riveted Joints (04 sheets)

6.1 Types of general purpose-rivets heads
6.2 Caulking and fullering of riveted joints
6.3 Types of riveted joints
(i) Lap joint-Single riveted, double riveted (chain and zig-zag type)
(ii) Single riveted, Single cover plate butt joint
(iii) Single riveted, double cover plate butt joint
(iv) Double riveted, double cover plate butt joint(chain and zig-zag type)

7. Couplings (02 sheets)

7.1 Introduction to coupling, their use and types
7.2 Flange coupling (protected)
7.3 Flexible Coupling

*8. Use of CAD software (02 sheets)

Draw any two joints/coupling using CAD software from the following:
i) Sleeve and cotter joint
ii) Knuckle joint
iii) Spigot and socket joint
iv) Gib and cotter joint
v) Flange coupling
vi) Muff coupling

* **Auto CAD drawing will be evaluated internally by sessional marks and not by final theory paper.**

INSTRUCTIONAL STRATEGY

Teacher should show model of realia of the component/part whose drawing is to be made. Emphasis should be given on cleanliness, dimensioning and layout of sheet. Focus should be on proper selection of drawing instruments and their proper use. The institute should procure AutoCAD or other engineering graphics software for practice in engineering drawings. Teachers should undergo training in AutoCAD/Engineering Graphic. Separate labs for practice on AutoCAD should be established.

MEANS OF ASSESSMENT

- Sketches
- Drawing
- Use of software