

**COURSE TITLE** : MACHINE DRAWING  
**COURSE CODE** : 3040  
**COURSE CATEGORY** : B  
**PERIODS/WEEK** : 4  
**PERIODS/SEMESTER** : 72  
**CREDITS** : 3

**TIME SCHEDULE**

MODULE	TOPICS	PERIODS
1	Fastening Devices- Thread fastenings, Rivet & Riveted joints	12
2	Assembly and detailed drawings - Cotter joints, Couplings	15
	TEST I & II	3
3	Assembly and Detailed drawings of Bearings Assembly and Drawings of machine parts	28
4	Welded Joints & Piping Layout	10
	TEST III & IV	4
	<b>Total</b>	<b>72</b>

**CONTENT OUTLINE**

**MODULE – I**

**FASTENING DEVICES**

1. Screw Threads.

Thread terminology– Forms of screw threads(Square thread, V thread) – Witworth thread– British Association thread–American standard thread–Acme thread–ISO metric thread–square thread–single start and multi start threads–right hand and left hand threads–conventional representation of threads.

bolting connection using standard proportions..

2. Basic Fastening Devices.

Temporary and permanent fasteners – areas of applications – Nuts and Bolts– Bolts with special forms of heads–Stud bolts–Screws– different types of Locking arrangements of nuts.

3. Riveted joints.

Different types of rivet heads for general purposes–proportions of riveted joints- Different types of riveted joints – single riveted and double riveted lap joint (Chain and zigzag ), single riveted single strap butt joint and single riveted double strap butt joint.

4. Foundation bolts.

Common types, Special types.

Exercises in

1) Drawing assembly of a bolt, a nut and a plain washer, Drawing different types of locking arrangements of nuts

2) Drawing rivets and riveted joints using standard proportions,

3) Drawing foundation bolts-(Eye end type–Lewis type only).

**(3Sheets)**

**MODULE – II:**

**ASSEMBLY AND DETAILED DRAWINGS OF COTTER JOINTS AND COUPLINGS**

1. Need and functions of assembly and detailed drawings – selection of sheet sizes – preparation of title block – bill of materials and parts list –

2. Steps in preparing Assembly and Detailed drawings.

Exercises in Assembly and Detailed drawings of

1) Sleeve and Cotter Joint, Socket and Spigot Joint, Knuckle Joint, Gib and Cotter joints **(4Sheets)**.

2) Coupling such as Flanged coupling – (Protected type, unprotected type and bush type) **(3Sheets)**.

### **MODULE – III:**

#### **ASSEMBLY AND DETAILED DRAWINGS OF BEARINGS AND MACHINE PARTS**

Classification of bearings-Types of journal and thrust bearings-Bearing brasses and their support-Prevention of rotation of brasses.

Exercises in Assembly and Detailed drawings of

1. Bushed bearing,
2. Plummer block(snug at bottom),
3. Foot step bearing.

**(3Sheets)**

Exercises in Assembly and Detailed drawings of

1. Stuffing box,
2. Non return valve,
3. Connecting rod - I.C. Engine (type-1)

**(3Sheets)**

### **MODULE –IV**

#### **WELDED JOINTS AND PIPING LAYOUT**

Classification of welds- Elementary welding symbols.

Types of pipes – Methods of connecting pipes-pipe threads-Representation of pipe threads-

Types of pipe joints. Single and double line orthographic symbols for pipe fittings and valves (flanged, screwed and welded joints).

Exercises in drawing–

Single line and double orthographic layout of a piping system using standard conventions.

**(1Sheet)**

#### **Note – Guidance for setting question paper.**

MODULE I – 15 marks

MODULE II – 30 marks

MODULE III – 40 marks

MODULE IV – 15 marks

---

100 marks

#### **Text Books**

1. Machine Drawing - N.D. Bhatt
2. Machine Drawing - P.I. Varghese & K.C. John

#### **Reference**

1. Machine Drawing by P.S.Gill
2. A text book of Machine Drawing by V. Lakshmi Narayan.
3. Engineering Drawing by M.B Shah & B.C Rana.