MUZAFFARPUR INSTITUTE OF TECHNOLOGY, MUZAFFARPUR

COURSE FILE

OF

MACHINE DRAWING

(MEUG 021x11)

Faculty Name:

MR. ARVIND KUMAR MADHESHIYA

ASSISTANT PROFESSOR

DEPARTMENT OF MECHANICAL ENGINEERING

विज्ञान एवं प्रावैधिकी विभाग
Department of Science and Technology
Government of Bihar

CONTENTS

Department of Mechanical Engineering

Vision

- To strengthen the region through imparting superior quality technical education and research; which enables the fulfillment of industrial challenge and establish itself as a Centre of Excellence in the field of Mechanical Engineering.

Mission

- To build an academic environment of teaching and lifelong learning for students to make them competitive in context with advance technological, economic and ecological changes.
- To enable the students to enhance their technical skills and communications through research, innovation and consultancy projects.
- To share and explore the accomplishments through didactic, enlightenment, R & D programs with technical institution in India and abroad.

Mechanical Engineering Program Educational Objectives

Graduates will spread and enhance their technical capability and proficiency through vital domain of economic, environmental and social concerns affiliated with the mankind and industry.

- Graduates will able to work professionally with modern methods in the area of Thermal, Mechanical System Design, Manufacturing, Measurement, Quality control and other interdisciplinary fields of concerns.

- Graduates will practice Mechanical engineering in sensible, flexible and ethical manner to benefit the society, industry and nation toward the rapidly changing global technical standards.

- Graduates will serve as ambassadors for engineering by their knowledge, creativity, imagination and innovation and set new extremes in their profession through lifelong learning.

Mechanical Engineering Student Outcomes

Students who complete the B.E. degree in ME will be able to:

1. An ability to apply the knowledge of mathematics, basic sciences and engineering concepts to solve the complex engineering problems.
2. The ability to conduct experiments and to critically analyze and interpret the experimental data to reach at substantial outcomes.
3. An ability to design systems, components, or processes to meet appropriate needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to identify, formulates, and solves the complex engineering problems.
5. An ability to function on multi-disciplinary teams that leads the multi- disciplinary projects.
6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively with written, oral, and visual means.
8. An ability to understand the impact of engineering solutions in a global, environmental, economic and societal context.
9. An ability to recognize the need to engage in life-long learning.
10. An ability to attain knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern tools necessary for Mechanical engineering practice.
12. Possess ability to estimate costs, estimate quantities and evaluate materials for design and manufacturing purposes.

Course Description

Technical Graphics is used to communicate the necessary technical information required for manufacture and assembly of machine components. These drawings follow rules laid down in national and International Organizations for Standards (ISO).

Hence the knowledge of the different standards is very essential. Students have to be familiar with industrial drafting practices and thorough understanding of production drawings to make themselves fit in industries. The following topics have been covered to fulfill the above objectives.

Classification of Machine Drawings, Principles of Drawings, Sectioning, Dimensioning, Limits, Fits and Tolerance, Symbols and Conventional Representation, Screw Fasteners, Key Joints, Coupling and its Types, Riveted Joints, Welded Joints, Structural Applications, Assembly Drawings, Production Drawings, Reproduction of Drawing, Introduction of Computer Aided Drafting, Introduction of Solid 3D Modeling.

Course Objectives

1. To understand and apply national and international standards while drawing machine component.
2. To understand the concept of various tolerances and fits used for component design
3. To familiarize in drawing assembly, orthographic and sectional views of various machine components.

Course Outcomes

CO1 Identify the national and international standards pertaining to machine drawing.

CO2 Apply limits and tolerances to assemblies and choose appropriate fits.

CO3 Recognize machining and surface finish symbols.

CO4 Explain the functional and manufacturing datum.

CO5 Illustrate various machine components through drawings.

CO-PO MAPPING

Sr. No.	Course Outcome	PO
1.	CO1 Identify the national and international standards pertaining to machine drawing	PO1, PO3
2.	CO2 Apply limits and tolerances to assemblies and choose appropriate fits	PO1, PO2, PO7
3.	CO3 Recognize machining and surface finish symbols.	PO2, PO6, PO8, PO9
4.	CO4 Explain the functional and manufacturing datum.	PO2, PO4, PO11
5.	CO5 Illustrate various machine components through drawings.	PO3, PO6 PO7, PO8, PO12

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1 Identify the national and international standards pertaining to machine drawing	√		√									
CO2 Apply limits and tolerances to assemblies and choose appropriate fits	√	√					√			√		
CO3 Recognize machining and surface finish symbols		√				√		√	√			
CO4 Explain the functional and manufacturing datum		√		√							√	
CO5 Illustrate various machine components through drawings.			√			√	√	√				√

1.

02 1x11 MACHINE DRAWING

L-T-P : 1-0-3 **Credit : 3**

1.	**Introduction to full section**, Half section, revolved-section off-set section.	**Lecture : 2**
2.	**Nut Bolts**, Riveted joints, Thread profiles, Screw jack.	**Lecture : 3**
3.	**Bushed bearing**, pedestal, bearing, foot step bearing.	**Lecture : 2**
4.	**Flanged coupling**, flexible coupling, solid coupling.	**Lecture : 2**
5.	**Stuffing Box.**	**Lecture : 1**
6.	**Eccentric.**	**Lecture : 1**
7.	**Cross Head.**	**Lecture : 1**
8.	**Assembly of dissembled parts.**	**Lecture : 1**
9.	**Dissembly of assembly parts.**	**Lecture : 1**

Text Books :

1. Engineering Drawing by ND Bhatt
2. Engineering Drawing by KL Narayna & Kannalah

ME Mechanical Engineering

Section 1: Engineering Mathematics

Linear Algebra: Matrix algebra, systems of linear equations, eigenvalues and eigenvectors.

Calculus: Functions of single variable, limit, continuity and differentiability, mean value theorems, indeterminate forms; evaluation of definite and improper integrals; double and triple integrals; partial derivatives, total derivative, Taylor series (in one and two variables), maxima and minima, Fourier series; gradient, divergence and curl, vector identities, directional derivatives, line, surface and volume integrals, applications of Gauss, Stokes and Green's theorems.

Differential equations: First order equations (linear and nonlinear); higher order linear differential equations with constant coefficients; Euler-Cauchy equation; initial and boundary value problems; Laplace transforms; solutions of heat, wave and Laplace's equations.

Complex variables: Analytic functions; Cauchy-Riemann equations; Cauchy's integral theorem and integral formula; Taylor and Laurent series.

Probability and Statistics: Definitions of probability, sampling theorems, conditional probability; mean, median, mode and standard deviation; random variables, binomial, Poisson and normal distributions.

Numerical Methods: Numerical solutions of linear and non-linear algebraic equations; integration by trapezoidal and Simpson's rules; single and multi-step methods for differential equations.

Section 2: Applied Mechanics and Design

Engineering Mechanics: Free-body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, collisions.

Mechanics of Materials: Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.

Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.

Vibrations: Free and forced vibration of single degree of freedom systems, effect of damping; vibration isolation; resonance; critical speeds of shafts.

Machine Design: Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.

Section 3: Fluid Mechanics and Thermal Sciences

Fluid Mechanics: Fluid properties; fluid statics, manometry, buoyancy, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and

momentum; Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings.

Heat-Transfer: Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence; heat exchanger performance, LMTD and NTU methods; radiative heat transfer, Stefan-Boltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis.

Thermodynamics: Thermodynamic systems and processes; properties of pure substances, behaviour of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.

Applications: *Power Engineering*: Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. *I.C. Engines*: Air-standard Otto, Diesel and dual cycles. *Refrigeration and air-conditioning*: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes. *Turbomachinery*: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines.

Section 4: Materials, Manufacturing and Industrial Engineering

Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials.

Casting, Forming and Joining Processes: Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding.

Machining and Machine Tool Operations: Mechanics of machining; basic machine tools; single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, design of jigs and fixtures.

Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly.

Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools.
Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning.

Inventory Control: Deterministic models; safety stock inventory control systems.

Operations Research: Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

MUZAFFARPUR INSTITUTE OF TECHNOLOGY

B.Tech. 2nd (Second) Semester (2016 Batch) TIME TABLE WITH EFFECT FROM 00.00.2017

DAY	Branch	I (10-10.50AM)	II (10.50-11.40AM)	III (11.40-12.30PM)	IV (12.30-01.20PM)		V (01.50-2.40PM)	VI (2.40-3.30PM)	VII (3.30-4.20PM)
MON	Mech	ENV SC(GT)14	--------- EME LAB (LBS)-2 / ENV SC LAB (GT) ----------						
	Elect	ENG. MECH(NK)	EME(JY)			R	Eng Mech (RPG)33	EME(LBS))33	MATHII(GL1)33*
	Civil				Eng Mech (SKY)14		---------- WORK-SHOP PRACTICE (JY) ----------		
	EC		--------- B.E.E.LAB(RP + RSS) / PHYSICS LAB(RPS +MK)-------				MATH II(UNS)36	BEE(RSS)36	PHY(RPS)36
	IT	BEE(IBK)33	C.ENGL(AK)33	MATH II(UNS)33	F.I.T.(VK)33				
	LT	ENV SC(GT)14	---------- EME LAB (LBS)-2 ----------						
	PHAR	---------- A .P.H.E. – I LAB. (SK) ----------					Pharctcs- II(VP)	A .P.H.E.-I (SK)	PHA CHEM-II(PCG)
TUE	Mech		MATHII(SKJ)14	EME(LBS)14	EnggChem(PCG)14		-- ENGG CHEM LAB(RK+PCG+PK) / ENGG MECH LAB(RPG)--		
	Elect		- ENGG CHEM LAB(RK + PCG + PK) / ENGG MECH LAB(RPG)-				EnggChem(PK)33	MATH II(UNS)33	
	Civil	ENV SC(GL)33*	EME(LBS)33	EnggChem(PCG)33	MATH II(UNS)33	E	---------EME LAB (LBS)-2 / ENV SC LAB (GL) ---------- *		
	EC		MATH II(GL)36*	PHY(RPS)36	C.ENGL(AK)36		---------- ENGG GRAPHICS(BK +ABS) 50 ----------		
	IT	C.ENGL(AK)14	------ B.E.E.LAB(IBK +YNS) / PHYSICS LAB (RPS + MK)--------				BEE(IBK)36	PHY(RPS)36	MATH II(GL)36*
	LT		MATH II(SKJ)14	EME(LBS)14	EnggChem(PCG)14		------ ENGG CHEM LAB(RK+PK) / ENGG MECH LAB(RPG)-----		
	PHAR	PHA CHEM-II(RK)	A .P.H.E.- I (SK)	PHA CHEMIII(PK)	Pharctcs- II(VP)		ADV. MATH(UNS)		
WED	Mech	ENV SC(GT)14	MATH II(UNS)14	Eng.Chem (PK)14	Eng Mech (RPG)14		---------- WORK-SHOP PRACTICE (DC) ----------		
	Elect	Eng.Chem(PCG)36	---------- WORK-SHOP PRACTICE (OPS) ----------			C	--- ENGG MECH LAB(RPG) / ENGG CHEM LAB(PK+RK+PCG) --		
	Civil	Eng Mech (RPG)33	MATH II(GL1)33 *	EME(LBS)33	ENV SC(GL)33*		---------- ENV SC LAB (GL)* / EME LAB (LBS)-2 ----------		
	EC	C.ENGL(AK)15	--------- PHYSICS LAB(RPS+ MK) / B.E.E.LAB(RP + RSS) -------				BEE(RSS)33	MATH II(SKJ)33	F.I.T.(SKR)33
	IT	--------- F. I. T. LAB- IT_1 (VK) ----------		---------- F. I. T. LAB- IT_2 (VK) ---------			---------- ENGG GRAPHICS (BK +ABS) 50 ----------		
	LT	ENV SC(GT)14	MATH II(UNS)14	Eng.Chem(PK)14	Eng Mech (RPG)14		---------- WORK-SHOP PRACTICE (DC) ----------		
	PHAR	---------- PHARMACEUTICS - II LAB. (VP) ----------					PHA CHEMIII(RK)		
THU	Mech	EME(LBS)33	---------- ENV SC LAB (GT) / EME LAB (LBS)-2 ----------				-- ENGG MECH LAB(RPG) / ENGG CHEM LAB(PCG+RK+PK) --		
	Elect	Eng Mech (RPG)14	ENV SC(GT)14	MATH II(SKJ) 14	EME(LBS)14	E	---------- EME LAB (LBS)-2 / ENV SC LAB (GT) ----------		
	Civil	MATH II(SKJ)36	-- ENGG CHEM LAB(RK / PCG / PK) / ENGG MECH LAB(RPG) --				---------- WORK-SHOP PRACTICE (OPS) ----------		
	EC	-------- F. I. T. LAB- EC_1 (SKR) --------		--------- F. I. T. LAB- EC_2 (SKR) ----------			BEE(RSS)33	F.I.T.(SKR)33	MATH II-T(GL)33*
	IT	PHY(MK)15	-------- PHYSICS LAB(RPS + MK) / B.E.E.LAB(IBK +YNS) --------				---------- ENGG GRAPHICS (BK +ABS) 50 ----------		
	LT	EME(LBS)33	---------- ENV SC LAB (GT) ----------				- ENGG MECH LAB(RPG) / ENGG CHEM LAB(RK+ PCG+ PK)-		
	PHAR	---------- PHARMACEUTICAL CHEMISTRY- III LAB (RK + PCG+ PK) ----------					ADV. MATH(UNS)		
FRI	Mech	Eng Mech (RPG)14	Eng.Chem(RK)14	ENV SC(GT)14	MATH II(GL1)14*		---------- WORK-SHOP PRACTICE (DC) ----------		
	Elect	ENV SC(GT)36	---------- WORK-SHOP PRACTICE (OPS) ----------			S	---------- ENV SC LAB (GT) / EME LAB (LBS)-2 ----------		
	Civil		-- ENGG MECH LAB(RPG) / ENGG CHEM LAB(PK+PCG+RK) --				EngChem(RK)14	Eng Mech (RPG)14	MATH II-T(GL1)14*
	EC						---------- ENGG GRAPHICS(BK +ABS) 50 ----------		
	IT	F.I.T.(VK)33	BEE(IBK)33	C.ENGL(AK)33	C.ENGL-T(AK)33		MATH II(SKJ) 33		
	LT	Eng Mech (RPG)14	Eng.Chem(RK)14	ENV SC(GT)14	MATH II(GL1)14*		---------- WORK-SHOP PRACTICE (DC) ----------		
	PHAR	Pharctcs- II(VP)	PHA CHEM-II(PK)	A .P.H.E.- I (SK)	PHA CHEMIII(PCG)		ADV. MATH(UNS)		
SAT	Mech	MATH II-T(GL1)33*	Eng Mech (RPG)33	EME(LBS) 33		S			
	Elect	EME(LBS))36	ENV SC(GT) 36	MATH II-T(GL1)36*	Eng.Chem(RK)36		Eng Mech (RPG)36		
	Civil		ENV SC(GL)14*	Eng.Chem(PK)14	EME(LBS)14				
	EC	PHY(MK)15	F.I.T.(SKR)15	C.ENGL(AK)15	C.ENGL-T(AK)15				
	IT	BEE(IBK)15A	F.I.T.(VK)15A	PHY(MK) 15A	MATH II-T(gl1)15A*				
	LT	MATH II-T(GL1)33*	Eng Mech (RPG)33	EME(LBS) 33					
	PHAR	---------- PHARMACEUTICAL CHEMISTRY- II LAB(RK + PCG + PK) ----------							

Asst.Prof.-in-charge (TT) **Prof.-in-charge (TT)** **Principal**

MUZAFFARPUR INSTITUTE OF TECHNOLOGY

B.Tech. 4th (Fourth) Semester (2015 Batch) TIME TABLE WITH EFFECT FROM 00.00.2017

DAY	Branch	I (10-10.50AM)	II (10.50-11.40AM)	III (11.40-12.30PM)	IV (12.30-01.20PM)		V (01.50-2.40PM)	VI (2.40-3.30PM)	VII (3.30-4.20PM)
MON	Mech	KOM(SKY) 15	MSJ (ANK) 15	MCD(AKM)15	OOP(----)15		M1-OOP LAB / M2-BCE LAB		
	Elect	DT EN(RDR)36	O.B.I.P.(AKN) 36	I.E.&A(APS) 36	P.S.1(YNS) 36	R	NM CT(SKJ)37		
	Civil				TH DM.(BK)15		MOS-I(RKJ)50	SRV(CBR)50	H&OCF(SlK)50
	EC	DT EN(RDR)36	OOP(VK)15				------DGT ELN LAB(RDR) /OOP LAB(VK)------		
	IT	DB.M.S.(RR) IT1	Micropro.(RKS) IT1	D.M.S.&GT(SKR)IT1			----------ANALOG ELNCS SESS (AK) ----------		
	LT		---------- BC EN LAB(AK) ----------				I.L.T.(MKR)LB	CH ENG-I(MKR)LB	OOP(KPS)15
	PHAR	---------- PHARMACEUTICS – IV LAB. (OPT+VP) ----------					Pharctcs-IV(OPT)	PharMicrobio(RKC)	Path OF C.D.(SKri)
TUE	Mech	BC EN(----)50	MSJ (ANK)50	OOP (---)50	KOM(SKY) 50		M1- MSJ LAB/ M2-T-KOM (SKY) 15		
	Elect					E	P.S.1(YNS)14	P.S.1-T(YNS)14	NM CT(SKJ)14*
	Civil		H&OCF(SlK)47	TH DM.(BK) 47	NM CT(SKJ) 47*		---------- NM CT LAB(GL)* ----------		
	EC	P.M.&I.R.(AKN)47	---------- OOP LAB(VK) / DGT ELN LAB(RDR) ----------				NM CT(SKJ)37	Sft.Eng.(RR)37	
	IT						DT STR(KPS) IT1	Micropro.(RKS) IT1	D.M.S.&GT(SKR) IT1
	LT	BC EN(AK)50	---------- CHEMICAL ENGG. LAB. (MKR) ----------				CH ENG-I(MKR)	BiChem of Prt.(AK)	
	PHAR	Pharctcs-IV(OPT)	PhacgnsyIII(NRB)	PharMicrobio(RKC)	Path OF C.D.(SKri)		B.ELNCS&C.A.(AK)	Phar Juri&E(OPT)	
WED	Mech	KOM(SKY) 47	MSJ (ANK) 47	BCE (---)47	NMCT(…)47	C	M2- MSJ LAB/ M1-T-KOM (SKY) 15		
	Elect	O.B.I.P.(AKN)37	DT EN(RDR)37	EL MC II(JK) 37	I.E.&A(APS) 37		---------- NM CT LAB (UNS / GL) ----------		
	Civil	NM CT(SKJ)50	MOS-I(RKJ)50	SRV(CBR) 50	OOP(SS) 50		---------- SURVEYING (CBR) ----------		
	EC	NM CT(SKJ)50	DT EN(RDR)37	OOP(VK) 15	Sft.Eng.(RR)15		---------- SFT. ENGG. SESS.(RR) ----------		
	IT	C. ARC.(SKR) IT1	----------DATA STRUCTURES SESS(KPS)--------				DB.M.S.(RR) IT1	Micropro.(RKS) IT1	
	LT	CH ENG-I(MKR)	BiChem of Prt.(AK)	BC EN(AK)47	NM CT(SKJ)47				
	PHAR	Path OF C.D(SKri)	PharMicrobio(RKC)	Pharctcs-IV(OPT)	Phacognsy-III(NRB)		Phar Juri&E(OPT)		
THU	Mech	NM CT(UNS)37	M1-MCD LAB (AKM+SK)			E	M2- NM CT LAB (--------)		
	Elect			NM CT(UNS)36	I.E.&A(APS)36		P.S.1(YNS)36	EL MC II(JK)36	
	Civil			H&OCF(SlK)37	MOS-I-T(RKJ)37		SRV(CBR)37	OOP(SS)37	
	EC	OOP(VK) 15A	Sft.Eng.(RR)15A	P.M.&I.R.(AKN)15A	E&E.mat(RRK)15A		--------ELE & ELN MAT SESS(RRK + AK)---------		
	IT	AN ELN(AK) IT1	----------DATABASE SYS SESS(RR)----------				DM.S&GT(SKR) IT1	DM.S&GT(SKR)IT1	
	LT	NM CT(UNS)37	OOP(KPS)37	I.L.T.(MKR)			----------NM CT LAB(SKJ + GL)----------		
	PHAR	---------- PHARMACEUTICAL MICROBIOLOGY LAB. (RKC) ----------					B.ELNCS&C.A.(AK)		
FRI	Mech		M2- OOP LAB(KPS) / M1-BC EN LAB(AK)				M1- NM CT LAB (--------)		
	Elect	DT EN(RDR) 50	DT EN(RDR) -T50	O.B.I.P.(AKN)50	EL MC II(JK)50	S	---------- EL M/C-II LAB(JK + RSS) / DGT ELN LAB(RDR) ----------		
	Civil	TH DM(BK)47	OOP(SS)47	NM CT(UNS)36	MOS-I(RKJ)36				
	EC	DT EN(RDR) 50	DT EN(RDR) -T50	NM CT(UNS)36	E&E.mat(RRK)15A		----------NM CT LAB(UNS / GL)----------		
	IT	AN ELN(AK) IT1	DB.M.S.(RR) IT1	DT STR(KPS) IT1	C. ARC.(SKR) IT1		-------- MICRO PROCESSOR SESS(RKS) ---------		
	LT		---------- OOP LAB(KPS) ----------				I.L.T.(MKR)	BiChem of Prt.(AK)	
	PHAR	---------- PHARMACOGNOSY – III LAB. (NRB) ----------				S	Phacognsy-III(NRB)	Phar Juri&E(OPT)	B.ELNCS&C.A.(SK)
SAT	Mech	BC EN(AK)37	OOP(KPS)37	NM CT(SKJ)37			M2-MCD LAB (AKM +SK)		
	Elect		---------- DGT ELN LAB(RDR) / EL M/C-II LAB(JK + RSS) --------				I.E.&A-T(APS)50		
	Civil	TH DM-T(BK)48	---------- MOS LAB(SKJ) / OOP LAB(SS) ----------				---------- OOP LAB(SS) / MOS LAB(RKJ) ----------		
	EC	E&EMat(RRK)47	P.M.&I.R.(AKN)47						
	IT		DT STR(KPS) IT1	AN ELN(AK) IT1	C. ARC.(KPS) IT1				
	LT	BC EN(AK)37	OOP(KPS)37	NM CT(SKJ)37					
	PHAR	-------- BASIC ELECTRONICS AND COMPUTER APPLICATION LAB(AK).--------							

*LB-L.T.BLOCK,

Asst.Prof.-in-charge (TT) **Prof.-in-charge (TT)** **Principal**

TIME TABLE (Session 2017-18) Even Semester

MIT Muzaffarpur

FACULTY:- Mr. Arvind Kumar Madheshiya (Mechanical Engineering Department)

TIME / DAY	L-1 10.00-10.50	L-2 10.50-11.40	L-3 11.40-12.30	L-4 12.30-01.20		L-5 01.50-02.40	L-6 02.40-03.30	L-7 03.30-04.20
Monday			**MD LAB** **(15A)L** B. TECH(ME)-IV	**THERMO** **(14)L** B. TECH(CE)-IV				
Tuesday			**THERMO** **(14)L** B. TECH(CE)-IV			**ENGG. GR. LAB** **(AKM)** B. TECH(EC)-II		
Wednesday								
Thursday		**MD LAB** **(AKM+SK)** B. TECH(ME)-IV						
Friday	**THERMO** **(14)L** B. TECH(CE)-IV					**ENGG. GP** **(AKM)** B. TECH(EE/EC)-II		
Saturday	**THERMO** **(14)L** B. TECH(CE)-IV					**MD LAB** **(AKM+SK)** B. TECH(ME)-IV		

LUNCH BRAK

MUZAFFARPUR INSTITUTE OF TECHNOLOGY
MUZAFFARPUR
B. TECH. 4th SEMESTER 2016 BATCH
MECHANICAL BRANCH

Sl. No.	College Roll No.	AKU Reg. No.	Name
1	16M08	16102107001	SUMAN BHARTI KESHAV
2	16M52	16102107002	MUKUND KUMAR
3	16M19	16102107003	ALOK ARAYA
4	16M31	16102107004	VIKAS KUMAR BHARTI
5	16M20	16102107005	RAJHANS KUMAR
6	16M69	16102107006	SHASHI BHUSHAN KUMAR
7	16M05	16102107007	NAWLESH KUMAR
8	16M03	16102107008	ABHISHEK KUMAR
9	16M07	16102107009	ANUBHAV SHRIVASTAVA
10	16M58	16102107010	VISHAL KUMAR
11	16M02	16102107011	MD AKRAM ALAM
12	16M51	16102107012	SANDEEP RAHUL
13	16M12	16102107013	ABHISHEK ANAND
14	16M64	16102107014	RATAN KUMAR
15	16M43	16102107015	RAUSHAN KUMAR
16	16M32	16102107016	AVINASH KUMAR
17	16M01	16102107017	SAURAV KUMAR
18	16M22	16102107018	MITHUN KUMAR
19	16M19	16102107019	MD TASLIM
20	16M60	16102107020	KUMARI PAYAL
21	16M24	16102107021	SHASHI KUMAR
22	16M59	16102107022	VIVEK KUMAR
23	16M34	16102107023	VISHWANATH KUMAR
24	16M17	16102107024	PRINCE KUMAR
25	16M68	16102107025	SHIWANGI KUMARI
26	16M16	16102107026	KANHAIYA KUMAR
27	16M66	16102107027	AMRIT RAJ
28	16M65	16102107028	NANDAN KUMAR
29	16M71	16102107029	KRISHNA KUMAR

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B. TECH. 4th SEMESTER 2016 BATCH
MECHANICAL BRANCH

30	16M25	16102107030	RAHUL PRASAD
31	16M62	16102107031	SHAILENDRA KUMAR
32	16M14	16102107032	SHUBHAM
33	16M37	16102107033	PIYUSH KUMAR
34	16M54	16102107034	AMIT KUMAR
35	16M23	16102107035	SHATRUDHAN KUMAR
36	16M18	16102107036	NAVNEET DHANRAJ
37	16M40	16102107037	RUPESH KUMAR
38	16M70	16102107038	AVINASH RAJ
39	16M38	16102107039	FAIZ ANWAR
40	16M55	16102107040	PRABHAKAR KUMAR
41	16M47	16102107041	VINOD KUMAR
42	16M36	16102107042	KUMAR RAHUL
43	16M61	16102107043	VISHAL KUMAR
44	16M44	16102107044	VISHAL KUMAR
45	16M56	16102107045	LALAN KUMAR
46	16M41	16102107046	RAUSHAN KUMAR
47	16M21	16102107047	VED PRAKASH
48	16M13	16102107048	ANAND MOHAN SINGH
49	16M35	16102107049	KANHAIYA KUMAR
50	16M53	16102107050	TUSHAR VERMA
51	16M27	16102107051	VISHAL KUMAR
52	16M06	16102107052	UJJWAL KUMAR
53	16M04	16102107053	RAHUL KUMAR
54	16M63	16102107054	SONU KUMAR
55	16M15	16102107055	SURENDRA KUMAR
56	16M26	16102107056	MANOHAR KUMAR
57	16M11	16102107057	ASHUTOSH KUMAR
58	16M49	16102107058	NIDHI KUMARI GUPTA
59	16M67	16102107059	ASHUTOSH KUMAR JHA
60		16104107033	ASHUTOSH SINHA

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B. TECH. 4th SEMESTER 2016 BATCH

MECHANICAL BRANCH

61	17(LE)M01		CHANDAN KUMAR
62	17(LE)M02		RAHUL RAY
63	17(LE)M03		SUDHANSHU KUMAR SHARMA
64	17(LE)M04		RAJEEV KUMAR
65	17(LE)M05		SANGAM KUMAR
66	17(LE)M06		KRISHNA KUMAR
67	17(LE)M07		ANKIT RANJAN
68	17(LE)M08		DHIRAJ KUMAR
69	17(LE)M09		GUDDU KUMAR
70	17(LE)M10		SUNNY KUMAR
71	17(LE)M11		RAKESH RAM
72	17(LE)M12		ANAND MOHAN JHA

Institute / School Name :	MIT Muzaffarpur		
Program Name	**B.TECH. MECHANICAL**		
Course Code	ME 02 1x11		
Course Name	MACHINE DRAWING		
Lecture / Lab (per week):	1/3	**Course Credits**	3
Course Coordinator Name	Mr. Arvind Kumar Madheshiya		

1. Scope and Objectives of the Course

Technical Graphics is used to communicate the necessary technical information required for manufacture and assembly of machine components. These drawings follow rules laid down in national and International Organizations for Standards (ISO).

Hence the knowledge of the different standards is very essential. Students have to be familiar with industrial drafting practices and thorough understanding of production drawings to make themselves fit in industries. The following topics have been covered to fulfill the above objectives.

Classification of Machine Drawings, Principles of Drawings, Sectioning, Dimensioning, Limits, Fits and Tolerance, Symbols and Conventional Representation, Screw Fasteners, Key Joints, Coupling and its Types, Riveted Joints, Welded Joints, Structural Applications, Assembly Drawings, Production Drawings, Reproduction of Drawing, Introduction of Computer Aided Drafting, Introduction of Solid 3D Modeling.

To understand and apply national and international standards while drawing machine component.

To understand the concept of various tolerances and fits used for component design

To familiarize in drawing assembly, orthographic and sectional views of various machine components.

2. Textbooks

TB1: 'Machine drawing by N.D. Bhatt

TB2: 'Engineering Drawing by K. L. Narayan

3. Reference Books

RB1: 'Engineering Drawing' by Amit Agarawal, Tata MacGraw Hill, New Delhi

4. Course Plan

Lecture Number	Topics	Web Links for video lectures	Text Book / Reference Book / Other reading material	Page numbers of Text Book(s)
1-2	**Introduction to section view, full section, half section revolved section and off-set section**		TB1, RB3	1-8
3-8	**Nut-bolt, rivet, thread profiles, screw jack**		TB1, RB3	7-45
9-12	**Bush bearing, pedestal bearing,**		TB1, RB3	46-69

	and foot step bearing			
13-15	**Stuffing box**		TB1, RB3	70-140
15-19	**Eccentric**		TB1, RB3	
19-23	**Cross head**		TB1, RB3	
23-28	**Assembly of disassembled parts**		TB1, RB3	
28-31	**Disassembly of assembled parts**		TB1, RB3	

1. **Evaluation Scheme:**

Component 1*	Sessional Test (ST)*	10
Component 2	Assignment Evaluation	10
Component 3**	End Term Examination**	30
	Total	**50**

SYLLABUS

Topics	No of lectures	Weightage
Introduction to section view, full section, half section revolved section and off-set section	2	6%
Nut-bolt, rivet, thread profiles, screw jack	2	6%
Bush bearing, pedestal bearing, and foot step bearing	3	9%
Stuffing box	5	14%
Eccentric	4	11%
Cross head	4	11%
Assembly of disassembled parts	8	23%
Disassembly of assembled parts	7	20%

This Document is approved by:

Designation	Name	Signature
Course Coordinator	Mr. Arvind Kumar Madheshiya	
H.O.D	Mr. Vikash Kumar	
Dean		
Date		

Evaluation and Examination Blue Print:

Internal assessment is done through quiz tests, presentations, assignments and project work. Two sets of question papers are asked from each faculty and out of these two, without the knowledge of faculty, one question paper is chosen for the concerned examination. The components of evaluations along with their weightage followed by the University is given below

Sessional Test	20%
Internals	20%
End term examination	60%

Institute / School Name :	MIT Muzaffarpur		
Program Name	**B.TECH. MECHANICAL**		
Course Code	ME 02 1x11		
Course Name	Machine Drawing		
Lecture / Lab (per week):	1/3	**Course Credits**	3
Course Coordinator Name	Mr. Arvind Kumar Madheshiya		

LECTURE PLAN

Topics	**Lecture Number**	**Date on which the Lecture was taken**
Introduction		
Introduction to section view, full section, half section revolved section and off-set section	**1**	
Nut-bolt, rivet, thread profiles, screw jack	**2**	
Bush bearing, pedestal bearing, and foot step bearing	**3**	
Stuffing box	**4**	
Eccentric		
Cross head	**5**	
Assembly of disassembled parts	**6**	
Disassembly of assembled parts	**7**	

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Machine Drawing **Practice Set: 01**

Sections of solids

Example 1: Figure 1.1 shows the isometric view of machine component along with the sectional view from the front, the view from above and the view from the left.

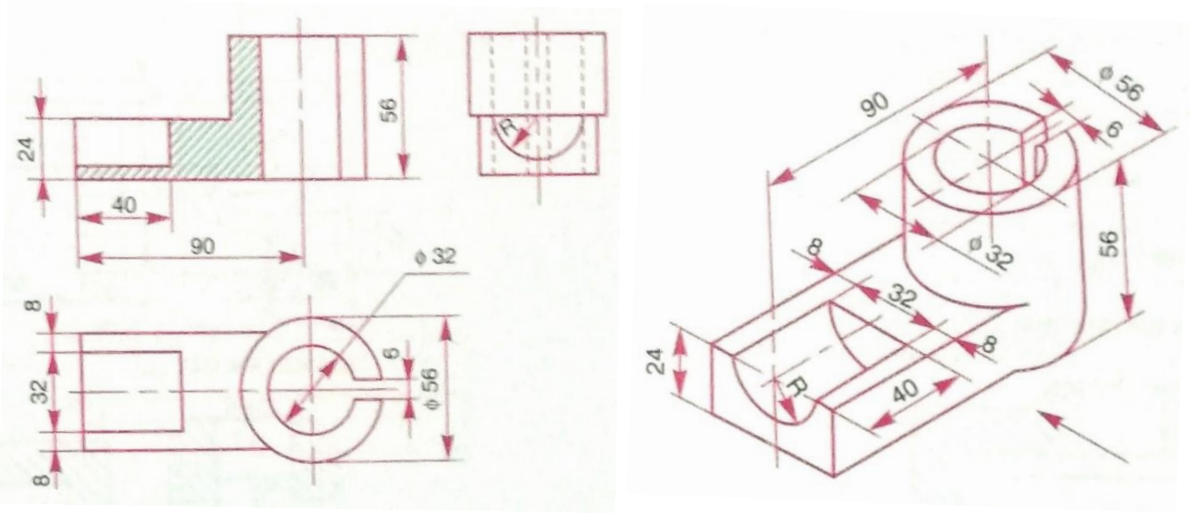

Figure 1.1

Example 2: Figure 1.2 shows a sliding block and (i) the view from the front, (ii) the view from above and (iii) the sectional view from the right.

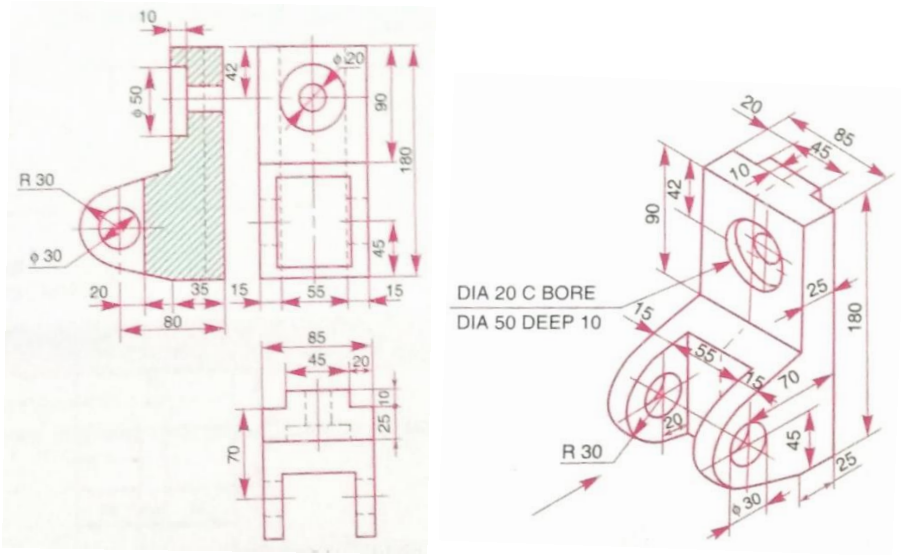

Figure 1.2

Problem 1: Figure 1.3 shows the isometric view of shaft support. Draw the sectional view from the front, the view from above and the view from the right.

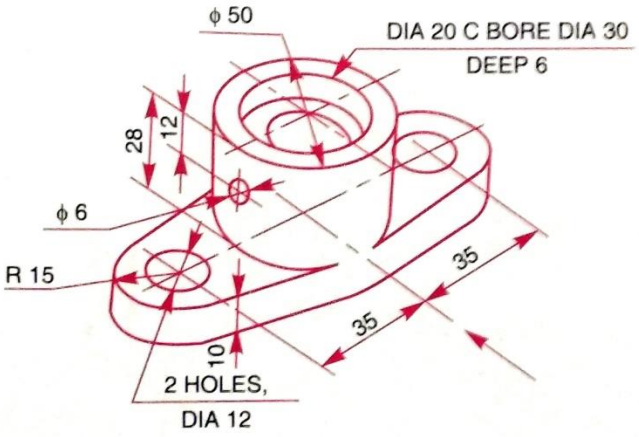

Figure 1.3

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Machine Drawing **Practice Set: 02**

Fasteners

Practice problem 1: Giving proportionate dimensions, sketch any six forms of commonly used rivet heads, choosing the rivet diameter 20 mm.

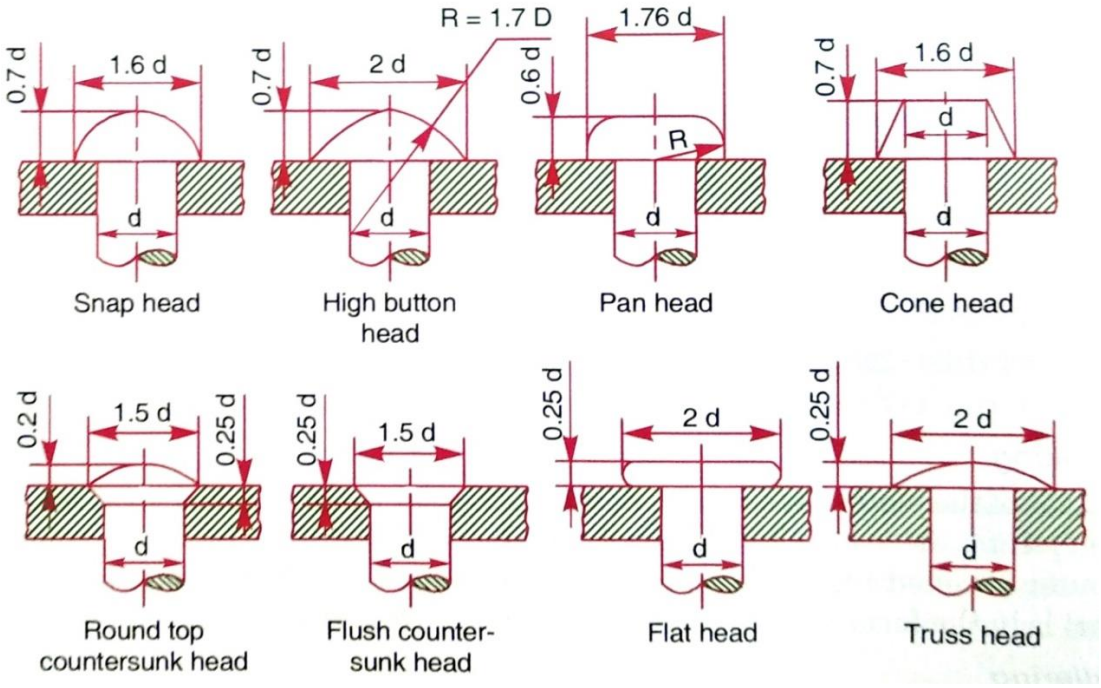

Figure 1.1: Types of rivets heads

Practice problem 2: Draw the projection of a hexagonal nut having core diameter (D) of 25 mm. Use following empirical relations for the other dimensions.

Thickness of nut, T = D mm

Width of nut across flat surfaces, W = 1.5D + 3 mm

Radius of chamfer, R = 1.5 D

Assignment Problem 1: *Write down a technical note on screw jack and explain with the help of suitable diagrams.*

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Machine Drawing **Practice Set: 03**

Flange Coupling

Problem 1: Draw (a) half sectional view from the front, top half in section and (b) view from the side of a rigid flange coupling to connect two shafts, each of diameter 30 mm. Sketch the above views flange coupling.

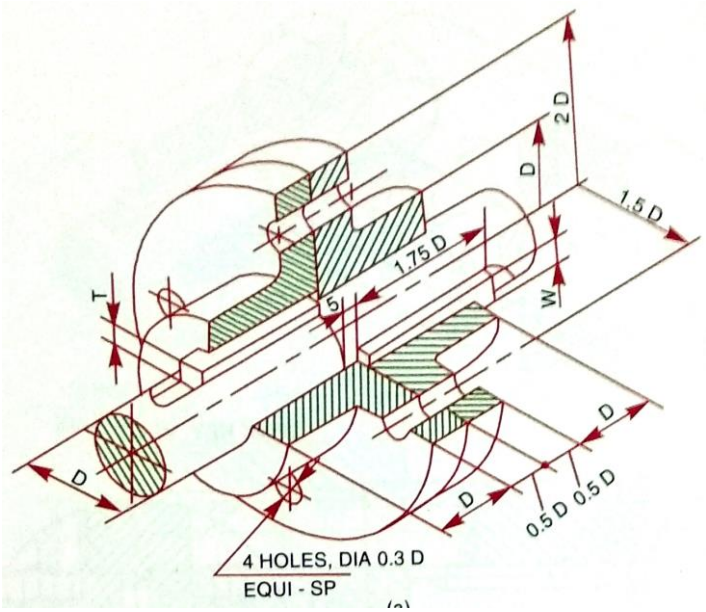
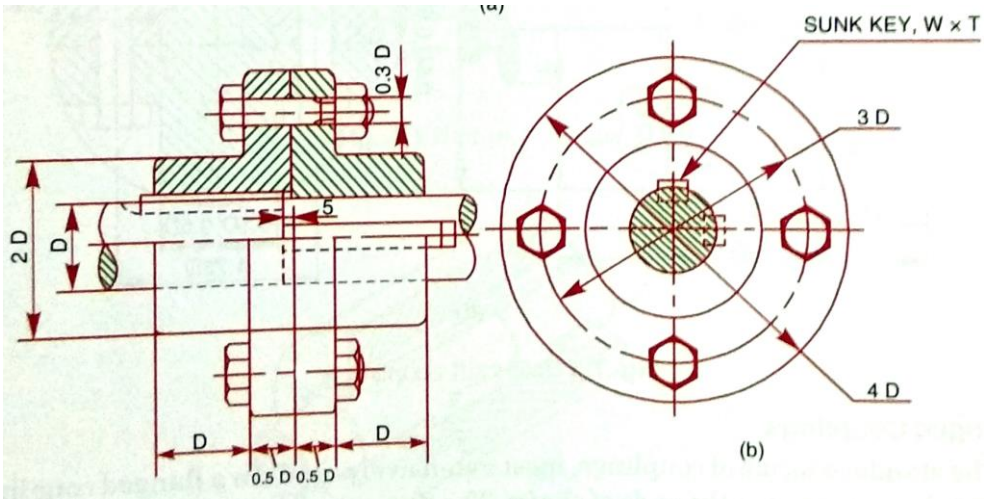


Figure 1.1



Foot-step bearing

Problem 2: Sketch the necessary views of a foot-step bearing, for supporting a shaft of diameter 50 mm. Give all proportionate dimensions.

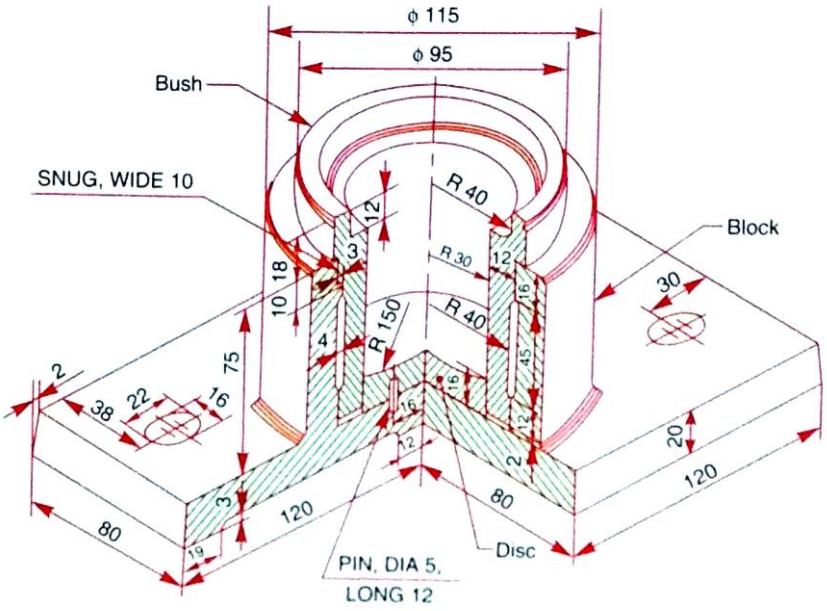


Figure 1.2