RGPV (Diploma W	ing) Bhopal		SCHEME FOI	R LEARNING OU	J TCOM		Branc	ch Co	ode	Cor	urse C	Code	CO Cod e	LO Cod e	Format No. 4
								М	0	2	4	0	4	1	Ren , Nil	
COURS	E NAME	Engineering measure	ment an	d maintenance	practice.			'								
CO Desc	cription	Explain linear dimen	sion usii	ng instrument,	comparator and g	gauges.										
LO Deso	cription	Describe concepts of	inspecti	ion.												
					SCHEME O	F STUI	DY									
S. No.	Learning Method Process Hrs. Hrs.									LRs Required				Ren	Remarks	
1	and app Definitio accuracy repeatabi hysteresi of measu and accu	lication of inspection n of precision	n. class meth video tutor n st	room lecture od Handout, o display,	the processes the the discussion the teacher on comprovided by the and random taken by them.	with content	6	0			Pape poin	Text book, charts, Paper Pen, Power point presentation, Video Lectures.				
					SCHEME OF A	SSESS	MENT									
S. No.	Method o	f Assessment	Descrip	tion of Assessm	ent	Maxin Marks		R	Resou	rces R	Requir	ed				External Internal
1	Paper per	ı test		t will be asked ts as per learnin	I to explain the ng content.	10		T	est p	aper -	⊦ Rati	ng sc	ale			Internal
	1	l	ADD	ITIONAL INS	TRUCTIONS FO	R THE	HOD/ I	ACU	ULTY	(IF	ANY)					
					Part of Pro	gressive	e 1									

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Bra	Branch Code M 0 2		Cou	ırse (Code	CO Co de	Co de	Format No. 4	
			M	0	2	4	0	4	1	2		
COURSE NAME	Engineering measurement	ineering measurement and maintenance practice										
CO Description	Explain linear dimension us	Explain linear dimension using instrument, comparators and gauges.										
LO Description	Describe principle, construction, working of linear measuring instrument, gauges and comparators.											
	1											

SCHEME OF STUDY

	Tables Description of T.I. Table Description													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks							
1	Linear Measurement: Standards of length, classification of linear measuring instrument, construction, working and least count -Vernier Callipers, Micrometers, Vernier Height Gauge, Dial Vernier, Dial Height Gauge. classification and use of slip gauges, wringing phenomenon in slip gauges, precautions while using slip gauges, Working and	Interactive classroom lecture method Handout, video display,	Students will learn the processes through the		/Tut Hrs.	Text book, charts, Paper Pen, Power point presentation, Video Lectures.								
	application of mechanical, electrical, optical and pneumatic comparators													

SCHEME OF ASSESSMENT

\$ S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Student will be asked to explain construction and working of any two instrument/gauges/comparators	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end semester theory exam

DCDI/	(D:-1-	- W' N Dl	1	COHEME FOR		TTCO		nch Cod	e	Cour	rse Code		CO Code	LO Code	
KGPV	(Diplom	a Wing) Bhopa	ı	SCHEME FOR	R LEARNING OU	TCOM	TE M	0	2	4	0	4	1	Re S, Nil	Format No. 4
COURS	E NAME	Engineering me	easure	ment and maint	enance practic	ee	'				_			'	
CO Desc	cription	Explain linear dir	nensior	n using instrument	, comparators and	d gauge	S.								
LO Desc	cription	Measure linear di	mensio	on of a given job us	sing Vernier calli	per, mi	crometer	and sl	ipgaug	ge.					
					SCHEME O	F STU	JDY								
S. No.	Learnin	g Content	Teacl Lear	hing – ning Method	Description o Process	f T-L	Teac h Hrs.	Prac /Tut	et. Hrs.	LRs	s Req	uire	ed	Re	marks
1	Linear using-Vei Micromet	Measurement rnier Callipers, ters, slip gauges.	assign	demonstration, on practice, lab nment, quiz, nments.	Teacher demonstrate procedure of preparation. students will through practice	The learn	0	6		Han- Pow pres	•				
				S	CHEME OF A	SSES	SMENT								
S. No.	Method	of Assessment	Des	scription of Asse	ssment	Maxi Mark	-	Reso	ources	s Req	uired				External Internal
1	Laborator observation	-	job	nsure linear dimen using Vern rometer and slip ga	nier caliper,	10		chec Rubi	k list/	n sche	dule/				Internal
		A	DDIT	IONAL INSTR	UCTIONS FO	R THI	E HOD / 1	FAC	ULTY	/ (IF A	ANY))			
					Part of la	b wor	 k			-					

D CDV (D. 1 XX		COMPAGE FOR				nch Code		Cour	rse Code		CO Code	LO Code	
RGPV (Diploma W	ing) Bhopal	SCHEME FO	R LEARNING O	UTCOM	M	0	2	4	0	4	2	1	Format No. 4
COURS	E NAME	Engineering m	easurement and main	tenance practio	ce	I			'			'		
CO Desc	cription	Measure angle, so	crew thread geometry, su	rface finish, geor	metrical	attributes	S.							
LO Desc	cription	Describe differen	t screw threads.											
				SCHEME O	F STU	DY								
S. No.	Learnin	g Content	Teaching – Learning Method	Description o Process	i I-L	h	Pract /Tut Hrs.		LRs	s Req	uire	ed	Rei	marks
1	Screw construct error.	rew Thread- types, astruction, working and or. Interactive classroom lecture method Handout, video display, the teacher on content provided by teacher and random quiz taken by them.				4	0		Text Pape poin Vide	er P				
			S	CHEME OF A	SSESS	MENT								
S. No.	Method	of Assessment	Description of Asso	essment	Maxin Marks		Resou	urce	s Req	uired				External Internal
1	Assignme	ent/ Quiz	Student will be as assignment/ quiz on l		10		Obser/Ratin		ion schedule/check list/Rubric				Internal	
		A	DDITIONAL INSTR	UCTIONS FO	R THE	HOD/ I	FACU	LTY	(IF .	ANY))			
				Part of Te	rm wor	k								

DCDV (Diploma W	(ing.) Dhonol	SCHEME EOI	R LEARNING OUTCOM					Course Code		CO Code	LO Code	1
RGPV (Diploma W	mg) впораг	SCHEWE FOI	A LEAKNING OUTCON	M	0	2	4	0	4	2	2	Format No. 4
COURSE NAME	Engineering measure											
CO Description Measure angle, screw thread geometry, surface finish, geometrical attributes.												
LO Description Explain principle, construction, working of bevel protector, sine bar, angle gauge, Clinometer, angle Dekkor and Talysurf roughness tester.										Talysurf surface		
			SCHEME OF STU	U DY								
S. No. Learnin	g Content Teac	hing –	Description of T-L	Teach	Pract	•	LRs	Rea	nired	l	Ren	narks

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process		Pract. /Tut Hrs.	LRs Required	Remarks
1	Construction and working of bevel protector, sine bar, angle gauge, clinometer, angle Dekkor and Talysurf surface roughness tester.	lecture method Handout,	the processes through the discussion with	8	0	Text book, charts, Paper Pen, Power point presentation, Video Lectures.	Nil

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain construction and working of any two given instrument.	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end semester theory exam

DCDV (Dinloma W	ing) Bhopal	SCHEME EO	R LEARNING O	HTCON		nch Code)	Cour	se Code		CO Code	LO Code	
NGF V (Б іріоша v v	ing) bilopai	SCHEWE FO	K LEAKINING O	UTCON	M	0	2	4	0	4	2	3	Format No. 4
COURS	E NAME	Engineering me	easurement and mair	itenance practi	ice			'						
CO Desc	cription	Measure angle, sc	rew thread geometry, su	urface finish, geo	metrical	attribute	es.							
LO Desc	cription	Measure angular o	dimension of a given job	b using sine bar, l	bevel pr	otector.								
				SCHEME C	F STUI	ΟY								
S. No.	Learnin	g Content	Description o Process	of T-L	Teac h Hrs.	/Tut LRs Required						Remarks		
1	_	easurement using baractor, Sine Bar.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.		The learn	0	6		Text book, charts, Hand out/ lab manual, Power point presentation, Video Lectures.					
			S	SCHEME OF A	SSESS	SMENT								
S. No.	Method	of Assessment	Description of Ass	essment	Maxii Mark	-	Reso	urce	s Req	uired				External Internal
1	Laborator observation	5	Student will be as angular dimension using bevel protector	of a given job	8			ervation schedule/check list/Rubric				Rubric	External	
		AI	DDITIONAL INSTR	CUCTIONS FO	R THE	HOD/	FACU	JLTY	Y (IF	ANY)				
			Par	t of end semest	er prac	tical exa	am							

	PV (Diploma Wing) Bhopal						anch Cod	e	Cour	rse Code		CO Code	LO Code	
RGPV (I	Diploma W	ing) Bhopal	SCHEME I	FOR LEARNING OU	TCOM	E M	1 0	2	4	0	4	Code Code 2 4 Charts, N	4	Format No. 4
COURS	E NAME	Engineering mea	asurement and ma	intenance practic	e			'						
CO Desc	cription	Measure angle, scr	ew thread geometry,	surface finish, geom	etrical a	ıttributes								
LO Desc	ription	Inspect geometrica	l attributesusing Stra	ight edge method, fe	eler gau	ige metho	od, dia	l indic	ator, t	ry squ	are.			
				SCHEME O	F STUE	Y								
S. No.	Learnin	o Content	Teaching Learning Method	- Description o	f T-L	Teach Hrs.	Prac /Tut	et. Hrs.	LRs	Req	uired	l	Rei	marks
1	using stra light gap method,	ment of Lab demonstration, hands on practice, lab assignment, quiz, or and feeler gauge wedge method, ess using V- Block al indicator and Teacher will of the demonstrate the procedure of job preparation. The students will learn through practice. Teacher will of the demonstrate the procedure of job preparation. The students will learn through practice. Text book, charts, Hand out/lab manual, Power point presentation, Video Lectures.												
				SCHEME OF A	SSESS	MENT								
S. No.	Method	of Assessment	Description of A	ssessment	Maxii Mark		Reso	ources	s Req	uired				External Internal
1	Laborator observation	-	straightness/	ask to inspect flatness/roundness/ given job using an ment.	7			rvation		edule/	check	list/R	Lubric	External
		A	DDITIONAL INS	TRUCTIONS FO	R THE	HOD/	FACU	JLTY	(IF A	ANY)				
				Part of end semeste	er Pract	ical exa	m							

DCDV (D:-1 W	Correl	SCHEME FOR LEADNING OUTCOME	Branc	ch Code		Cour	se Code		Code	Code	
RGPV (Diploma W	ing) Bnopai	SCHEME FOR LEARNING OUTCOME	M	0	2	4	0	4	3	1	Format No. 4
COURSE NAME Engineering measurement and maintenance practice											
CO Description	Explain limit, fit, tolerance	Explain limit, fit, tolerance and gauging.									
LO Description Calculatefundamental deviation, tolerance, allowances.											

CO

Course Code

LO

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Limits, fits and tolerances, selection of fit for assembly, calculation of fundamental deviation, tolerance and allowances.	lecture method Handout,	the processes through the discussion with		0	Text book, charts, Paper Pen, Power point presentation, Video Lectures.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	Student will be asked to calculate fundamental deviation, tolerance and allowances.	10	Test paper + Rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of progressive Test II

DCDV (Diploma W	ing) Dhonol	SCHEME EOD I EADNING OUTCOME	Branch Code			Course Code		Code		LO Code	
RGPV (Diploma W	ing) Bnopai	SCHEME FOR LEARNING OUTCOME		0	2	4	0	4	3	2	Format No. 4
COURSE NAME Engineering measurement and maintenance practice											
CO Description	Explain limit, fit, tolerance	xplain limit, fit, tolerance and gauging.									
LO Description Explain gauge and gauging.											

CO LO

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
	Gauge and gauging-Definition, necessity, Classification, difference between workshop, inspection and reference gauges, measurement using limit gauges Go, No Go, plug gauge, snap gauge, screw pitch gauge, template feeler gauge. Selection and specification as per IS 2251, 3455, 3484. Statement of Taylor's principle for 'Go 'and 'No Go' gauge.	Interactive classroom lecture method Handout, video display, tutorials	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	8	0	Text book, charts, Paper Pen, Power point presentation, Video Lectures.	Nil

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to describe construction and working of any two gauges.	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end semester theory examination

CO

Code

Course Code

LO

Code

DCDV/D: 1 W	escription Force, torque, pressure, strain, speed, displacement, flow, humid	COHEME FOR LEADNING OUTCOME							Coae	Coae	1
RGPV (Diploma W	ving) Bnopai	SCHEME FOR LEARNING OUTCOME	M	0	2	4	0	4	4	1	Format No. 4
COURSE NAME Engineering measurement and maintenance practice											
CO Description	Force, torque, pressure, str	ain, speed, displacement, flow, humidity, tem	peratu	ire mea	asuren	nent u	sing i	nstrui	nent ar	nd gauş	ges.
LO Description	Explain principle, construc	Explain principle, construction and working ofdifferent transducers.									

Branch Code

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1		lecture method Handout,	the processes through the discussion with	8	0	Text book, charts, Paper Pen, Power point presentation, Video Lectures.	Nil

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal	
--------	-----------------------------	----------------------------------	------------------	--------------------	------------------------	--

1	Theory Exam	Student will be ask construction and working of any two transducers.	10	Question paper + Rating scale	External
	AI	DDITIONAL INSTRUCTIONS FO	R THE HOD/	FACULTY (IF ANY)	
		Part of end semes			

								ranch Co	de	Cou	rse Code	;	CO Code	LO Code		4
	RGPV (Dip	oloma Wing) Bhopa	1	SCHEME FO	R LEARNING	OUTCO	ME \sqrt{I}	1 0	2	4	0	4	4	2	Format No.	4
COURS	E NAME	Engineering me	easureme	ent and maint	enance practi	ce										
CO Desc	cription	Force, torque, pre	ssure, stra	in, speed, displ	acement, flow,	humidity	, temper	ature n	neasure	ement	using	instru	ment an	d gau	ges.	
LO Desc	cription	Force, torque, pre	ssure, tem	perature measu	rement using in	strument	and gau	iges.								
					SCHEME	OF STUI	ΟY									
S. No.	Learning	g Content	Teachin Learnin	ng — — ng Method	Description Process	of T-L	Teach Hrs.		ct. t Hrs.	LR	s Req	uired	l	Rei	marks	
1	torque, Introducti measuren Balance, Load c measuren Diaphrag pressure Bourdon gauge, M Temperat classificat working thermome	Proving ring, ell; Pressure nent: m type gauge- tube pressure cLeod gauge. ure measurement- tion, principle and of resistance	lecture method	Handout, splay, tutorials	Students will the processes the discussion the teacher on provided by and random taken by them	through on with content teacher quiz	8	0		Tex Pappoir Vide	er P		charts, Power ntation,	Nil		
				S	CHEME OF	ASSES	SMEN	Γ								
S. No.	Method	of Assessment	Descri	iption of Asse	ssment	Maxi Mark	-	Res	ource	s Req	uired				External Internal	/

1	Theory Exam	Student will be asked any two of force, torque, pressure, temperature measurement using given instrument /gauges.	10	Question paper + Rating scale	External
		ADDITIONAL INSTRUCTIONS FO	R THE HOD)/ FACULTY (IF ANY)	
		Part of end semester			

RGPV (Diploma Wing) Bhopal		COHEME FOR LEADNING OUTCOME							Code	Code	
		SCHEME FOR LEARNING OUTCOME	M	0	2	4	0	3	4	3	Format No. 4
COURSE NAME Engineering measurement and maintenance practice											
CO Description	Force, torque, pressure, str	Force, torque, pressure, strain, speed, displacement, flow, humidity, temperature measurement using instrument and gauges.									
LO Description Measure displacement, speed, flow, humidity using a given instrume											

CO

Code

Course Code

LO

Code

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Speed measurement: Classification of tachometers, Revolution counters, Eddy current tachometers; Displacement measurement: Linear Variable Differential Transformers (LVDT); Flow measurement: Rotameters, Turbine meter; Miscellaneous measurements: Humidity measurement: hair hygrometer; Density measurement: hydrometer; Liquid level measurement: sight glass, Float gauge.	Interactive classroom lecturemethod Handout, video display, tutorials Lab demonstration, hands on practice, lab assignment, quiz, assignments.	Students will learn the processes through the discussion with the teacher on content provided by teacher.		6	Text book, charts, Hand out/ lab manual, Power point presentation, Video Lectures.	Nil

	SCHEME OF ASSESSMENT									
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal					
1	Laboratory test by observation	Student will be asked to measure displacement, speed, flow, humidity (any two) using an appropriate instrument/ gauge.	15	Observation schedule/check list/Rubric /Rating scale	External					

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end semester practical exam

D CDII	D. 1							nch Co	le	Cour	rse Code		CO Code	LO Code	
RGPV (Diploma W i	ing) Bhopal		SCHEME FOR	FOR LEARNING OUTCOME		M	0	2	4	0	4	5	1	Format No. 4
COURS	E NAME	Engineering me	asurem	ent and maint	enance practic	e				ı					
CO Desc	cription	Explain plant Mai	ntenance	, fault tracing, w	ear and lubricati	on.									
LO Desc	cription	Explain type, func	tion and	procedure of pla	ant maintenance.										
					SCHEME C)F STU	J DY								
S. No.	Learning	g Content	Teachii Learnii	ng — — ng Method	Description of Process	of T-L	Teach Hrs.	Pra /Tu	ct. t Hrs.	LR	s Req	uire	d	Re	marks
1	to mainte and scope maintenar Different practices, corrective maintenar maintenar maintenar keeping condition maintenar replacements standard maintenar standards	nce: Introduction enance, its need e, functions of the nce department. maintenance procedure of e or break down nce, scheduled nce, preventive nce and predictive nce, methods of records for of equipment, nce and	Interacti lecture method	ve classroom Handout, splay, tutorials	Students will the processes the discussion the teacher on oprovided by the and random taken by them.	hrough with content	8	0		Text Pape poin Vide	er P		charts Powe entation	r	
				S	CHEME OF A	SSESS	SMENT								
S. No.	Method	of Assessment	Descr	iption of Asse	ssment	Maxi Mark	-	Res	ource	s Req	uired				External Internal

1	Theory Exam	Student will be asked to describe type/ function/ procedure of plant maintenance.	10	Question paper + Rating scale	External
		ADDITIONAL INSTRUCTIONS FO	R THE HOD/	FACULTY (IF ANY)	
		Part of end semester	theory examin	ation	

DCDW (D: 1 W)	\ DI I	COHEME FOR LEADNING OUTCOME	Bran	cn Coae		Cour	se Coae		Code	Code	
RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	M	M 0 2			0	4	5	2	Format No. 4
COURSE NAME Engineering measurement and maintenance practice											
CO Description	Explain plant Maintenan	ce, fault tracing, wear and lubrication.									
LO Description Fault tracing and repair in a given situation.											

CO LO

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Fault Tracing: -Trouble	Lab demonstration,	Teacher will	0	6	Text book, charts,	Nil
	Shooting and Remedies,	hands on practice, lab	demonstrate the			Hand out/ lab manual,	
	Sequence of activities in	assignment, quiz,	procedure of job			Power point	
	fault finding, methods and	assignments.	preparation. The			presentation, Video	
	procedures of repair,	_	students will learn			Lectures.	
	measures to prevent		through practice.				
	repetition of similar faults.						
	Remedial actions.						

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by Observation	Student will be asked to trace a fault and describe procedure of its repair in a given situation.	10	Observation schedule/check list/Rubric /Rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of lab work

RGPV (Diploma Wing) Bhopal		COHEME FOR			nch Code	de Course C				CO Code	LO Code		
KGPV (Dipioma W	ing) Bnopai	SCHEME FOR	R LEARNING OUTCOM	M	0	2	4	0	4	5 3 For		Format No. ²
COURS	E NAME	Engineering me	easurement and maint	enance practice		·							
CO Des	cription	Explain plant Ma	intenance, fault tracing, w	ear and lubrication.									
LO Description Explain wear and lubrication.													
				SCHEME OF STU	JDY								
S. No.	Learnin	g Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract /Tut I		LRs Required		Rer	narks		
1	wear on p	and its finition, types, f wear, effects of performance. on Systems: Need,	Interactive classroom lecture method Handout, video display, tutorials	Students will learn the processes through the discussion with the teacher on content provided by teacher	8	0		Text Pape point Vide		en, oreser	charts, Power ntation,		

SCHEME OF ASSESSMENT

taken by them.

selection criteria, principle

of lubrication, centralized

lubrication systems, use of greases and oil. Methods of

handling of lubricants.

and

preserving

decentralized

lubricants,

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Student will be asked toone question on wear and its effect and one question on lubrication.	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end semester theory examination

TEXT BOOKS AND REFERENCES

S.No.	Title of Books	Author	Publication			
1.	Engineering Metrology	R.K. Jain	Khanna Pub. Delhi			
2.	Engineering Metrology	I.C. Gupta	Dhanpatrai and Sons			
3	Inspection & Gauging	Kennedy	The Industrial Press			
4.	Engineering Metrology	K.J. Hume	Macdonald & Co. Ltd. London			
5	Maap Vigyan Avum Yantrikaran (Hindi)	Yogendra Varshneya	Deepak Prakashan, Morar,Gwalior			
6	Industrial Instrumentation	D.P. Eckman	Wiley Easter Ltd. New Delhi			
7	A Text book of Metrology	M. Mahajan	Dhanpatrai and Sons			
8	Engineering Metrology and Measurement	Dr Vijay Dr R Rangappa	ARS Publication , Chennai			