RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT 3	Sheet No.

Branch	Cement Technology		Semester	IV
Course Code	401	Course Name	Machine drawing and Computer Aided Drafting	

Course Outcome 1	Describe Projection, Multi view representation and Sectional views.	Teach Hrs	Marks
Learning Outcome 1	Describe concepts of projections and multi-view representation.	1+4	05
Contents	Projection: orthographic projection. First and third angle projection, superfluous view, choice of views, auxiliary views- views -full and partial, conversion of pictorial views in to orthographic views, conventional representation as per IS: 696.		
Method of Assessment	Paper pen test		
Learning Outcome 2	Explain Sectional views.	3+7	10
Contents	Sectional Views: Full section, half section, partial or broken section, revolved section, removed section, offset section. Sectioning conventions, section lines. Hatching procedure for different materials as per IS code 686 1972. Sectional views of assembled parts. Choosing from IC engine parts, couplings, clutches, brackets, bearing etc. (Use 1st angle projection)		
Method of Assessment	Drawing Examination		
Course Outcome 2	Draw dimensioning, tolerance, machining and welding symbols	Teach Hrs	Marks
Learning Outcome 1	Draw concepts of dimensioning and tolerance.	2+5	10
Contents	Types of dimensions (size and location) dimensioning terms and notations. (Use of I.S.Code 696 &2709) general rules for dimensioning and practical hints on dimensioning systems of dimensioning. Dimension of cylinder holes arcs of circle narrow space, angles, counter sunk hole, screw threads taper etc. Application of tolerances. (Use I.S. Code 696)		
Method of Assessment	Assignment		
Learning Outcome 2	Draw different machining and welding symbols	2+6	10
Contents	Machining marks, finish marks, countersinking, counter boring spot facing, figures and notes for same. Representation of characteristics machining (circularity, angularity etc.) (Ref IS 969). Representation of riveted and welded joints, welding symbols, tolerance of forms and positions. Procedure of drawing fits, limits, size, tolerance, clearance etc. Procedure of drawing nut and bolt.		
Method of Assessment	Drawing Examination		
Course Outcome 3	Prepare a Production drawing.	Teach Hrs	Marks
Learning Outcome 1	Explain detailed drawings.	1+4	10
Contents	Detailed drawing, assembly drawing, scale, finish tolerances, notes etc. Title block, tool list, gauge list		
Method of Assessment	Paper Pen Test		

Learning Outcome 2	Draw given views of machine components and their Assemblies on drawing sheets.	9+21	40
Contents	Preparation of production drawing for pattern shop, forging shop, machine shop, preparation of assembly drawing from detailed drawing. Exploded views, sectional pictorial views, plummer block, flange coupling, stepped pulleys, foot-step bearing, universal coupling, connecting rod and piston of I.C. engines, cotter joint and knuckle joint. Preparation of detailed drawing from assembly drawings and assembled pictorial views, Interpretation of production drawing		
Method of Assessment	Drawing Examination		
Course Outcome 4	Draw different components of a Pipe line.	Teach Hrs	Marks
Learning Outcome 1	Draw symbols used in pipe drafting.	2+1	05
Contents	Symbols used in pipe line work as per IS code of practice.		
Method of Assessment	Drawing Examination.		
Learning Outcome 2	Draw various joints/bends/ pipe supports in pipe drafting.	2+2	10
Contents	C.I. flanged joint, socket and spigot joint, gland and stuffing box, expansion joint, pipe fitting typical pipe bends, pipe supports and accessories.		
Method of Assessment	Drawing Examination.		
Course Outcome 5	Construct individual and assembly drawing using a CAD Software.	Teach Hrs	Marks
Learning Outcome 1	Execute draw and modify commands used in CAD software.	2+4	10
Contents	Coordinate system, Draw command-line, arc, circle rectangle, polygon, point, ellipse, hatch. erase, copy, offset, array, trim, extend, break, join, chamfer, fillet, move, rotate, scale, stretch, lengthen. Dimensioning Tray settings: snap, grid, ortho, polar, osnap		
Method of Assessment	Lab work		
Learning Outcome 2	Execute format and construction commands used in CAD software.	2+4	10
Contents	Format commands: line type, point style, units, layers, drawing limit, dimension style, text and text styles, formatting dimension style and multileader style		
Method of Assessment	Lab work		
Learning Outcome 3	Construction of drawing using CAD.	5+16	30
Contents	Practice of assembly drawings using CAD, block, creating layout, insert layout, plotting/printing.		
Method of Assessment	Laboratory test by observation		

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
			C	0	1	4	0	3	1	1	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Describe Projection, Multi view representation and Sectional views.
LO Description	Describe concepts of projections and multi-view representation.

<div align="center">SCHEME OF STUDY</div>

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Practice /Tut Hrs.	LRs Required	Remarks
1	Projection: orthographic projection. First and third angle projection, superfluous view, choice of views, auxiliary views- views -full and partial, conversion of pictorial views in to orthographic views, conventional representation as per IS: 696.	Interactive Classroom teaching, demonstration, Quiz, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ quiz/practice sessions to make students practice their knowledge.	1	4	Handouts, chalk board, PPT, Text book, charts, video film/ lecture.	

<div align="center">SCHEME OF ASSESSMENT</div>

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	Student will be asked to describe concepts of projections and multiview representation.	05	Test paper + Rating scale	Internal

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">Part of progressive exam-1</div>

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
			C	0	1	4	0	3	1	2	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Describe Projection, Multi view representation and Sectional views.
LO Description	Explain Sectional views.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Sectional Views : Full section, half section, partial or broken section, revolved section, removed section, offset section. Sectioning conventions, section lines. Hatching procedure for different materials as per IS code 686 1972. Sectional views of assembled parts. Choosing from IC engine parts, couplings, clutches, brackets, bearing etc. (Use 1st angle projection)	Interactive Classroom teaching, demonstration, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions to make students practice their knowledge.	03	07	Handouts, chalk board, PPT, Text book, video film/ lecture.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Drawing Examination	Student will be asked to draw a given sectional view with front/top view of a given part.	10	QUESTION PAPER + RATING SCALE	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)
Part of Theory Exam

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
			C	0	1	4	0	3	2	1	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Draw dimensioning, tolerance, machining and welding symbols
LO Description	Draw dimensions and tolerances on given sketch..

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Practice /Tut Hrs.	LRs Required	Remarks
1	Types of dimensions (size and location) dimensioning terms and notations. (use of I.S.Code 696 &2709) general rules for dimensioning and practical hints on dimensioning systems of dimensioning. Dimension of cylinder holes arcs of circle narrow space, angles, counter sunk hole, screw threads taper etc. Application of tolerances. (Use I.S. Code 696)	Interactive Classroom teaching, demonstration, Quiz, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ quiz/ practice sessions to make students practice their knowledge.	02	05	Handouts, chalk board, PPT, Text book, charts, video film/ lecture.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Assignment	1. Student will be asked to explain methods of dimensioning with the help of sketches. 2. Student will be asked to draw dimensions and tolerances on a given sketch.	10	Rubrics/rating scales	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Term work

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	
				C	0	1	4	0	3	2	2	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Draw dimensioning, tolerance, machining and welding symbols
LO Description	Draw different machining and welding symbols

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Machining marks, finish marks, countersinking, counter boring spot facing, figures and notes for same. Representation of characteristics machining (circularity, angularity etc.) (Ref IS 969). Representation of riveted and welded joints, welding symbols, tolerance of forms and positions. Procedure of drawing fits, limits, size, tolerance, clearance etc. Procedure of drawing nut and bolt	Interactive Classroom teaching, demonstration, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions to make students practice their knowledge.	02	06	Handouts, chalk board, PPT, Text book, charts, video film/lecture.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Drawing Examination	Student will be asked to draw five machining and five welding symbols.	10	QUESTION PAPER + RATING SCALE	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)
Part of Theory Exam

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code		CO Code	LO Code	
			C	0 1	4 0 3		3	1	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Prepare a Production drawing.
LO Description	Explain detailed drawings.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Detailed drawing, assembly drawing, scale, finish tolerances, notes etc. Title block, tool list, gauge list	Interactive Classroom teaching, demonstration, Quiz, Assignments, Tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ quiz/ practice sessions to make students practice their knowledge and drawing skill.	01	04	Handouts, chalk board, PPT, Text book, charts video film.	

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 describe details of a given production drawing.	10	Question paper + rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)
Part of progressive exam-2

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	
				C	0	1	4	0	3	3	2	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Prepare a Production drawing.
LO Description	Draw given views of machine components and their assemblies on drawing sheets.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Preparation of production drawing for pattern shop, forging shop, machine shop, preparation of assembly drawing from detailed drawing. Exploded views, sectional pictorial views, plummer block, flange coupling, stepped pulleys, foot-step bearing, universal coupling, connecting rod and piston of I.C. engines, cotter joint and knuckle joint. Preparation of detailed drawing from assembly drawings and assembled pictorial views, Interpretation of production drawing	Interactive Classroom teaching, demonstration, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions to make students practice their knowledge and drawing skill.	09	21	Handouts, chalk board, PPT, Text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Drawing Examination	Student will be asked to draw a production drawing for a given component.	40	QUESTION PAPER + RATING SCALE	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)
Part of Theory Exam

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code			CO Code	LO Code	
			C	0	1	4	0	3	4	1	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Draw different components of a Pipe line.
LO Description	Draw symbols used in pipe drafting.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Symbols used in pipe line work as per IS code of practice.	Interactive Classroom teaching, demonstration, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions to make students practice their knowledge.	02	01	Handouts, chalk board, PPT, Text book, charts, video film, virtual lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Drawing Examination	Student will be asked to draw any two joints/bends/ pipe supports in pipe drafting.	05	QUESTION PAPER + RATING SCALE	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)
Part of Theory Exam

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
			C	0	1	4	0	3	4	2	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Draw different components of a Pipe line.
LO Description	Draw joints/bends/ pipe supports in pipe drafting

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SCHEME OF STUDY

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S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	C.I. flanged joint, socket and spigot joint, gland and stuffing box, expansion joint, pipe fitting typical pipe bends, pipe supports and accessories.	Interactive Classroom teaching, demonstration, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions to make students practice their knowledge.	02	02	Handouts, chalk board, PPT, Text book, charts, video film, virtual lab.	

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SCHEME OF ASSESSMENT

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S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Drawing Examination	Student will be asked to draw any two joints/bends/ pipe supports in pipe drafting.	10	QUESTION PAPER + RATING SCALE	External

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ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

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Part of Theory Exam

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RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
		C	0	1	4	0	3	5	1	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Construct individual and assembly drawing using a CAD Software
LO Description	Execute draw and modify commands used in CAD software.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Coordinate system, Draw command- line, arc, circle rectangle, polygon, point, ellipse, hatch. erase, copy, offset, array, trim, extend, break, join, chamfer, fillet, move, rotate, scale, stretch, lengthen. Dimensioning Tray settings: snap, grid, ortho, polar, osnap	Interactive Classroom teaching, demonstration, Quiz, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ quiz/ practice sessions on computer.	02	04	Handouts, chalk board, PPT, Text book, charts, video film, CAD lab with plotter.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Lab work	Student will be asked to execute any twelve commands using CAD software.	10	QUESTION PAPER + RATING SCALE	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Lab Work

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
		C	0	1	4	0	3	5	2	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Construct individual and assembly drawing using a CAD Software
LO Description	Execute format and construction commands used in CAD software.

<table>
<tr><th colspan="7">SCHEME OF STUDY</th></tr>
<tr><td>S. No.</td><td>Learning Content</td><td>Teaching – Learning Method</td><td>Description of T-L Process</td><td>Teach Hrs.</td><td>Pract. /Tut Hrs.</td><td>LRs Required</td><td>Remarks</td></tr>
<tr><td>1</td><td>Format commands: line type, point style, units, layers, drawing limit, dimension style, text and text styles, formatting dimension style and multi-leader style</td><td>Interactive Classroom teaching, demonstration, Assignments.</td><td>Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions on computer.</td><td>02</td><td>04</td><td>Handouts, chalk board, PPT, Text book, charts, video film, CAD lab with plotter.</td><td></td></tr>
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		SCHEME OF ASSESSMENT				
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required		External / Internal
1	Lab work	Student will be asked to execute any ten commands using CAD software.	10	QUESTION PAPER + RATING SCALE		Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)
Part of Lab work

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	
			C	0	1	4	0	3	5	3	**Format No. 4**

COURSE NAME	Machine drawing and Computer Aided Drafting
CO Description	Construct individual and assembly drawing using a CAD Software
LO Description	Construction of drawing using CAD.

<div align="center">SCHEME OF STUDY</div>

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Practice of assembly drawings using CAD, block, creating layout, insert layout, plotting/printing.	Interactive Classroom teaching, demonstration, Assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct Assignments/ practice sessions on computer.	05	16	Handouts, chalk board, PPT, Text book, charts, video film, CAD lab with plotter.	

<div align="center">SCHEME OF ASSESSMENT</div>

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	Student will be asked to draw one assembly drawing using a CAD software for a given assembly.	30	Observation schedule/check-list /rating scales /rubrics	External

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">Part of Practical Exam</div>