RGPV(DiplomaWing) Bhopal				SEMESTER TEACHING LEARNING & ASSESSMENT PLAN			FORMAT-6
NAME OF PROGRAMME		THREE YEARS DIPLOMA		SCHEME	OCBC20	IMPLEMENTINGYEAR	2020-21
BRANCH CODE	M07	NAMEOFBRANCH		MINING AND MINESURVEYING		SEMESTER	III

S. No	COURSE DETAILS						T& P-LPLAN			ASSESSMENT PLAN								
	COURSE CODE	COURSE NAME	CREDITS	PAPER CODE	No. of COs	No. of LOs	Total T-L Hrs.	Total P-L Hrs.	(T+P)-L Hrs./Week	Internal Assessment		External Assessment (University Exam)						Grand Total of Marks
												Theory Paper			Practical Exam*			
										No. of LOs	Total Marks	No. of LOs	Total Marks	Duration	No. of LOs	Total Marks	Duration	
1	301	Mine Environment and Ventilation	4+2	7223	5	14	5	4	9		30+20		70	3 hrs		30	3 hrs	150
2	302	Mine Surveying	4+2	7224	5	10	5	4	9		30+20		70	3 hrs		30	3 hrs	150
3	303	Applied Geology	4+2	7225	5	14	6	-	6		30+20		70	3 hrs		30	3 hrs	150
4	304	General Mechanical Engg	4+2	6843	5	14	6	2	8		30+20		70	3 hrs		30	3 hrs	150
5	305	PROFESSIONAL DEVELOPMENT-III		-----	3	06	-	4	4		75							75
																		675

		No. of Theory Papers		No.of Practical Exams	

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 1/3

Branch	Mining & Mine surveying	Semester	III
Course Code	Course Name	Mine Environment & ventilation/7223	

Course Outcome 1	Explain various Mine gases and their properties.	Teach Hrs	Marks
LearningOutcome M0730111	Classify different mine gases on the basis of physical properties.	10	12
Contents	Different Gases / Damps found in mines, Definition of damps, their threshold limits, physiological effects, source of production and detection, Degree of gassiness of seam.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730112	To assemble flame safety lamp.	05	8
Contents	Flame safety lamps, its principle, construction, safety features, and comparison. Detection of Methane by flame safety lamp,		
Method of Assessment	*External: End Semester Practical Exam - Performance of Task & Viva Voce*		
LearningOutcome M0730113	Describe MSA methanometer & multigas detector.	05	08
Contents	MSA Methanometer its principle of working, construction. Principle of other method of detection of methane. Oxymeter, Toximeter & multigas detector : their principle of working.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 2	To supervise Mine climate condition.	Teach Hrs	Marks
LearningOutcome M0730121	To illustrate the standard of ventilation	10	14
Contents	Purpose and standards of ventilation, standards for minimum & maximum velocity of air for different locations. Pressure, ventilating pressure, waterguage.		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam/Assignment/quiz*		
LearningOutcome M0730122	To calculate cooling power of mine air.	05	8

Contents	Temperature, sources of heat in mines. Moisture content of mine air, relative humidity, wet bulb temperature, measurement of relative humidity. Cooling power of mine air, determination of cooling power, methods of improving cooling power of mine air, effect of heat and humidity on miners.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730123	To handle various instrument used for measure adequacy of mine climate.		12
Contents	Thermometer, kata thermometer,barometer- fortins & aneroid, whirling hygrometer.		
Method of Assessment	*Internal: Practical ,Performance of Task in laboratory , observation & Viva Voce.*		
Course Outcome 3	To supervise Natural ventilation of a mine.	Teach Hrs	Marks
LearningOutcome M0730131	Explain natural ventilation pressure.	10	06
Contents	Natural ventilation Pressure, geothermic gradient, Factors causing NVP, Effect of seasonal changes on direction of Natural ventilation, limitation of Natural ventilation. Motive column,		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam/Assignment/quiz*		
LearningOutcome M0730132	To calculate Natural ventilation pressure problems.	05	8
Contents	Numerical problems of motive columns & natural ventilation pressure.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 4	Select mine fans for different mine conditions.	Teach Hrs	Marks
LearningOutcome M0730141	Explain different types of mine fans.	10	12
Contents	Different types of fans used in mines: centrifugal & axial flow, their principle of working, Exhaust & forcing type. Purposes of evasee & volute casing. Reversal of air current, and characteristics curves of fans. Fans in series and parallel.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730142	Compare centrifugal and axial flow fan.	05	12

Contents	Comparison between axial flow & Centrifugal fan, exhaust & forcing Fan. Fan laws, Manometric efficiency, overall efficiency, theoretical depression produced by fan.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730143	To calculate fan efficiency	05	10
Contents	Numerical problems in fan laws		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 5	Measure air quantity deliver in mines.		
LearningOutcome M0730151	Explain **various air coursing devices for mine air.**	10	12
Contents	Laws of air flow in Mines, Atkinson's formula, splitting, advantages & disadvantages, Numerical problems on splitting, equivalent orifice.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730152	To calculate air quantity deliver in a ventilation district.	05	8
Contents	Numerical problems on equivalent orifice. Ventilation appliances, Auxiliary ventilation: Different methods, advantages & disadvantages, hazards associated with auxiliary ventilation, precautions required. Booster fan: purpose, location of booster fan. Numerical problems on booster fan. Accessional and Descensional ventilation, Advantages and disadvantage		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730153	To conduct the ventilation survey in a ventilation district	05	14
Contents	Scope and importance of ventilation survey, survey interval and location of survey station, ventilation plan. 6.2 Measurement of quantity & pressure difference, anemometer, pitot static tube, Manometer. Conduct of pressure & quantity survey. Gas testing chamber.		
Method of Assessment	*Internal: Pen paper test -Survey and Presentation /Assignment/quiz*		

List of experiments of Mine Environment & ventilation.

1. Demonstration of co-detector and measurement of carbon monoxide using Co-detector.
2. 2- Demonstration of MSA Methanometer and measurement of methane using Methanometer.
3. Dismantling & assembling of different types of Flame safety lamps.
4. Detection of Methane using flame safety lamp.
5. Demonstration of whirling hygrometer and determination of relative humidity using whirling hygrometer.
6. Demonstration of Kata thermometer and determination of cooling power by Kata thermometer.
7. Demonstration of water gauge and measurement of fan water gauge.
8. Demonstration of centrifugal mine fan.
9. Demonstration of Reversal arrangement of centrifugal mine fan.
10. Demonstration of Axial flow fan.
11. Demonstration of various ventilation devices.
12. Demonstration of vane Anemometer and determination of quantity by Anemometer.
13. Demonstration of velometer and measurement of air velocity by velometer.
14. Demonstration of Inclined manometer and pitot static tube and determination of velocity pressure.
15. Demonstration of Gas Testing chamber.

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 1/3

Branch	Mining and Mine surveying	Semester	3

Course Code	302	Course Name	Mine surveying	7224

Course Outcome 1	To operate levelling instruments.	Teach Hrs	Marks
LearningOutcome M0730211	To know different terms and methods of levelling .(KL)	10	14
Contents	Definitions of the terms used in Levelling. Concept of datum, Back sight, Foresight, stations, change point, height of instrument. Dumpy and tilting level Construction and temporary adjustments. Levelling staff, their types Classification of levelling: Differential, Reciprocal, and Fly levelling, Profile levelling, cross sectioning. Plotting of a profile and cross section. Difficulties in levelling, common mistakes in levelling. Permanent adjustments of Dumpy & auto level		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam/Assignment/quiz*		
LearningOutcome M0730212	To tabulate the field reading.	04	14
Contents	balancing of back sight and Fore sight distances. Holding and Reading the staff, simple and differential levelling, and booking of readings, effect of curvature and refraction on leveling. Reduction of levels by Collimation system and by Rise & fall system. arithmetic check, computation of missing readings.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730213	To tabulate the field reading. Determine the R. L. Using auto level by different methods, setting out banch mark and ploting - plan, L-section and C- section	20	20
Contents	1. Use of Dumpy level and Auto level, temporary adjustment, taking reading on levelling staff and record on field book.(2) 2. Differential leveling practice, calculation of R.L. by H.I. and rise and fall methods.(4) 3. Carrying bench mark from one station to another by fly levelling with Auto Level.(4) 4. Running longitudinal section for a road of length of 500m and take cross section suitably. Plotting plan, L-section and C-section.(10)		
Method of Assessment	*Internal: Practical ,Performance of Task in laboratory , observation & Viva Voce.*		

Course Outcome 2	To prepare contour maps.	Teach Hrs	Marks
LearningOutcome M0730221	To know different terms and methods of contouring.(KL)	10	08

Contents	Introduction and concept, definitions, purpose, Characteristic of Contour line, contour interval, factors affecting contour interval, Horizontal equivalent. Methods of Locating contours.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
LearningOutcome M0730222	To plot the field map by different contouring method.(AL)	04	06
Contents	Direct method, Indirect method. Interpolation of contours by estimation, arithmetical and by graphical method. Plotting of contour maps. Uses of contour map.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 3	To measure surface subsidence of mining field.	Teach Hrs	Marks
LearningOutcome M0730231	To know different terms and purpose of subsidence survey.(KL)	08	14
Contents	Subsidence monitoring, data required for subsidence studies, parameters required during monitoring, layout of survey lines, survey stations, measurement techniques and Instrumentation, Measurement of displacement, slope and subsurface movement, frequency of subsidence measurement.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 4	To operate the transit theodolite instrument.	Teach Hrs	Marks
LearningOutcome M0730241	To know different terms used in theodolite survey. and methods of theodolite surveying.(KL)	14	16
Contents	Classification of theodolite, definitions and terms used in operating theodolite. Temporary adjustments of transit theodolite. Fundamental axes of theodolite .		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam and quiz*		
LearningOutcome M0730242	To know the different methods of measuring horizontal angle by theodolite .(KL)	10	14
Contents	Measurement of horizontal angles. i)General method. ii) Repetition method. iii) Reiteration method. Measurement of vertical angle. Use of theodolite for Prolonging a straight line, for lining in, Lay-off horizontal angle. Sources of errors in theodolite work and their elimination. Permissible errors in mine surveying.		
Method of Assessment	*Internal: Practical ,Performance of Task in laboratory , observation & Viva Voce.*		

LearningOutcome M0730243	To measure the horizontal angle by theodolite.	20	30
Contents	1. Demonstration of theodolite, reading the vernier. 2. Measurement of horizontal angle by ordinary method. 3. Temporary adjustments of theodolite & measurement of horizontal angle by repetition method. 4. Measurement of horizontal angle by reiteration method		
Method of Assessment	*External: End Semester Practical Exam - Performance of Task & Viva Voce*		
Course Outcome 5	To calculate the amount and direction of true dip of coal seam.		
LearningOutcome M0730251	To know the relation between true dip and apparent dip.	10	14
Contents	Definition of borehole surveying. Purpose of borehole surveying. Definitions of dip, strike, true and apparent dip. Relation between true dip, app. Dip and angle between them. Numerical problems on dip, strike and borehole survey.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		

List of experiments of Mine surveying

1. Demonstration of Dumpy level .

2. Carrying out, Temporary adjustments of dumpy level and conduct simple levelling, recording readings in levelling book and apply arithmetic check.

3. Differential levelling with Dumpy level- recording in level book, reduction of levels by both methods(H.I & Rise & Fall method) apply arithmetic check.

4. Fly levelling for carrying benchmark at a station at least 300 m away by Dumpy level.

5.Demonstration of auto level.

6. Levelling by using auto level.

7. Demonstration of theodolite, reading the vernier.

8. Measurement of horizontal angle by ordinary method.

9. Temporary adjustments of theodolite & measurement of horizontal angle by repetition method.

10. Measurement of horizontal angle by reiteration method.

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 1/3

Branch	Mining & Mine surveying	Semester	III
Course Code	303	Course Name	Applied Geology/7225

Course Outcome 1	Explain various hypothesis of Origin of earth.	Teach Hrs	Marks
Learning Outcome M0730311	Describe branches of General Geology.	10	08
Contents	Branches, Sub branches Essential and Allied branches Scope of geology		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam/Assignment/quiz*		
Learning Outcome M0730312	Illustrate origin of earth.	05	07
Contents	Origin of Earth- various hypothesis. Age of earth - Various methods of age determinations, radioactive methods and their advantages.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Learning Outcome M0730313	Describe interior of earth crust.	05	06
Contents	Interior of earth crust, mantle and core. Continental drift isostacy		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 2	To understand aspects of physical Geology.		
Learning Outcome M0730321	To illustrate erosion & weathering	10	12
Contents	Erosion & weathering - Erosion, Transport and Deposition Vent facts, Pedestal rocks, sand dunes, and loess. Weathering: Physical Weathering and chemical Weathering. Exfoliation and spheroidal weathering**.** River & wind erosion- Erosion, transport and deposition, water falls, meanders, oxbow lakes, alluvial fans, flood plains, delta. **Work of Wind**: Erosion, Transport and Deposition Vent facts, Pedestal rocks, sand dunes, and loess.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		

Learning Outcome M0730322	Describe various types of tectonic activities.	10	09
Contents	Earth quake - seismographs, Earthquake waves, Classification of earthquakes, Elastic rebound theory, Richter scale of earthquake intensity, Distribution of Earthquakes. Volcano. Types of volcanoes, volcanic products volcanic cones, Distribution of volcanoes.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 3	To identify common minerals by their physical properties.		
Learning Outcome M0730331	Describe physical properties of minerals.	10	12
Contents	Definition, Physical Properties of minerals colour, Streak, Lusture, Hardness, Habit, Cleavage, Fracture		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam/Assignment/quiz*		
Learning Outcome M0730332	To identify common minerals.	10	15
Contents	Identification of common minerals Orthoclase, Plagioclase, Augite, Hornblende, Biotite, Muscovite, Olivine, Quartz Asbestos, Calcite, dolomite, corundum, Gypsum Talc..		
Method of Assessment	*Internal: Practical ,Performance of Task in laboratory , observation & Viva Voce.*		
Course Outcome 4	Explain classification of rocks.		
Learning Outcome M0730341	Describe Igneous rock.	10	10
Contents	Rock cycle and characteristics of various Rock types. Igneous Rocks – acid and basic rocks. Texture of Igneous rocks- Glassy, vesicular, Porphyritic, Coarse Grained, medium grained, fine grained, and cryptocrystalline. Classification- Plutonic, Hypobyssal and Volcanic rocks. Tabular Classification Igneous bodies- Batholiths, Laccoliths, sill and dyke Lava flows, common Igneous rocks-granite, syenite, Gabbro, basalt, Trachyte and Rhyolite. Structure Classification, occurrence & uses.		
Method of Assessment	*Internal: Pen paper test -Mid Semester Exam/Assignment/quiz*		
Learning Outcome M0730342	Describe sedimentary rock.	05	10

Contents	Sedimentary Rocks - Definition, Classification-Mechanically formed, Organically formed and chemically formed rocks, Sedimentary Structures; Stratification, Lamination Graded bedding, Current bedding and ripple marks. Common sedimentary rocks-Conglomerate sandstone, Shale, minestone and breccias.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Learning Outcome M0730343	Describe metamorphic rocks. (05)(04)	05	10
Contents	Metamorphic Rocks - Definition; Agents of Metamorphism- Heat, Uniform pressure, directed pressure. Chemically active fluids and gases. Structures and textures of metamorphic rocks-slaty, Schistose, Gneissose, and Granulose. Common metamorphic rocks-slaty Schist, Gneiss, Quartzite, and marble..		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Course Outcome 5	**Explain different types of structure found in rocks.**		
Learning Outcome M0730351	Describe the elements of folds**.**	10	10
Contents	Strike & Dip Apparent Dip, True Dip Folds- Elements of Folds, anticline and syncline, limbs, axial plane, Axis of fold. Types of fold-symmetrical, Asymmetrical, Overturned, recumbent, Isoclinal, Plunging folds ,Anticlinorium, Synclinorium ,Open fold, close fold, Dome and Basin		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Learning Outcome M0730352	Describe elements of faults.	05	06
Contents	Faults- Fault Terminology, Fault-plane, Hade, Dip and strike, throw, Heave, Slip, Hanging wall and foot-wall. Classification of faults-normal and reverse faults, Dip fault, strike-fault and oblique-faults, High and low angle faults, parallel faults, step-faults, Graben, Horst, Radial faults, Peripheral faults.		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Learning Outcome M07303553	Describe different types of unconformity & joints. (05)(04)	05	08
Contents	unconformity- Definition, Types-Angular unconformity, Disconformity, Nonconformity. Joints and cleavages- Classification- Strike Joints, dip Joints oblique Joints, bedding Joints, master		

	Joints, sheet Joints and Columnar Joints. Outlier and Inlier..		
Method of Assessment	*External : End Semester Theory Exam - Pen paper test*		
Learning Outcome M0730354	Able to identify the various types of rocks		25
Contents	Identification of igneous , sedimentary, and metamorphic rocks in a given sample		
Method of Assessment	*External: End Semester Practical Exam - Performance of Task & Viva Voce*		

List of experiments.

1.Identification of Minerals in sets.
Colour
Form
Cleavage
Fracture
Lusture
Streak
Moh's scale of hardness.

2.Identification of Minerals on the basis of physical properties in hand specimens. Asbestos, Augite, Biotite,Calcite, Corundum,Dolomite, Gypsum,Hornblende, Muscovite, Kaolinite, Orthoclase, Plagioclase, Quartz, Talc.

3.Identification of Igneous Rocks in Hand specimen. - Granite, Rhyolite, Syenite, Gabbro, Basalt,Trachyte.

4.Identification of sedimentary rocks in Hand specimen. - Conglomerate, Sandstone, Shale, Limestone.

5.Identification of Metamorphic rocks in Hand specimen. - Slate, Schist, Gneiss, Quartzite, Marble.

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/2	
Branch	**ELECTRICAL ENGINEERING**			**Semester**	**III**	
Course Code		**Course Name**	**General Mechanical Engineering**			
Course Outcome 1	Perform mechanical testing of materials.				Teach Hrs	Marks
Learning Outcome 1	Classify engineering materials and their mechanical properties.				05	05
Contents	Engineering materials, need and its classification, properties and uses of metals and alloys: Ferrous metals: cast iron, wrought iron, steel, alloy steel. Non ferrous metals: aluminum, copper, lead, tin, copper tin-antimony alloy, bearing metals, copper tin alloy, zinc, copper zinc alloy. Mechanical properties of materials: stiffness, strength, ductility malleability, elasticity, plasticity toughness, brittleness, hardness and hardenability, fatigue.					
Method of Assessment	Paper pen test					
Learning Outcome 2	Perform tensile, compression, shear, hardness, impact tests.				14	20
Contents	Tensile, compression and shear tests using UTM machine. Brinell and Rockwell hardness test using hardness tester. Izod and Charpy test using impact testing machine.					
Method of Assessment	Laboratory test by observation					
Course Outcome 2	Explain two phase system for steam, steam generators.				Teach Hrs	Marks
Learning Outcome 1	State laws of thermodynamics.				04	05
Contents	Thermodynamic system, state, properties, process, cycle, work, heat and power, statement of zeroth, Ist, IInd law of thermodynamics.					
Method of Assessment	Paper pen test					
Learning Outcome 2	Explain properties of steam.				04	10
Contents	Properties of steam, enthalpy, specific volume, internal energy of dry and wet steam, simple numerical problems.					
Method of Assessment	Theory exam					
Learning Outcome 3	Explain construction, working of Babcock and Wilcox boiler, Cochran boiler, LaMont boiler.				08	10
Contents	Boilers, its classification, construction working, Mountings and accessories of a boiler: Babcock and Wilcox boiler, Cochran boiler, LaMont boiler.					
Method of Assessment	Theory exam					
Learning Outcome 4	Identify components, mountings, accessories of a given boiler.				07	15
Contents	Demonstration of boiler components, mountings, accessories.					
Method of Assessment	Laboratory test by observation					
Course Outcome 3	Explain internal combustion engines, air compressors.				Teach Hrs	Marks
Learning Outcome 1	Explain internal combustion engines.				07	10
Contents	Define heat engine, difference between internal combustion engines, external combustion engine, and classification of internal combustion engines. Construction and working of two strokes and four stroke petrol and diesel engine, indicated horse power, brake horse power, mechanical efficiency of an internal combustion engine.					
Method of Assessment	Theory exam					
Learning Outcome 2	Identify components of a given internal combustion engine.				07	15
Contents	Demonstration of internal combustion engine components.					
Method of Assessment	Laboratory test by observation					

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 2/2
Branch	**ELECTRICAL ENGINEERING**	**Semester**	**III**
Course Code	**Course Name**	**General Mechanical Engineering**	

Learning Outcome 3	Explain multistage reciprocating, rotary compressors.	09	10
Contents	Air compressors its classification, construction and working of reciprocating air-compressor, rotary compressor, multistage reciprocating air compressor its merits and demerits, industrial uses of air-compressor.		
Method of Assessment	Paper pen test		
Course Outcome 4	Select hydraulic pumps, turbines for a given situation.	Teach Hrs	Marks
Learning Outcome 1	Describe fluid properties and its measurement.	04	10
Contents	Definition of fluid properties, fluid pressure and its measurement, static pressure, intensity of pressure at a point in fluid at rest, pressure head, absolute and gauge pressure, simple and differential U tube manometers.		
Method of Assessment	Quiz		
Learning Outcome 2	Solve given problems using Pascal's law, continuity equation, Bernoulli's theorem.	06	10
Contents	Energies in fluid, pressure energy, kinetic energy, potential energy, total energy, Pascal's Law, continuity equation, Bernoulli's theorem, its assumption and application.		
Method of Assessment	Theory exam		
Learning Outcome 3	Select hydraulic pumps, turbines for a given situation.	05	10
Contents	Construction and working of hydraulic pumps- reciprocating and centrifugal pump. Construction and working of water turbines- impulse turbine and reaction turbine, factors affecting selection of hydraulic pumps, factors affecting selection of a water turbine.		
Method of Assessment	Theory exam		
Course Outcome 5	Explain power transmission drives.	Teach Hrs	Marks
Learning Outcome 1	Describe power transmission, belt drive, gear drive.	07	10
Contents	Methods of power transmission, belt drive, open and cross belt drive, its application and advantages, velocity ratio of pulleys, compound belt drive, effect of slip in the belt drive. Gear drive, simple gear drive, compound gear drive, worm and worm wheel, bevel gear, velocity ratio in gear drive, its merits and demerits.		
Method of Assessment	Theory exam		
Learning Outcome 2	Solve a given numerical problem of belt drive, gear drive.	08	10
Contents	Simple numerical problems on belt drive and gear drive.		
Method of Assessment	Theory exam		

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

COURSE NAME	General Mechanical Engineering
CO Description	Perform mechanical testing of materials.
LO Description	Classify engineering materials and their mechanical properties.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Engineering materials, need and its classification, properties and uses of metals and alloys: Ferrous metals: cast iron, wrought iron, steel, alloy steel. Non ferrous metals: aluminum, copper, lead, tin, copper tin-antimony alloy, bearing metals, copper tin alloy, zinc, copper zinc alloy. Mechanical properties of materials: stiffness, strength, ductility malleability, elasticity, plasticity toughness, brittleness, hardness and hardenability, fatigue.	Interactive classroom teaching, demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz to make students practice their knowledge.	05	NIL	Handouts, chalk board, PPT, text book, charts.	NIL

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 list properties and uses of any five metals and alloys.	05	Test paper + rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Progressive – 1

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

COURSE NAME	General Mechanical Engineering
CO Description	Perform mechanical testing of materials.
LO Description	Perform tensile, compression, shear, hardness, impact tests.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Tensile, compression and shear tests using UTM machine. Brinell and Rockwell hardness test using hardness tester. Izod and Charpy test using impact testing machine.	Lab demonstration, hands on practice, lab assignments, quiz, assignments,	Teacher will demonstrate and explain the working of testing machines and how to perform materials tests on the machine. Teacher will demonstrate the procedure of lab experiments. The students will learn through practice.	NIL	14	Handout/ lab manual, text book, charts, video film.	NIL

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1.	Laboratory test by observation	Students will be asked to perform one mechanical test for a given job.	20	Observation schedule/check-list /rating scales /rubrics	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	Format No. 4
		E	*0*	*1*	*-*	*-*	*-*	*2*	*1*	

COURSE NAME	**General Mechanical Engineering**
CO Description	Explain two phase system for steam, steam generators.
LO Description	State laws of thermodynamics.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Thermodynamic system, state, properties, process, cycle, work, heat and power, statement of zeroth, Ist, IInd law of thermodynamics.	Interactive classroom teaching, tutorial, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/tutorial/assignments to make students practice their knowledge.	04	NIL	Handouts, chalk board, PPT, text book, charts, video film.	NIL

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1.	Paper pen test	Students will be asked to state two statements of laws of thermodynamics.	05	Test paper + rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Progressive – 1

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

COURSE NAME	General Mechanical Engineering
CO Description	Explain two phase system for steam, steam generators.
LO Description	Explain properties of steam.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Properties of steam, enthalpy, specific volume, internal energy of dry and wet steam, simple numerical problems.	Interactive classroom teaching, tutorial, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/tutorial/assignments to make students practice their knowledge.	04	NIL	Handouts, chalk board, PPT, text book, charts, video film, steam tables, Mollier diagram.	NIL

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1.	Theory exam	Students will be asked to solve numerical problems based on content.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	General Mechanical Engineering
CO Description	Explain two phase system for steam, steam generators.
LO Description	Explain construction, working of Babcock and Wilcox boiler, Cochran boiler ,LaMont boiler.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Boilers, its classification, construction working, Mountings and accessories of a boiler :Babcock and Wilcox boiler, Cochran boiler, LaMont boiler.	Interactive classroom teaching, lab demonstration, tutorial, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/tutorial/assignments to make students practice their knowledge.	04	04	Handouts, chalk board, PPT, text book, charts, video film, Models.	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 any boiler.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	General Mechanical Engineering
CO Description	Explain two phase system for steam, steam generators.
LO Description	Identify components, mountings, accessories of a given boiler.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Demonstration of boiler components, mountings, accessories.	Interactive classroom teaching, lab demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments to make students practice their knowledge.	03	04	Handouts, chalk board, PPT, text book, charts, video film, models.	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 identify mountings and accessories of a steam boiler.	15	Observation schedule/check-list /rating scales /rubrics	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end practical exam

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

COURSE NAME	**General Mechanical Engineering**
CO Description	Explain internal combustion engines, air compressors.
LO Description	Explain internal combustion engines.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Define heat engine, difference between internal combustion engines, external combustion engine, and classification of internal combustion engines. Construction and working of two strokes and four stroke petrol and diesel engine, indicated horse power, brake horse power, mechanical efficiency of an internal combustion engine.	Interactive classroom teaching, lab demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments to make students practice their knowledge.	05	02	Handouts, chalk board, PPT, text book, charts, video film, models.	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, working of any internal combustion engine.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	**General Mechanical Engineering**
CO Description	Explain internal combustion engines, air compressors.
LO Description	Identify components of a given internal combustion engine.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Demonstration of internal combustion engine components.	Interactive classroom teaching, lab demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments to make students practice their knowledge.	03	04	Handouts, chalk board, PPT, text book, charts, video film, models.	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 identify components of an internal combustion engine.	15	Observation schedule/check-list /rating scales /rubrics	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end practical exam

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

COURSE NAME	General Mechanical Engineering
CO Description	Explain internal combustion engines, air compressors.
LO Description	Explain multistage reciprocating, rotary compressors.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Air compressors its classification, construction and working of reciprocating air-compressor, rotary compressor, multistage reciprocating air compressor its merits and demerits, industrial uses of air-compressor.	Interactive classroom teaching, lab demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments to make students practice their knowledge.	07	02	Handouts, chalk board, PPT, text book, charts, video film, models.	NIL

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 construction, working, merits, demerits of any two air compressors.	10	Test paper + rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Progressive – 2

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

COURSE NAME	**General Mechanical Engineering**
CO Description	Select hydraulic pumps, turbines for a given situation.
LO Description	Describe fluid properties and its measurement.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Definition of fluid properties, fluid pressure and its measurement, static pressure, intensity of pressure at a point in fluid at rest, pressure head, absolute and gauge pressure, simple and differential U tube manometers.	Interactive classroom teaching, tutorial, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/tutorial/assignments to make students practice their knowledge.	04	NIL	Handouts, chalk board, PPT, text book, charts, video film, models.	NIL

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1.	Quiz	Students will be asked to give a quiz on learning contents.	10	Rubrics/rating scales	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Term work

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

COURSE NAME	**General Mechanical Engineering**
CO Description	Select hydraulic pumps, turbines for a given situation.
LO Description	Solve given problems using Pascal's law, continuity equation, Bernoulli's theorem.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Energies in fluid, pressure energy, kinetic energy, potential energy, total energy, Pascal's Law, continuity equation, Bernoulli's theorem, its assumption and application.	Interactive classroom teaching, tutorial, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/tutorial/assignments to make students practice their knowledge.	06	NIL	Handouts, chalk board, PPT, text book, charts, video film, models.	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 solve two numerical problems on Pascal's law/continuity equation/ Bernoulli's theorem.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	General Mechanical Engineering
CO Description	Select hydraulic pumps, turbines for a given situation.
LO Description	Select hydraulic pumps, turbines for a given situation**.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Construction and working of hydraulic pumps- reciprocating and centrifugal pump. Construction and working of water turbines- impulse turbine and reaction turbine, factors affecting selection of hydraulic pumps, factors affecting selection of a water turbine.	Interactive classroom teaching, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments to make students practice their knowledge.	05	NIL	Handouts, chalk board, PPT, text book, charts, video film, models.	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 a hydraulic pump or water turbine and its selection criteria.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	General Mechanical Engineering
CO Description	Explain power transmission drives.
LO Description	Describe power transmission, belt drive, gear drive.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Methods of power transmission, belt drive, open and cross belt drive, its application and advantages, velocity ratio of pulleys, compound belt drive, effect of slip in the belt drive. Gear drive, simple gear drive, compound gear drive, worm and worm wheel, bevel gear, velocity ratio in gear drive, its merits and demerits.	Interactive classroom teaching, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments to make students practice their knowledge.	07	NIL	Handouts, chalk board, PPT, text book, charts, video film, Models.	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 classify, describe and compare power transmission drives.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	**General Mechanical Engineering**
CO Description	Explain power transmission drives.
LO Description	Solve a given numerical problem of belt drive, gear drive.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Simple numerical problems on belt drive and gear drive.	Interactive classroom teaching, tutorial, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/tutorial/assignments to make students practice their knowledge.	08	NIL	Handouts, chalk board, PPT, text book, charts, video film, Models.	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 solve a numerical problem on belt drive and gear drive.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

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

COURSE NAME	**Professional Development-III**
CO Description	**Student will be able to perform as the team leader of small team for solving a team problem in the given situation**
LO Description	**Student will be able to demonstrate his/her understanding of leadership required in a team work performance**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	A test will be designed and administered by the teacher to assess the understanding of student. Assessment will be done through Rating Scale.	10	Test paper and Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Important qualities of team leader:-
will be able to

1. to take initiatives
2. take responsibility on behalf of group
3. to visualize the team event and plan things for the event
4. to take interest to carry out related activities

5. to take interest in solving team related problems

The test questions :-

1. Explain the importance of team leadership
2. Explain important qualities of good team-leaders
3. Identify the team leader's behavior in the following list of team persons' behavior
4. Identify the team leader in the following case of team event
5. Suggest the team leader's would be course of action in the following team problem situation

Performance indicators

1. Quality of response the Q. 1
2. Quality of response to Q. 2
3. Number of correct behaviors identified in Q. 3(Max. 3 correct behaviors out of 10)
4. Correct team leader identified or not, in Q. 4
5. Correct team leader course of action suggested or not, in Q. 5

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

COURSE NAME	**Professional Development-III**
CO Description	**Student will be able to perform as the leader of small team for solving a team problem in the given situation**
LO Description	**Student will be able to play role of the leader of a team for solving a team problem in the given situation**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders	Case Study method	Teacher will organize a students' team event in class/ department. Few students will be asked to play roles of team members and the leader to solve team problems under given situation. Other students will observe. Afterward, teacher will discussion with students. Teacher will organize similar events for practice.	02	08	video film*	*Teacher will suggest a suitable online video to be viewed by students

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Student's role play	The teacher will organize small team events in batches in which individual students will be asked to play role of leader to solve a team problem, under given situation. Teacher will observe and assess the extent of leader's behavior performed by students on the basis of performance indicators	15	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

The assessment will be done on basis of following performance indicators:-

1. Extent to which student take initiatives
2. Extent to which student take responsibility on behalf of group
3. Extent to which student visualize the team event and plan things for the event
4. Extent to which student take interest to carryout team related activities

5. Extent to which student take interest in solving team related problems

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

COURSE NAME	**Professional Development-III**
CO Description	**Student will be able to apply professional ethics in a given problem situation**
LO Description	Student will be able to **demonstrate** his/her understanding of professional ethics

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Professional ethics, its need and importance, seven ethics common to all professionals, general code of ethics for engineers, ethical issues for engineers, common problems related to professional ethics, ethical issues, identification of ethical issues in cases for engineers.	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	A test will be designed and administered by the teacher to assess the understanding of student. Assessment will be done through Rating Scale.	10	Test paper and Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Ethics common to all professions**

- honesty
- trustworthiness
- loyalty
- respect for others
- adherence to the law
- doing good and avoiding harm to others
- Accountability.

2. **General code of ethics for engineers:-**

1. Respect for People’s Dignity and Rights
2. Responsible Practice
3. Integrity in Relationships
4. Responsibility

3. **Common Ethical issues for engineers:-**

- Relationships with clients, consultants, competitors, and contractors
- Ensuring legal compliance by clients, client's contractors, and others
- Conflict of interest
- Bribery and kickbacks, which might include:

  Gifts, meals, services, entertainment and recreation opportunities
- Treatment of confidential or proprietary information

- Consideration of the employer's assets
- Outside employment/activities

Test Performance Indicators:-

Extent to which student will be able

1. To explain the professional ethics (2 marks)
2. To explain the need and importance of professional ethics (2 marks)
3. To explain seven ethics common to all professions (2 marks)
4. To identify the problem related to professional ethics in given list of problems (2 marks)
5. To identify the ethical issue for an engineer in a given case of professional ethics (2 marks)

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

COURSE NAME	**Professional Development-III**
CO Description	**Student will be able to apply professional ethics in a given problem situation**
LO Description	Student will be able to **apply** appropriate professional ethics in a given problem situation

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Procedure of solving the problems related professional ethics, Identification of ethical issue, identification of the ethical stand, searching various possible solutions for the problem keeping ethical stand in focus, selection of appropriate solution.	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	A case based test on problem of ethical issue for an engineer will be designed and administered by the teacher to assess the ability of students to solve the ethical problem; Assessment will be done through Rating Scale.	10	Test paper and Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Steps in solving ethical problems:-

1. Identify the ethical issue in the problem
2. Identify the ethical stand in the problem
3. Search for various possible solutions keeping focus on the ethical stand
4. Implement the best possible solution

Performance indicators:-

1. Correctness of identified ethical issue in the problem (3 marks)
2. Correctness of identified ethical stand (3 marks)
3. Quality of suggested possible solutions (2 marks)
4. Appropriateness of selected best possible solution (2 marks)

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

COURSE NAME	**Professional Development-III**
CO Description	**Student will be able to plan self-learning to complete the given task**
LO Description	**Student will be able to identify the self-learning needs for completing the given task**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Lifelong learning, its examples, self-directed learning, its examples, important steps in lifelong learning, identification of learning needs	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Assessment through student activity	A Self-assessment portfolio will be prepared by the student on the task assigned by the teacher. Assessment of portfolio will be done through Rating Scale.	10	Portfolio format and Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Lifelong learning**

All **learning** activities undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective. It is voluntary, self-initiated and self-directed learning.

Examples:-

1. We learn to use smart phones (informal learning)
2. We learn yoga by joining a one week yoga training programme organized by a private spiritual institute (formal learning).

2**. Self directed learning**

A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

3. Essential steps of lifelong learning

1. Identification of self learning need (what to learn)
2. Searching about how I can learn, search of learning resources and ways/means to use them for learning
3. Planning self-learning
4. Implementing the plan

4. Suggested list of tasks for practice of identification of learning needs

1. You have to repair your faulty house-hold electric iron
2. You have to daily operate the new washing machine purchased at your home
3. You have to format your PC
4. You have to attend online class using meet.google app
5. You have to share your ideas online with your distant friends. You have to arrange a webinar
6. You have to visit abroad and therefore you have to apply for passport
7. Your mother is a patient of high BP. You have to measure her BP daily two times at home with traditional BP measuring apparatus
8. Your bike is not getting started. You have to check its spark plug.
9. You have to complete bank paper formalities for bank loan to establish your small manufacturing unit
10. You have to prepare French-fries at home.

5. Self-assessment portfolio

A questionnaire in which questions are in first person and space is provided after each question to write the answer. It is prepared by the student.

6. Self-assessment portfolio questions:-

1. Can I complete this task ?
2. Is there special knowledge or skill required to complete the task ?

3. What knowledge or skill is required to complete this task ?
4. Do I have this knowledge or skill ?
5. From where I can learn this knowledge or skill. (Mention at least three sources. Sources may be people, institutions, books, websites?)
6. How I can manage to learn this knowledge or skill?
7. **Indicators of performance**

1. Able to identified that he/she can-not complete the given task due to lack of knowledge or skill
2. Able to identified the need for special knowledge or skill to complete the task
3. Correctness of identified knowledge or skill required to complete the task
4. Appropriateness of sources from which student can learn knowledge or skill
5. Extent of feasibility of student's way to acquire the required knowledge or skill

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

COURSE NAME	**Professional Development-III**
CO Description	**Student will be able to plan self directed learning to complete the given task**
LO Description	**Student will be able to plan self directed learning for completing the given task**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Need for planning, need for planning self directed learning, planning self directed learning, self directed learning plan, examples.	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment of preparing self-directed learning plan for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Assessment through student activity	A self directed learning plan will be prepared by the student on the task assigned by the teacher. Assessment of the plan will be done through Rating Scale.	10	Plan format and Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. Self directed learning

A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

3. Essential steps of lifelong learning

5. Identification of self learning need (what to learn)

6. Searching about how I can learn, search of learning resources and ways/means to use them for learning
7. Planning self directed learning
8. Implementing the plan

4. Contents of the plan

1. Description of knowledge or skill to be self-learned
2. Description of selected source of learning the knowledge or skill ie people, books, institutions, websites etc.
3. Description of method of self-directed learning viz formal learning or informal learning
4. Description of additional resources / learning resources required
5. Expected time required to learn along with justification

5. Indicators of performance

1. Quality of description of knowledge or skill to be self-learned (3 marks)
2. Appropriateness of selected source of knowledge or skill learning (3 marks)
3. Appropriateness of method of self-learning (1 mark)
4. Appropriateness of additional resources / learning resources required (1 mark)
5. Appropriateness of time required to learn (1 mark)