

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	
Branch	Mechanical Engineering			Semester	V
Course Code	504	Course Name	<u>Industrial Engineering and Quality Control</u>		
Course Outcome 1	Use Work Study techniques to improve organizational processes.			Teach Hrs	Marks
Learning Outcome 11	Use relevant recording techniques for a given process to calculate productive and non-productive time with justification.			9	10
Contents	Method Study: Definition, objectives, basic procedures using 5W technique. Selection of work, Recording techniques: classification, and introduction of different techniques: operation process chart, flow process chart, multiple activity chart, flow diagrams, string diagrams, Travel chart, Micro-motion Study, Therbligs, Two hand process chart/SIMO Chart. Principles of Motion Economy.				
Method of Assessment	Laboratory test by observation (End semester practical exam)				
Learning Outcome 12	Use an appropriate time study, work measurement technique in a given situation			9	10
Contents	Work Measurement: Definition, procedure of work measurement. Time Study: definition, procedure. Stop watch time study, types of stop watch, qualified and representative workers, work cycle, methods of time measurement, Definition of PMTS, MIM, MOST, Work Sampling.				
Method of Assessment	Laboratory test by observation (End semester practical exam)				
Learning Outcome 13	Calculate standard time using a given rating system and allowances for a given activity.			6	10
Contents	Performance rating, standard rating, rating scales, rating factors, Allowances-purpose, types, calculation of basic time, standard time. Synthesis method-meaning, data, compilation, advantages and limitations.				
Method of Assessment	End semester theory exam.				
Learning Outcome 14	Calculate wage and incentives for a given situation using a suitable wage plan			6	10
Contents	Job Evaluation, Wages and Incentives: Definition, need and scope of job evaluation. Job evaluation systems and their comparative merits and demerits. Wage: Definition, wage components, wage fixation, real, minimum and fair wage. Financial and non- financial incentives and their examples. Wage plans- Halsey, Taylor, differential plan, Gantt task and bonus plan, 100 % premium plan.				
Method of Assessment	End semester theory exam.				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	
Branch	Mechanical Engineering			Semester	V
Course Code	504	Course Name	<u>Industrial Engineering and Quality Control</u>		
Course Outcome 2	Explain Material Handling Systems, Plant Layout and Safety Measures.			Teach Hrs	Marks
Learning Outcome 21	Select a material handling system for a given application.			6	10
Contents	Material Handling: Importance and its effects on productivity, requirement of good material handling system, objectives, functions, Analysis: Justification of need, Location, Type of Material, classification and selection of material handling equipment.				
Method of Assessment	End semester theory exam.				
Learning Outcome 22	Prepare a plant layout for a given layout problem.			6	10
Contents	Plant Layout: Importance and its effects on productivity, requirement of a good layout. Effect of bad layout, Factors affecting plant layout, types of layout, Process, Product, Fixed position, Cellular and Job Shop Layout advantages and limitations of each type of layout, selection of layout, factors affecting the plant location				
Method of Assessment	Part of lab work				
Learning Outcome 23	List plant safety measures, industrial disputes, legal provisions under factories act			6	10
Contents	Plant Safety: Importance; Accident: Causes and Cost of an Accident, Accident Proneness, and prevention of Accidents; Industrial disputes; Settlement of Industrial disputes; Collective bargaining; Conciliation; Mediation; Arbitration; Indian Factories Act 1948 (with subsequent amendments) and its provisions related to health, welfare and safety.				
Method of Assessment	Part of lab work				
Course Outcome 3	Make use of quality management and statistical quality control techniques.			<i>Teac h Hrs</i>	<i>Marks</i>
Learning Outcome 31	Describe quality management and its techniques			6	5
Contents	Quality Management: Meaning of quality, classification, quality characteristics, quality of design, and quality of conformance. Concept of reliability, Cost, Quality Assurance, Cost of rework and repair, quality circle. Concept of Total Quality Management, Six Sigma, KAIZEN, 5S. Introduction to ISO 9000, ISO 14000.				
Method of Assessment	Part of Progressive Test I				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	
Branch	Mechanical Engineering			Semester	V
Course Code	504	Course Name	<u>Industrial Engineering and Quality Control</u>		
Learning Outcome 32	Use a SQC technique for process control of a given application.			10	10
Contents	<p>Statistical Quality Control: definition, inspection and quality control, concept of variability, natural variation, its importance to quality control, basic tools of SQC and their application, frequency distribution, measures of central tendency and dispersion, their need and calculations.</p> <p>Normal Curve: Definition, characteristics, calculation of area under normal curve, statistical tolerance, process capability and their calculation. Control Charts for Variables: control Charts for variables, construction, interpretation and use of X and R Charts.</p> <p>Control Charts for Attributes: Limitation of X and R charts, Meaning and use of attributes, their advantages, construction, interpretation and use of p- chart, c- chart, np-chart. Need of calculating the revised values of mean, and control limits and their calculation.</p>				
Method of Assessment	Part of term work				
Learning Outcome 33	Draw OC curve for single and double sampling plans.			6	10
Contents	Acceptance Sampling: Concept, different techniques and procedure involved in sampling inspection and comparison with 100 % inspection. Factors affecting sampling and their effects. Single and double sampling plans, use of IS codes. Operating characteristics curve				
Method of Assessment	End semester theory exam.				
Course Outcome 4	Explain Production planning and control, product costing.			Teac h Hrs	Marks
Learning Outcome 41	Explain functions and elements of PPC			6	5
Contents	Types of Production: Mass, Batch and Job Order Production; Characteristics; Economic Batch Quantity (EBQ) Production Planning and Control: Introduction; Major functions of Production Planning and Control; Pre planning; Methods of forecasting; Routing and Scheduling; Dispatching and Controlling				
Method of assessment	Part of progressive test I				
Learning Outcome 42	Calculate time estimates using CPM, PERT techniques.			8	10
Contents	Concept of Networking- Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT).				
Method of Assessment	End semester theory exam.				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	
Branch	Mechanical Engineering			Semester	V
Course Code	504	Course Name	<u>Industrial Engineering and Quality Control</u>		
Learning Outcome 43	Calculate cost components for a given product.			8	10
Contents	Product Costing: Direct Cost; Indirect Cost; Factory Overhead; Selling Price of a product; Profit; Numerical Problems; Depreciation; Causes; Methods: Straight line, sinking fund and percentage on Diminishing Value Method; Numerical Problems.				
Method of Assessment	Laboratory test by observation (End semester practical exam)				
Course Outcome 5	Explain management, marketing management, materials management and its techniques.			Teach Hrs	Marks
Learning Outcome 51	Describe management, its principles, and functions.			6	5
Contents	Definition of Management; Administration; Organization; Principles of Management; Functions of Manager; Types of Organization: Line, Staff, Taylor's Pure functional types; Line and staff and committee type; Directing.				
Method of Assessment	Part of progressive test II.				
Learning Outcome 52	Describe marketing management, marketing organization, and marketing mix.			6	5
Contents	Marketing Management: Organization Structure. Difference of marketing and sales. Elements of Marketing Mix (4P).				
Method of Assessment	Part of progressive test II				
Learning Outcome 53	Explain inventory control techniques for a given application			8	10
Contents	Material Management: Introduction, function, purchase systems, stock turn-over, ordered quantity, EOQ. Inventory need of inventory control, Safety stock, different techniques of inventory control, ABC analysis- VED Analysis (simple treatment only).				
Method of Assessment	End semester theory exam.				
Learning Outcome 54	Calculate EOQ for a given inventory problem			8	10
Contents	Simple numerical problems on EOQ.				
Method of Assessment	End semester theory exam.				

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					M	0	2	5	0	4	I		I		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Use Work Study techniques to improve organizational processes.													
LO Description		Use relevant recording techniques for a given process to calculate productive and non-productive time with justification.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	–Learning	Description of T-L Process	Teach Hrs.	Pract. Hrs.	/Tut	LRs Required	Remarks						
1	Method Study: Definition, objectives, basic procedures using 5W technique. Selection of work, Recording techniques: classification and introduction of different techniques: operation process chart, flow process chart, multiple activity chart, flow diagrams, string diagrams, Travel chart, Micro-motion Study, Therbligs, Two hand process chart/SIMO Chart. Principles of Motion Economy.	Lab demonstration, hands on practice, lab assignment.		Teacher will explain and demonstrate the procedure of method study by selection of work, use of different recording techniques, use of 5W technique for improvement of process.	3	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	Calculate productive and non-productive time using a relevant recording technique.				10	Observation schedule/check list/Rubric /Rating scale			External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Laboratory test by observation (End semester practical exam)															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>1</i>	<i>2</i>			
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Use Work Study techniques to improve organizational processes													
LO Description		Use an appropriate time study, work measurement technique in a given situation													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required					Remarks			
1	Work Measurement: Definition, procedure of work measurement. Time Study: definition, procedure. Stop watch time study, types of stop watch, qualified and representative workers, work cycle, methods of time measurement, Definition of PMTS, MIM, MOST, Work Sampling.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.		Teacher will explain and demonstrate the procedure of work measurement, time study to record the required attributes of method.	3	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	Record time elements of a given process by choosing an appropriate work measurement technique.				10	Observation schedule/check list/Rubric /Rating scale					External			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Laboratory test by observation (End semester practical exam)															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>1</i>	<i>3</i>	
COURSE NAME	<u>Industrial Engineering and Quality Control</u>												
CO Description	Use Work Study techniques to improve organizational processes												
LO Description	Calculate standard time using a given rating system and allowances for a given activity.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process					Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks
1	Performance rating, standard rating, rating scales, rating factors, Allowances- purpose, types, calculation of basic time, standard time. Synthesis method- meaning, data, compilation, advantages and limitations.	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.					6	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	Calculate standard time for a given activity using standard rating scales and appropriate allowances.					10	Question paper + Rating scale			External		
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
End semester theory exam.													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					M	0	2	5	0	4	1		4		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Use Work Study techniques to improve organizational processes.													
LO Description		Calculate wage and incentives for a given situation using a suitable wage plan.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. Hrs.	/Tut	LRs Required	Remarks						
1	Job Evaluation, Wages and Incentives: Definition, need and scope of job evaluation. Job evaluation systems and their comparative merits and demerits. Wage: Definition, wage components, wage fixation, real, minimum and fair wage. Financial and non- financial incentives and their examples. Wage plans- Halsey, Taylor, differential plan, Gantt task and bonus plan, 100 % premium plan.	Interactive lecture	classroom method	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	6	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	Calculate wage and incentives for a given situation using a suitable wage plan as per the content.			10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
End semester theory exam.															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>2</i>	<i>1</i>			
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain Material Handling Systems, Plant Layout and Safety Measures.													
LO Description		Describe a material handling system for a given application.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required					Remarks			
1	Material Handling: Importance and its effects on productivity, requirement of good material handling system, objectives, functions, Analysis: Justification of need, Location, Type of Material, classification and selection of material handling equipment.	Interactive lecture method, video display, tutorials	classroom Handout,	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	6	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	Describe suitable material handling systems with neat sketches for given applications.				10	Question paper + Rating scale					External			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
End semester theory exam.															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>2</i>	<i>2</i>		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>												
CO Description		Explain Material Handling Systems, Plant Layout and Safety Measures.												
LO Description		Prepare a plant layout for a given layout problem.												
SCHEME OF STUDY														
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required					Remarks		
1	Plant Layout: Importance and its effects on productivity, requirement of a good layout. Effect of bad layout, Factors affecting plant layout, types of layout, Process, Product, Fixed position, Cellular and Job Shop Layout advantages and limitations of each type of layout, selection of layout, factors affecting the plant location	Lab demonstration, hands on practice, lab assignment, quiz, assignments.		Teacher will demonstrate the procedure of preparation of plant layout. The students will learn through practice.	0	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	Prepare a layout for a given problem.				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		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>2</i>		<i>3</i>		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain Material Handling Systems, Plant Layout and Safety Measures.													
LO Description		List plant safety measures, industrial disputes, legal provisions under factories act													
SCHEME OF STUDY															
S. No.	Learning Content				Teaching –Learning Method			Description of T-L Process			Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks	
1	Plant Safety: Importance; Accident: Causes and Cost of an Accident, Accident Proneness, and prevention of Accidents; Industrial disputes; Settlement of Industrial disputes; Collective bargaining; Conciliation; Mediation; Arbitration; Indian Factories Act 1948(with subsequent amendments) and its provisions related to health, welfare and safety.				Lab demonstration, hands on practice, lab assignment, quiz, assignments.			Teacher will demonstrate the use of safety measures and related legal aspects.			0	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		List causes of accidents/measures to prevent accidents/industrial disputes their settlement/ conciliation/mediation/arbitration/provisions of Indian Factories Act 1948.							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		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>3</i>	<i>1</i>			
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Make use of quality management and statistical quality control techniques													
LO Description		Describe quality management and its techniques.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required					Remarks			
1	Quality Management: Meaning of quality, classification, quality characteristics, quality of design, and quality of conformance. Concept of reliability, Cost, Quality Assurance, Cost of rework and repair, quality circle. Concept of Total Quality Management, Six Sigma, KAIZEN, 5S. Introduction to ISO 9000, ISO 14000.	Interactive classroom method	lecture Handout, video display, tutorials	Students will learn the concepts/processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	6	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	Paper pen test	Describe given terms associated with quality management and its techniques.				5	Test paper + Rating scale	Internal							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of progressive Test I															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					M	0	2	5	0	4	3		2		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Make use of quality management and statistical quality control techniques													
LO Description		Use a SQC technique for process control of a given application.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract./ Tut Hrs.	LRs Required	Remarks								
1	Statistical Quality Control: definition, inspection and quality control, concept of variability, natural variation, its importance to quality control, basic tools of SQC and their application, frequency distribution, measures of central tendency and dispersion, their need and calculations. Normal Curve: Definition, characteristics, calculation of area under normal curve, statistical tolerance, process capability and their calculation. Control Charts for Variables: control Charts for variables, construction, interpretation and use of X and R Charts. Control Charts for Attributes: Limitation of X and R charts, Meaning and use of attributes, their advantages, construction, interpretation and use of p- chart, c- chart, np-chart. Need of calculating the revised values of mean, and control limits and their calculation.	Interactive classroom lecture method Handout, video display, tutorials	Students will learn the concepts/processes through the discussion and the content provided by teacher and random quiz taken by them.	10	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	Paper pen test	Calculate process capability and control limits for a given application using/preparing a suitable control chart.	10	Test paper + Rating scale	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		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	3		3		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Make use of quality management and statistical quality control techniques													
LO Description		Draw OC curve for single and double sampling plans.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks							
1	Acceptance Sampling: Concept, different techniques and procedure involved in sampling inspection and comparison with 100 % inspection. Factors affecting sampling and their effects. Single and double sampling plans, use of IS codes. Operating characteristics curve	Interactive lecture method	classroom Handout, video display, tutorials	Students will learn the sampling plans and concepts through the discussion with the teacher on content provided by teacher and random quiz taken by them.	6	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	Draw OC curve for a given application using a single/double sampling plans.			10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of end semester theory exam															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>4</i>		<i>1</i>		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain Production planning and control, product costing.													
LO Description		Explain functions and elements of PPC.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	–Learning	Description of T-L Process	Teach Hrs.	Pract. Hrs.	/Tut	LRs Required	Remarks						
1	Types of Production: Mass, Batch and Job Order Production; Characteristics; Economic Batch Quantity (EBQ) Production Planning and Control: Introduction; Major functions of Production Planning and Control; Pre planning; Methods of forecasting; Routing and Scheduling; Dispatching and Controlling	Interactive lecture method	classroom Handout, video display, tutorials	Students will learn the concept /functions of PPC through the discussion with the teacher on content provided by teacher and random quiz taken by them.	6	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	Paper pen test	Explain given terms associated with functions and elements of PPC.					5	Test paper + Rating scale	Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of progressive test I															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>3</i>	<i>4</i>		<i>2</i>		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain Production planning and control, product costing.													
LO Description		Calculate time estimates using CPM, PERT techniques.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method			Description of T-L Process				Teach Hrs.	Pract. /Tut Hrs.	LRs Required		Remarks		
1	Concept of Networking- Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT).	Interactive classroom lecture method Handout, video display, tutorials			Students will learn the concepts/methods of networking 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	Calculate given time estimates for a given network using an appropriate technique.						10	Question paper + Rating scale		External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of end semester theory exam															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					M	0	2	5	0	4	4		3		
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain Production planning and control, product costing.													
LO Description		Calculate cost components of a given product.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required		Remarks						
1	Product Costing: Direct Cost; Indirect Cost; Factory Overhead; Selling Price of a product; Profit; Numerical Problems; Depreciation; Causes; Methods: Straight line, sinking fund and percentage on Diminishing Value Method; Numerical Problems.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.		Teacher will demonstrate the costing procedure for a given product through practice.	2	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	a) Define elements of cost (b) calculate cost components of a given product			(3+7) = 10	Observation schedule/check list/Rubric /Rating scale		External							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of end semester practical examination															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>5</i>	<i>1</i>	
COURSE NAME		<u>Industrial Engineering and Quality Control</u>											
CO Description		Explain management, marketing management, materials management and its techniques.											
LO Description		Describe management, its principles, and functions.											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks			
1	Definition of Management; Administration; Organization; Principles of Management; Functions of Manager; Types of Organization: Line, Staff, Taylor's Pure functional types; Line and staff and committee type; Directing.	Interactive lecture Handout, video display, tutorials	classroom method	Students will learn the concepts through the discussion with the teacher on content provided by teacher and random quiz taken by them.	6	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	Paper pen test	Describe given terms associated with management, its principles and functions.			5			Test paper + Rating scale	Internal				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of progressive test II													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>5</i>	<i>2</i>			
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain management, marketing management, materials management and its techniques.													
LO Description		Describe marketing management, marketing organization, and marketing mix.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method			Description of T-L Process			Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks		
1	Marketing Management: Organization Structure. Difference of marketing and sales. Elements of Marketing Mix (4P).	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.			6	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	Paper pen test	Describe given terms associated with marketing management, marketing, organization and marketing mix.						5	Test paper + Rating scale			Internal			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of Progressive Test II															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>5</i>	<i>0</i>	<i>4</i>	<i>5</i>	
COURSE NAME		<u>Industrial Engineering and Quality Control</u>										
CO Description		Explain management, marketing management, materials management and its techniques.										
LO Description		Explain inventory control techniques for a given application										
SCHEME OF STUDY												
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks				
1	Material Management: Introduction, function, purchase systems, stock turn-over, ordered quantity, EOQ. Inventory need of inventory control, Safety stock, different techniques of inventory control, ABC analysis- VED Analysis (simple treatment only).	Interactive lecture Handout, video display, tutorials	classroom method	Students will learn the concepts of material management and techniques 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	a) Describe given terms associated with inventory control b) explain ABC/VED analysis				4+6= 10	Question paper + Rating scale	External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Part of end semester theory exam												

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No. 4
					M	0	2	5	0	4	5	4			
COURSE NAME		<u>Industrial Engineering and Quality Control</u>													
CO Description		Explain management, marketing management, materials management and its techniques.													
LO Description		Calculate EOQ for a given inventory problem													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching Method	-Learning	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks							
1	Simple numerical problems on EOQ.	Interactive lecture method	classroom 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	Calculate EOQ for a given inventory problem.			10	Question paper + Rating scale	External								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of end semester theory exam															

DIPLOMA IN MECHANICAL ENGINEERING
SCHEME: OCBC

SEMESTER: FIFTH SEMESTER

COURSE CODE: 504

NAME OF THE COURSE: INDUSTRIAL ENGINEERING AND QUALITY CONTROL

LIST OF SUGGESTED EXPERIMENTS

S. N O.	LO	NAME OF EXPERIMENTS
1	11	Record the details of a given problem using different recording techniques of method study and calculate its productive and non-productive time.
2	12	Demonstration and use of time study equipment
3	12	Record time elements of a given process using time study technique
4	22	Prepare different plant layouts for given different situations
5	23	List health and safety measures to be taken for a given industrial situation
6	23	List causes of accidents/measures to prevent accidents and prepare an action strategy for resolving an industrial dispute using conciliation /mediation /arbitration under the provisions of Indian Factories Act 1948.
7	43	List different elements of cost and calculate the total cost and profit of a given product.