RGPV (DIPLO		ING)		CULUM FOR THE OURSE	FC	ORMA'	Γ-3					
Branch			Mechanical Engir	neering	Semest	er	V					
Course Code	50	4	Course Name	Industrial Engineer	strial Engineering and Quality Control							
Course Outcom	ne 1	Use V proces	~	iques to improve organ	nizational	Teach Hrs	Marks					
Learning Outc	ome 11		_	echniques for a given productive time with just		9	10					
Contents		Method Study: Definition, objectives, basic procedures using 5W techniques Selection of work, Recording techniques: classification, and introduction different techniques: operation process chart, flow process chart, multiple active chart, flow diagrams, string diagrams, Travel chart, Micro-motion Study, Therbl. Two hand process chart/SIMO Chart. Principles of Motion Economy.										
Method of Assessment				ion (End semester practica								
Learning Outc	ome 12	a giver	situation	udy, work measurement te	•	9	10					
Contents		definiti represe	ion, procedure. Stop	nition, procedure of work watch time study, types ork cycle, methods of time s Sampling.	of stop wa	tch, qua	lified and					
Method of Assessment				ion (End semester practical	l exam)							
Learning Outc	ome 13		ate standard time nces for a given activ	using a given rating sy	ystem and	6	10					
Contents		purpos	e, types, calculatio	ard rating, rating scales, n of basic time, standa , advantages and limitation	rd time. S							
Method of			mester theory exam.									
Assessment Learning Outc 14	ome		ate wage and incen e wage plan	tives for a given situation	on using a	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											
Method of Assessment End semester theory exam.												

RGPV (DIPLO		ING)		CULUM FOR THE DURSE	F	ORMAT	2-3			
Branch			Mechanical Engir	neering	Seme	ster	V			
Course Code	50	4 Course Name <u>Industrial Engineering and Quality Con</u>								
Course Outcon	ne 2	_	n Material Handli Measures.	ng Systems, Plant Layo	out and	Teach Hrs	Marks			
Learning Outco	ome 21	Select	a material handling s	ystem for a given applicati	on.	6	10			
Contents Material Handling: Importance and its effects on productivity, requirement of material handling system, objectives, functions, Analysis: Justification of requipment. Location, Type of Material, classification and selection of material handlenguipment.										
Method of Assessment		End se	emester theory exar	n.						
Learning Outco	ome 22	Prepar	e a plant layout for a	given layout problem.		6	10			
Contents		layout. Product of each	Effect of bad layout et, Fixed position, Ce type of layout, select	and its effects on product, Factors affecting plant la ellular and Job Shop Layoution of layout, factors affe	yout, types out advanta	s of layout ages and l	t, Process, imitations			
Method of Assessment			of lab work				_			
Learning Outco	ome 23	under f	factories act	industrial disputes, legal			10			
Contents		Pronen dispute Factori	ess, and prevention ces; Collective barg	Accident: Causes and Co of Accidents; Industrial dis aining; Conciliation; Me subsequent amendments)	putes; Settediation;	lement of Arbitration	Industrial n; Indian			
Method of Assessment		Part of	f lab work							
Course Outcon	ne 3		use of quality mana l techniques.	gement and statistical qu	ality	Teac h Hrs	Marks			
Learning Outcome 31 Describe quality management and its techniques 6 5										
Contents Quality Management: Meaning of quality, classification, quality characteristic quality of design, and quality of conformance. Concept of reliability, Cost, Qualit Assurance, Cost of rework and repair, quality circle. Concept of Total Qualit Management, Six Sigma, KAIZEN, 5S. Introduction to ISO 9000, ISO 14000.										
Method of Assessment		Part of	f Progressive Test I							

RGPV (DIPLO		ING)		CULUM FOR THE DURSE	FC)RMA	Г-3				
Branch			Mechanical Engir	neering	Semest	er	V				
Course Code	504	4	Course Name	Industrial Engineer	dustrial Engineering and Quality Control						
Learning Outco	ome 32	Use a S	SQC technique for pr	ocess control of a given ap	plication.	10	10				
Contents		variabi and the disperse Normal statistic Variabi R Char Control attribut np-char	ality, natural variation leir application, frequency, their need and call Curve: Definition, call tolerance, processoles: control Charts for tts. In Charts for Attributes, their advantages,	definition, inspection and its importance to quality uency distribution, measural culations. It is capability and their capacteristics, calculations are variables, construction, it is construction, interpretation in the revised values of	y control, bures of cen n of area un lculation. Conterpretation R charts, M n and use of	asic too tral tender nor Control and us eaning a	ols of SQC dency and mal curve, Charts for e of X and and use of tt, c- chart,				
Method of		Part o	f term work								
Assessment Learning Outco	ome 33	Draw 0	OC curve for single a	nd double sampling plans.		6	10				
Contents		sampli sampli Operat	ng inspection and ong and their effects ing characteristics cu		inspection.	Factors	affecting				
Method of Assessment		End se	emester theory exam	n.							
Course Outcom	e 4	Explai	n Production plann	ing and control, product	costing.	Teac h Hrs	Marks				
Learning Outco	me 41	Explai	n functions and eleme	ents 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 o forecasting; Routing and Scheduling; Dispatching and Controlling									
Method of asses	sment		f progressive test I	<u> </u>							
Learning Outco	me 42			ng CPM, PERT technique ritical Path Method (CPM)		8 ım Eval	10 uation and				
		Review	v Technique (PERT).	· .	110510	1.741	anion und				
Method of End semester theory exam. Assessment											

RGPV (DIPLO) BHOP		NG)		CULUM FOR THE OURSE	FO	FORMAT-3				
Branch			Mechanical Engir	echanical Engineering Semes		ster	V			
Course Code	504		Course Name	Industrial Engine	dustrial Engineering and Quali					
Learning Outcom	me 43	Calcula	te cost components for	or a given product.	8		10			
Contents Product Costing: Direct Cost; Indirect Cost; Factory Overhead product; Profit; Numerical Problems; Depreciation; Causes; Managing Sinking Fund and percentage on Diminishing Value Method; Numerical Problems; Depreciation; Causes; Managing Sinking Fund and Percentage on Diminishing Value Method; Numerical Product Cost; Factory Overhead product; Profits Sinking Fund and Product Cost; Factory Overhead product; Profits Sinking Fund and Product Cost; Factory Overhead product; Profits Sinking Fund and Profits Sinking Fund						hods: St	aight line,			
Method of Assessment				ration (End semester pr						
Course Outcome			n management, ma ement and its techr	rketing management, n iiques.	naterials	Teach Hrs	Marks			
Learning Outcom	me 51	Describ	pe management, its p	rinciples, and functions.		6	5			
Contents Definition of Management; Administration; Organization: In Management; Functions of Manager; Types of Organization: In Pure functional types; Line and staff and committee type; Direct										
Contents		Manag	ement; Functions of	Manager; Types of Org	ganization: L	ine, Staf	1			
		Manag Pure fu	ement; Functions of	Manager; Types of Org	ganization: L	ine, Staf				
Method of		Manag Pure fu	ement; Functions of inctional types; Line	Manager; Types of Org	ganization: L	ine, Staf				
Method of Assessment	me 52	Manag Pure fu Part of Describ	ement; Functions of inctional types; Line progressive test II.	Manager; Types of Org	ganization: Li type; Directi	ine, Staf				
Method of Assessment Learning Outcom	me 52	Manag Pure fu Part of Describ market Market	ement; Functions of inctional types; Line progressive test II. De marketing managing mix.	Manager; Types of Organd staff and committee ement, marketing organication Structure. Di	ganization: Litype; Direction	ine, Stafing.	f, Taylor's			
Method of Assessment Learning Outcom	me 52	Manag Pure fu Part of Describ market Market Elemen	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: O	Manager; Types of Organd staff and committee ement, marketing organication Structure. Di	ganization: Litype; Direction	ine, Stafing.	f, Taylor's			
Method of Assessment Learning Outcome Contents Method of	me 52	Manag Pure fu Part of Describ market Market Elemen	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix	Manager; Types of Organd staff and committee ement, marketing organication Structure. Di	ganization: Litype; Direction	ine, Stafing.	f, Taylor's			
Method of Assessment	me 52	Manag Pure fu Part of Descril market Market Elemen Part of	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ting Management: Onts of Marketing Mix progressive test II	Manager; Types of Organd staff and committee ement, marketing organication Structure. Di	ganization: Litype; Direction zation, and fference of m	ine, Stafing.	f, Taylor's			
Method of Assessment Learning Outcome Contents Method of Assessment	me 52	Part of Describe market Market Element Part of Explain Materia ordered technic only).	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix progressive test II In inventory control to al Management: Intel quantity, EOQ. Inventory control to the control of the control o	Manager; Types of Organd staff and committee ement, marketing organi rganization Structure. Di (4P).	zation, and fference of molication chase system y control, Saf	6 narketing 8 s, stock cety stock	f, Taylor's 5 and sales. 10 turn-over,			
Method of Assessment Learning Outcoments Method of Assessment Learning Outcoments Contents	me 52	Part of Describe market Market Element Part of Explain Materia ordered technic only).	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix progressive test II In inventory control to al Management: Intel quantity, EOQ. Inv	Manager; Types of Organd staff and committee ement, marketing organi rganization Structure. Di (4P). echniques for a given approduction, function, pure	zation, and fference of molication chase system y control, Saf	6 narketing 8 s, stock cety stock	f, Taylor's 5 and sales. 10 turn-over,			
Method of Assessment Learning Outcoments Method of Assessment Learning Outcoments Method of	me 52	Part of Describe market Market Element Part of Explain Materia ordered technic only).	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix progressive test II In inventory control to al Management: Intel quantity, EOQ. Inventory control to the control of the control o	Manager; Types of Organd staff and committee ement, marketing organi rganization Structure. Di (4P). echniques for a given approduction, function, pure	zation, and fference of molication chase system y control, Saf	6 narketing 8 s, stock cety stock	f, Taylor's 5 and sales. 10 turn-over,			
Method of Assessment Learning Outcoments Method of Assessment Learning Outcoments Method of Contents	me 52 me 53	Manag Pure fu Part of Descril market Market Elemen Part of Explain Materia ordered technic only). End ser	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix progressive test II In inventory control to al Management: Intel quantity, EOQ. Inventory commester theory exam. Late EOQ for a given	Manager; Types of Organd staff and committee ement, marketing organi rganization Structure. Di (4P). echniques for a given approduction, function, pur rentory need of inventory ontrol, ABC analysis- V	zation, and fference of molication chase system y control, Saf	6 narketing 8 s, stock cety stock	f, Taylor's 5 and sales. 10 turn-over,			
Method of Assessment Learning Outcoments Method of Assessment Learning Outcoments	me 52 me 53 me 54	Manag Pure fu Part of Describ market Market Elemen Part of Explain Materia orderec technic only). End ser	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix progressive test II In inventory control to al Management: Intel quantity, EOQ. Inventory commester theory exam. Line EOQ for a given a numerical problems	Manager; Types of Organd staff and committee ement, marketing organi rganization Structure. Di (4P). echniques for a given approduction, function, pur rentory need of inventory ontrol, ABC analysis- V	zation, and fference of molication chase system y control, Saf	6 narketing 8 as, stock ety stock (simple	f, Taylor's 5 and sales. 10 turn-over, c, different treatment			
Method of Assessment Learning Outcoments Method of Assessment Learning Outcoments Method of Assessment Learning Outcoments	me 52 me 53 me 54	Manag Pure fu Part of Describ market Market Elemen Part of Explain Materia orderec technic only). End ser	ement; Functions of inctional types; Line progressive test II. De marketing managing mix. Ling Management: Onts of Marketing Mix progressive test II In inventory control to al Management: Intel quantity, EOQ. Inventory commester theory exam. Late EOQ for a given	Manager; Types of Organd staff and committee ement, marketing organi rganization Structure. Di (4P). echniques for a given approduction, function, pur rentory need of inventory ontrol, ABC analysis- V	zation, and fference of molication chase system y control, Saf	6 narketing 8 as, stock ety stock (simple	f, Taylor's 5 and sales. 10 turn-over, c, different treatment			

DODY (D: 1 VIII	\ D1 1	COMENTE FOR LEADNING OFFICOME		nch C	ode	Cou	ırse (ode	CO Code	LO Code	
RGPV (Diploma Wir	ig) Bhopal	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	1	1	Format No. 4
COURSE NAME	Industrial	Engineering and Quality Control									
CO Description	Use Work S	Study techniques to improve organizational j	proces	sses.							
LO Description	Use relevan	t recording techniques for a given process to	o calc	ulate	prodi	uctive	and	non-pr	oductive time v	with justification	n.

S. No.	Learning Content	Teaching -Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	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.	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	Maximu m 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)

DODY OF L	\ D I I		Bra	nch C	oae	Co	urse	Code	CO Code	LO Code	
RGPV (Diploma Win	ng) Bhopal	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	1	2	Format No. 4
COURSE NAME	Industrial	Engineering and Quality Control									
CO Description	Use Work S	Study techniques to improve organizational	proce	esses							
LO Description	Use an appr	opriate time study, work measurement techn	nique	in a g	given	situa	ition				

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Work Measurement: Definition, procedure	Lab demonstration,	Teacher will explain and	3	6	Text book, charts, Hand out/	Nil
	of work measurement. Time Study:	hands on practice, lab	demonstrate the procedure of			lab manual, Power point	
	definition, procedure. Stop watch time	assignment, quiz,	work measurement, time study			presentation, Video Lectures.	
	study, types of stop watch, qualified and	assignments.	to record the required attributes				
	representative workers, work cycle,		of method.				
	methods of time measurement, Definition						
	of PMTS, MIM, MOST, Work Sampling.						

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)

DODY (D) 1 IV	\ D 1 1		Bran	ch Co	de	Co	urse	Code	CO Code	LO Code	
RGPV (Diploma Win	ng) Bhopal	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	1	3	Format No. 4
COURSE NAME	Industrial	Engineering and Quality Control									
CO Description	Use Work	Study techniques to improve organizational	proces	sses							
LO Description	Calculate s	tandard time using a given rating system and	d allow	ances	for a	given	acti	vity.			

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.	method Handout, video	_	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.

DODY (D. L. W.	\ D	COMPANY FOR A FARMING ON THE COLUMN	Bra	nch C	ode	Co	urse	Code	CO Code	LO Code	E AN A	
RGPV (Diploma Win	ng) Bhopal	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	1		Format No. 4	
COURSE NAME Industrial Engineering and Quality Control												
CO Description	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.												

S. No.	Learning Content	Teaching Method	-Learning	Description Process	n of	T-L	Teach Hrs.	Pract. Hrs.	/Tut	LRs Required	Remarks
1	Job Evaluation, Wages and Incentives: Definition, need			Students	will learn	the	6	0		Text book, charts,	Nil
	and scope of job evaluation. Job evaluation systems			processes	_					Paper Pen, Power	
	and their comparative merits and demerits. Wage:	Handout, vi	deo display,	discussion	with the te	acher				point presentation,	
	Definition, wage components, wage fixation, real,	tutorials		on conten	t provide	d by				Video Lectures.	
	minimum and fair wage. Financial and non- financial			teacher an	d random	quiz					
	incentives and their examples. Wage plans- Halsey,			taken by the	em.						
	Taylor, differential plan, Gantt task and bonus plan,										
	100 % premium plan.										

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.

DCDW (D: 1 W)	\ D 1 1		Brai	nch (Code	Cou	ırse (Code	CO Code	LO Code	E AN A
RGPV (Diploma Wing	g) Bhopai	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	2	1	Format No. 4
COURSE NAME Industrial Engineering and Quality Control											
CO Description	Description Explain Material Handling Systems, Plant Layout and Safety Measures.										
LO Description	LO Description Describe a material handling system for a given application.										

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.	lecture method video display, tut		Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.		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) BhopalSCHEME FOR LEARNING OUTCOMEBranch Code M Course Code 0 COURSE NAMELO Code 0 COURSE NAMEIndustrial Engineering and Quality Control	F 4 N 4										
RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	2	2	Format No. 4
COURSE NAME	Industrial	Engineering and Quality Control									

COURSE NAME	Industrial Engineering and Quality Control

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 -Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Plant Layout: Importance and its effects on	Lab demonstration,	Teacher will	0	6	Text book, charts, Hand	Nil
	productivity, requirement of a good layout. Effect of	hands on practice, lab	demonstrate the			out/ lab manual, Power	
	bad layout, Factors affecting plant layout, types of	assignment, quiz,	procedure of			point presentation, Video	
	layout, Process, Product, Fixed position, Cellular and	assignments.	preparation of plant			Lectures.	
	Job Shop Layout advantages and limitations of each	_	layout. The students				
	type of layout, selection of layout, factors affecting		will learn through				
	the plant location		practice.				

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

DCDV (D: 1 W)	\ D1 1	CONTENTS FOR LEADNING OF TOOLS	Bra	Branch Code Course Code CO Co	CO Code	LO Code					
RGPV (Diploma Win	g) Bhopal	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	2	3	Format No. 4
COURSE NAME Industrial Engineering and Quality Control											
CO Description	Description Explain Material Handling Systems, Plant Layout and Safety Measures.										
LO Description List plant safety measures, industrial disputes, legal provisions under factories act											

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		Teacher will	0	6	Text book,	Nil
	Accident, Accident Proneness, and prevention of Accidents;		demonstrate the use			charts, Hand out/	
	Industrial disputes; Settlement of Industrial disputes; Collective	assignment, quiz,	of safety measures			lab manual,	
	bargaining; Conciliation; Mediation; Arbitration; Indian	assignments.	and related legal			Power point	
	Factories Act 1948(with subsequent amendments) and its		aspects.			presentation,	
	provisions related to health, welfare and safety.					Video Lectures.	

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

	\ D1		Bran	nch C	ode	Cou	rse C	Code	CO Code	LO Code	F (N 4
RGPV (Diploma Wing	;) Bhopal	SCHEME FOR LEARNING OUTCOME M		0	2	5	0	4	3	1	Format No. 4
COURSE NAME <u>Industrial Engineering and Quality Control</u>											
CO Description	CO Description Make use of quality management and statistical qualit			ol tec	hniqu	es					
LO Description Describe q		uality management and its techniques.									

S. No.	Learning Content	Teaching —Learning Method	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.	method Handout, video	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

DCDV (Diploma Wing) Dhonol	SCHEME FOR LEARNING OUTCOME	_	_	1	_	_				Format No. 4
RGPV (Diploma Wing) Биораі	SCHEME FOR LEARNING OUTCOME	M 0 2		5	0	4	3	2	Format No. 4	
COURSE NAME <u>Industrial Engineering and Quality Control</u>											
CO Description	CO Description Make use of quality management and statistical quality		cont	rol tec	chniqu	es					
LO Description	Use a SQ	C technique for process control of a given app	olicati	ion.							

Branch Code

Course Code

CO Code

LO Code

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract./ Tut Hrs.	LRs Required	Remar ks
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.	classroom lecture method Handout, video display, tutorials	Students will learn the concepts/proces ses 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

DCDV (D: 1 W)	\ D I I	SCHEME FOR LEADING OFFICIAL	Bra	nch (Code	Cor	urse	Code	CO Code	LO Code	E AN A	
RGPV (Diploma Wing	() Bhopal	SCHEME FOR LEARNING OUTCOME M		0	2	5	0	4	3	3	Format No. 4	
COURSE NAME <u>Industrial Engineering and Quality Control</u>												
CO Description	CO Description			ol tec	hnique	es						
LO Description Draw OC		curve for single and double sampling plans.										

S. No.	Learning Content	Teaching -Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Acceptance Sampling: Concept, different techniques and	Interactive classroom	Students will learn the	6	0	Text book,	Nil
	procedure involved in sampling inspection and comparison	lecture	sampling plans and			charts, Paper	
	with 100 % inspection. Factors affecting sampling and their	method Handout, video	concepts through the			Pen, Power	
	effects. Single and double sampling plans, use of IS codes.	display, tutorials	discussion with the			point	
	Operating characteristics curve		teacher on content			presentation,	
			provided by teacher and			Video	
			random quiz taken by			Lectures.	
			them.				

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)

			Brai	nch C	ode	Cou	ırse C	Code	CO Code	LO Code	
RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	EME FOR LEARNING OUTCOME $M = \theta$		2	5	0	4	4	1	Format No. 4
COURSE NAME	COURSE NAME <u>Industrial Engineering and Quality Control</u>										
CO Description	Explain	Production planning and control, product cos	sting.								
LO Description Explain functions and elements of PPC.											
SCHEME OF STUDY											

S. No.	Learning Content	Teaching -Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Types of Production: Mass, Batch and Job Order	Interactive classroom	Students will learn	6	0	Text book, charts,	Nil
	Production; Characteristics; Economic Batch Quantity	lecture method Handout,	the concept /functions			Paper Pen, Power	
	(EBQ) Production Planning and Control: Introduction;	video display, tutorials	of PPC through the			point presentation,	
	Major functions of Production Planning and Control; Pre		discussion with the			Video Lectures.	
	planning; Methods of forecasting; Routing and		teacher on content				
	Scheduling; Dispatching and Controlling		provided by teacher				
			and random quiz				
			taken by them.				

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

D C DY (D) 1 W	\ D	SCHEME FOR LEARNING OUTCOME		Branch Code			ourse (Code	CO Code	LO Code	
RGPV (Diploma Wing	3) Bhopai SCHEME FOR LEARNING OUTCOME		M	0	2	5	0	3	4	2	Format No. 4
COURSE NAME	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.											

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	Interactive classroom lecture	Students will learn the	8	0	Text book,	Nil
	Path Method (CPM) and Program	method Handout, video display,	concepts/methods of networking			charts, Paper	
	Evaluation and Review Technique	tutorials	through the discussion with the teacher			Pen, Power point	
	(PERT).		on content provided by teacher and			presentation,	
			random quiz taken by them.			Video Lectures.	

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)

Phonol SCHEME FOR LEADNING OUTCOME		Branch Code			Cou	rse C	ode	CO Code	LO Code	E AN A	
Shopal	SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	4	3	Format No. 4	
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.											
	ndustria Explain P	ndustrial Engineering and Quality Control Explain Production planning and control, product costi	Industrial Engineering and Quality Control Explain Production planning and control, product costing.	Industrial Engineering and Quality Control Explain Production planning and control, product costing.	Industrial Engineering and Quality Control Explain Production planning and control, product costing.	M 0 2 5 Industrial Engineering and Quality Control Explain Production planning and control, product costing.	M 0 2 5 0 Industrial Engineering and Quality Control Explain Production planning and control, product costing.	M 0 2 5 0 4 Industrial Engineering and Quality Control Explain Production planning and control, product costing.	M 0 2 5 0 4 4 Industrial Engineering and Quality Control Explain Production planning and control, product costing.	M 0 2 5 0 4 4 3 Industrial Engineering and Quality Control Explain Production planning and control, product costing.	

S. No.	Learning Content	Teaching —Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Product Costing: Direct Cost; Indirect Cost; Factory Overhead; Selling	Lab demonstration,	Teacher will	2	6	Text book,	Nil
	Price of a product; Profit; Numerical Problems; Depreciation; Causes;	hands on practice, lab	demonstrate the			charts, Hand	
	Methods: Straight line, sinking fund and percentage on Diminishing	assignment, quiz,	costing procedure for			out/ lab	
	Value Method; Numerical Problems.	assignments.	a given product			manual, Power	
			through practice.			point	
						presentation,	
						Video	
						Lectures.	

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

DCDV (D) 1 W	\ D I			Branch Code			rse C	ode	CO Code	LO Code	
RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME	M	0	2	5	0	4	5	1	Format No. 4
COURSE NAME Industrial Engineering and Quality Control											
CO Description	Explain management, marketing management, materials management and its techniques.										
LO Description Describe management, its principles, and functions.											

S. No.	Learning Content	Teaching -Learning Method	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.	lecture method Handout, video display,	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

	COHEME FOR LEADNING OUTCOME	Branch Code			Course Code			Course Code CO Code		E AN A
RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME		0	2	5	0	4	5	2	Format No. 4
COURSE NAME	Industrial Engineering and Quality Control	Industrial Engineering and Quality Control								
CO Description	Explain management, marketing management, ma	terials	mana	gemei	nt and	its te	echni	ques.		
LO Description	Describe marketing management, marketing organization, and marketing mix.									

S. No.	Learning Content		Teaching –Learning Method		Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks	
1	Marketing	Management:	Interactive	classroom	lecture	Students will learn the processes	6	0	Text book,	Nil
	Organization	Structure.	method Handout	, video display, tuto	orials	through the discussion with the			charts, Paper	
	Difference of	marketing and				teacher on content provided by			Pen, Power	
	sales. Elements	s of Marketing				teacher and random quiz taken			point	
	Mix (4P).	-				by them.			presentation,	
									Video	
									Lectures.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximu m 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

D CDV (D) 1 VV	\ D I	nopal SCHEME FOR LEARNING OUTCOME		Branch Code			urse	Code	CO Code	LO Code	
RGPV (Diploma Win	g) Bhopal			$M \mid 0 \mid 2$		5 0 4		5	3	Format No. 4	
COURSE NAME	Industrial Engineering and Quality Control										
CO Description	ription 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 —Learning Method	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).	lecture method Handout, video display,	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	nent Description of Assessment		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)

RGPV (Diploma Wing) Bhopal			CHEME FOR LEADAING OFFICOME								T . NT 4
		SCHEME FOR LEARNING OUTCOME		0	2	5	0	4	5	4	Format No. 4
COURSE NAME Industrial Engineering and Quality Control											
CO Description	Description Explain management, marketing management, materials management and its techniques.										
LO Description Calculate EOQ for a given inventory problem											

Branch Code | Course Code | CO Code | LO Code

SCHEME OF STUDY

S. No.	Learning Content	Teaching -Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Simple numerical problems on EOQ.	Interactive classroom lecture method Handout, video display, tutorials	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	8	0	Text book, charts, Paper Pen, Power point presentation, Video Lectures.	Nil

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Calculate EOQ for a given inventory problem.	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

DIPLOMA IN MECHANICAL ENGINEERING SEMESTER: FIFTH SEMESTER

SCHEME: OCBC COURSE CODE: 504

NAME OF THE COURSE: INDUSTRIAL ENGINEERING AND QUALITY CONTROL

LIST OF SUGGESTED EXPERIMENTS

S.	LO	NAME OF EXPERIMENTS
N		
0.		
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.