

**SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR**
(Autonomous from AY 2024-2025)**SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR****Department of Mechanical Engineering**

Internal quality assurance cell (IQAC)

Question paper scrutiny for end semester examination

Semester	Subject name & Code	Members	Approved/Revision	Remarks
VIII SEMESTER	ME 402 Design of Machine Elements-II	Dr. Saji Varghese (HoD/ME) Dr. J. B. Sajin (IQAC Dept. Coordinator) Prof. Venugopal N (Verifying faculty) Dr. Trijo Tharayil (Approving faculty)	Approved	
	ME 474 Micro & Nano Manufacturing		Approved	
	ME 462 Propulsion Engineering		Approved	
	ME 404 Industrial Engineering		Approved	
	MP 469 Industrial Psychology and organizational Behaviour		Approved	

HoD/ME

Department IQAC Coordinator

Principal



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SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR (Autonomous from AY 2024-2025)

Details of Question Paper

1.	Course Code	MP 469	3. Duration	2.15 hrs
2.	Course Name	Industrial Psychology and organizational Behaviour	4. Max Marks	70

Faculty Details (Scrutiny)

1.	Name of Verifying faculty	Mr. Venugopal N
2.	Designation & Department	Assistant professor
3.	Name of Approving faculty	Dr. Trijo Tharayil
4.	Designation & Department	Associate Professor
5.	Date of scrutiny	22/06/2021

Fill the following details after completing the verification of Question Paper & Scheme

Sl. No	Parameters	Verified and found <i>Correct / Not Correct</i>	If Not, write the required corrections																		
1.	Course code & Course Name	<i>Correct</i>																			
2.	Max Marks & Duration	<i>Correct</i>																			
3.	Pattern of Question Paper	<i>Correct</i>																			
4.	Marking of Compulsory Questions, Choices & Instructions (like - Use of Tables, Graph Sheets etc.)	<i>Correct</i>																			
5.	Module wise distribution of Marks	Module																			
		Marks	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">I</td> <td style="width: 12.5%;">II</td> <td style="width: 12.5%;">III</td> <td style="width: 12.5%;">IV</td> <td style="width: 12.5%;">V</td> <td style="width: 12.5%;">VI</td> </tr> <tr> <td style="text-align: center;">14</td> <td style="text-align: center;">14</td> <td style="text-align: center;">14</td> <td style="text-align: center;">14</td> <td style="text-align: center;">21</td> <td style="text-align: center;">21</td> </tr> <tr> <td style="text-align: center;">Percentage</td> <td style="text-align: center;">14.3</td> <td style="text-align: center;">14.3</td> <td style="text-align: center;">14.3</td> <td style="text-align: center;">14.3</td> <td style="text-align: center;">21.4</td> </tr> </table>	I	II	III	IV	V	VI	14	14	14	14	21	21	Percentage	14.3	14.3	14.3	14.3	21.4
		I	II	III	IV	V	VI														
14	14	14	14	21	21																
Percentage	14.3	14.3	14.3	14.3	21.4																
Percentage	14.3	14.3	14.3	14.3	21.4																

6.	Clarity of the Questions: Yes/No	Yes	
7.	Duplication of Questions: Yes/No	No	
8.	Whether distribution of questions are as per particular syllabus covering analytical / numerical / descriptive/Design types: Y/N	Yes	
9.	Whether one third of the questions in each part is application/design oriented as per the format supplied by KTU: Yes/No	Yes	
10.	Sufficiency of Duration of Time: Yes/No	Yes	

11.	Recommendation: QP Can be Accepted	Accepted*/Accepted with Minor corrections**/ Rejected***	*)
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***) Suggested Corrections (either on the Question Paper itself or attach additional page)

***) Reasons for Rejection:

12.	Whether the Scheme of Evaluation is sufficient for Valuation, if not, give suggestions:	YES
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13.	Whether the scheme of Evaluation can be Accepted/ Rejected	Accepted
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14. I hereby certify that, I have scrutinized the Question Paper and scheme of evaluation and made required corrections as mentioned above.

Signature of the verifying faculty

15. I hereby certify that, I have cross checked all details as mentioned above.

Signature of the approving faculty

Counter signed

Head of the department

Criterion 2

2.5 Evaluation Process and Reforms



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SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
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D

Pages: 2

SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
EIGHTH SEMESTER B. TECH DEGREE EXAMINATION, JUNE 2021
Course Code: MP469

Course Name: **Industrial Psychology and Organizational Behaviour**

Max. Marks: 70

Duration: 2.15 Hours

PART A

Answer any three full questions, each carries 7 marks.

		Marks
1	Illustrate the role of environment in individual difference.	(7)
2	a) Explain the term 'individual difference' with 4 examples.	(4)
	b) "Psychology is a science." Discuss the statement.	(3)
3	a) Explain the process of memorization.	(4)
	b) Compare the two theories of attention.	(3)
4	a) Compare any two theories of thinking.	(4)
	b) Identify any three characteristics of emotions.	(3)

PART B

Answer any three full questions, each carries 7 marks.

5	a) Describe the concept of 'nature of people' in organizational behaviour.	(4)
	b) Summarise the goals of organizational behaviour.	(3)
6	a) Compare autocratic and custodial models of organizational behaviour.	(4)
	b) Explain the organizational model suitable for a research laboratory.	(3)
7	a) Explain upward and downward communication with examples.	(4)
	b) Analyze the various modes of lateral communication.	(3)
8	a) Explain the two way communication process.	(4)
	b) Identify the challenges in upward communication.	(3)



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Pages: 2

PART C

Answer any four full questions, each carries 7 marks.

- | | | |
|----|--|-----|
| 9 | Compare Maslow's, Herzberg's and Alderfer's models of human needs. | (7) |
| 10 | Compare the role of valence, expectancy and instrumentality in expectancy model of motivation. | (7) |
| 11 | a) Explain goal setting model of motivation. | (4) |
| | b) Relate the three motivational drivers. | (3) |
| 12 | a) "Managing change is a challenge for managers." Discuss this statement. | (4) |
| | b) Differentiate the types of resistance to change in organization. | (3) |
| 13 | Explain the various stages of organization development applied to a core industry. | 7 |
| 14 | Prioritise the ways to build support for implementing change in organization. | 7 |



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D

Pages: 2

SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
EIGHTH SEMESTER B. TECH DEGREE EXAMINATION, JUNE 2021

Course Code: MP469

Course Name: Industrial Psychology and Organizational Behaviour

Max. Marks: 70

Duration: 2.15 Hours

PART A

Answer any three full questions, each carries 7 marks.

		Marks
1	4 points-4 marks, examples 3 marks (1 mark each)	(7)
2	a) Explanation - 2 marks, examples 2 marks (1/2 mark each)	(4)
	b) Discussion - 2marks, Example 1 mark	(3)
3	a) 4 steps - 1mark each	(4)
	b) Each theory 1.5 marks each	(3)
4	a) Two theories - each theory 2 marks	(4)
	b) 3 characteristics- 1 mark each	(3)

PART B

Answer any three full questions, each carries 7 marks.

5	a) 4 points-1 mark each	(4)
	b) 3 goals-1 mark each.	(3)
6	a) 4 points- 1 mark each	(4)
	b) Organizational model - 2 marks, explanation - 1 mark	(3)
7	a) Upward communication-2 marks	(4)
	Downward communication- 2 marks	
	b) 3 modes-1 mark each	(3)
8	a) 4 steps- 1 mark each	(4)
	b) 3 challenges- 1 mark each	(3)



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PART C

Answer any four full questions, each carries 7 marks.

- | | | |
|----|--|-----|
| 9 | 7 points- 1 mark each | |
| 10 | Explanation – 2 marks each. Example 1 mark | (7) |
| 11 | a) 4 points- 1 mark each | (7) |
| | b) 3 drivers- 1 mark each | (4) |
| 12 | a) 4 points- 1 mark each | (3) |
| | b) 3 types- 1 mark each | (4) |
| 13 | 5 stages- 1 mark each, explanation 2 marks | (3) |
| 14 | 7 ways- 7 marks | 7 |
| | | 7 |



Course code	Course Name	L-T-P - Credits	Year of Introduction
MP469	Industrial Psychology and Organisational Behaviour	3-0-0-3	2016
Course Objectives			
<ul style="list-style-type: none"> To create a knowledge about human psychology To learn about theories of motivation and group behavior. To understand the socio-cultural aspects in organizations 			
Syllabus			
Introduction- psychology as a science- study of behaviour- stimulus- response behaviour- heredity and environment- human mind- cognition- character- thinking- attention- memory- emotion- traits- attitude- personality. Organizational behaviour- definition –development- fundamental concept- organizational behaviour system- models - understanding a social-system - managing communication- Motivation- motivation driver - goal setting- expectancy model- comparison models- interpreting motivational models- leadership- path goal model. Special topics in industrial psychology- managing group in organization- group and inter group dynamics- managing change and organizational development- nature planned change- resistance characteristics			
Expected outcome.			
The students will be able to			
<ol style="list-style-type: none"> know the importance of psychology have insight into individual and group behavior deal with people in better way motivate groups and build teams. 			
Text Book:			
Davis K. & Newstrom J.W., <i>Human Behaviour at work</i> , Mcgraw Hill International, 1985			
References:			
<ol style="list-style-type: none"> Blum M.L. Naylor J.C., Horper & Row, <i>Industrial Psychology</i>, CBS Publisher, 1968 Luthans, <i>Organizational Behaviour</i>, McGraw Hill, International, 1997 Morgan C.t., King R.A., John Rweisz & John Schoples, <i>Introduction to Psychology</i>, McHraw Hill, 1966 Schermerhorn J.R.Jr., Hunt J.G & Osborn R.N., <i>Managing, Organizational Behaviour</i>, John Willy 			
Course Plan			
Module	Contents	Hours	End Sem. Exam Marks
I	Introduction- psychology as a science- area of applications – study of individual- individual differences- study of behaviour- stimulus- response behaviour- heredity and environment- human mind- cognition- character- thinking- attention- memory- emotion- traits- attitude- personality	6	15%
II	Human mind- cognition- character- thinking- attention- memory- emotion- traits- attitude- personality	6	15%
FIRST INTERNAL EXAMINATION			
III	Organizational behaviour- definition –development- fundamental concept- nature of people nature of organization – an organizational behaviour system- models- autocratic model- hybrid model-	6	15%

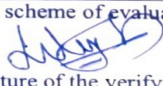
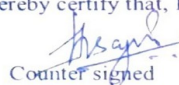
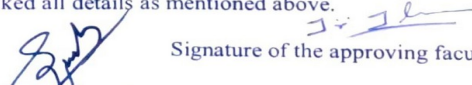



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IQAC Scrutiny Report of the Question Paper & the Scheme

Details of Question Paper								
1.	Course Code	ME 404	3. Duration	2.15 hrs				
2.	Course Name	Industrial Engineering	4. Max Marks	70				
Faculty Details (Scrutiny)								
1.	Name of Verifying faculty	Mr. Venugopal N						
2.	Designation & Department	Assistant professor						
3.	Name of Approving faculty	Dr. Trijo Tharayil						
4.	Designation & Department	Associate Professor						
5.	Date of scrutiny	22/06/2021						
Fill the following details after completing the verification of Question Paper & Scheme								
Sl. No	Parameters	Verified and found <i>Correct / Not Correct</i>	If Not, write the required corrections					
1.	Course code & Course Name	Correct						
2.	Max Marks & Duration	Correct						
3.	Pattern of Question Paper	Correct						
4.	Marking of Compulsory Questions, Choices & Instructions (like - Use of Tables, Graph Sheets etc.)	Correct						
5.	Module wise distribution of Marks	Module	I	II	III	IV	V	VI
		Marks	14	14	14	14	21	21
		Percentage	14.3	14.3	14.3	14.3	21.4	21.4
6.	Clarity of the Questions: Yes/No	Yes						
7.	Duplication of Questions: Yes/No	No						
8.	Whether distribution of questions are as per particular syllabus covering analytical / numerical / descriptive/Design types: Y/N	Yes						
9.	Whether one third of the questions in each part is application/design oriented as per the format supplied by KTU: Yes/No	Yes						
10.	Sufficiency of Duration of Time: Yes/No	Yes						
11.	Recommendation: QP Can be Accepted	Accepted*/Accepted with Minor corrections**/ Rejected***			*)			
**) Suggested Corrections (either on the Question Paper itself or attach additional page)								
***) Reasons for Rejection:								
12.	Whether the Scheme of Evaluation is sufficient for Valuation, if not, give suggestions:				YES			
13.	Whether the scheme of Evaluation can be Accepted/ Rejected				Accepted			
14.	I hereby certify that, I have scrutinized the Question Paper and scheme of evaluation and made required corrections as mentioned above.							
		 Signature of the verifying faculty						
15.	I hereby certify that, I have cross checked all details as mentioned above.							
 Counter signed		 Signature of the approving faculty						
 Head of the department								

IQAC Scrutiny Report of the Question Paper & the Scheme

Criterion 2

2.5 Evaluation Process and Reforms



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B

Pages 2

SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2021
Course Code: ME 404
Course Name: INDUSTRIAL ENGINEERING.

Max. Marks: 70

Duration: 2 Hours 15 mins

		PART – A	
		<i>Answer ANY THREE full questions, each carries 7 marks</i>	<u>Marks</u>
1	a)	What are the roles of an industrial engineer in an organization? What are the field of approach of industrial engineering in the current industrial environment?	(3)
	b)	Derive an expression for finding the Break Even Point? From the following data Variable cost per unit= Rs.15, Fixed cost = Rs. 54,000, Selling price per unit= Rs. 20. (i) Find out breakeven point? (ii) What should be the selling price per unit if the break even quantity is brought down to 6,000 units?	(4)
2	a)	What is Value Engineering? What are the steps involved in value engineering?	(3)
	b)	What are the types of values desired for new product? What is the use life cycle cost in value analysis?	(4)
3	a)	What are the principles of material handling? Explain various material handling devices used for smooth handling of materials?	(3)
	b)	What are the factors which influence the choice of a flexible manufacturing system in an industry? What are the advantages and limitations of FMS?	(4)
4	a)	Describe process layout with a neat sketch. State its advantages and limitations.	(3)
	b)	Explain any two methods used for the replacement of an equipment? Describe the factors responsible for the replacement of equipment in working condition.	(4)
		PART – B	
		<i>Answer ANY THREE full questions, each carries 7 marks</i>	
5	a)	Why Job evaluation become one of the most important process in an organization? What are the techniques used for job evaluation?	(4)
	b)	Enlist different types of wage incentive plans? Explain any two type of wage incentive plans?	(3)
6	a)	What is SIMO chart? Explain the process of making a SIMO chart?	(4)
	b)	How therblings helps in easy representation of process charts? What are the important therblings used in process charts?	(3)
7	a)	Define industrial accidents? Describe direct and indirect cost associated with accidents.	(3)
	b)	How industrial fatigue effects the smooth functioning of an organization? What are the effective methods used for reducing fatigue?	(4)



8	a)	Explain term collective bargaining? What are the process involved in it?	(3)
	b)	A trade union is an instrument of industrial democracy! Explain?	(4)
PART – C			
<i>Answer ANY FOUR full questions, each carries 7 marks</i>			
9	a)	What is Economic Order Quantity? Derive an expression for economic order quantity?	(4)
	b)	Explain various types of inventory models used for effective handling of inventory in an organization?	(3)
10	a)	What are the different phases of a product life cycle? With the help of a sketch illustrate the important features of each phase.	(4)
	b)	With suitable example, explain the importance of Gantt chart?	(3)
11	a)	What are the major objectives of Production planning and control? How PPC help an industry to enhance its performance?	(4)
	b)	Differentiate between the Dispatching and Expediting functions of PPC	(3)
12	a)	What are the common non-destructive testing methods used for material inspection? With suitable diagram explain any one non-destructive testing method?	(4)
	b)	Explain the principle of TQM. What are the significance and objectives of TQM?	(3)
13	a)	What are the major factors affecting quality? Write short notes on each factor stating how this affect the quality?	(3)
	b)	What are the process involved in bench marking? Explain any four major advantage of bench marking.	(4)
14	a)	What do you mean by process capability? How process capability can be measured?	(3)
	b)	What is quality circle? How quality circle helps to improve the efficiency of an organisation?	(4)



SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
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B

Pages 2

SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2021

Course Code: ME 404

Course Name: INDUSTRIAL ENGINEERING.
SCHEME OF EVALAUTION

Max. Marks: 70

Duration: 2 Hours 15 mins

PART – A <i>Answer ANY THREE full questions, each carries 7 marks</i>			Marks
1	a) MOD 1	What are the roles of an industrial engineer in an organization? What are the field of approach of industrial engineering in the current industrial environment? Roles-minimum 4 relevant points- 2 marks Field of approach-minimum relevant 4 points - 1 marks	(3)
	b) MOD 1	Derive an expression for finding the Break Even Point? From the following data Variable cost per unit= Rs.15, Fixed cost = Rs. 54,000, Selling price per unit= Rs. 20. (i) Find out breakeven point? (ii) What should be the selling price per unit if the break even quantity is brought down to 6,000 units? Terms used for the derivation – 1 mark Derivation to find expression for BEP- 1 marks Answer _BEP – 1 mark Answer_ selling Price- 1 mark	(4)
2	a) MOD 1	What is Value Engineering? What are the steps involved in value engineering? Definition – 1 mark Significance- 1marks Steps – 1 marks	(3)
	b) MOD 1	What are the types of values desired for new product? What is the use life cycle cost in value analysis? Explanation for various types of value- 2 marks Use of life cycle cost- 2 marks	(4)
3	a) MOD 2	What are the principles of material handling? Explain various material handling devices used for smooth handling of materials? Principles of material handling- minimum four relevant points- 1 marks Material handling device with simple sketch- 4 devices - 2 marks	(3)
	b) MOD 2	What are the factors which influence the choice of a flexible manufacturing system in an industry? What are the advantages and limitations of FMS? Factors -minimum 4 relevant points- 2 marks Advantages and Limitations -minimum relevant 2 points - 2 marks	(4)



4	a)	Describe process layout with a neat sketch. State its advantages and limitations.	(3)
	MOD 2	Definition of process layout -1 mark Description with neat figure- 1 marks Advantages, Limitations - 1 mark	
	b)	Explain any two methods used for the replacement of an equipment? Describe the factors responsible for the replacement of equipment in working condition.	(4)
	MOD 2	Two methods with description and equation for calculations– 3 marks Factors – 1 mark	
PART – B			
<i>Answer ANY THREE full questions, each carries 7 marks</i>			
5	a)	Why Job evaluation become one of the most important process in an organization? What are the techniques used for job evaluation?	(4)
	MOD 3	Reasons – 2 mark Job evaluation techniques- minimum 4 evaluation process- 2 marks	
	b)	Enlist different types of wage incentive plans? Explain any two type of wage incentive plans?	(3)
	MOD 3	List of incentive plans- 1 mark Two incentive plans with equation for calculating wage and graph- 2 marks	
6	a)	What is SIMO chart? Explain the process of making a SIMO chart?	(4)
	MOD 3	Definition of SIMO chart- 1 mark Process of preparation of SIMO chart- 2 marks List of therblings used- 1 mark	
	b)	How therblings helps in easy representation of process charts? What are the important therblings used in process charts?	(3)
	MOD 3	Representation of therblings and use- 1 mark Therblings used – minimum 8 therblings with figure- 2 marks	
7	a)	Define industrial accidents? Describe direct and indirect cost associated with accidents.	(3)
	MOD 4	Definition – 1 mark Direct cost- 1 mark Indirect cost – 1 mark	
	b)	How industrial fatigue effects the smooth functioning of an organization? What are the effective methods used for reducing fatigue?	(4)
	MOD 4	Effect of fatigue – 2 marks Methods to reduce fatigue- minimum 4 relevant points- 2 marks	
8	a)	Explain term collective bargaining? What are the process involved in it?	(3)
	MOD 4	Definition and description of collective bargaining- 1 marks Process of collective bargaining- 2 marks	
	b)	A trade union is an instrument of industrial democracy! Explain?	(4)
	MOD	Definition of trade union – 1 mark	



	4		Functions of trade unions- 2 marks Effect of trade union in organization – 1 marks	
PART – C				
<i>Answer ANY FOUR full questions, each carries 7 marks</i>				
9	a) MOD 5	What is Economic Order Quantity? Derive an expression for economic order quantity?	Definition of EOQ- 1 mark Terms used for deriving an expression – 1 marks Derivation- 1 marks Final expression to find EOQ- 1 mark	(4)
	b) MOD 5	Explain various types of inventory models used for effective handling of inventory in an organization?	3 Types of inventory model with a graph showing inventory control- 1 mark each- 3 marks	(3)
10	a) MOD 5	What are the different phases of a product life cycle? With the help of a sketch illustrate the important features of each phase.	Figure of product life cycle- 2 marks Description of all phases- 2 marks	(4)
	b) MOD 5	With suitable example, explain the importance of Gantt chart?	Definition of Gantt chart- 1 marks Use of Gantt chart- 1 mark Example and Gantt chart preparation- 1 marks	(3)
11	a) MOD 5	What are the major objectives of Production planning and control? How PPC help an industry to enhance its performance?	Objectives-minimum 4 relevant points- 2 marks Functions to enhance performance-minimum relevant 4 points - 2 marks	(4)
	b) MOD 5	Differentiate between the Dispatching and Expediting functions of PPC	Three relevant differences- 3 marks	(3)
12	a) MOD 6	What are the common non-destructive testing methods used for material inspection? With suitable diagram explain any one non-destructive testing method?	List of common NDT methods- minimum 4 methods- 2 marks Figure of NDT method- 1 mark Process of NDT method- 1 marks	(4)
	b) MOD 6	Explain the principle of TQM. What are the significance and objectives of TQM?	Definition of TQM- 1 marks Significance- 1 mark Objectives of TQM- 1 marks	(3)
13	a) MOD 6	What are the major factors affecting quality? Write short notes on each factor stating how this affect the quality?	Factors affecting quality- minimum 6 factors with description- 3 marks	(3)



	b) MOD 6	What are the process involved in bench marking? Explain four major advantage of bench marking. Definition of bench marking- 1 mark Process of bench marking- 2 marks Advantages of bench marking- 1 marks	(4)
14	a) MOD 6	What do you mean by process capability? How process capability can be measured? Definition of process capability- 1 marks Measuring of process capability- 2 marks	(3)
	b) MOD 6	What is quality circle? How quality circle helps to improve the efficiency of an organisation? Definition of quality circle- 2 marks Functions of quality circle to improve efficiency- 2 marks	(4)



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Course code	Course Name	L-T-P-Credits	Year of Introduction
ME404	INDUSTRIAL ENGINEERING	3-0-0-3	2016

Prerequisite: Nil

Course Objectives:

- To impart theoretical knowledge about various tools and techniques of Industrial Engineering.
- To create awareness about various safety procedures to be followed in carrying out different types of projects.
- To get acquainted with the Inventory management Principles and Techniques.
- To equip with the theoretical knowledge on Quality control practices and testing methods.

Syllabus

Introduction to Industrial Engineering, Plant layout and Material handling, Methods engineering, Industrial relations, Production planning and control, Quality control and Inspection

Expected outcomes:

The students will be able to

- Know various tools and techniques in industrial Engineering.
- Develop work procedure applying the principles of work study.
- Apply inventory control techniques in materials management.
- Formulate replacement and purchase decisions and arrive at conclusions

Text Books:

1. B. Kumar, Industrial Engineering Khanna Publishers, 2013
2. M Mahajan, Industrial Engineering & Production Management, Dhanpat Rai, 2005
3. Martand Telsang, Industrial Engineering & Production Management, S. Chand, 2006
4. O. P. Khanna, Industrial Engineering and Management, Dhanpat Rai, 2010

References:

1. E. S. Buffa, Modern Production management, John Wiley, 1983
2. Grant and Ieven Worth, Statistical Quality Control, McGraw Hill, 2000
3. Introduction to work study – ILO, Oxford And IBH Publishing, 2008
4. Ralph M Barnes, Motion and Time Study, Wiley, 1980

Course			
Module		Hours	End Sem. Exam Marks
I	Introduction to Industrial Engineering - Evolution of modern Concepts in Industrial Engineering - Functions of Industrial Engineering - Field of application of Industrial Engineering Product Development and research- Design function - Objectives of design, - Manufacturing vs purchase- Economic aspects- C-V-P analysis – simple problems-Development of designs- prototype, production and testing - Human factors in design- Value Engineering .	7	15%
II	Plant layout and Material handling- principles of material handling, Types of material handling equipments, Selection and application. Preventive and break- down maintenance - Replacement policy-- Methods of replacement analysis-Method of providing for depreciation- Determination of economic life - Simple problems.	7	15%

For more study materials > www.ktustudents.in

Criterion 2

2.5 Evaluation Process and Reforms



FIRST INTERNAL EXAM			
III	Methods engineering: Analysis of work methods using different types of process chart and flow diagrams- Critical examination- Micro motion study and therbligs- Principles of motion economy – Work measurement-Performance rating.-Determination of allowances and standard time. - Job evaluation and merit rating - Objectives and principles of job evaluation--Wages and Incentives- Primary wage systems- Wage incentive plans.	7	15%
IV	Industrial relations- Psychological attitudes to work and working conditions - fatigue- Methods of eliminating fatigue- Effect of Communication in Industry-Industrial safety-personal protective devices-, causes and effects of industrial disputes- Collective bargaining- Trade union - Workers participation in management.	7	15%
SECOND INTERNAL EXAM			
V	Production planning and control- Importance of planning - job, batch and mass production-Introduction and need for a new product-product life cycle. - Functions of production control - Routing , Scheduling, dispatching and follow up- Gantt charts. Inventory Control, Inventory models -Determination of EOQ and reorder level-simple problems- Selective inventory control techniques.	7	20%
VI	Quality control and Inspection- Destructive and non-destructive testing methods- process capability- Statistical quality control – causes of variation in quality- control charts for X and R. Reliability-causes of failures- Bath tub curve.-System reliability- life testing- Introduction to concepts of, TQM, ISO, Six Sigma and Quality circles (Brief description only).	7	20%
END SEMESTER EXAM			

Question paper pattern

Maximum marks: 100

Time: 3 hrs

The question paper should consist of three parts

Part A

There should be 2 questions each from module I and II. Each question carries 10 marks. Students will have to answer any three questions out of 4 (3x10 marks =30 marks)

Part B

There should be 2 questions each from module III and IV. Each question carries 10 marks. Students will have to answer any three questions out of 4 (3x10 marks =30 marks)

Part C

There should be 3 questions each from module V and VI. Each question carries 10 marks. Students will have to answer any four questions out of 6 (4x10 marks =40 marks)

Note: Each question can have a maximum of four sub questions, if needed.

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H1125

Pages: 2

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: ME404
Course Name: INDUSTRIAL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

Marks

- 1 a) Explain with an example how a successful product connect with user on the three levels 'useful' 'usable' and 'desirable'. (3)
- b) Describe functional design and design for production. (4)
- c) Explain function analysis in the context of value engineering with the help of an example. (3)
- 2 a) List the steps of new product development process. Explain the process with an example. (3)
- b) What is the use of life cycle cost in value analysis? Explain with an example. (3)
- c) What are the benefits and problems of outsourcing? (4)
- 3 a) What is fixed position layout? What are the situations which necessitates the use of these types of layouts? (4)
- b) Describe the factors responsible for the replacement of equipment in working condition. (3)
- c) What is unit load in material handling? How unit load can be accomplished? (3)
- 4 a) State the symptoms of a bad plant layout. (3)
- b) List different equipments used for material handling between fixed points over a fixed path. (3)
- c) Describe product layout with a neat sketch and state its advantages and limitations. (4)

PART B

Answer any three full questions, each carries 10 marks.

- 5 a) With the help of ergonomics motion economy can be ensured in designing a work place layout (3)
- b) Write short note on multiple activity chart (3)
- c) Define work study and explain its basic procedure (4)
- 6 a) List out various performance rating method (4)



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- B**
- H1125**
- Pages: 2**
- b) Explain standard time calculation in a job (3)
- c) Types of allowances in doing a job (3)
- 7 a) Objectives of labour welfare in an industry (4)
- b) Discuss some labour welfare measures undertaken by organisation in recent days (3)
- c) Define industrial accidents and its effect in productivity (3)
- 8 a) A trade union is an instrument of industrial democracy explain (5)
- b) Describe direct and indirect cost associated with accidents (5)

PART C

- Answer any four full questions, each carries 10 marks.*
- 9 a) What are the major objectives of Production planning and control? How PPC help an industry to enhance its performance? (5)
- b) Differentiate between production planning and production control (5)
- 10 a) Differentiate between P system and Q system with the help of a diagram. (5)
- b) How aggregate planning is done in a manufacturing enterprise? (5)
- 11 a) What factors influence the choice of manufacturing process from conventional to cellular manufacturing process? (3)
- b) What are the major advantages and limitations of cellular manufacturing system? (4)
- c) Differentiate between the Dispatching and Expediting function of PPC. (3)
- 12 a) What are the major factors affecting quality? Write short notes on each factor stating how this affect the quality? (5)
- b) Differentiate between Quality control and Inspection. (5)
- 13 a) Explain how material testing is done in an industry and why testing is important? (3)
- b) Give a brief description of the destructive tests performed by industries. (4)
- c) What are the various methods of inspection followed by industries? Write a brief description of any two. (3)
- 14 a) What are the different phases of a bath tub curve? With the help of a sketch illustrate the important features of each phase. (4)
- b) State the benefits associated with using non-destructive testing methods. What are the common non-destructive testing methods used for material inspection? (3)
- c) With suitable diagram explain any one non-destructive testing method? (3)



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Pages: 2
(3)
(4)
(3)

COLLEGE:		
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2021		
Course Code: ME404		
Course Name:		
Max. Marks: 70		Duration: 2.15 Hours
PART A		
<i>Answer any three full questions, each carries 7 marks.</i>		
		Marks
1	a)	()
	b) Application/Design Oriented question	()
2	a)	()
	b) Application/Design Oriented question	()
3	a)	()
	b) Application/Design Oriented question	()
4	a)	()
	b) Application/Design Oriented question	()
PART B		
<i>Answer any three full questions, each carries 7 marks.</i>		
5	a)	()
	b) Application/Design Oriented question	()
6	a)	()
	b) Application/Design Oriented question	()
7	a)	()
	b) Application/Design Oriented question	()
8	a)	()
	b) Application/Design Oriented question	()
		()
PART C		
<i>Answer any four full questions, each carries 7 marks.</i>		
9	a)	()
	b) Application/Design Oriented question	()
10	a)	()
	b) Application/Design Oriented question	()
11	a)	()
	b) Application/Design Oriented question	()

Criterion 2

2.5 Evaluation Process and Reforms



B

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2021
CENTRE: SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
Course Code: ME 404
Course Name: INDUSTRIAL ENGINEERING.

Max. Marks: 100

Duration: 2 Hours 15 mins

PART - A			Marks
<i>Answer ANY THREE full questions, each carries 10 marks</i>			
1	a)	What are the roles of an industrial engineer in an organization? What are the field of approach of industrial engineering in the current industrial environment?	(5)
	b)	Derive an expression for finding the Break Even Point? From the following data Variable cost per unit= Rs.15, Fixed cost = Rs. 54,000, Selling price per unit= Rs. 20. (i) Find out breakeven point? (ii) What should be the selling price per unit if the break even quantity is brought down to 6,000 units?	(6)
2	a)	What is Value Engineering? What are the steps involved in value engineering?	(3)
	b)	List the steps of new product development process. Explain the process with an example.	(3)
	c)	What are the types of values desired for new product? What is the use life cycle cost in value analysis?	(4)
3	a)	What are the principles of material handling? Explain various material handling devices used for smooth handling of materials?	(5)
	b)	What are the factors which influence the choice of a flexible manufacturing system in an industry? What are the advantages and limitations of FMS?	(5)
4	a)	Describe process layout with a neat sketch. State its advantages and limitations.	(5)
	b)	Explain any two methods used for the replacement of an equipment? Describe the factors responsible for the replacement of equipment in working condition.	(5)
PART - B			
<i>Answer ANY THREE full questions, each carries 10 marks</i>			
5	a)	Why Job evaluation become one of the most important process in an organization? What are the techniques used for job evaluation?	(4)
	b)	Enlist different types of wage incentive plans? Explain any two type of wage incentive plans?	(3)
	c)	How flow process chart helps in production line? Illustrate any one flow process chart.	(3)
6	a)	What is SIMO chart? Explain the process of making a SIMO chart?	(4)



	b)	How therblings helps in easy representation of process charts? What are the important therblings used in process charts?	(3)
	c)	Explain the significance of workplace layout? What are key factors for a good workplace layout?	(3)
7	a)	Define industrial accidents? Describe direct and indirect cost associated with accidents.	(3)
	b)	How industrial relations and labour welfare measures helps to improve the productivity of an organization?	(3)
	c)	How industrial fatigue effects the smooth functioning of an organization? What are the effective methods used for reducing fatigue?	(4)
8	a)	Explain term collective bargaining? What are the process involved in it?	(3)
	b)	What are the main causes of an industrial disputes?	(3)
	c)	A trade union is an instrument of industrial democracy! Explain?	(4)
PART – C			
<i>Answer ANY FOUR full questions, each carries 10 marks</i>			
9	a)	What is Economic Order Quantity? Derive an expression for economic order quantity?	(5)
	b)	Explain various types of inventory models used for effective handling of inventory in an organization?	(5)
10	a)	What are the different phases of a product life cycle? With the help of a sketch illustrate the important features of each phase.	(5)
	b)	With suitable example, explain the importance of Gantt chart?	(5)
11	a)	What are the major objectives of Production planning and control? How PPC help an industry to enhance its performance?	(5)
	b)	What are the different phases of a bath tub curve? With the" help of a sketch illustrate the important features of each phase	(5)
12	a)	What are the common non-destructive testing methods used for material inspection? With suitable diagram explain any one non-destructive testing method?	(5)
	b)	Explain the principle of TQM. What are the significance and objectives of TQM?	(5)
13	a)	What are the major factors affecting quality? Write short notes on each factor stating how this affect the quality?	(5)
	b)	What are the process involved in bench marking? Explain any four major advantage of bench marking.	(5)
14	a)	What do you mean by process capability? How process capability can be measured?	(5)
	b)	What is quality circle? How quality circle helps to improve the efficiency of an organisation?	(5)



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SREE BUDDHA COLLEGE OF ENGINEERING



DEPARTMENT OF BASIC SCIENCE & HUMANITIES

ACADEMIC YEAR 2023 -24 (ODD SEMESTER)

SERIES EXAM QUESTION PAPER SCRUTINY COMMITTEE

As a part of academic quality improvement, a question paper scrutiny committee is reconstituted in the Department of Basic Science & Humanities. The following members are nominated.

Sl. No.	Name	Designated responsibility	Signature
1	Prof. Pradeep Kumar R	HOD	
2	Prof. Surya Mol O	Scrutiny committee Convener	
3	Prof. Anju B I	Stream coordinator, Engineering Physics	
8	Prof. Prabhiya P S	Exam cell representative	

Convener

HOD,



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Roll No.:		Name:		B
SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR FIRST SEMESTER B.TECH DEGREE EXAMINATION FIRST SERIES EXAMINATION – October 2023 PHT 100: ENGINEERING PHYSICS (CS, EC,ER, EEE)				
Max. Marks : 50			Time : 2 Hour	
Cognitive levels (L):L1 – Remember; L2 – Understand; L3 – Apply; L4 – Analyse; L5 – Evaluate; L6 – Create.				
Part A (Answer <i>All</i> questions. Each carries 3 Marks)				
Q. No	Questions	Marks	Cos	Level
1	Distinguish between transverse and longitudinal waves .Give one example for each.	3	CO1	L1, L2
2	List any six points to compare mechanical oscillator and electrical oscillator.	3		
3	What is mean by sharpness of resonance? Explain.	3		
4	State Rayleigh’s criteria for spectral resolution .Illustrate it with figure.	3	CO2	L1, L2
5	Compare Fresnel and Fraunhofer diffraction.	3		
6	How colour’s are formed in the films?	3		
Part B (Answer <i>All the</i> questions. Each carries 16 Marks)				
7	a. Derive an expression for the fundamental frequency of transverse vibrations of a stretched string.	10	CO1	L1, L2
	b. A wave of wavelength 35cm is travelling down a 300m long wire whose mass is 20Kg . If the wire is under tension of 1kN. What is the speed and frequency of the wave?	4		
	c. Write the differential equation and solution of three dimensional wave.	2		
OR				
8	a. Frame the differential equation of forced harmonic oscillator and deduce its solution.	10	CO1	L1, L2
	b. A wave is represented by $y = 3\sin(30t + 0.021x)$ where y and x are in meter and t in second. Compute the following (i) amplitude (ii) frequency (iii) wavelength (iv) wave velocity.	4		
	c. What is mean by Q-factor of a damped oscillator?	2		
9	a. Derive Cosine Law and obtain the conditions of brightness and darkness for a thin film in reflected system,	10	CO2	L1, L2
	b. A parallel beam of orange light 6100\AA is incident on a glass plate of refractive index 1.52 such that the angle of refraction in the plate is 38° . Calculate the smallest thickness of the plate which will appear dark by reflection.	4		
	c. State Principle of superposition of waves.	2		
OR				
10	a. Derive grating equation and hence find the expression for wavelength of monochromatic light. Define resolving power and dispersive power of a grating with expression.	10	CO2	L1, L2
	b. A grating has 5500lines/cm. find the angular separation between two 577nm and 579nm in the second order.	4		
	c. Compare prism and grating spectra.	2		

Criterion 2

2.5 Evaluation Process and Reforms



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Scheme/ Answer Key for Valuation

Scheme of evaluation (marks in brackets) and answers of problems/key

SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
FIRST SEMESTER B.TECH DEGREE 2023-24 (2019 SCHEME)
FIRST SERIES TEST OCTOBER 2023

Course Code: PHT100

Course Name: ENGINEERING PHYSICS A

(2019-Scheme)

Max. Marks: 50

Duration: 2 Hours

PART A

Answer all questions, each carries 3 marks.

1	Any four comparison between transverse and longitudinal wave (½ mark for each point) Examples (1mark)	(3)
2	Any six comparison between electrical oscillator and mechanical oscillator (½ mark for each point)	(3)
3	Definition of Sharpness of resonance and graph (2marks) Explanation (1mark)	(3)
4	According to Rayleigh's Criterion two images are just resolved if the central maximum of intensity curve for one image falls at the first minimum of the other image and vice versa. (2marks) Figure (1mark)	(3)
5	Any four difference between Fresnel and Fraunhofer diffraction.	(3)
6	Explanation (2marks) equation $2\mu t \cos r = n\lambda$ (1mark)	(3)

Criterion 2

2.5 Evaluation Process and Reforms



		PART B	
		Answer one full question, each question carries 16marks	
7	a	Labelled figure with explanation (1mark) Introduction (1mark) Resultant Force, $F = T \sin\theta_2 - T \sin\theta_1$ (1mark) Derivation of wave equation $\frac{m}{T} \frac{\partial^2 \varphi}{\partial t^2} = \frac{\partial^2 \varphi}{\partial x^2}$ (2marks) Expression for 1Dimensional wave equation (1mark) Finding velocity, $v = \sqrt{\frac{T}{m}}$ (1mark) Deriving the final expression for frequency $n = \frac{1}{2l} \sqrt{\frac{T}{m}}$ (3marks)	(10)
	b	Linear mass density $m = \frac{\text{mass of the string}}{\text{length of the string}} = \frac{20}{300} = 0.066 \text{ kg/m}$ Velocity $v = \sqrt{\frac{T}{m}} = \sqrt{\frac{1 \times 10^3}{.66}} = 123.109 \text{ m/s}$ Frequency $\gamma = \frac{v}{\lambda} = \frac{123.109}{35 \times 10^{-2}} = 368 \text{ Hz}$	(4)
8	c	Differential equation $\nabla^2 \varphi = \frac{1}{v^2} \frac{\partial^2 \varphi}{\partial x^2}$ (1mark) Solution $\varphi = ae^{i(k.r - \omega t)}$ (1mark)	(2)
	a	Various forces acting on the forced oscillator and obtain the differential equation (3marks) Solution, $x = A \sin(pt - \theta)$ (1mark) Finding the differentials and substitution (2marks) Equating the Coefficients and finding the amplitude (3marks) Expression of final solution (1mark)	(10)
9	b	Amplitude, $a = 3\text{m}$ (1mark) Wavelength $\lambda = 2\pi/k = 2\pi/0.021 = 299\text{m}$ (1mark) Frequency $f = \omega/2\pi = 30/2\pi = 4.77\text{Hz}$ (1mark) Wave velocity $= \omega/k = 30/0.021 = 1428.5\text{m/s}$ (1mark)	(4)
	c	Quality factor of an oscillator is defined as 2π times the ratio energy stored to the average energy loss per period. Q -factor $= 2\pi \frac{\text{Energy stored}}{\text{Energy loss per period}}$ (1mark) In terms of relaxation time Q -factor $= \omega_0 \tau$ (1mark)	(2)
9	a	Figure and Explanation (2marks)	10

Criterion 2



	Derivation for optical path difference $\Delta = 2\mu t \cos r$ Writing the actual path difference Obtaining conditions for maxima and minima	(4marks) (1mark) (3marks)	
b	$2\mu t \cos r = n\lambda$ $t = n\lambda / (2\mu t \cos r)$ $t = (1 \times 6100 \times 10^{-10}) / (2 \times 1.52 \times \cos 38) = 2.546 \times 10^{-7} \text{m}$	(1mark) (2marks)	(4)
c	Principle of superposition states that the resultant displacement produced at a point in a continuous medium due to a number of waves is the vector sum of the displacements produced by the individual waves. After superposition each wave retain its own characteristics. Mathematically, the resultant displacement $y = y_1 + y_2 \dots + y_n$ where $y_1, y_2 \dots y_n$ are displacements of individual waves.	(2marks)	(2)
10 a	Figure Introduction Derivation of grating Equation $\theta = nN$ Finding wavelength, $\lambda = \frac{\sin \theta}{nN}$ Resolving power of grating definition and equation Dispersive power of grating definition and equation	(1mark) (1mark) (4marks) (1mark) (2marks) (2marks)	(10)
b	$\sin \theta = nN\lambda$ $\theta_1 = (nN\lambda_1) = \theta = (2 \times 5500 \times 10^2 \times 577 \times 10^{-9}) = 39.39$ $\theta_2 = (nN\lambda_2) = \theta = (2 \times 5500 \times 10^2 \times 579 \times 10^{-9}) = 39.56$ Angular separation $d\theta = 39.56 - 39.39 = 0.17$ (3marks)	(1mark)	(4)
c	Any four difference between prism and grating spectra.		(2)
Prepared By		Anju.B.I	
Varified By		Surya Mol O	
HoD		R Pradeep Kumar	