

BMEE208L	Industrial Engineering	L	T	P	C
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Pre-requisite	Nil	Syllabus version			
		1.0			
Course Objectives					
1. To analyse different planning activities needed during the operations stage of a manufacturing or a service industry. 2. To apply productivity techniques for achieving continuous improvement. 3. To analyse the various project alternatives based on time and cost.					
Course Outcome					
At the end of the course, the student will be able to 1. Define productivity and reasons for poor productivity and ways of improving it. 2. Analyse the demand for a product and predict demand using suitable forecasting techniques. 3. Identify the various elements of cost in production and estimate the unit cost. 4. Apply the knowledge of work study and ergonomics for work standardization. 5. Identify key factors influencing facility location and layout decision. 6. Apply the project management techniques for evaluation and scheduling. 7. Analyse and evaluate engineering projects alternatives.					
Module:1	Competitiveness and Strategy	5 hours			
Competitiveness – Operations Strategy - Productivity – Factors affecting Productivity - Increasing productivity of resources - Kinds of productivity measures - Case study.					
Module:2	Demand Analysis	6 hours			
Demand and Supply – Elasticity of Demand – Demand Forecasting – Forecasting Techniques – Time Series Models – Causal Regression – Forecast Error.					
Module:3	Cost of Production	6 hours			
Cost concepts – Classification of costs - Materials – Labour – Overheads – Prime cost – Unit selling price; Production cost- Fixed and variable cost- Break-even analysis – Margin of safety – Angle of incidence – CVP analysis - Applications.					
Module:4	Work Design and Measurement	7 hours			
Work Study – Method study – Recording techniques – Methods analysis – Motion study – Work measurement – Introduction to Ergonomics and its industrial applications.					
Module:5	Facilities Design	7 hours			
Plant Location – Factors influencing location decision – Evaluating location alternatives – Facilities Layout – Types – Computer aided layout design techniques – CRAFT-ALDEP – CORELAP.					
Module:6	Project Scheduling	6 hours			
Project Life Cycle – Work Breakdown structure – Planning and Scheduling with Gantt Charts – PERT and CPM – Time- Cost Trade off – Comparison of PERT and CPM.					
Module:7	Investment Analysis	6 hours			
Time value of money, present and future worth, Cash flow analysis - Economic evaluation of alternatives – Capital budgeting – methods - Pay-back period – Net present value – Rate of return – .profitability index.					
Module:8	Contemporary Issues:	2 hours			
		Total Lecture hours:		45 hours	
Text Books					
1.	William J Stevenson, “Operations Management”, 2020, 14 th Edition, McGraw-Hill Education, New Delhi.				
2.	Martand T Telsang, “Industrial Engineering and Production Management”, 2018, 3 rd Revised Edition, S Chand and Company Ltd., New Delhi.				

3.	Yates J K, "Engineering Economics", 2017, CRC Press, Taylor & Francis Group.		
Reference Books			
1.	Dan Reid R and Nada R. Sanders, "Operations Management", 2012, 5 th Edition, John Wiley and Sons.		
2.	Panneerselvam R, "Production and Operations Management", 2012, 3 rd Edition, Prentice Hall of India Publications.		
3.	Zahid A.Khan, et al., "Principles of Engineering Economics with Applications", 2018, 2 nd Edition, Cambridge University Press, India.		
Mode of Evaluation: CAT, Written assignment, Quiz, FAT			
Recommended by Board of Studies		09-03-2022	
Approved by Academic Council	No. 65	Date	17-03-2022