

DEPARTMENT OF PRODUCTION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	B. Tech- PRODUCTION ENGINEERING , VII SEM		
Course Title	Analysis of Production Systems and IE Lab		
Course Code	PRPC 28	No. of Credits	03
Course Code of Pre-requisite subject(s)	PRPC25	--	---
Session	July 2018	Section (if, applicable)	B
Name of Faculty	S. John Vincent Jesuraj	Department	Production Engg
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Name of Course Coordinator(s) (if, applicable)	Dr. V. Senthil Kumar		
E-mail	vskumar@nitt.edu	Telephone No.	--
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
<p>Engineering Economy and Costing: Elementary cost accounting and methods of depreciation; break-even analysis, techniques for evaluation of capital investments.</p> <p>Production Planning: Forecasting techniques – causal and time series models, moving average, exponential smoothing, trend and seasonality</p> <p>Capacity and aggregate production planning; master production scheduling; MRP and MRP-II Scheduling and priority dispatching</p> <p>Inventory – functions, costs, classifications, deterministic and probabilistic inventory models, quantity discount; perpetual and periodic inventory control systems.</p> <p>IE LAB EXERCISES</p> <p>Part-A Operations Management</p> <p>1. Forecasting Models 2. Inventory Models 3. Scheduling Case studies 4. Material Requirements Planning 5. Project management</p> <p>Part-B Ergonomics Study</p> <p>1. Performance rating using stop watch 2. Peg board experiment 3. Time study trainer 4. Fitness study using treadmill 5. Fitness study using ergo cycle .</p>			
COURSE OBJECTIVES			
<p>1. To understand production function, Design of Product, Planning functions, Material Planning and Layout and Scheduling.</p> <p>2. To have practical exposure on operations management and ergonomics aspect of human evaluation.</p>			
COURSE OUTCOMES (CO)			

Course Outcomes	Aligned Programme Outcomes (PO)
1. Graduate will able to solve the economic problems	Unit I
2. Graduate will have own knowledge about the investment into a land, company or mutual fund	Unit I
3. Graduates able to analyze the data of the past in turn they will predict the future trend in marketing.	Unit II
4. Graduates will design the manufacturing systems which satisfies the customer requirements (demand).	Unit III
5. Graduates will understand the quantitative modeling of array systems having many variables and design for economic efficiency, productivity and quality.	Unit III
6. Graduates will apply the appropriate management technique to optimal utilization of resources.	Unit III & IV
7. Graduate will be able to prepare their own technique that needed for the organization.	Unit III & IV

COURSE PLAN – PART II

COURSE OVERVIEW

- Analysis of production system explains the conversion of resources into products
- It analyses the customer demand and capitalise the customer requirements.
- It explains about the production planning activities and production control activities.
- It deals with capacity planning, aggregate planning and forecasting techniques.
- It explains the activities such as MPS, MRP, MRP-II, Scheduling and inventory control.
- IE lab explains about the operation management tools used for various controlling activities and ergonomic concept through lab exercises.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No	Week	Topic	Mode of Delivery
1	1 st	Lecture-1: Introduction to syllabus and overall view of the subject	C&T / PPT
		Lecture-2: Engineering Economy and Costing: Elementary cost accounting	
		Practical-1: Introduction to lab (operations management)	

2	2 nd	Lecture-3: Methods of Depreciation; Break-even analysis	C&T / PPT
		Lecture-4: Techniques for evaluation of capital investments (NPV)	
		Practical-2: Part-A; Exercise 1	
3	3 rd	Lecture-5: IRR and Payback period	C&T / PPT
		Lecture-6: Production Planning- Introduction to forecasting techniques	
		Practical-3: Part-A; Exercise 2	
4	4 th	Lecture-7: Casual and Time series models	C&T / PPT
		Lecture-8: Moving average method	
		Practical-4: Part-A; Exercise 3	
5	5 th	Lecture-9: Exponential smoothing method	C&T / PPT
		Lecture-10: Trend and Seasonality	
		Practical-5: Part-A; Exercise 4	
6	6 th	Lecture-11: Capacity and Aggregate production planning	C&T / PPT
		Lecture-12: Master production scheduling	
		Practical-6: Part-A; Exercise 5	
7	7 th	Assignment and Cycle Test -1	
8	8 th	Lecture-13: Material Requirement Planning(MRP)	C&T / PPT
		Lecture-14: Manufacturing Resource planning (MRP-II)	
		Practical-7: Introduction to Ergonomics study	

9	9 th	Lecture-15: Loading, Scheduling and Dispatching	C&T / PPT
		Lecture-16: Single m/c and multi m/c scheduling (SPT,EDD)	
		Practical-8: Part-B Exercise-1	
10	10 th	Lecture-17: Inventory- functions and classification	C&T / PPT
		Lecture-18: Deterministic models	
		Practical-9: Part-B Exercise-2	
11	11 th	Lecture-19: Probabilistic models	C&T / PPT
		Lecture-20: Quantity discount model	
		Practical-10: Part-B Exercise-3	
12	12 th	Lecture-21: Perpetual inventory control system	C&T / PPT
		Lecture-22: periodic inventory control system	
		Practical-11: Part-B Exercise-4	
13	13 th	CYCLE TEST 2	
14	14 th	Lecture-23: Inventory problems	C&T / PPT
		Lecture-24: Case studies	
		Practical-12: Part-B Exercise-5	
15	15 th	Buffer week for Theory and Lab	C&T / PPT
16	16 th	Compensation Assessment	
17	17 th	Final Assessment (End semester examination)	
C&T : Chalk and Talk PPT: Power point			

COURSE ASSESSMENT METHODS (shall range from 4 to 6)						
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage	Wt. % for final	
Theory	1	Assignment	Week-7	-----	10	66.66
	2	Cycle test -1	Week-7	60 Minutes	20	
	3	Cycle test -2	Week-13	60 Minutes	20	
	4	Compensation Assessment*	Week-16	60 Minutes	20	
	5	Final Assessment *	Week-17	180 Minutes	50	
Lab	6	Continuous Assessment for lab exercises			100	33.33
Final Assessment Grading						100
*mandatory; refer to guidelines on page 6						
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)						
1. Feedback from the students during class committee meeting.						
2. End semester feedback on course outcomes						
COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)						
<u>MODE OF CORRESPONDENCE (email/ phone etc)</u> Phone and E-mail						
<u>COMPENSATION ASSESSMENT POLICY</u> 60 minutes examination including all syllabus.						
<u>ATTENDANCE POLICY</u> (A uniform attendance policy as specified below shall be followed)						
<ul style="list-style-type: none"> ➤ At least 75% attendance in each course is mandatory. ➤ A maximum of 10% shall be allowed under On Duty (OD) category. ➤ Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade. 						

ACADEMIC DISHONESTY & PLAGIARISM


- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

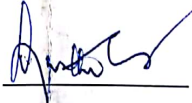
ADDITIONAL INFORMATION

FOR APPROVAL

Course Faculty



CC-Chairperson



HOD



Guidelines:

- a) The number of assessments for a course shall range from 4 to 6.
- b) Every course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered. Details of compensation assessment to be specified by faculty.
- d) The passing minimum shall be as per the regulations.
- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.