NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF PRODUCTION ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	**M.Tech.- MANUFACTURING TECHNOLOGY**		
Course Title	**MANUFACTURING MANAGEMENT**		
Course Code	**PR606**	**No. of Credits**	**03**
Course Code of Pre-requisite subject(s)	**-**		
Session	**January 2021**	**Section (if, applicable)**	**-**
Name of Faculty	**Dr. T. Jagadesh**	**Department**	**Production Engg.**
Official Email	**jagadesh@nitt.edu**	**Telephone No.**	**+91- 9080746066**
Name of Course Coordinator(s) (if, applicable**)**			
Official E-mail		**Telephone No.**	
Course Type (please tick appropriately**)**	✓ Core course	☐ Elective course	

Syllabus (approved in BoS)

Strategic, Tactical and Operational decisions – Supply chain management-key issues-General discrete location-allocation problems - features and formulations. Facility location models - Median model - Distribution model - Brown and Gibson model, Min-max algorithm, Gravity location algorithm-solving using GAMS software.

Aggregate production planning –heuristics-pure mixed strategies, transportation and linear models – Inventory management –Inventory control policies- EOQ models-models with price breaks

Material Requirement Planning (MRP) - working of MRP - master production scheduling - Lot sizing in MRP system-rough cut capacity planning -capacity requirement planning, ERP and softwares.

Operations scheduling - Flow shop - Johnson's rule, CDS heuristics, Palmer heuristics-Assembly Line Balancing- Project Scheduling-Quality Management-Taguchi Method

Introduction to Industry 4.0, Role of artificial intelligence and analytics in manufacturing, Industrial IOT

COURSE OBJECTIVES

- Understand the role of manufacturing management in organizational decision making
- Study the strategic, tactical and operational decision making tools in order to model a manufacturing or a service system.
- Develop an aggregate plan and deduce it to material requirement plan and master production schedule.
- Understand the application of manufacturing management policies and techniques to the manufacturing and service organizations.
- Measure the performance of a supply chain.

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MAPPING OF COs with POs	
Course Outcomes	**Programme Outcomes (PO)** (Enter Numbers only**)**
Understand the role of manufacturing management in organizational decision making.	**1**
Build and analyze quantitative models for organizational decision making	**1, 2, 3,4**
Select appropriate tools for decision making	**1, 2, 3, 4, 5**
Apply tools for modelling of complex systems	**1, 2, 3, 4, 5, 8**
Analyze the outcome and offer suggestions for improvement	**1, 2, 3, 6, 7, 11**

COURSE PLAN – PART II

COURSE OVERVIEW
To understand the strategic, tactical and operational decisions in manufacturing industry and to learn the strategic importance of good supply chain design, planning, and operation for every firm. To formulate an aggregate plan and deduce it to material requirement plan and master production schedule. To build and analyze quantitative models for organizational decision making. To formulate model for complex manufacturing process and systems. Management management also describes about the problems faced by leading organizations, both in service and in manufacturing. To understand the role of artificial intelligence and analytics in manufacturing industry.

COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	**Week/Contact Hours**	**Topic**	**Mode of Delivery**
1	Week 1	Strategic, Tactical and Operational decisions	Online mode, PPT
2	Week 2	Supply chain management-key issues	Online mode, PPT
3	Week 3	Aggregate production planning	Online mode, PPT
4	Week 4	Heuristics-pure mixed strategies, transportation and linear models	Online mode, PPT
5	Week 5	Inventory management –Inventory control policies	Online mode, PPT
6	Week 6	EOQ models-models with price breaks	Online mode, PPT
Cycle Test 1			

7	Week 7	Material Requirement Planning (MRP) - working of MRP master production scheduling	Online mode, PPT
8	Week 8	Lot sizing in MRP system-rough cut capacity planning requirement planning, ERP and softwares.	Online mode, PPT
9	Week 9	Operations scheduling - Flow shop - Johnson's rule, CDS heuristics	Online mode, PPT
10	Week 10	Palmer heuristics- Assembly Line Balancing- Project Scheduling- Quality Management-Taguchi Method	Online mode, PPT
Cycle Test 2			
11	Week 11	Introduction to Industry 4.0, Role of artificial intelligence and analytics in manufacturing, Industrial IOT	Online mode, PPT
12	Week 12	General discrete location-allocation problems - features and formulations. Facility location models	Online mode, PPT
13	Week 13	Median model - Distribution model - Brown and Gibson model	Online mode, PPT
14	Week 14	Min-max algorithm, Gravity location algorithm-solving using GAMS software	Online mode, PPT
15	Week 15	General discrete location-allocation problems - features and formulations.	Online mode, PPT

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle test- 1	February 4th Week	90 Minutes	25
2	Cycle test- 2	March 4th Week	90 Minutes	25
3	Assignment / presentation	Once in Four Weeks	---------	20
CPA	Compensation Assessment*	May 1st Week	90 Minutes	30
4	Final Assessment *	May 2nd Week	120 Minutes	30
*mandatory; refer to guidelines on page 4				
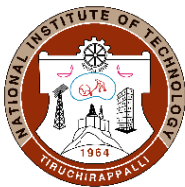
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Feedback from the students during class committee meeting
2. End semester feedback on course outcomes

COURSE POLICY (including compensation assessment to be specified**)**

COMPENSATION ASSESMENT POLICY

90 minutes examination including all syllabus

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

➢ 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.

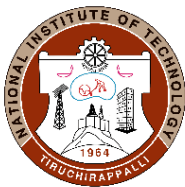➢ The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

FOR APPROVAL

Course Faculty _____ **CC- Chairperson** _____ **HOD** _____

Guidelines

a) The number of assessments for any theory course shall range from 4 to 6.

b) Every theory 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.

d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	**2017**	**2016**	**2015**	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

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.