



DEPARTMENT OF PRODUCTION ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	M. Tech. & Industrial Engineering and Management		
Course Title	INTELLIGENT MANUFACTURING SYSTEMS		
Course Code	PR662	No. of Credits	3
Course Code of Pre-requisite subject(s)	-		
Session	January 2021	Section (if, applicable)	-
Name of Faculty	Baranitharan.P	Department	Production Engineering
Official Email	baranip@nitt.edu	Telephone No.	8973506306
Name of Course Coordinator(s) (if, applicable)	-		
Official E-mail	-	Telephone No.	-
Course Type (please tick appropriately)	<input type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
<p>Basic concepts of Artificial intelligence and expert systems - System Components - System architecture and Data flow – System Operations.</p> <p>Knowledge based systems - knowledge representation – knowledge acquisition and optimization - Knowledge based approaches to design mechanical parts and mechanisms and design for automated assembly.</p> <p>Knowledge based system for material selection – Intelligent process planning system. Intelligent system for equipment selection - Intelligent system for project management & factory monitoring.</p> <p>Scheduling in manufacturing – scheduling the shop floor – Diagnosis & trouble shooting.</p> <p>The role of Artificial Intelligence in the factory of the future – Intelligent systems.</p>			
COURSE OBJECTIVES			
<ul style="list-style-type: none"> ➤ Students will gain the knowledge of how the modern manufacturing process works. ➤ A clearer insight into how elements of the artificial intelligence work in a manufacturing sector could be understood. ➤ This subject deals with the study of knowledge based system being used in automation. ➤ To understand the working nature of expert system in an industry and scheduling in manufacturing. 			



MAPPING OF COs with Pos	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Apply various knowledge based techniques	PO1, PO2, PO3, PO5, PO6, PO9
2. Study about diagnosis and trouble shooting	PO1, PO5, PO6, PO9
3. Adopt intelligent system	PO1, PO2, PO3, PO5, PO6, PO9

COURSE PLAN – PART II			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	1/3hrs	Introduction to artificial intelligence system, need of artificial intelligence	PPT & VIDEO
2	2/3hrs	Introduction to Expert system, nature of working of Artificial intelligence and expert system	PPT & VIDEO
3	3/3hrs	Knowledge based system- Knowledge representation and acquisition and optimization	PPT & VIDEO
4	4/3hrs	Knowledge based approach to design mechanical part, mechanism and automated assembly	PPT & VIDEO
5	5/3hrs	Introduction to material selection, Knowledge based system for material selection	PPT & VIDEO
6	6/3hrs	Introduction to process planning , Intelligent process planning system	PPT & VIDEO
7	7/3hrs	Intelligent system for equipment selection	PPT & VIDEO
8	8/3hrs	Intelligent system for project management & factory monitoring	PPT & VIDEO



9	9/3hrs	Scheduling in manufacturing and shop floor	PPT & VIDEO
10	10/3hrs	Diagnosis and trouble shooting in shop floor	PPT & VIDEO
11	11/3hrs	Role of AI in the factory of the future	PPT & VIDEO
12	12/3hrs	Intelligent systems	PPT & VIDEO

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle test 1	5 th Week	1 hr	25
2	Cycle test 2	9 th Week	1 hr	25
3	Assignment 1	4 th Week	-	20
4	Compensation Assessment*	12 th week	1 hr	25
5	Final Assessment *	End of semester	2 hr	30

*mandatory; refer to guidelines on page 4

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

Course Exit survey will be collected at the end of the semester before the start of semester examination through online. Students can log in their MIS account to give the feedback.

COURSE POLICY (including compensation assessment to be specified)

- Attending classes regularly and continuously is required for the students to understand the concepts.
- Attendance will be taken in every class. If the student is not able to maintain 75% attendance, he/she is required to write the compensation assessment and obtain a minimum of 15 marks to become eligible to write the final assessment.
- Participation in the discussions is mandatory during the tutorial classes.
- Strict academic disciplines have to be maintained inside the class room.



- If any student is not able to attend any of the continuous assessments (1, 2, and 3) due to genuine reason, student is permitted to attend the compensation assessment with % weightage equal to maximum of the CAs. However, a student absent for more than one CAs, maximum of the % weightage among the assessments for which the student was absent will be considered for computing marks for CA.
- Reassessment shall be conducted for failed / absented (in final assessment) in the beginning of next session. Failed (in final assessment) candidates shall get a maximum of E grade in the reassessment.

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

After class communication- Doubt clarification

The course faculty will be available for discussion in the department after class hours. Students can interact with faculty by using the specified mail id and phone number.

FOR APPROVAL


Course Faculty



CC- Chairperson



HOD



(Dr J Jerald)



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.