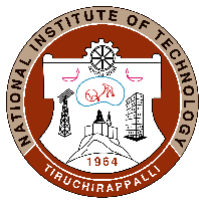




NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI
DEPARTMENT OF PRODUCTION ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	M.Tech. (Manufacturing Technology)		
Course Title	ADVANCED PRODUCTION PROCESS LAB		
Course Code	PR607	No. of Credits	02
Course Code of Pre-requisite subject(s)	-	-	-
Session	July 2019	Section (if, applicable)	-
Name of Faculty	Dr.K.PANNEERSELVAM	Department	Production Engineering
Email	kps@nitt.edu	Telephone No.	04312503515
Name of Course Coordinator(s) (if, applicable)	-		
E-mail	-	Telephone No.	-
Course Type	<input type="checkbox"/> Core Course <input type="checkbox"/> Elective Course <input checked="" type="checkbox"/> Laboratory Course		
COURSE OVERVIEW			
This course is to teach the advances in Production processes for fabrication, characterization, Machining and Joining of Advanced materials in such a way that the students can understand and use it in practical applications.			
COURSE OBJECTIVES			
<ol style="list-style-type: none"> 1. Describe manufacturing and characterization of advanced materials. 2. Perform joining & machining of advanced materials. 3. Apply advanced materials for recent industrial applications & confront environmental issues. 			



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COURSE OUTCOMES (CO)

COURSE OUTCOMES

- Co1. Describe manufacturing and characterization of advanced materials.
- Co2. Perform joining & machining advanced materials
- Co3. Apply advanced materials for recent industrial applications & confront environmental issues.

Aligned Program Outcomes (PO)

COURSE OUTCOMES	Program Outcomes (PO)										
	1	2	3	4	5	6	7	8	9	10	11
CO1	√	√	√	√	√	√	√	√			
CO2	√	√	√	√	√	√	√	√			
CO3	√	√	√	√	√	√	√	√	√	√	

PROGRAMME OUTCOMES (POs)

Sl. No	Attributes	Programme Outcomes (POs): On successful completion of the programme the students will be able to
1.	Scholarship of Knowledge	Acquire in depth knowledge in Manufacturing technology with an ability to define, evaluate, analysis and synthesize existing and new knowledge.
2.	Critical Thinking	Analyze problems critically; apply independent judgment for synthesizing information to make intellectual and/or creative advances for conducting research.
3.	Problem Solving	Conceptualize and solve Manufacturing engineering problems and evaluate optimal solutions considering economic and eco-friendly factors
4.	Research Skill	Develop scientific/ technological knowledge in Manufacturing engineering through literature survey and design of experiments.
5.	Usage of modern tools	Apply of IT tools such as CAD/CAE/CAM for modeling and simulation of complex Manufacturing processes.
6.	Collaborative and multi-disciplinary work	Perform collaborate multidisciplinary scientific Manufacturing engineering research through self-management and team work.
7.	Project Management and Finance	Demonstrate knowledge and understanding of Manufacturing engineering and management and apply the same to one's own work, as a member and leader in team, manage projects efficiently in respective disciplines and multidisciplinary environments after consideration of economic and financial factors.
8.	Communication	Communicate with the engineering community, and with society at large, regarding complex engineering activities confidently and effectively, such as, being able to comprehend and write effective reports and design documentation by adhering to appropriate standards, make effective presentations, and give and receive clear instructions.
9.	Life-long Learning	Recognize the need for, and have the preparation and ability to engage in life-long learning independently, with a high level of enthusiasm and commitment to improve knowledge and competence continuously.
10.	Ethical Practices and Social Responsibility	Acquire professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, consideration of the impact of research outcomes on professional practices and an understanding of responsibility to contribute to the community for sustainable development of society.
11.	Independent and Reflective Learning	Observe and examine critically the outcomes of one's actions and make corrective measures subsequently and learn from mistakes without depending on external feedback.



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COURSE TEACHING AND LEARNING ACTIVITIES

S.No	Week	Experiment	Mode of Delivery
1.	Week:1	• Course plan details and Moodle registration	C&T / PPT
2.	Week:2	Experiment -1:Sample preparation by Injection molding	Theoretical, practical and Moodle
3.	Week:3	Experiment -2: Sample preparation by Compression molding	Theoretical, practical and Moodle
4.	Week:4	Experiment -3:Tensile testing of Injection molding specimens	Theoretical, practical and Moodle
5.	Week:5	Experiment -4:Impact testing of Composite materials	Theoretical, practical and Moodle
6.	Week:6	Experiment -5:Calculation of MFI	Theoretical, practical and Moodle
7.	Week:7	Buffer lab Class-1*	Theoretical, practical and Moodle
8.	Week:8	Experiment -6:Drilling of PMC	Theoretical, practical and Moodle
9.	Week:9	Experiment -7:Milling of PMC	Theoretical, practical and Moodle
10.	Week:10	Experiment -8:Turning of PMC	Theoretical, practical and Moodle
11.	Week:11	Experiment -9:Fusion welding of TPC/PMC	Theoretical, practical and Moodle
12.	Week:12	Experiment -10:Resistant welding of TPC/PMC	Theoretical, practical and Moodle
13.	Week:13	Buffer lab Class-2*	Theoretical, practical and Moodle
14.	Week:14	Final Exam using moodle	Using Moodle

COURSE ASSESSMENT METHODS

S.No.	MODE OF ASSESSMENT	WEEK/DATE	DURATION	% WEIGHTAGE
1.	Laboratory Report submission (50% wt.) and Viva voce questions using moodles (50%) for each Experiment.	-	120 Minutes	70%
2.	Final Exam using moodles flat form	-	60 Minutes	30%

Important Note:

- All students are expected to attend all the laboratory sessions.
- Students who are absent for the regular laboratory session are allowed to do the experiment only in the buffer lab class* with 50% weightage of the particular experiment.
- Relative Grading with a passing minimum is as per our institute norms.



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ESSANTIAL READINGS

References:

1. Mein Schwartz., "Composite Materials Handbook", McGraw Hill, 1984
2. "ASM Hand book on Composites", Volume 21, 2001
3. "Handbook of Plastics Joining-A Practical Guide",Plastics Design Library, 13 Eaton Avenue, Norwich, New York 13815.
4. Leonard Hollaway "Handbook of Polymer Composites for Engineers", British Plastics Federation.
5. Edward ArnoM.J. Madou, "Fundamentals of Micro Fabrication", CRC Press, 2002
6. V.K.Jain, "Introduction to Micromachining", Narosa Publishing House, 2010
7. Mark J. Jackson, "Micro Fabrication and Nano machining", Taylor and Francis, 2006
8. Serope Kalpakjian, "Manufacturing Engg. and Technology", Pearson Education, 2005

COURSE EXIT SURVEY

Mention the ways in which the feedback about the course is assessed and indicate the attainment also:

- Feedback from the students during class committee meetings
- Anonymous feedback through questionnaire (Mid of the semester & End of the semester)

MODE OF CORRESPONDENCE (email/ phone etc.)

1. All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes schedule of assessment course material any other information regarding this course) will be done through their webmail only.
2. Queries (if required) may be emailed to me / contact me during 4.00 pm to 5.00 pm on Monday and Friday with prior intimation for any clarifications.

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

Attendance will be taken by the course faculty in all the contact hours.

- **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 HONESTY & 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.

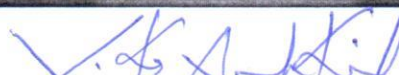
ADDITIONAL COURSE INFORMATION


The faculty is available for consultation at times as per the intimation given by the faculty.

Queries may also be emailed to the Course Faculty directly at kps@nitt.edu

FOR APPROVAL


Course Faculty


CC Chairperson


HOD