

**DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING**

**NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

<b>COURSE PLAN – PART I</b>			
<b>Name of the programme and specialization</b>	<b>MTech. (<u>Materials Science and Engineering</u>)</b>		
<b>Course Title</b>	MT 660 ADVANCED MATERIALS PROCESSING LABORATORY		
<b>Course Code</b>	MT 660	<b>No. of Credits</b>	2
<b>Course Code of Pre-requisite subject(s)</b>	Nil		
<b>Session</b>	Jan 2021	<b>Section (if, applicable)</b>	NA
<b>Name of Faculty</b>	Dr.N.Ramesh Babu	<b>Department</b>	MME
<b>Email</b>	<a href="mailto:rameshroith@gmail.com">rameshroith@gmail.com</a> (or) nrb@nitt.edu	<b>Telephone No.</b>	2503464 9944932221
<b>Name of Course Coordinator(s) (if, applicable)</b>	NA		
<b>E-mail</b>	NA	<b>Telephone No.</b>	NA
<b>Course Type</b>	<b>Core (M Tech Lab course)</b>		
<b>Syllabus (approved in BoS)</b>			
<ol style="list-style-type: none"> <li>1. Fabrication of nanostructured coatings by plasma electrolytic processing</li> <li>2. Mechanochemical synthesis of nanostructured compounds</li> <li>3. Microwave synthesis of nanosized ceramic powders</li> <li>4. Diffusion bonding of Materials</li> <li>5. Equichannel angular processing of materials</li> <li>6. Cryorolling of materials</li> <li>7. Vacuum arc melting of materials</li> <li>8. Spark plasma sintering of materials</li> <li>9. Microwave sintering of materials</li> <li>10. In-situ synthesis of metal matrix composites by casting</li> </ol>			
<b>COURSE OBJECTIVES</b>			
The objective of this laboratory course is to provide an insight for the latest developments in materials processing.			
<b>COURSE OUTCOMES (CO) MAPPING OF COs with POs</b>			
<b>MAPPING OF COs with POs</b>			
<b>Course Outcomes</b>	<b>Programme Outcomes (PO) (Enter Numbers only)</b>		
After the completion of this course, the student will be able to:			

1. Understands the working principles of different advanced processes	1-7
2. Synthesize nanostructured materials by advanced processing methods.	1-7
3. Perform experiments with best practices and understands the advantages and limitations of different processes	1-7,9
4. Interpret and analyze the data and present the results in a concise written format	1-7
5. Recommend a suitable process for modifying the material properties.	1-7

### COURSE PLAN – PART II

#### COURSE TEACHING AND LEARNING ACTIVITIES

Week/Contact Hours	Topic	Mode of Delivery
I II-IV V-VIII X-XII XIII-XIV	1. Fabrication of nanostructured coatings by plasma electrolytic processing 2. Microwave synthesis of nanosized ceramic powders 3. Mechanochemical synthesis of nanostructured compounds 4. Diffusion bonding of Materials 5. Equichannel angular processing of materials 6. Cryorolling of materials 7. Vacuum arc melting of materials 8. In-situ synthesis of metal matrix composites by casting 9. Spark plasma sintering of materials 10. Microwave sintering of materials	Teaching online+ Experiments + Exposure to the facilities available at NITT

#### COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assignment-1	Feb last week	-	20
2	Assignment-II	March last week	1h	20
3	Record writing including answers to the review questions	April last week	-	30
4	Final Assessment* Written test	As per Institute schedule	1.5 h	30

\*mandatory; refer to guidelines on page 4

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

The feedback from students will be assessed based on the questionnaire prepared by the institute and expected attainment to be 75%.

**COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)**

The students are expected to attend all the classes except for medical reasons. Minimum attendance of 75% is required for writing the semester examination.

**MODE OF CORRESPONDENCE (email/ phone etc)**

The Course Coordinator is available for consultation at any time.

Students can also contact me at any time through phone or by e-mail.

The phone number and email id will be given to the students at the beginning of the course

**COMPENSATION ASSESSMENT POLICY**

Retest will be conducted for the medical reasons


**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.

<b>ADDITIONAL INFORMATION</b>	
The Course Coordinator is available for consultation at any time.	
Students can also contact me at any time through phone or by e-mail. Relative grading as per the Institute Policy	
<b>FOR APPROVAL</b>	
 <b>Course Faculty</b> <b>CC-Chairperson</b> <b>HOD</b>	

**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.**
- 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.