



COURSE PLAN – PART I			
Name of the programme and Specialization	M.Tech. – Manufacturing Technology		
Course Title	Materials Technology		
Course Code	PR618	No. of Credits	3
Course Code of Pre-requisite subject(s)	NIL		
Session	July - 2021	Section	-
Name of Faculty	Dr. V. Senthilkumar	Department	Prod. Engg.
Official Email	vskumar@nitt.edu	Tel. No.	0431-2503519
Name of Course Coordinator	NA		
E-mail			
Course Type	Elective course		
Syllabus (approved in BoS)			
Crystal structure, Slip planes, Slip systems and Formability, Close packed planes and directions, Tensile test, Yielding behavior, True stress, strain, Strain hardening, Dislocations, Tensile instability, Constitutive material relationships, Strain rate and sensitivity, Volume constancy principle, Mass constancy principle			
Effect of Mohr's circle on Formability, Formability of low carbon steels, Automobile grade steels Effect of grain size on Formability, Effect of second phase particles on formability			
Formability of Carbon - Manganese steels, Micro alloy steels, HSLA steels, I.F steels, Dual phase steels, etc., Formability of Stainless steels			
Diffused necking and localized necking in tensile test, Super plasticity and its applications, Deep drawing and deep drawability of sheet metals, Defects in deep drawing			
Cold working, Hot working and Warm working, Recrystallization, Forming Limit Diagram, Workability of materials.			
COURSE OBJECTIVES			
To classify the mechanical properties of materials. To relate the various forming process. To apply the knowledge in formability			
MAPPING OF COs with POs			
Course Outcomes	Programme Outcomes		
Classify the mechanical properties of materials.	1,2,3,4,11		
Relate the various forming process	1,2,3,4,11		
Apply the knowledge in formability	1,2,3,4,11		

COURSE PLAN – PART II				
COURSE TEACHING AND LEARNING ACTIVITIES				
S. No.	Week/Contact Hrs	Topic	Mode of Delivery	
1	Week 1	Crystal structure, Slip planes, Slip systems and Formability, Close packed planes and directions, Tensile test	PPT/Online	
2	Week 2	Yielding behavior, True stress, strain, Strain hardening, Dislocations, Tensile instability	PPT/Online	
3	Week 3	Constitutive material relationships, Strain rate and sensitivity, Volume constancy principle, Mass constancy principle	PPT/Online	
4	Week 4	Cold working, Hot working and Warm working	PPT/Online	
5	Week 5	Forming Limit Diagram, Workability of materials	PPT/Online	
6	Week 6	Cycle Test 1	--	
7	Week 7	Effect of Mohr's circle on Formability, Formability of low carbon steels, Automobile grade steels, Effect of grain size on Formability, Effect of second phase particles on formability	PPT/Online	
8	Week 8	Formability of Carbon - Manganese steels, Micro alloy steels, HSLA steels, I.F steels, Dual phase steels, etc., Formability of Stainless steels	PPT/Online	
9	Week 9	Diffused necking and localized necking in tensile test, Super plasticity and its applications	PPT/Online	
10	Week 10	Cycle Test 2	-	
11	Week 11	Deep drawing and deep drawability of sheet metals, Defects in deep drawing	PPT/Online	
12	Week 12	Compensation Assessment	--	
13	Week 13	Final Assessment (End Sem)	--	
COURSE ASSESSMENT METHODS				
S. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test-I	End of 4 Weeks	1 Hour	20%
2	Cycle Test-II	End of 9 Weeks	1 Hour	20%
3	Assignment/Seminar/Quiz	---	---	30%
CPA	Comp. Assessment (Both CT1 & CT2 portions)	End of 11 Weeks	1 Hour	20%
4	Final Assessment	End of Semester	2 Hours	30%

COURSE EXIT SURVEY

Feedback will be collected from students during the semester and also in class committee meetings. End semester feedback will be collected to assess the course outcome.

COURSE POLICY**MODE OF CORRESPONDENCE (email/ phone etc):**

- Preferred mode of correspondence with students by email/phone

ATTENDANCE:

- 85% attendance is compulsory to attend the end semester examination

COMPENSATION ASSESSMENT:

- Retest will be conducted for students those who get prior permission.

ACADEMIC HONESTY & PLAGIARISM

- Copying in any form in assessments is considered as academic dishonesty and will attract suitable action.

ADDITIONAL INFORMATION: Nil

FOR APPROVAL

Course Faculty



CC-Chairperson



HOD

