NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	**B.Tech Metallurgical and Materials Engineering**		
Course Title	**Particulate Processing Laboratory**		
Course Code	**MTLR20**	**No. of Credits**	**1**
Course Code of Pre-requisite subject(s)	**MTPC25**		
Session	**January 2019**	**Section (if, applicable)**	**NA**
Name of Faculty	**Ms. P. Anbarasi**	**Department**	**MME**
Official Email	**anbarasi@nitt.edu**	**Telephone No.**	**9566121219**
Name of Course Coordinator(s) (if, applicable)	**NA**		
Official E-mail		**Telephone No.**	
Course Type (please tick appropriately)	☑ **Core course**	☐ **Elective course**	

Syllabus (approved in BoS)

Determination of
a) Metal powder size and shape
b) Apparent density and tap density
c) Flow rate
d) Compressibility
e) Green density and sinter density

Cold upset forming of aluminium

Extrusion of aluminium [Demonstration]

COURSE OBJECTIVES

To study the characteristics of Powder particles.

MAPPING OF COs with POs	
Course Outcomes	**Programme Outcomes (PO)** (Enter Numbers only)
At the end of the course, student will be able to 1. Determine the Particle size and shape	**1, 2, 3, 11, 12**
2. Measure various type of density, flow rate and compressibility	**1, 2, 3, 5, 11, 12**
3. Compare the density of Green and sintered compacts	**1, 2, 5, 8, 11, 12**

COURSE PLAN – PART II

COURSE OVERVIEW

- **Particle size distribution – Sieve analysis**
- **Flow rate determination**
- **Determination of Apparent and Tap density**
- **Compressibility of powders**
- **Sintering**
- **Extrusion of aluminium**

COURSE TEACHING AND LEARNING ACTIVITIES (Add more rows)

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	2nd to 4th week, Jan	Introduction, particle size distribution by sieve analysis	Practicals
2	5th week Jan – 2nd week Feb	Flow rate determination, determination of apparent and tap density	Practicals
3	3rd week Feb – 2nd week March	Compressibility of powders, sintering, Extrusion of aluminium (demonstration)	Practicals
4	3rd week March – 2nd week April	Demonstration of advanced techniques	Practicals

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Weekly practical sessions	2nd week Jan – 2nd week April	35 hrs	50
2	Record	3rd week April		10
3	Viva voce	May	10 minutes	10
4	Final Assessment *	May	3 hrs	30

***mandatory; refer to guidelines on page 4**

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

Student's feedback

COURSE POLICY (including compensation assessment to be specified)

MODE OF CORRESPONDENCE (email/phone etc): Communication through class representative and E-mail

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** _____