No	Information of Metal Process Engineering (2019-2020)	
1	Unit name:	Metal Process Engineering
2	Code:	Met- 51024
3	Classification:	Engineering subject
4	SLT Credit value:	2
5	Semester/ Year Offered:	1/5
6	Pre-requisite:	-
7	Mode of delivery:	Lecture, Tutorial, Practical
8	Assessment system and breakdown of marks:	
	Test (Tutorial, lab report)	30%
	Mid-term Examination	70%
9	Academic Staff Teaching Unit:	1
10	Course outcome of unit: In this course, students will be able to - describe the classification of metal forming processes and powder metallurgy and joining processes - identify the techniques for each manufacturing process -solve the problems relative to the forming processes	
11	Synopsis of unit: The course examines the production techniques of metal forming. Particular emphasis is given to the powder metallurgy of metal powder production techniques and production of metal powder products. Chapter 2 includes bulk metal forming, fundamental of metal forming. In chapter 3 describes bulk metal forming processes in metal working such as rolling, forging, extrusion and wire and bar drawing processes. Chapter 4 is sheet metal working processes. Chapter 5 is fundamentals of welding and chapter 6 is welding processes: arc welding, resistance welding, oxygen welding, other fusion welding processes. In chapter 7 will study production planning and control.	
12	Topic: Chapter-1 POWDER METALLURGY - Characterization of Engineering Powders	

- Production of Metallic Powders
- Conventional Pressing and Sintering
- Alternative Pressing and Sintering Techniques
- Materials and Products for Powder Metallurgy
- Design Considerations in Powder Metallurgy

Chapter-2
Metal Forming and Sheet Metalworking

- FUNDAMENTALS OF METAL FORMING
- Overview of Metal Forming
- Material Behavior in Metal Forming
- Temperature in Metal Forming
- Strain Rate Sensitivity
- Friction and Lubrication in Metal Forming

Chapter-3
BULK DEFORMATION PROCESSES IN METALWORKING

- Rolling
- Other Deformation Processes Related to Rolling
- Forging
- Other Deformation Processes Related to Forging
- Extrusion
- Wire and Bar Drawing

Chapter -4
SHEET METALWORKING

- Cutting Operations
- Bending Operations
- Drawing
- Other Sheet-Metal-Forming Operations
- Dies and Presses for Sheet-Metal Processes
- Sheet-Metal Operations Not Performed on Presses
- Bending of Tube Stock

Chapter-5
PRODUCTION PLANNING AND CONTROL

- Aggregate Planning and the Master Production Schedule
- Inventory Control
- Material and Capacity Requirements Planning
- Just-In-Time and Lean Production
- Shop Floor Control

14	Main Reference - Fundamentals of Modern Manufacturing, Mikell P. Groover, 4th Edition
15	Additional references: - Manufacturing Processes, H.N. Gupta, Second Edition