

# KIIT POLYTECHNIC, BHUBANESWAR

## LESSON PLAN

Session:-2022-2023

<b>Discipline : Metallurgy</b>	<b>Semester: 6th. Summer:-2023</b>	<b>Name of the Teaching Faculty:Pramod Kumar Sethi Sr. Lecturer. Email Id:-pksethifmt@kp.kiit.ac.in</b>
<b>Subject: -Industrial Metallurgy ( Th-3)</b>	No. Of Days/Week:-5	Starting Date:- 13/02/2023 End Date:-23/05/2023 No. Of Weeks : 15
<b>Week</b>	<b>Class Day</b>	<b>Theory/Practical Topics</b>
1 <sup>st</sup>	1st	Classify different welding process such as pressure welding processes and non pressure welding process.
	2nd	Classify different welding process such as pressure welding processes and non pressure welding process.
	3rd	Classify different welding process such as pressure welding processes and non pressure welding process.
	4th	Classify different welding process such as pressure welding processes and non pressure welding process.
	5th	Explain different flames, equipments, steps, advantages, disadvantages and application of gas welding
2 <sup>nd</sup>	1st	Explain different flames, equipments, steps, advantages, disadvantages and application of gas welding
	2nd	Explain different flames, equipments, steps, advantages, disadvantages and application of gas welding
	3rd	<b>Discussion on possible questionnaire</b>
	4th	Explain different flames, equipments, steps, advantages, disadvantages and application of gas welding
	5th	Explain different flames, equipments, steps, advantages, disadvantages and application of gas welding
3 <sup>rd</sup>	1st	Describe metallic Arc welding process.
	2nd	Describe submerged Arc welding process.
	3rd	Describe TIG welding Process.
	4th	<b>Discussion on possible questionnaire</b>
	5th	Describe MIG welding Process.
4 <sup>th</sup>	1st	Discuss the principle, procedure, advantages and disadvantages of Thermit welding

	2nd	Discuss the principle, procedure, advantages and disadvantages of Thermit welding.
	3rd	Discuss the principle, procedure, advantages and disadvantages of Thermit welding.
	4th	Discuss the principle, procedure, advantages and disadvantages of Thermit welding.
	5th	<b>Discussion on possible questionnaire</b>
5 <sup>th</sup>	1st	Quiz Test.
	2nd	Explain the principle and various types of resistance welding.
	3rd	Explain the principle and various types of resistance welding.
	4th	Explain the principle and various types of resistance welding.
	5th	Mention the precaution required for welding of steel
6 <sup>th</sup>	1st	Explain the joint design and techniques required for C.I. welding
	2nd	Explain the joint design and techniques required for C.I. welding
	3rd	Describe the welding of copper and its alloys
	4th	Describe the welding of copper and its alloys
	5th	Explain the temperature distribution in weldng of steel
7 <sup>th</sup>	1st	Discuss the structural changes in weld metal and parent metal after welding
	2nd	Define weldability Mention different welding defects
	3rd	Discuss various methods for testing welding joints
	4th	Define brazing and explain its principle and procedure
	5th	Discuss various brazing methods of common ferrous and nonferrous metals.
8 <sup>th</sup>	1st	Define soldering and explain various types of solders
	2nd	Describe the basic steps of soldering of common metals
	3rd	Define powder metallurgy
	4th	<b>Discussion on possible questionnaire</b>
	5th	Depict the historical development of powder metallurgy
9 <sup>th</sup>	1st	Mention advantages disadvantages and applications of P/M
	2nd	Briefly describe primary and secondary characteristics of powders
	3rd	Name different methods of powder production
	4th	Name different methods of powder production
	5th	Name different methods of powder production
10 <sup>th</sup>	1st	Quiz Test.
	2nd	Name different methods of powder production
	3rd	<b>Discussion on possible questionnaire</b>
	4th	Describe the mechanical, physical, chemical and electro chemical methods.

	5th	Describe the mechanical, physical, chemical and electro chemical methods.
11 <sup>th</sup>	1st	Describe the mechanical, physical, chemical and electro chemical methods.
	2nd	Give the significance and different methods of conditioning
	3rd	Explain different die-compaction techniques
	4th	Describe isostatic pressing with advantages, limitation applications
	5th	Give brief outline on continuous compaction
12 <sup>th</sup>	1st	<b>Discussion on possible questionnaire</b>
	2nd	Define sintering and Explain its various stages
	3rd	Define sintering and Explain its various stages
	4th	Explain briefly mechanism of sintering process
	5th	Explain the process variables and furnaces used for sintering
13 <sup>th</sup>	1st	Explain the process variables and furnaces used for sintering
	2nd	Give a note on liquid phase sintering.
	3rd	Discuss flow sheet of porous bearing.
	4th	Discuss flow sheet of Sintered friction materials
	5th	Discuss flow sheet of Sintered friction materials
14 <sup>th</sup>	1st	Discuss flow sheet of Magnetic Materials
	2nd	Discuss flow sheet of Magnetic Materials
	3rd	<b>Discussion on possible questionnaire</b>
	4th	Discuss flow sheet of Cermets
	5th	Discuss flow sheet of Cermets
15 <sup>th</sup>	1st	Discuss flow sheet of Cermets
	2nd	Discuss flow sheet of Dispersion strengthened materials
	3rd	Discuss flow sheet of Dispersion strengthened materials
	4th	<b>Discussion on possible questionnaire Dispersion strengthened materials</b>
	5th	<b>Discussion on possible questionnaire Dispersion strengthened materials</b>

Recommended Books:-1- Introduction to Powder Metallurgy. By A.K.Sinha

2- Welding Technology by O.P.Khanna.

