

# BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA

## LESSON PLAN

Session (2022-2023)

<b>Discipline:</b> Mechanical Engineering	<b>Semester:</b> 3 <sup>rd</sup> , Winter/2022	<b>Name of the Teaching Faculty:</b> Sri Basudev Mishra, Lecturer  Black Diamond School of Engg, Jharsuguda
<b>Subject:</b> Production Technology, Theory-01	<b>No. of Days/Week:</b> 04	<b>Start Date:</b> 14/09/2022 <b>End Date:</b> 21/01/2023

Week	Class Day	Theory Topics
1 <sup>st</sup>	1st	<b>Metal Forming Processes:</b> Hot working and Cold working process, Recrystallisation. Define Extrusion and its Classification.
	2nd	Explain direct and indirect extrusion,
	3rd	Impact extrusion process.
	4th	Define rolling and its Classification. Differentiate between cold rolling and hot rolling process.
2 <sup>nd</sup>	1st	List the different types of rolling mills used in Rolling process.
	2nd	<i>Doubt Clearing Class</i>
	3rd	<i>Assignment Evaluation</i>
	4th	<b>Powder Metallurgy:</b> Define powder metallurgy process. State advantages of powder metallurgy technology technique
3 <sup>rd</sup>	1st	Describe the methods of producing components by powder metallurgy technique i) Production of metal powders
	2nd	i) Blending ii) Compacting iii) Presintering
	3rd	Explain sintering. Economics of powder metallurgy.
	4th	<i>Doubt Clearing Class</i>
4 <sup>th</sup>	1st	<i>Class Test</i>
	2nd	<b>Press Work:</b> Describe Press Works: blanking, piercing and trimming.

	3rd	List various types of die and punch. Explain Simple die
	4th	Explain Compound & Progressive dies with its advantages & disadvantages
5 <sup>th</sup>	1st	Explain Progressive dies with its advantages & disadvantages
	2nd	<i>Doubt Clearing Class</i>
	3rd	<i>Assignment Evaluation</i>
	4th	<b>Jigs and fixtures:</b> Define jigs and fixtures. State advantages of using jigs and fixtures.
6 <sup>th</sup>	1st	State the principle of locations. Describe the methods of location with respect to 3-2-1-point location of rectangular jig.
	2nd	List various types of jig and fixtures. Explain various types of jig.
	3rd	Explain various types of fixtures.
	4th	<i>Doubt Clearing Class</i>
7 <sup>th</sup>	1st	<i>Quiz Test</i>
	2nd	<b>Welding:</b> Define welding and classify various welding processes.
	3rd	Explain fluxes used in welding.
	4th	Explain Oxy-acetylene welding process. Explain various types of flames used in Oxy-acetylene welding process.
8 <sup>th</sup>	1st	Explain Arc welding process.
	2nd	Specify arc welding electrodes.
	3rd	Doubt Clearing Class
	4th	Define resistance welding and classify it.
9 <sup>th</sup>	1st	Describe various resistance welding processes such as spot welding and seam welding
	2nd	Flash welding and projection welding.
	3rd	Explain TIG welding process
	4th	Explain MIG welding process
10 <sup>th</sup>	1st	State different welding defects with causes and remedies.
	2nd	Testing of welded joints
	3rd	<i>Doubt Clearing Class</i>
	4th	<i>Assignment Evaluation &amp; Class Test</i>
11 <sup>th</sup>	1st	<b>Casting:</b> Define Casting and Classify the various Casting processes. Explain the procedure of Sand mould casting.
	2nd	Explain different types of moulding sands with their composition and properties.
	3rd	Pattern and classify different types of patterns
	4th	state various pattern allowances.

12 <sup>th</sup>	1st	Classify core and explain its construction.
	2nd	Describe construction and working of cupola furnace.
	3rd	Describe construction and working of crucible furnace.
	4th	<i>Doubt Clearing class</i>
13 <sup>th</sup>	1st	Explain hot chamber die casting method with relative advantages, disadvantages and field of application.
	2nd	Explain cold chamber die casting method with relative advantages, disadvantages and field of application.
	3rd	Explain centrifugal casting such as true centrifugal casting, centrifuging with advantages, limitation and area of application.
	4th	Explain Investment casting with relative advantages, limitation and area of application.
14 <sup>th</sup>	1st	Explain various casting defects with their causes and remedies.
	2nd	Explain Inspection of casting. Economics of casting
	3rd	<i>Doubt Clearing class</i>
	4th	<i>Assignment Evaluation &amp; Quiz Test</i>
15 <sup>th</sup>	1st	<i>Practice Test</i>
	2nd	<i>Revision</i>
	3rd	<i>Revision</i>
	4th	<i>Discussion of Previous Year Questions</i>

**Signature of Concerned Teacher**

**HoD**

**Department of  
Mechanical Engineering**