

## LESSON PLAN

<b>Subject Name- Advanced Casting and Welding</b>	<b>Branch- Production Engineering</b>
<b>Subject Code- BPE 2605</b>	<b>Semester- 8<sup>th</sup></b>

<b>S/N</b>	<b>Module</b>	<b>Topic(s)</b>	<b>Period/ Hours</b>
1	I	Casting processes: Classification, Metal mould casting processes	1
2	I	Advanced casting processes, investment casting, rheocasting	2-3
3	I	Mould and core making materials and their characteristics	4
4	I	Tutorial	5
5	I	Technology of Selected casting Processes: Clay bonded, synthetic resin bonded, inorganic material bonded mould and core making, sand additives, mould coating	6-7
6	I	Continuous casting process	8
7	I	Centrifugal casting process	9
8	I	Tutorial	10
9	II	Casting defects, inspection, diagnosis and rectification	11
10	II	Mechanization and automation in foundries, use of robots	12
11	II	Casting design, near net shape casting	13
12	II	Pollution control, energy and waste management in foundries	14
13	II	Tutorial	15
14	II	Physics of welding arc, characteristics of arc, modes of metal transfer	16
15	II	Welding fluxes, electrode coating, classification of electrode, characteristics of welding power source, pulsed and inverter type power source, power source for resistance welding	17-18

<b>S/N</b>	<b>Module</b>	<b>Topic(s)</b>	<b>Period/ Hours</b>
16	II	Weldability, weldability tests, weldability of cast iron, plain carbon steel	19
17	II	Determination of preheating temperature, stainless steel, use of Scheffler' s diagram	20
18	II	Tutorial	21
19	III	Heat flow in welding, significance, theory of heat flow, cooling rate determination	22-25
20	III	Selection of welding parameters based on heat flow analysis	26
21	III	Residual stress and its measurement, types and control of distortion	27-29
22	III	Tutorial	30
23	IV	Analysis of fatigue of welded joint	31-32
25	IV	fracture and toughness testing and its application on welded joint	33
24	IV	Automated welded joint	34
25	IV	Tutorial	35
26	IV	Microprocessor based of control resistance and arc welding	36-37
27	IV	Quality assurance in welding	38
28	IV	Effects of welding fumes on environment	39
29	IV	Tutorial	40