# Lesson Plan

Name of the Faculty : SH. Amit Phogat
Discipline : Mechanical Engg.
Semester : 3rd
Subject : WT- I
Lesson plan duration : 15 weeks (from September, 2023 to December, 2023)

| Week | Theory | |
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| | Lecture Day | Topic (including assignments /tests) |
| Week 1 | 1st | **Welding:** Principle of welding, Classification ofwelding processes |
| | 2nd | Advantages and limitations of welding |
| | 3rd | Industrial applications of welding, Welding positions and techniques, |
| Week 2 | 1st | Welding symbols. |
| | 2nd | Gas Welding: Principle ofoperation |
| | 3rd | Types of gas weldingflames and their applications |
| Week 3 | 1st | Gas welding equipment - Gas welding torch, Oxyacetylene cutting torch |
| | 2nd | Blow pipe, Pressure regulators, Filler rods and fluxes |
| | 3rd | Arc Welding: Principle of operation, Arc welding machines and equipment |
| Week 4 | 1st | A.C. and D.C. arc welding, |
| | 2nd | Effect of polarity |
| | 3rd | Current regulation andvoltage regulation |
| Week 5 | 1st | Other Welding Processes: Resistance welding |
| | 2nd | Introduction to spot andseam welding |
| | 3rd | Modern welding methods |

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| | 1st | – TIG, |
| Week 6 | 2nd | Modern welding methods<br>– MIG |
| Week 7 | 3rd | Ultrasonic welding, laser<br>beam welding, roboticwelding |
| | 1st | Welding Defects: Types ofwelding defects, methodsof controlling Welding<br>defects, Inspection of weldingdefects |
| | 2nd | **Pattern Making:** Types ofpattern, Pattern material,Pattern allowances,<br>Pattern codes as perB.I.S., |
| Week 8 | 3rd | Introduction to cores,core boxes and core materials |
| | 1st | Core making procedure , Core prints, positioning ofcores |
| | 2nd | **Moulding and Casting:**Moulding Sand: Properties of mouldingsand, their impact<br>and<br>control of properties |
| | 3rd | Various types of mouldingsand. Mould Making: Types ofmoulds, molding boxes, |
| Week 9 | 1st | Hand tools used for mouldmaking, Molding processes |
| | 2nd | Molding machines: squeeze machine, jolt squeeze machine andsand slinger. |
| | 3rd | Casting Processes:Charging a<br>furnace, |
| Week 10 | 1st | Melting and pouring bothferrous and non ferrous metals, |
| | 2nd | Cleaning of castings |
| | 3rd | Principle, working and applications of Die casting |
| Week 11 | 1st | Gating and Risering System: Elements of gating system |
| | 2nd | Pouring basin, sprue,runner, gates |

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| | 3rd | Types of risers, location ofrisers,<br>Directional solidification |

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| Week 12 | 1st | Melting Furnaces:<br>Construction and workingof Pit furnace |
| | 2nd | Cupola furnace Crucible furnace – tilting type, Electric furnace, |
| | 3rd | Casting Defects:Different types of casting defects, Testing of defects throughmagnetic particle inspection |
| Week 13 | 1st | **Metal Forming Processes:**Press Working: Types of presses, type of dies, Selection of press die, diematerial. Press |
| | 2nd | Operations-Shearing,piercing, trimming, punching, notching, shaving, gearing, embossing, stamping. Forging - Open die forging, closed die forging,<br>Press forging, upsetforging |
| | 3rd | Swaging, up setters, roll<br>Forging Cold and hot forging, Rolling - Elementary theory of rolling, Types ofrolling mills, |
| Week 14 | 1st | Thread rolling, roll passes,Rolling defects and remedies, Extrusion and Drawing -Type of extrusion- Hot and Cold |
| | 2nd | Direct and indirectExtrusion, Pipe drawing, tube drawing, wire drawing, **Plastic Processing:**Industrial useof plastics, situation where used. |
| | 3rd | Injection moulding-principle, Working of injectionmoulding machine, Compression moulding- principle, and working ofcompression moudling machine |
| Week 15 | 1st | Potential and limitations in the use of plastics |
| | 2nd | Assignment & Revision |
| | 3rd | Previous year question will besolved |