AMME16 CASTING AND WELDING TECHNOLOGY

UNIT-1 CASTING PROCESS

1.1 Introduction to casting- pattern- materials allowances- coding- types- moulds- mould making, sand- properties, types and testing of sands- core making

1.2 Type of cores- single box, two box and 3 box moulding processes, runner, riser, gate, chills and chaplets.

UNIT-2 WELDING PROCESSES

2.1 Introduction to soldering, brazing and welding Types of joints- plane of welding- edge preparation- filler material- flux- shielding gases

2.2 Fusion welding- gas welding- flame types- Manual arc welding- arc theory- power supply- braze welding

2.3 Thermit welding- Resistance welding- spot, seam, projection, percussion & flash.

UNIT-3 SPECIAL CASTING PROCESSES

3.1 Pressure die casting- Centrifugal- continuous- investment- shell moulding- squeeze- electro slag casting- CO2- moulding.

3.2 Plaster Mould castings- Antioch process- Slush casting- Counter gravity low pressure casting electro-magnetic casting.

UNIT-4 SPECIAL WELDING PROCESSES

4.1 Shielded Metal Arc welding, Gas Metal Arc Welding-Gas Tungsten Arc Welding- Submerged arc welding- Flux Cored Arc Welding

4.2 Electro slag welding- friction welding- explosive welding- Underwater welding

4.3 Diffusion bonding- EBW- LBW- PAW- Stud welding- welding of dissimilar materials

4.4 Friction stir welding – High frequency induction welding.

UNIT-5 TESTING OF CASTINGS & WELDMENTS

5.1 Causes and remedies for casting defects- welding defects- Destructive testing

5.2 NDT methods- Dye penetrant- magnetic particle- X-ray/Radiography -ultrasonic testing- Case studies in testing of welded joints & castings.

Reference Books:

1. P.L.Jain, Principle of Foundry Technology – Tata McGraw Hill – 2003.
2. R.S.Parmer, Welding Engineering & Technology – Khanna Publishers – 2002.
3. Principle of metal casting, Heime, Looper and Rosenthal – Tata McGraw Hill – 2001.
4. Welding Technology, Little,Tata McGraw Hill – 2000.