AMMV04 MARINE MANUFACTURING TECHNOLOGY

UNIT-1 METAL JOINING PROCESSES

1.1 Classification plastic welding, fusion welding, and solid phase welding and sub classification.
1.2 Study of power sources, electrodes, processes and applications
1.3 SMAW, SAWM, GTAW, GMAW, PAW, electro gas welding and Electro Slag, resistance welding.
1.4 Gas welding, oxy acetylene cutting, brazing and soldering.
1.5 Under water welding.
1.6 Defects and Inspection of welded joints.

UNIT-2 CASTING PROCESSES

2.1 Sand casting, pattern and core making, moulding process
2.2 Sand properties, melting furnaces- pit furnace and electric furnaces.
2.3 Special casting processes- shell, investment, die casting
2.4 Pressure and gravity types- squeeze casting- defects in casting
2.5 Plastic moulding- injection and blow moulding, and moulding- testing and inspection.,
2.6 Defects in shafting

UNIT-3 FINISHING PROCESSES

3.1 Surface finishing processes: grinding processes,
3.2 Various types of grinders, work holding devices, grinding wheels and specification,
3.3 Selection of grinding wheels for specific applications
3.4 Selection of cutting speed and work speed.
3.5 Fine Finishing Process: Lapping, honing, and super finishing process, ship hull finishing.

UNIT-4 METAL FORMING PROCESSES

4.1 Hot and cold working processes- rolling, forging,
4.2 Drawing and extrusion processes, bending, hot spinning, shearing, tube and wire drawing, cold forming, shot peening.
4.3 Sheet metal working- blanking, piercing, punching, trimming,
4.4 Bending- types of dies- progressive, compound and combination dies.
4.5 High-energy rate forming processes.

UNIT-5 MACHINING PROCESSES

5.1 Lathe: working principle, classification, specification accessories,
5.2 Lathe and tool holders, different operations on a lathe,
5.3 Methods of taper turning machining time and power required for cutting,
5.4 Drilling and boring - classification, specification,
5.5 Cutters speed feed, machining time parts and description of parts parts-boring machines- jig borer
5.6 Description, types and hole location procedures
5.7 Milling classification, principle, parts- specification milling cutters indexing,

5.8 Selection of milling m/c fundamentals of inches processes,
5.9 Milling processes and operations – CNC machines.

References Books:

1. Jain K.C. Agarwal, L.N. "Metal Cutting Science and Production Technology", 1st edition, Khanna Publishers, 1986.
2. Chapman W.A.J., "Workshop Technology", Vol. II, Arnold Publishers.
3. H.M.T., "Production Technology", Tata McGraw-Hill, New Delhi, 2000.