RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 1/3

Branch	Mechanical Engineering	Semester	III

Course Code	301	Course Name	Manufacturing Processes

Course Outcome 1	**Explain conventional manufacturing processes.**	Teach Hrs	Marks
Learning Outcome 1	Describe principle of metal working, casting, metal joining, and press working processes.	**10**	**10**
Contents	Principle and Classification of basic manufacturing processes metal working, re-crystallization, casting, metal joining and press working.		
Method of Assessment	Paper pen test		
Learning Outcome 2	Select suitable manufacturing process for a given job.	**10**	**10**
Contents	Factors influencing selection of metal working, re-crystallization, casting, metal joining and press working.		
Method of Assessment	Theory exam		
Course Outcome 2	**Select a suitable casting method for a given job.**	Teach Hrs	Marks
Learning Outcome 1	Select a suitable pattern for a given job.	**7**	**10**
Contents	Types of patterns, materials and its application, allowances, tools required, color code, selection of a pattern.		
Method of Assessment	Laboratory test by observation		
Learning Outcome 2	Explain process of metal casting.	**8**	**10**
Contents	Types and properties of moulding sand, bench and floor moulding methods, cores and core prints, elements of gating system, Cupola, crucible, pit and electric arc furnace, induction furnaces, Casting defects and their remedies. Area of application of casting process.		
Method of Assessment	Theory exam		
Learning Outcome 3	Explain die casting, centrifugal casting, investment casting and permanent mould casting.	**5**	**10**
Contents	Die casting, centrifugal casting, investment (lost wax) casting, permanent mould casting.		
Method of Assessment	Theory exam		
Learning Outcome 4	Make use of pattern, sand preparation and moulding with safety precaution in foundry shop.	**10**	**10**
Contents	Use of pattern and core, sand preparation and mould preparation.		
Method of Assessment	Laboratory test by observation		
Course Outcome 3	**Identify a suitable metal working process for a given job.**	*Teach Hrs*	*Marks*
Learning Outcome 1	Select a suitable mechanical working process for a given job.	**5**	**10**
Contents	Principle, types, applications and selection criteria of metal working-rolling, wire drawing, extrusion, forging processes.		
Method of Assessment	Paper pen test		
Learning Outcome 2	Describe rolling, wire drawing, extrusion and forging processes.	**10**	**10**
Contents	Type and operations of metal working-rolling, wire drawing, extrusion, forging processes.		
Method of Assessment	Theory exam		

Learning Outcome 3	Identify suitable equipment for a given mechanical working processes.	**5**	**10**
Contents	Basic components of simple rolling mill, Type of rolling mill, die material and its applications. Wire drawing, extrusion, forging and their applications.		
Method of Assessment	Theory exam		
Course Outcome 4	**Explain press working.**	Teach Hrs	Marks
Learning Outcome 1	Describe operations of press working.	**10**	**10**
Contents	Basic principle of press working, press working operations- punching, shearing, drawing, bending, slitting, knurling, notching, trimming, and piercing.		
Method of Assessment	Theory exam		
Learning Outcome 2	Describe dies, punches, press units.	**10**	**10**
Contents	Die and punch, types of dies, description and application of a simple press working unit, double action press.		
Method of Assessment	Seminar presentation		
Course Outcome 5	**Make use of metal joining processes for a given job.**	Teach Hrs	Marks
Learning Outcome 1	Explain metal joining by arc welding, gas welding, soldering and brazing processes.	**10**	**10**
Contents	Welding:-Definition, classification, Weldability of metals. Resistance welding: Spot, seam, butt, projection. Gas welding, Arc Welding: Carbon arc, shielded metal arc, TIG, MIG, Submerged arc, Plasma arc Soldering, Brazing: Basic principle, soldering and brazing processes its applications		
Method of Assessment	Theory exam		
Learning Outcome 2	Make use of arc welding process for a given job.	**8**	**10**
Contents	Electrodes-types and selection, flux and their uses. Defects in welds and its remedies, joints, testing and inspection. Safety aspects.		
Method of Assessment	Laboratory test by observation		
Learning Outcome 3	Make use of gas welding for a given job.	**7**	**10**
Contents	Operation and techniques of gas welding, Types of flames.		
Method of Assessment	Laboratory test by observation		
Learning Outcome 4	Follow safety precautions in welding shop.	**5**	**10**
Contents	Safety precaution in welding shop.		
Method of Assessment	Laboratory test by observation		