

4059 - AUTO PRODUCTION PROCESS									
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)				
					Theory		Practical Ex.		Total
Lectures	Practical	Credits	-	25	3 Hrs	100	-	125	
4	-	4							
Pre-requisite		Source	Semester	Theory	Test	Total	TW	PR	Gr Total
Nil				75	25	100	25	-	125

Rationale: Every Automobile Engineer should have a fair understanding and knowledge of the various processes involved in the manufacturing of the various components of an Automobile which would enable him to carry out a proper failure analysis of certain components and thereby assist in the procedure of trouble shooting. Having studied this course, a student would become aware of the fundamentals and likely defects of the various processes involved in the manufacture of various automobiles.

COURSE CONTENTS		Hrs	Mks
1. CASTING		8	12
1.1 SAND CASTING: Different processes in sand casting, pattern and core making, the moulding process, types of moulding sand, sand moulding methods, machine moulding, pouring, fettling, advantages of castings, defects in casting, detection and remedies, application of casting in the automotive industry.		5	8
1.2 DIE CASTING: Pressure die casting, advantages and application, gravity die casting, advantages and application, materials cast by these methods.		5	8
1.3 CENTRIFUGAL CASTING: Centrifugal casting methods, advantages & applications of centrifugal casting in automotive industry.		8	12
2. SHEET METAL WORKING			
Metals used in sheet metal work, various tools used for cutting, forming, marking, measuring and clamping of sheet metal, various operations in sheet metal work like cutting, piercing, blanking, filing, bending, hollowing, raising and metal spinning.		5	8
3. FORGING			
Plastic flow in forging, Types of forgings including hand forging, drop forging, upset forging, Various operations used in forging like fullering, bending, upsetting, swaging, blocking and trimming. Applications of forging in the automobile industry.		5	8
4. GEAR CUTTING			
Different types of gears used in automobiles, various methods used for gear cutting, gear hardening process, gear finishing and gear testing methods.		3	4
5. LAPPING & HONING			
The lapping process, the honing process, advantages and disadvantages, and applications of the above two processes.			
6. SOLDERING, BRAZING & WELDING			
6.1 SOLDERING: The soldering process, soldering equipment, solder materials, fluxes, applications of soldering.		5	8
6.2 BRAZING: The brazing process, brazing equipment, brazing materials, fluxes, applications of brazing.		2	6
6.3 WELDING: The welding process, types of welding, Gas welding process, Gas welding equipment, Gas flame, welding rods, advantages and disadvantages, applications of gas welding, gas cutting, arc welding process, manual metal arc welding equipment, advantages, disadvantages and application of arc welding, resistance welding, spot and seam welding, welding of cast iron.		8	12
7. PAINTING & ELECTROPLATING			
7.1 PAINTING: Painting in production and in service, spray painting equipment,		5	8

defects, causes and remedies, body corrosion and anti-corrosion treatments.
7.2 ELECTROPLATING: The electroplating process, electroplating equipment,
plating materials, applications of electroplating in automobiles.

	59	94
Total		

TERM WORK:

The term work shall comprise of a record of class notes covering all the above topics.

REFERENCE BOOKS:

1. Production Technology – R. K. Jain
2. Workshop Technology – S. K. Hajra & R. Chowdhary
3. Welding Technology – O. P. Khanna
4. Manufacturing Process – Myron L. Begeman

