



C.U.SHAH UNIVERSITY – Wadhwan City

FACULTY OF: - Technology and Engineering (Diploma Engineering)

DEPARTMENT OF: - Mechanical Engineering

SEMESTER: - VI **CODE:** - 2TE06AMS1

NAME OF SUBJECT: - Advance Manufacturing System

Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
<u>2TE06AMS1</u>	Advance Manufacturing System	04	00	02	06	5	30	1.5	70	03	----	20	30	150

Objective: -

Customer is the key player in market. Manufacturing processes converts raw material to finished product for customer usage. Variety in product is directly or indirectly demanded by the customer. Varieties in product add complexities at almost all the stages of manufacturing. Performance of a product depends on its quality in terms of accuracy of size, shape and constraints/relation between its features. Conversion cost and time can be optimized by judicious usage of energy, motions, resources, time etc. Above all factors must be addressed for more customer satisfaction. Manual operations have limitations in terms of power, precision and repetitions. Recent techniques / electronics devices provide precision machine control compare to conventional machines. Objective of leaning this subject is to make aware the students about the current manufacturing practices/methods being implemented at leading industries across the globe, which ultimately leads to more customer satisfaction.

Prerequisites: -

Basic knowledge of basic manufacturing process and process management.

Course outline:-

Sr. No.	Course Contents	No. of Hours
1	Introduction: Importance of AMS in industries, objective of AMS, Evolution of transformation and manufacturing system,	03
2	Group Technology: Concept, definition, need, scope, benefits, codification system, part families, part classification and coding system with example or case study, GT layout, comparison with conventional layout.	08
3	Cellular Manufacturing: Concept and definition of cell mfg., part family and cell formation, cell layout and design, job and tool movement within cell, types and comparison of automatic and manual cell, assembly cell.	06
4	Flexible Manufacturing System: Concept and definition of FMS, comparison with other manufacturing system, FMS layout, Tool and material handling system, AGV, ASRS.	10

5	Lean Manufacturing: Concept and definition of lean manufacturing, manufacturing wastes, lean tool – critical to quality identification, the 5 whys, five S, jit, Kanban, kaizen, TQM, poka-yoke, visual management system,	12
6	Robotics: Introduction, types, classification, various terminology, specification criterion, axes nomenclature, elements, Sensor – types, classification, working and application.	06
7	Concurrent Engineering: Introduction, meaning, terminology, objective, parallel process, CE team	05
8	Computer Aided Process Planning: Inventory control, MRP, ERP, Job sequencing,	06

List of Experiments:-

- Prepare a presentation on “how it’s made” for any one product per student
- To study about FMS with protocols
- Generate GT codes : Prepare 12 to 15 parts with minimum 5operation, Prepare database for all part and analyse this data for formation of various group, Prepare process planning for all parts
- Develop FMS model for any one group.
- To study about Robotics.
- To Study about various sensor and their application

Books Recommended:-

- Automation Production System and Computer Integrated Mfg., M. P. Groover, PHI.
- CAD/CAM/CIM, P, Radha Krishna & S. subra narayan, New Age International.
- Computer Aided manufacturing, Rao, Tiwari & Kundra, TMGH publication.
- Computer Integrated manufacturing, S.K.Vajpayee, PHI