



AMITY UNIVERSITY

UTTAR PRADESH

Course Title: PROCESS ENGINEERING

Credit Units: 04

Course Level: PG

Title: Code : POE602

L	T	P/S (hrs)	SW/F W	TOTAL CREDIT UNITS
3	0	2	-	04

Course Objectives: The course deals with one of the most important aspects of manufacturing, namely, planning of the process of manufacture and execution to meet the product and quality requirements.

Pre-requisites: The student should have understanding of various physical material properties.

Course Contents/Syllabus:

	Weightage (%)
Module I Introduction	30%
Descriptors/Topics Process engineering related to machining and assembly. Process engineering functions. Errors in manufacturing. Dimensional tolerances and geometrical tolerances. Standards. Process selection to achieve design requirements.	
Module II Technology of Basic Machining Processes	25%
Descriptors/Topics Technology of turning, drilling, milling and grinding processes. Requirements of tool design. Modern cutting tools, system of designating tools and cutting tool materials. Selection and use of these in CNC machines. Process planning. Process sheets. Estimation of machining time. Special tools and introduction to tool design.	
Module III CNC Programming	25%
Descriptors/Topics CNC programming. Codes used and applications. Part programming for typical and more complex components. Computer-aided part programming CAD/CAM software. Process planning, part programming and execution for systems involving robots or other material handling systems.	

Module IV Automation of Manufacturing Processes and Systems	20%
Descriptors/Topics Computer integrated manufacturing. Adaptive controls. System of adaptive controls. Unmanned manufacturing systems.	

Student Learning Outcomes: On completion of the course the student will be able to:

1. Demonstrate knowledge on engineering properties of non-ferrous materials in engineering applications.
2. Analyze problems relating to functional requirement of engineering product and suggesting suitable material option for the same.

Pedagogy for Course Delivery:

The course pedagogy will include lectures, numerical practice, seminars, presentations and case studies. It also includes design of non-ferrous (plastic/composite) components in lab course.

Lab/ Practicals details, if applicable:

List of Experiments:

To be formulated

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total
75%	25%	100%

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down	CT	H	V	A	EE
Weightage (%)	10	7	8	5	70

Lab/ Practical/ Studio Assessment:

	Continuous Assessment/Internal Assessment				End Term Examination	
Components (Drop down	A	PR	LR	V	PR	V
Weightage (%)	5	10	10	5	35	35

Text & References:

Text

1. Product engineering by JamesWei , Oxford university press
2. Process controls principles & applications by surekha bhanot , Oxford university press
3. Practical Process Engineering – Sandler
4. Introduction to Process Engineering and Design BY Thakore/bhatt, Mc graw hill

Reference

1. Process Design for Reliable Operations by Norman P. Lieberman
2. Handbook of Industrial Mixing Science & Practice by Edward L. Paul, Victor A. Atiemo-Obeng & Suzanne M. Kresta
3. A WORKING GUIDE TO PROCESS EQUIPMENT By Norman Lieberman and Elizabeth Lieberman
4. PROCESS DESIGN FOR RELIABLE OPERATIONS By Norman Lieberman, Mc graw hill
5. PROCESS ENGINEERING FOR A SMALL PLANET By Norman Lieberman