Ahmedabad University

Course	ENR101 Product Realisation	Semester	Monsoon Semester 2024
Faculty Name(s)	Rupsa Bhowmick	Contact	rupsa.bhowmick@ahduni.edu.in
School	SEAS	Credits	1.5
GER Category:	Not Applicable	Teaching Pedagogy Enable:YES	P/NP Course: Can not be taken as P/NP

Schedule

Section 1	08:00 am to 09:00 am	Sat	29-07-24 to 26-11-24

Prerequisite	Not Applicable
Antirequisite	Not Applicable
Corequisite	Not Applicable
Course Description	This course aims to impart students with the knowledge of different products and processes. The topics include assembly, carpentry, sheet metal, origami and machining. The students learn design and manufacturing aspects of products and their industrial relevance.
Course Objectives	• Become familiar with different manufacturing techniques • Acquire hands-on experience by realizing standard products • Assess the relevance of materials and processes in product realization • Develop skills of workshop practice that are applicable to industries

Learning Outcomes	Upon completion of this course, students will be able to • collect appropriate data for the product realization and prepare a bill of materials • apply the principles of manufacturing to implement selected products viz. wooden suggestion box, hand carved statues, wax candles and 3D printed models • evaluate the industrial relevance of materials and processes • appreciate the value of materials and processes in assuring quality of products
Pedagogy	Students are expected to attend a 3-hour lab session every week. The leftover work has to be completed by the students within two days from the date of the experiment.
Expectation From Students	Before appearing for a lab session, go through all the materials about the session shared on LMS. The students have to actively participate in all lab sessions.

Assessment/Evaluation	• Mid-Semester Examination:
	  ◦ Quiz - 30%
	• Other Components:
	  ◦ Weekly Assessment - 30%
	  ◦ Project - 40%

Attendance Policy	As per Ahmedabad University Policy.
Project / Assignment Details	During lab sessions, students are expected to finish a sesssion assignment. An additional home assignment will have to be submitted three days following the lab session. At the end of the course, the students will prepare a product based on the lab experiments.
Course Material	Reference Book • Product Realization: Going from one to a Million, A C Thornton, Wiley, • Handbook of Technical Textiles, EDs A R Horrocks, S C Anand, CRC Press,
Additional Information	

Session Plan

NO.	TOPIC TITLE	TOPIC & SUBTOPIC DETAILS	READINGS,CASES,ETC.	ACTIVITIES	IMPORTANT DATES
1	Course Introduction	components of the course	Course outline	Interactive session	
2	Product assembly	Exploring assembly of various home and industrial products	Educational videos	dismantling and assembling of products such as ceiling fan and gate valve	
3	Sheet metal working	Exploring various manufacturing operations of sheet metel	Educational videos	Hot and cold rolling, blanking, bending, flanging, hemming and punching of sheetmetal; Preparing a sheet metal based dust collector	
4	Origami and Moulding	Exploring molding and paper folding techniques	Educational videos	Preparing Pizza box and wax candle	
5	Carpentry	Exploring wood working operations	Educational videos	Preparing suggestion box and carved models	
6	Lathe	Exploring turning and shaping operations	Educational videos	Applying turning and shaping to achieve the prescribed design	
7	Milling	Exploring drilling and milling operations	Educational videos	Applying milling and drilling to achieve the prescribed design	
8	LASER machining	Exploring LASER engraving and cutting	Educational videos	Using LASER cutting machine to achieve the prescribed design	
9	3D printing	Exploring additive manufacturing operations	Educational videos	Using 3D printing machine to achieve the prescribed design	

10	Electronics	basic electronics components and circuits	Instructor\'s presentation	Developing a controller circuit for DC motors	
11	Project-1	Select the topic of project, design, and material collection	lab reports from previous sessions	As per the student\'s choice	
12	Project-2	prepare a working product from previous lab knowledge	lab reports from previous sessions	As per the student\'s choice	
13	Project presentation	Showcase the product	Not applicable	Student\'s presentation	