

Branch Name:	Mechanical Engineering
Program Code:	ET101
Course Name:	Product Innovation and Entrepreneurship
Course Code:	2ET1010606T
Pre-requisite Course:	Fluid Mechanics, Heat Transfer

Course Objectives:

1. To expose aspiring student entrepreneurs to various elements of a technology venture starting from market need identification to innovative solution development and its commercialization through business planning and start-up company incubation.
2. Understanding the dynamic role of entrepreneurship and small businesses.
3. Develop idea generation, creative and innovative skills.
4. Learn how to start an enterprise and design business plans those are suitable for funding by considering all dimensions of business.

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
3	3	-	-	3	24	60	16	40	-	-	-	-	100

Subject Contents

Sr. No	Topic	Total Hours	Weightage (%)
1	Entrepreneurship: Role of entrepreneurship in economic development; Entrepreneurial mindset, motivation and competencies; Market pull and technology push factors; New product development lifecycle; Technology readiness levels; Product-market fit validation; Commercialization pathways; Business vision & leadership; Team composition & management.	12	30
2	Product Innovation: Opportunity scanning, market survey, need identification and problem definition; Creative design thinking for concept generation; Detailed design & prototyping; Functionality & manufacturability; Bill of materials & components supply chain; Manufacturing & assembly plan; Product testing & quality assurance; Intellectual property rights management.	12	25
3	Marketing & Finance: Market segmentation & market sizing; Customer persona & value proposition; Marketing (Go-to-market) strategy; Distribution channels and sales network; Funding requirement (based on stage); Source of funding for startup ventures; Financial projections and accounting; Startup to scale up financing.	10	25
4	Venture Creation: Sustainable business options & pathways; Business model & business canvas; Startup team & business partners; Startup ecosystem and stakeholders; Technology business incubators & parks; Proposal pitching & agreements; Startup company incorporation; Social impact & responsibility.	8	20

Note: Undertake a project involving need identification, development of an innovative solution, preparation of a business plan, and designing a go-to-market strategy to promote the solution.

List of Reference Books:

1. Poornima M Charantimath, "Entrepreneurship development small business enterprises", Pearson, 2013
2. Khanka. S.S., "Entrepreneurial Development" S. Chand & Co. Ltd., Ram Nagar, New Delhi, 2013.
3. Raj Shankar, "Entrepreneurship: Theory And Practice", Vijay Nicole imprints ltd in collaboration with Tata Mc-Graw Hill Publishing Co.ltd.-new Delhi, 2012.
4. Chelat Bhuvanachandran, Innovision, Khanna Book Publishing, 2022.
5. Peter F. Drucker, "Innovation and Entrepreneurship", 1st ed., Harper Business, 2006.
6. Bill Aulet, "Technology Entrepreneurship", 4th ed., Tata McGraw Hill, 2014.

E-Resources:

- (1) <https://archive.nptel.ac.in/courses/110/107/110107094/>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Explain the role of entrepreneurship and factors influencing new product development.	2 Understanding
CLO2	Identify market needs and apply creative thinking for innovative product design.	3 Applying
CLO3	Develop detailed product designs, prototypes, and manufacturing plans.	6 Creating
CLO4	Analyze market segmentation, customer needs, and design a go-to-market strategy	4 Analyze
CLO5	Evaluate funding sources, financial planning, and startup financing options.	5 Evaluating
CLO6	Create a sustainable business model and understand the process of venture creation.	6 Creating

Mapping of CLOs with POs & PSOs:

Course Learning Outcomes	Program Outcomes(POs)												Program Specific Outcomes(PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	H	M			M	H	M	H	M	M	H		M	H
CLO2	M	H			L			M			H		L	M
CLO3	H					M		M		L				H
CLO4	M					M		L				L		L
CLO5		M	M		M								M	
CLO6	M	H		M								L		M

H: High, M: Medium, L: Low