



Course Title: **PRODUCT DESIGN AND ENTREPRENEURSHIP**

L	T	P/ S	SW/F W	TOTAL CREDIT UNITS
0	1	0	2	2

Course Code: to be decided later

Credit Units: 2

Level: UG

	Course Title: <b>PRODUCT DESIGN AND ENTREPRENEURSHIP</b>	Comments (if any)
1	<b>Course Objectives:</b> This course will teach teams of students how to develop product concepts and business plans in the design of new and innovative products. Emphasis will be placed on identifying user needs, concept generation, and prototype fabrication.	
2	<b>Prerequisites:</b>  Basic design concepts	
3	<b>Student Learning Outcomes:</b> The students will be able to <ul style="list-style-type: none"><li>• Ideate a product</li><li>• Build a prototype</li><li>• Pitch the concept for fund raising</li></ul>	
4	<b>Module I: Introduction</b> Need for Innovation and design, User Innovation, Introduction to product and Product design, Difference between Product development and product design, Product Design Cycle Identification of Customer Needs and Market Research Essentials, Concept Generation, Technology and Market Assessment.	30%
5	<b>Module II: Product Design and Prototyping</b>	

	<p>Introduction to Industrial Design and Human Factors, Importance of Human factors in product design, Physical Ergonomics principles and issues, Ergonomic assessment tool, Cognitive issues in product design</p> <p>Creative techniques and tools for Concept generation, concept evaluation, Product prototyping model making work flow, tools and techniques for model making and prototyping, introduction to prototype driven innovation</p> <p>Estimation of Manufacturing Costs</p>	35%																				
<b>6</b>	<b>Module III: Product Concepts &amp; Entrepreneurship</b>																					
	<p>Basics of entrepreneurship, Writing a PoC</p> <p>Introduction to Business Plans</p> <p>Introduction to Intellectual Property and the Patent Process</p>	35%																				
<b>7</b>	<p><b>Pedagogy for Course Delivery:</b></p> <p>There will be two phases in the course:</p> <ul style="list-style-type: none"> <li>• <b>A tutorial portion on New Product Development.</b> Teams of students will develop their own product concepts, build simple prototypes of their design, and write development plans for the products. To stimulate product concepts guest lectures will be invited to present a range of design challenges. Challenge areas will include consumer products and the needs of the developing world, sustainability, and other users of non-profit organization services. However, it will be the students that choose the topic of the product they wish to pursue. Students will form teams around the concepts they generate. Outside experts will be invited to review the product concepts.</li> <li>• A lab portion of the course will instruct students in prototype development in areas such as learning required software and hardware, 3D printing, molding, and use of sensors.</li> </ul>																					
	<p><b>Assessment/ Examination Scheme:</b></p> <table border="1"> <thead> <tr> <th>Theory L/T (%)</th> <th>Lab/Practical/Studio/SW (%)</th> <th>Total (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>100</td> <td>100</td> </tr> </tbody> </table> <p><b>Lab/ Practical/ Studio/SW Assessment:</b></p> <table border="1"> <thead> <tr> <th>Internal Components (Drop down)</th> <th>Presentation (P)</th> <th>Home Assignment (HA)</th> <th>Project (P)</th> <th>Case Discussion (CD)</th> <th>Viva Voce (V)</th> <th>Attendance (A)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Theory L/T (%)	Lab/Practical/Studio/SW (%)	Total (%)	0	100	100	Internal Components (Drop down)	Presentation (P)	Home Assignment (HA)	Project (P)	Case Discussion (CD)	Viva Voce (V)	Attendance (A)								
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	<b>Weightage (%)</b>	<b>10</b>	<b>10</b>	<b>40</b>	<b>20</b>	<b>15</b>	<b>5</b>	
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**References:**

1. Eppinger, S., & Ulrich, K. (2015). Product design and development. McGraw-Hill Higher Education.
2. Green, W., & Jordan, P. W. (Eds.). (1999). Human factors in product design: current practice and future trends. CRC Press.
3. Sanders, M. S., & McCormick, E. J. (1993). Human factors in engineering and design. McGRAW-HILL book company.
4. Roozenburg, N. F., & Eekels, J. (1995). Product design: fundamentals and methods (Vol. 2). John Wiley & Sons Inc.
5. Lidwell, W., Holden, K., & Butler, J. (2010). Universal principles of design, revised and updated: 125 ways to enhance usability, influence perception, increase appeal, make better design decisions, and teach through design. Rockport Pub.
6. Drucker P.(1985). Innovation and Entrepreneurship. Butterworth Heinemann.