

Branch Name:	Bachelor of Science (Information Technology)
Program Code:	ET110
Semester/Year:	Semester - VI/ Third Year
Subject Title:	Design Thinking
Subject Code:	1ET1100604
Pre-requisite:	-

Course Objective: This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide.

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
03	01	02	05	70	30	30	20	150

Subject Contents

Sr. No	Topic	Total Hours	Weight (%)
1	Understanding Design thinking Shared model in team-based design – Theory and practice in Design thinking – Explore presentation signers across globe – MVP or Prototyping	6	15
2	Tools for Design Thinking Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space – Empathy for design – Collaboration in distributed Design	6	20
3	Design Thinking in IT Design Thinking to Business Process modelling – Agile in Virtual collaboration environment – Scenario based Prototyping	8	25
4	DT For strategic innovations Growth – Story telling representation – Strategic Foresight - Change – Sense Making - Maintenance Relevance – Value redefinition - Extreme Competition – experience design - Standardization – Humanization - Creative Culture – Rapid prototyping, Strategy and Organization – Business Model design	8	25
5	Design thinking workshop Design Thinking Work shop Empathize, Design, Ideate, Prototype and Test	6	15

List of Reference Books:

1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand – Improve – Apply", Springer, 2011
4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013
5. Yousef Haik and Tamer M.Shahin, "Engineering Design Process", Cengage Learning, Second Edition, 2011.
6. Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author), Kevin Bennett (Author)

List of Suggested Activities:

1. Recognize the importance of Design Thinking.
2. Identify the steps in the DT process.
3. Recognize the steps in the empathize phase of DT.
4. Identify the steps required to conduct an immersion activity.
5. Conduct an immersion activity and fill up the DT question template.
6. Recognize the steps to create personas in the define phase of DT.
7. Create personas in the define phase of DT.
8. Recognize the steps to create problem statements in the define phase of DT.
9. Define the problem statements in the define phase of DT.
10. Recognize the steps in the ideate phase of DT.
11. Apply the steps in the ideate phase of DT.
12. Recognize how doodling can help to express ideas.
13. Recognize the importance storytelling in presenting ideas and prototypes.
14. Recognize the importance of the prototype phase in DT.
15. Create a prototype.
16. Recognize the importance of service value proposition.
17. Create a value proposition statement.
18. Recognize the best practices of the testing phase in DT.
19. Test a prototype created through a DT process.
20. Recognize how DT can help in functional work.
21. Recognize how Agile and DT complement each other to deliver customer satisfaction.

Online Resources:

1. Understanding Design thinking WF NEN https://www.youtube.com/watch?v=7oPZg_FR-ys
2. Design Thinking and Innovation at Apple Wei Li <https://www.youtube.com/watch?v=ir3E-TEUk48>
3. Stanford Webinar- Design Thinking = Method, Not Magic
<https://www.youtube.com/watch?v=vSuK2C89yjA>
4. Stanford Design Thinking Virtual Crash Course <https://online.stanford.edu/>
5. So Many Uses- activity to spark creativity and design
<https://www.youtube.com/watch?v=5MFZTOK3e7s>

