ENGINEERING EXPLORATION

I B. TECH- II SEMESTER

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIE	SEE	Total
A4HS04	HSMC	-	-	2	1	30	70	100

COURSE OBJECTIVES:

The course should enable the students to:

1. Understand the Engineering attributes and Ethics.
2. Identify the community problem and its stakeholder.
3. Examine required specifications and gap in existing and required product.
4. Build sustaining interactions among people that create social value by transforming ideas into tangible products, services, or initiatives.
5. Develop skills to work collaboratively, reports and progress updates throughout the lifecycle of the project.

UNIT-I	INTRODUCTION TO ENGINEERING AND ENGINEERING EXPLORATION	Classes: 06

Engineering Projects in Community Service, Design Thinking Process-Empathize, Define, Ideate, Prototype, Test.

Engineering Ethics: Introduction to ethics, moral values, significance of professional ethics, code of conduct for engineers, identify ethical dilemmas in different tasks of engineering, applying moral theories and codes of conduct for resolution of ethical dilemmas.

UNIT-II	PROBLEM IDENTIFICATION	Classes: 06

Authentic need in the community or society. Identify a real user or stake holder, Interaction with Stakeholders, Viewpoints, Interviewing, Scenario.

UNIT-III	SPECIFICATION DEVELOPMENT	Classes: 06

Clear and measurable requirements, criteria for success, Identifying relevant benchmarks, identifying the gap between the available and required products, requirements documentation.

UNIT-IV	CONCEPTUAL DESIGN	Classes: 06

Ideation-generated multiple ideas, evaluation of ideas, systems model, Architectural Design, prototype development, testing – real/simulated users, feedback.

UNIT-V	PROJECT MANAGEMENT	Classes: 08

Importance of team work, importance of project life cycle, project management, tools, various tools used in electronics documentation, importance of communication, usage of communication media.

TEXT BOOKS:

1. Software Engineering: A Practitioner's Approach, Roger S. Pressman, 7th Edition, Mc Graw Hill Education (India) Pvt. Ltd.
2. Software Engineering, Sommerville Ian, 7th Edition, Pearson Education.
3. EPICSDesignProcess https://sharepoint.ecn.purdue.edu/epics/teams/Public%20Documents/EPICS_Design_Process.pdf
4. Examples of good practice in Special Needs Education & Community Based Programs, UNESCO PRESS.
5. Project Management, GRY r. Heerkens, McGraw-Hill

WEB REFERENCES:

1. **http://www.purdue.edu/epics**
2. http://epics.ieee.org/
3. https://www.uninettunouniversity.net/en/epics.aspx

E-TEXT BOOKS:

1. http://www.uoitc.edu.iq/images/documents/informatics-institute/exam_materials/Software%20Engineering%20(9th%20Edition)%20by%20Ian%20Sommerville.pdf
2. https://engineering.purdue.edu/EPICS/k12/resources/1.6%20Teacher%20Toolbox%20EPICS%20High%20Design%20Process%20and%20Cycle.pdf
3. https://launchschool.com/books/agile_planning/read/epics_and_stories
4. http://www.enggnotebook.weebly.com/uploads/2/2/7/1/22718186/ge6151-notes.pdf

MOOC COURSE

1. https://www.mooc-list.com/tags/design-thinking
2. https://www.class-central.com/tag/design%20thinking