GEN331:WORKSHOP ON DESIGN THINKING FOR INNOVATION

Course Outcomes: Through this course students should be able to

CO1 :: Identify and understand what customers need and want in a product, service, or process

CO2 :: Solve problems by applying innovative techniques

CO3 :: Visualize creatively and implement / bring innovative ideas to the marketplace

CO4 :: Compile conceptual knowledge and survey outcomes in creation of prototype

List of Practicals / Experiments:

Introduction to the Innovation Process

- Creativity and its role in innovation
- Overview of the innovation process
- Modes of innovation planning process

Human-Centered Design

- Overview of a human-centered innovation process
- Techniques for getting customer / user understanding: contextual enquiry, questionnaire study,interview techniques, persona and scenario mapping, product study, market study

Identifying Opportunity Areas

- Tools to identify problem frames: webbing, abstract ladders, strategy frameworks

Idea Generation

- Innovative thinking and techniques for idea generation
- Tools of systematic inventive thinking (SIT): task unification, division, and attribute dependency, andinversion
- Other methods of structured ideation: nominal group technique, round robin, and creative matrix,alternate worlds

Concept Development and Prototyping

- Concept development and evaluation tools: attribute-value mapping, design heuristics, conceptposter, rose-thorn-bud, critique
- Role of prototyping, experimenting, and iteration in the development of ideas
- Product prototyping/ model making work flow
- Tools and techniques for model making and prototyping
- Introduction to prototype driven innovation
- Overview of materials and processes

Implementation and Evaluation

- Challenges of implementing innovation: relative advantage, trial ability, complexity, compatibility
- Tools and approaches of communication and behavior change: creating curiosity, developing options,psychological comfort
- Evaluation tools and techniques for user-product interaction

References:

1. 101 DESIGN METHODS: A STRUCTURED APPROACH FOR DRIVING INNOVATION IN YOUR ORGANIZATION by VIJAY KUMAR, WILEY

2. UNIVERSAL PRINCIPLES OF DESIGN, REVISED AND UPDATED: 125 WAYS TO ENHANCE USABILITY, INFLUENCE PERCEPTION, INCREASE APPEAL, MAKE BETTER DESIGN DECISIONS, AND TEACH THROUGH DESIGN by WILLAM LIDWELL, KRITINA HOLDEN AND JILL BUTLER, ROCKPORT PUBLISHERS

References:

3. HUMAN FACTORS IN ENGINEERING AND DESIGN by M. S. SANDERS AND E. J. MCCORMICK, MCGRAW HILL EDUCATION

4. RAPID PROTOTYPING AND ENGINEERING APPLICATIONS by FRANK W. LIOU, TAYLOR & FRANCIS