

BVM ENGINEERING COLLEGE [AN AUTONOMOUS INSTITUTION]

2ME07: INNOVATIVE PRACTICES

CREDITS - 1 (LTP:0,0,1)

Course Objective:

To expose the students to innovative practices through case studies based on the syllabus

Teaching and Assessment Scheme:

Teaching Scheme (Hours per week)			Credits	Assessment Scheme				
L	T	P		Theory		Practical		Total Marks
			ESE	CE	ESE	CE		
0	0	2	1	0	0	40	60	100

Course Contents:

Unit No.	Topics	Teaching Hours
1	Introduction: Making a case for creativity; Creative thinking as a skill	02
2	Valuing diversity in thinking: Thinking preferences; Creativity styles	02
3	Setting the stage for success: Basic philosophy; Having a vision; Setting the right attitude; Recognizing and avoiding mental blocks; Avoiding mind-sets; Risk taking; Paradigm shift and paradigm paralysis; Individual and team work	02
4	Creativity in problem solving A. Problem Definition: Understanding; Representing B. Pattern Breaking: Thinking differently; Changing your point of view; Watching for paradigm shift; Challenging conventional wisdom; Lateral thinking, provocation (escape, random word) Mind stimulation: games, brain-twisters and puzzles C. General Strategies: Idea-collection processes; Brainstorming/ Brain-writing; The SCAMPER methods; Metaphoric thinking Outrageous thinking; Mapping thoughts; Other (new approaches); D. Using Math and Science: Systematic logical thinking: Using math concepts E. Eight-Dimensional (8D) Approach to Ideation 1. Uniqueness 2. Dimensionality 3. Directionality 4. Consolidation 5. Segmentation 6. Modification 7. Similarity 8. Experimentation F. Systematic Inventive Thinking: Systematic inventive thinking: The TRIZ methodology: Levels of inventions: Evolution of technical systems: Ideality and the ideal final result (IFR): Stating contradictions and the contradiction table; 39 standards features and 40 inventive principles: Separation principles; Using physical, geometrical, and chemical effects, fields	12

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Unit No.	Topics	Teaching Hours
5	Decision and Evaluation: Focused thinking framework: Six thinking hats; PMI Ethical considerations	04
6	Design for Interaction: Introduction to design for interaction	02
7	Intellectual Property: Introduction to intellectual property: Patents, Copyrights©, Trademarks®, Trade Secret, and Unfair Competition.	04
Total		28

List of References:

1. Stephen R. Covey *“The Seven Habits of Highly Effective People”*
2. Tom Kelley, *“Ten Faces of Innovation”*
3. Tom Kelley and the Deep Dive story *“The art of Innovation”*
4. Patrick M. Lencioni *“Five Dysfunctions of a Team”*
5. Patrick M. Lencioni *“The Five Temptations of a CEO: A Leadership Fable”*
6. Howard E. Gardner *“Multiple Intelligences: The Theory in Practice”*
7. Michael Gelb *“How to think like Leonardo De Vinci”*.
8. David Tanner, *“Total Creativity”*
9. Jacob Goldenberg, *Creativity in Product Innovation*, Cambridge press, 2002

Course Outcomes (COs):

At the end of this course students will be able to ...

1. invoke creative thinking
2. feel the requirements for success
3. appreciate how creativity is used in problem solving
4. appreciate the process of objective decision making
5. appreciate IPR