

Subject Name: Research and Innovation

Subject Code: BTMD17608

Type of course: Mandatory

Teaching and Examination Scheme:

Teaching Scheme				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	100
1	0	0	0	60	25	15	--	--	

Content:

Sr. no.	Topics	Teaching Hours
1.	Introduction to Research Meaning of research problem, Sources of research problem, Criteria and Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem	3
2.	Literature Survey & Data Collection Sources of literatures, Effective literature studies approaches, Data collection, analysis, interpretation, Plagiarism analysis, Research ethics	3
3.	Innovation & Creativity Innovation: Meaning, Concept, Characteristics, Importance, Principles of Innovation, Process of Innovation. Creativity: Meaning, Concept, Importance, Creativity Process, Hurdles To Creativity	3
4.	Tools for Innovation Creativity Thinking: Traditional V/S Creative Thinking, Individual Creativity Techniques	2
5.	Intellectual Property Patents, Designs, Trademark and Copyright. Process of Patenting and Development, Procedure for grants of patents, Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.	2
6.	Technical Writing and Publishing Effective technical writing, how to write report, Paper, Develop a Research Proposal Format, Creating technical Poster writing, Presenting and Publishing the Research Findings	2

Reference Text Books:

Sr. No.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
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1.	Research Methodology: A Practical and Scientific Approach	Vinayak Bairagi, Mousami V. Munot	CRC Press	2018	First
2.	Research Methodology: A Step by Step Guide for beginners	Ranjit Kumar	Sage Publication	Latest	Latest
3.	Innovation Management & New Product Development	Paul Trott	Pitman	2000	First

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
30	30	20	10	10	-

Legends: R: Remembrance, **U:** Understanding; **A:** Application, **N:** Analyze, **E:** Evaluate **C:** Create and above Levels.

CO1	Formulate research problems for investigation
CO2	Conduct a survey and identify fruitful innovative model options for solution
CO3	Evaluate different design solutions for a problem
CO4	Identify potential for intellectual property rights in real life application problems
CO5	prepare technical proposals and publications of same

Mapping with POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO12	PSO 1*	PSO 2*	PSO 3*
CO-1	1	3	-	2	-	-	-	-	1	1	1	3	-	1	1
CO-2	-	3	-	3	3	1	-	2	2	2	2	2	2	2	2
CO-3	-	2	-	3	1	1	2	-	2	-	3	1	-	3	3
CO-4	-	1	3	1	-	-	2	1	1	3	2	2	3	1	2
CO-5	-	-	1	2	-	2	1	-	2	1	1	2	2	-	-