



**Bharatiya Vidya Bhavan's
Sardar Patel Institute of Technology**

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

Electronics and Telecommunication Department

MTech. Program

PROPOSED-Program Outcomes -Competencies – Performance Indicators

PO1: Independently carry out research /investigation and development work to solve practical problems.			
Competency		Indicators	
1.1	Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding.	1.1.1	Synthesize engineering requirements from a review of the state-of-the-art.
		1.1.2	Articulate problem statements and identify objectives.
		1.1.3	Determine design objectives, functional requirements and arrive at specifications.
		1.1.4	Establish a relationship between measured data and underlying physical principles.
		1.1.4	Appropriately justify and apply suitable methodology.
		1.1.5	Adhere to the timeline.
1.2	Demonstrate an ability to select optimal design scheme for further development.	1.2.1	Apply formal idea generation tools to develop multiple engineering design solutions.
		1.2.2	Build models/prototypes to develop diverse set of design solutions.
		1.2.3	Apply formal decision making tools to select optimal engineering design solutions for further development.
		1.2.4	Consult with domain experts to select candidate engineering design solution for further development.
		1.2.5	Adhere to the timeline.
1.3	Demonstrate an ability to select and evaluate the suitability and limitations of discipline specific tools, techniques and resources used to solve an engineering	1.3.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii) modelling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs.



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	problem.	1.3.2	Demonstrate proficiency in using discipline specific tools.
		1.3.3	Discuss limitations and validate tools, techniques and resources.
		1.3.4	Verify the credibility of results from tool use with reference to the performance metrics and limitations.
		1.3.5	Validate the credibility of the result by publishing the original work.
1.4	Demonstrate an ability to analyze data and reach a valid conclusion.	1.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources).
		1.4.2	Generate information through appropriate tests and modifications to improve or revise design.
		1.4.3	Analyze data for trends and correlations, stating possible errors and limitations
		1.4.4	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions.
		1.4.5	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions.
		1.4.6	Adhere to the timeline.
PO2: Write and present a substantial technical report/document.			
Competency		Indicators	
2.1	Demonstrate an ability to comprehend technical literature and document project work.	2.1.1	Read, understand and interpret technical and non-technical information.
		2.1.2	Produce clear, well-constructed, and well supported written engineering documents.
		2.1.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear.
2.2	Demonstrate competence in	2.2.1	Listen to and comprehend information,



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	listening, speaking, and presentation.		instructions, and viewpoints of others.
		2.2.2	Deliver effective oral presentations to technical and nontechnical audiences.
		2.2.3	Voice Clarity and fluency in speaking.
		2.2.4	Body language during presentation.
2.3	Demonstrate the ability to integrate different modes of communication.	2.3.1	Create engineering-standard figures, reports and drawings to complement writing and presentations.
		2.3.2	Use a variety of media effectively to convey a message in a document or a presentation.
2.4	Demonstrate the ability to document technical work.	2.4.1	To exhibit proficiency in using scientific report writing tools such as Latex.
		2.4.2	Create technical papers as per the standards specified by various professional bodies (IEEE, ACM, Elsevier etc.)
		2.4.3	Contribute to original research work.
		2.4.4	Organizing the content into chapters.
		2.4.5	Use correct standard grammar, punctuation and spelling.
PO3: Demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.			
Competency		Indicators	
3.1	Ability to demonstrate comprehensive knowledge in specific domain.	3.1.1	Apply theory and principles of Electronics and Telecommunication engineering to solve an engineering problem.
		3.1.2	Identify engineering systems, variables, and parameters to solve the problems.
		3.1.3	Compare and contrast alternative solution/processes to select the best process.
		3.1.4	Extract desired understanding and concludes.
3.2	Ability to demonstrate competence in mathematical/	3.2.1	Apply the domain specific knowledge to solve problems.



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	system/ process modelling in specific domain.	3.2.2	To exhibit proficiency in applying methods and tools in specialized domain.
		3.2.3	Evaluate and analyse results acquired through methods and tools.
		3.2.4	To develop critical thinking in multiple proficiency in specific domain.
3.3	Demonstrate an ability to formulate and interpret a model.	3.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system/process that is appropriate in terms of applicability and required performance metrics.
		3.3.2	Identify assumptions (mathematical and physical) necessary to allow modelling of a system/process at the level of performance metrics required.
		3.3.3	Examine and analyse the relevant methods, tools and techniques in specific domain.
		3.3.4	Validate methods/ model/ techniques in specific domain.