



Department of Basic Sciences & Humanities

Program Outcomes (POs)

Engineering Graduate will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, social, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Vision:

- To be an excellent department of the institute promoting academic as well as holistic development of students and encouraging their creative potential.

Mission:

- M1: To develop technical and communicative skills to make the students industry ready.
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Subject- Engineering Mathematics-II		Subject Code- BTBS201
CO	Statement	
BTBS201_1	Discuss the need and use of complex variables to find roots, to separate complex quantities and to establish relation between circular and hyperbolic functions.	
BTBS201_2	Solve first and higher order differential equations and apply them as a mathematical modelling in electric and mechanical systems.	
BTBS201_3	Determine Fourier series representation of periodic functions over different intervals.	
BTBS201_4	Demonstrate the concept of vector differentiation and interpret the physical and geometrical meaning of gradient, divergence & curl in various engineering streams.	
BTBS201_5	Apply the principles of vector integration to transform line integral to surface integral , surface to volume integral & vice versa using Green's , Stoke's and Gauss divergence theorems.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS201_1	3	2	1	1							1	1
BTBS201-2	3	2	1	2							1	1
BTBS201-3	2	1	1	1							1	1
BTBS201-4	2	2	2	2							1	1
BTBS201-5	3	1	1	1							1	1

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Subject- Engineering Chemistry		Subject Code- BTBS202
CO	Statement	
BTBS202_1	Demonstrate knowledge of chemistry in technical fields.	
BTBS202_2	Bring adaptability to new developments in Engineering Chemistry and to acquire the skills required to become a perfect engineer.	
BTBS202_3	Develop the importance of water in industrial and domestic usage.	
BTBS202_4	Identify the concepts of Chemistry to lay the ground work for subsequent studies in various engineering fields.	
BTBS202_5	Examine a fuel and suggest alternative fuels.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS202_1	2		1			2	2					2
BTBS202-2	2					2	2					1
BTBS202-3	2		1			2	2					2
BTBS202-4	2		1			2	2					2
BTBS202-5	2		1			2	2					2

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Subject- Engineering Mechanics		Subject Code- BTES203
CO	Statement	
BTES203_1	Apply fundamental Laws of Engineering Mechanics	
BTES203_2	Apply Conditions of static equilibrium to analyze given force system	
BTES203_3	Compute Centre of gravity and Moment of Inertia of plane surfaces	
BTES203_4	Compute the motion characteristics of a body/particle for a Rectilinear and Curvilinear Motion	
BTES203_5	Know and discuss relation between force and motion characteristics	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTES203_1	3	3						2				3
BTES203_2	3	3						2				3
BTES203_3	3	3						2				3
BTES203_4	3	3						2				3
BTES203_5	3	3						2				3

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Subject- Computer Programming in C		Subject Code- BTES204
CO	Statement	
BTES204_1	Gain a broad perspective about the uses of computers in engineering industry and C Programming.	
BTES204_2	Develop the basic concept of algorithm, algorithmic thinking and flowchart.	
BTES204_3	Apply the use of C programming language to implement various algorithms and develops the basic concepts and terminology of programming in general.	
BTES204_4	Use the more advanced features of the C language.	
BTES204_5	Identify tasks in which the numerical techniques learned are applicable and apply them to write programs and hence use computers effectively to solve the task.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTES204_1	3	3	3	3	2	1					1	
BTES204_2	3	3	3									
BTES204_3	3	3	2									
BTES204_4	3	3	3	1								
BTES204_5	3	2	3									

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Subject- Basic Electrical and Electronics Engineering		Subject Code- BTES206
CO	Statement	
BTES206_1	Discuss the various types of electrical components with uses, different energy resources and its utilization.	
BTES206_2	Discuss the various measuring, storage devices and protection systems used.	
BTES206_3	Understand the basics of Semiconductor Diode ,devices its Characteristics & Applications	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTES206_1	2	2	1	1	1		1					
BTES206_2	2	2	1	1	1		1					
BTES206_3	1	1	1									

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Subject- Engineering Chemistry Lab		Subject Code- BTBS207L
CO	Statement	
BTBS207L_1	To Apply basic techniques used in chemistry laboratory for small/large scale water analyses/purification.	
BTBS207L_2	To Estimate the ions/metal ions present in domestic/industry waste water.	
BTBS207L_3	To Utilize the fundamental laboratory techniques for analyses such as titrations.	
BTBS207L_4	To Analyze and gain experimental skills.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS207L_1		2				2	2					2
BTBS207L_2		2				2	2					2
BTBS207L_3		1				2	2					2
BTBS207L_4		1				2	1					2

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Subject- Engineering Mechanics Lab		Subject Code- BTES208L
CO	Statement	
BTES208L_1	Study and Apply basic laws of Engineering Mechanics to given force system.	
BTES208L_2	Study and Apply analytical and graphical conditions of equilibrium to given force system.	
BTES208L_3	Study and apply concept of friction.	
BTES208L_4	Study and find basic parameters of simple lifting machines.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTES208L_1	3	2						2	2			3
BTES208L_2	3	2						2	2			3
BTES208L_3	3	2						2	2			3
BTES208L_4	3	2						2	2			3

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Subject- Workshop Practices		Subject Code- BTES205
CO	Statement	
BTES205_1	To understand and perform various operations on carpentry job	
BTES205_2	To perform welding job operation	
BTES205_3	Introduction and assembly of plumbing with help of its components	
BTES205_4	To understand and assembly of fitting job	
BTES205_5	To understand and perform various operations on sheet metal job	
BTES205_6	Introduction to lathe machine and to perform simple operations on it	

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTES205_1	2	2	2	1	3	2			2	2		2
BTES205_2	2	2	2	1	3	2			2	2		2
BTES205_3	2	2	2	1	3	2			2	2		2
BTES205_4	2	2	2	1	3	2			2	2		2
BTES205_5	2	2	2	1	3	2			2	2		2
BTES205_6	2		2	1	3	2			2	2		2

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Subject- Seminar		Subject Code- BTES210S
CO	Statement	
BTES210S_1	Identify and Analyse recent topics of any domain	
BTES210S_2	Enhance technical writing skills	
BTES210S_3	Identify an engineering problem, analyze it and propose a work plan to solve it.	
BTES210S_4	Communicate with professional technical presentation skills and Apply modern documentation tools to write the report	

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTES210S_1										1		
BTES210S_2										2		2
BTES210S_3	2						2	2				
BTES210S_4										3		2

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