



Basic Sciences & Humanities Department

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- I		Subject Code- BTBS101
CO	Statement	
BTBS101_1	Apply the matrix technique (Linear algebra) to find solutions of system of linear equations arising in many engineering problem	
BTBS101-2	Demonstrate the concept partial derivatives and their applications to Maxima/ Minima, series expansion of multi valued functions.	
BTBS101-3	Compute Jacobian of functions of several variables and their applications to engineering problems	
BTBS101-4	Identify and sketch of curves in various coordinate system.	
BTBS101-5	Evaluate multiple integrals and their applications to area and volume.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS101_1	3	2	1	1								1
BTBS101-2	3	2	1	1								1
BTBS101-3	3	2	1	1								1
BTBS101-4	3	2	1	1								1
BTBS101-5	3	2	1	1								1

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Subject- Engineering Physics		Subject Code- BTBS102
CO	Statement	
BTBS102-1	Explain & apply the concept of types of Oscillation, Dielectric properties & ultrasonic	
BTBS102-2	Explain & compare between Interference & Polarisation of light ,working Principle of Lasers & Fibre optics	
BTBS102-3	Interpret, apply & demonstrate principle of motion of charged particles in EF&MF, Bainbridge Mass spectrograph & G M counter	
BTBS102-4	Identify Types of crystals & crystal planes using Miller indices, Experimental approach.	
BTBS102-5	student will be able to understand properties of magnetic, semiconducting and super conducting material	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS102_1	3	2										
BTBS102-2	3	2										
BTBS102-3	3	2	3	2								2
BTBS102-4	3	2	3									
BTBS102-5	3	2	3									

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Subject- Engineering Graphics	Subject Code- BTES103
CO	Statement
BTES103-1	Use of drawing instruments effectively for drawing and dimensioning.
BTES103-2	Explain conventions and methods of engineering drawing.
BTES103-3	Apply concept of projections of points, lines, planes, solids and section of solids.
BTES103-4	Construct isometric and orthographic views of given objects.

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS103_1	3	3	2	2	1							3
BTBS103-2	2	2	2	2								3
BTBS103-3	3	3	2	2								2
BTBS103-4	3	3	2	3								3

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Subject- Communication Skills		Subject Code- BTHM104
CO	Statement	
BTHM104_1	Apply speaking and writing skills in professional as well as social situations	
BTHM104_2	Overcome Mother Tongue Influence and demonstrate neutral accent while exercising English	
BTHM104_3	Apply communication skills for Presentations, Group Discussion and interpersonal interactions.	
BTHM104_4	Apply grammar correctly during Speaking and Writing situations especially in context with Presentations, Public Speaking, Report writing and Business Correspondence	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS104_1								1	2	3	1	2
BTBS104-2									1	3	1	2
BTBS104-3								1	1	3	2	3
BTBS104-4								1	1	3	1	2

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Subject- Energy and Environment Engineering		Subject Code- BTES105
CO	Statement	
BTES105_1	Identify conventional, non-conventional energy sources.	
BTES105_2	Know and discuss power consuming and power developing devices for effective utilization and power consumption	
BTES105_3	Identify various sources of air, water pollution and its effects.	
BTES105_4	Know and discuss noise, soil, thermal pollution and Identify solid, biomedical and hazardous waste.	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS105_1						2	3	1				1
BTBS105-2						2	3	2				1
BTBS105-3						2	3	2				1
BTBS105-4						2	3	1				1

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Subject- Basic Civil and Mechanical Engineering		Subject Code- BTES106
CO	Statement	
BTES106_1	Identify various Civil Engineering materials and choose suitable material among various options.	
BTES106_2	Apply principles of surveying to solve engineering problem.	
BTES106_3	Identify various Civil Engineering structural components and select appropriate structural system among various options	
BTES106_4	Explain and define various properties of basic thermodynamics, materials and manufacturing processes.	
BTES106_5	Know and discuss the working principle of various power consuming and power developing devices	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS106_1	2	2										2
BTBS106-2	3	2										2
BTBS106-3	2	2										2
BTBS106-4	2	1	2	1	1							1
BTBS106-5	2	1	1	1								1

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Subject- Engineering Physics Lab		Subject Code- BTBS107L
CO	Statement	
BTBS107L_1	Study the Phenomena of interference, diffraction and polarization of light waves	
BTBS107L_2	Enhance the knowledge of the basic semiconductor devices with hand on experience,by measuring their basic characteristics.	
BTBS107L_3	Conduct an experiment collaboratively and ethically.	
BTBS107L_4	Uses Miller indices to draw Miller planes in crystal	

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS107L_1	2	2		1					1			
BTBS107L-2	2	2		1					1			
BTBS107L-3	2	2		1					1			
BTBS107L-4	2	2		1					1			

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Subject- Engineering Graphics Lab		Subject Code- BTES108L
CO	Statement	
BTES108L_1	Draw the various drawing standards and geometrical constructions using the drawing instruments.	
BTES108L_2	Apply the concept of orthographic projection of an object to draw several 2D views	
BTES108L_3	Draw and explain projection of points, lines, planes, solid and section of solid.	
BTES108L_4	Apply the visualization skill to draw a simple isometric projection from given orthographic views precisely using drawing equipment	

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS108L_1	3	2	2	2	1							2
BTBS108L-2	2	2	3	2								3
BTBS108L-3	3	3	2	2								2
BTBS108L-4	3	3	2	3								3

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Subject- Communication Skills Lab.		Subject Code- BTHM109L
CO	Statement	
BTHM109L_1	Identify Phonemic Script and articulate different sounds in English	
BTHM109L_2	Use proper pronunciation and transcription	
BTHM109L_3	Plan and deliver the well-argued presentations	
BTHM109L_4	Analysis of speeches or discourses and several articles	

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
BTBS109L_1								1	1	2	1	2
BTBS109L-2									1	3	1	2
BTBS109L-3								1	2	3	2	3
BTBS109L-4								1	2	3	1	2

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