Department of Computer Science and Engineering(Artificial Intelligence and Data Science)

Course Outcomes(COs) and -Program Outcomes(POs) ,Program Specific Outcomes(PSOs) Mapping

Part-II

SY B.Tech	
Course Code and Course Name: Data Analysis (BTAIC401)	
BTAIC401.1	Apply preprocessing techniques to convert raw data so as to enable further analysis.
BTAIC401.2	Apply exploratory data analysis and create insightful visualizations to identify patterns.
BTAIC401.3	Understand how to derive the probability density function of transformations of random variables and use these techniques to
BTAIC401.4	Understand the statistical foundations of data science and analyze the degree of certainty of predictions using statistical test
BTAIC401.5	Introduce machine learning algorithms for prediction and to derive insights.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIC401.1	2	2		2										2
BTAIC401.2	2	3		2										2
BTAIC401.3	2	2		2										2
BTAIC401.4	2	2		2										2
BTAIC401.5	2	2	2											2

Course Code and Course Name:Database Management System(BTAIC402)	
BTAIC402.1	Master the basic concepts of relational DBMS and its types.
BTAIC402.2	Perform various types of operations on relational databases using DDL, DML, DCL in SQL.
BTAIC402.3	Understand the concept of how non-relational databases differ from relational databases from a practical perspective.
BTAIC402.4	Master the basic concepts of designing NoSQL database management system.
BTAIC402.5	Able to Identify what type of NoSQL database to implement based on business requirements.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIC402.1	2	2	2										1	
BTAIC402.2	2	2	2										1	
BTAIC402.3	2	2	2										1	
BTAIC402.4	2	2	2										1	
BTAIC402.5	2	2	2										1	

Course Code and Course Name: Basic Human Rights (BTHM403)	
BTHM403.1	Understand the history of human rights.
BTHM403.2	Learn to respect others caste, religion, region and culture.
BTHM403.3	Aware of their rights as Indian citizen.
BTHM403.4	Understand the importance of groups and communities in the society
BTHM403.5	Realize the philosophical and cultural basis and historical perspectives of human rights.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTHM403.1						2	1	2	1	1		2		
BTHM403.2						2	1	2	1	1		2		
BTHM403.3						2	1	2	1	1		2		
BTHM403.4						2	1	2	1	1		2		
BTHM403.5						2	1	2	1	1		2		

Course Code and Course Name: Probability Theory and Random Processes(BTBS404)	
BTBS404.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which
BTBS404.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications
BTBS404.3	Apply the concept random processes in engineering disciplines
BTBS404.4	Understand and apply the concept of correlation and spectral densities
BTBS404.5	Exposef various distribution functions and help in acquiring skills in handling situations involving more than one variable.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTBS404.1	3	3	2										2	
BTBS404.2	3	3	2										2	
BTBS404.3	3	2	2											
BTBS404.4	2	2												
BTBS404.5	2													

Course Code and Course Name:Elective-I Internet of Things & Embedded System(BTAIPE405C)	
BTAIPE405C.1	The use of concepts of IoT and its areas.
BTAIPE405C.2	Understand the basics of C and NodeMCU.
BTAIPE405C.3	Understand the basics of Python & Raspberry Pi.
BTAIPE405C.4	Interacting with Web Services and IoT protocol.
BTAIPE405C.5	Apply the IoT in various applications.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIPE405C.1	3	2	2											
BTAIPE405C.2	3	2	2											
BTAIPE405C.3	3	3	2									2	2	
BTAIPE405C.4	3	3	2									2	2	
BTAIPE405C.5	2	2	2									2	2	

Course Code and Course Name:Elective-I   Programming in JAVA (BTAIPE405D)
BTAIPE405D.1	To understand basics of JAVA
BTAIPE405D.2	To use Packages & interfaces
BTAIPE405D.3	To apply Exception Handling & Multithreaded Programming.
BTAIPE405D.4	To acquire Java Database Connectivity.
BTAIPE405D.5	To recognize Applet, Event Handling and AWT.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIPE405D.1	3	1			2									
BTAIPE405D.2	2	2			2									
BTAIPE405D.3	3	2		1	2								2	
BTAIPE405D.4	3	2	2		2								2	
BTAIPE405D.5	3	2	2		2								2	

Course Code and Course Name: Data Analysis Lab (BTAIL406)
BTAIL406.1	Demonstrate installation and setup of R programming environment and Utilize R data types for developing programs.
BTAIL406.2	Analyze the data and know descriptive statistics by using R Programming.
BTAIL406.3	Communicate effectively in technical and non-technical environments. (S3)
BTAIL406.4	Accept professional and ethical responsibility of engineering technology profession. (A2)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIL406.1	2	2	2		2								1	
BTAIL406.2	2	2	2		2								1	
BTAIL406.3										2				
BTAIL406.4								2	2					

Course Code and Course Name: Database Management System Lab (BTAIL406)
BTAIL406.1	Master the basics of SQL and construct queries using SQL.
BTAIL406.2	Acquire skills in using SQL commands for data definition and data manipulation commands.
BTAIL406.3	Develop solutions for database applications using procedures, cursors and triggers.
BTAIL406.4	Communicate effectively in technical and non-technical environments.
BTAIL406.5	Accept professional and ethical responsibility of engineering technology profession. (A2)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIL406.1	3	2			2			2	2	2			2	1
BTAIL406.2	3	2			2			2	2	2			2	1
BTAIL406.3	3	2			2			2	2	2			2	1
BTAIL406.4										2				
BTAIL406.5								2	2					

TY B.Tech -II

Course Code and Course Name:Deep Learning(BTAIC601)
BTAIC601.1	Implement deep learning models in Python using the Keras/PyTorch library and train them with real-world datasets.
BTAIC601.2	Design convolution networks for image classification.
BTAIC601.3	Perform regularization, training optimization, and hyperparameter selection on deep models.
BTAIC601.4	Design Recurrent Neural Networks for text and sequence classification.
BTAIC601.5	Apply Generative Deep Learning for Generating images.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIC601.1	3												2	2
BTAIC601.2	3	3											2	2
BTAIC601.3	3	3											2	2
BTAIC601.4	2	2	3										1	
BTAIC601.5	2	2	2											

Course Code and Course Name: Advanced Machine Learning(BTAIC602)	
BTAIC602.1	Develop a good understanding of fundamental of unsupervised learning.
BTAIC602.2	Formulation of Association Rules Mining and Recommendation Systems
BTAIC602.3	Interpret a model using Reinforcement Learning.
BTAIC602.4	Evaluate the time series data.
BTAIC602.5	Design and Concrete implementations using boosting.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIC602.1	3	2	2									2		
BTAIC602.2	3	3	3									2		
BTAIC602.3	3	3	3									2		2
BTAIC602.4	3	3	3									2		2
BTAIC602.5	3	2										2		2

Course Code and Course Name: Web Development(BTAIPE603D)	
BTAIPE603D.1	Implement and analyze behavior of web pages using HTML and CSS.
BTAIPE603D.2	Apply the client-side technologies for web development.
BTAIPE603D.3	Analyze the concepts of Servlet and JSP.
BTAIPE603D.4	Analyze the Web services and frameworks.
BTAIPE603D.5	Apply the server side technologies for web development.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIPE603D.1	3	3	3	2	3	2						2	2	
BTAIPE603D.2	3	3	3	2	3	2						2	2	
BTAIPE603D.3	3	3	3	2	3	2						2	2	
BTAIPE603D.4	3	3	3	2	3	2						2	2	
BTAIPE603D.5	3	3	3	2	3	2						2	2	

Course Code and Course Name: Big Data Analytics (BTAIOE604A)	
BTAIOE604A.1	Identify Big Data and its Business Implications.
BTAIOE604A.2	List the components of Hadoop and Hadoop Eco-System.
BTAIOE604A.3	Access and Process Data on Distributed File System.
BTAIOE604A.4	Develop Big Data Solutions using Hadoop Eco System.
BTAIOE604A.5	Use Big data Framework, security and governance.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIOE604A.1	2	2	2									2		1
BTAIOE604A.2	2	2	2									2		1
BTAIOE604A.3	2	2	2									2		1
BTAIOE604A.4	2	1	1									2		1
BTAIOE604A.5	2	1	1									2		1

Course Code and Course Name: Employability and Skill Development (BTAIHM605B)	
BTAIHM605B.1	Improve the soft skills and communication.
BTAIHM605B.2	Empower Arithmetic and Mathematical Reasoning and Analytical Reasoning and Quantitative Ability.
BTAIHM605B.3	Use of grammar.
BTAIHM605B.4	Development in interview skills.
BTAIHM605B.5	Develop problem solving techniques.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIHM605B.1									1	3		2		
BTAIHM605B.2	3	3										2		
BTAIHM605B.3										3		2		
BTAIHM605B.4									1	3		2		
BTAIHM605B.5		3										2		

Course Code and Course Name: Deep Learning Lab (BTAIL606)	
BTAIHM606.1	Make use of deep learning API the Keras/Tensorflow library.
BTAIHM606.2	Apply deep learning techniques for image classification, object identification and segmentation.
BTAIHM606.3	Perform regularization, training optimization, and hyper parameter selection on deep models.
BTAIHM606.4	Communicate effectively in technical and non-technical environments.
BTAIHM606.5	Accept professional and ethical responsibility of engineering technology profession.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIHM606.1					3							1		
BTAIHM606.2	3	3	3	2	3							1	2	2
BTAIHM606.3	3	3		3	3							1	2	2
BTAIHM606.4	2	2			2	2				2		1		
BTAIHM606.5	2					2		2	2			1		

Course Code and Course Name: Advanced Machine Learning Lab(BTAIL606)	
BTAIL606.1	Demonstrate proficiency in unsupervised learning techniques
BTAIL606.2	Apply reinforcement learning concepts to derive optimal strategies
BTAIL606.3	Analyze and forecast time-series data using statistical and machine learning models
BTAIL606.4	Communicate effectively in technical and non-technical environments.(S3)
BTAIL606.5	Accept professional and ethical responsibility of engineering technology profession. (A2)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIHM606.1	3	3	2	2	2							2	1	2
BTAIHM606.2	3	3	2	2	2							2	1	2
BTAIHM606.3	3	3	2	2	2							2	1	2
BTAIHM606.4										2		2		
BTAIHM606.5								2	2			2		

Course Code and Course Name: Mini Project-II (BTAIM507)	
BTAIM607.1	Identify specific problem from selected domain .
BTAIM607.2	Analyze the hardware and /or software requirements of the proposed work by surveying technical literature, latest technological trends.
BTAIM607.3	Design technical artifact using relevant tools and technologies to meet desired need.
BTAIM607.4	Adapt effective written and oral presentation skills.
BTAIM607.5	Learn professional and ethical behavior to carry forward in their life.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIM607.1	3	3		2		2	2		2			2	2	1
BTAIM607.2	3		2	2	3	2	2		2			2	2	1
BTAIM607.3	3	3	3	3	3	2	2	2	2		2		2	1
BTAIM607.4								2	2	2	2			
BTAIM607.5								2	2	2	2			

	B.Tech
Course Code and Course Name: Project Work/ Internship (BTAIF801)	
BTAIF801.1	Identify and formulate the real-world problem for their major project in the field of their own interest.
BTAIF801.2	Survey technical literature, blogs, documents about latest technological trends etc. to come-up with an innovative idea for technical project.
BTAIF801.3	Analyze the hardware and /or software requirements of the proposed work.
BTAIF801.4	Identify and use relevant tools (from industry) and technologies for documentation, designing, coding, testing and debugging the software/hardware pertaining to their major project .
BTAIF801.5	Defend or argue or appraise the results obtained during project work.
BTAIF801.6	Design the prototype of the selected idea.
BTAIF801.7	Exercise all the managerial (project planning, scheduling) and behavioral skills in a team to accomplish the goals of their project.
BTAIF801.8	conferences/journals leading to effective communication.

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
BTAIF801.1	3	3		2		2	2		2			2	2	2
BTAIF801.2	3	3	2	2					2			2	2	2
BTAIF801.3	3	3	2	2					2			2	2	2
BTAIF801.4	3		2	2	3	2	2		2			2	2	2
BTAIF801.5								3	2	2		2	2	2
BTAIF801.6			3	3	3	2	2		2	2		2	2	2
BTAIF801.7								3	2		3	2		
BTAIF801.8								3	2	3		2		