



Thakur Educational Trust's (Regd.)

**THAKUR RAMNARAYAN
COLLEGE OF ARTS & COMMERCE**



NAAC Accredited & ISO 21001:2018 Certified

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Outcomes Based Education (OBE) Document

**Programme: B.Sc. (I.T.)
S.Y.B.Sc.(I.T.)**

Program Educational Objectives

PEO 1: To prepare students for career in Information Technology and its applications such as the design, development, implementation, testing and maintenance of computer software/hardware in professional career.

PEO 2: To develop the skill sets of students to be at par with the advancements in Information Technology domain.

PEO 3: To prepare the student for entry into a program of postgraduate study in Information Technology and related domain/ fields.

Program Outcomes

On successful completion, graduates of B.Sc. (I.T.) programme will be able to:

PO 1: Disciplinary Knowledge: Apply the knowledge of mathematics, computer science and Information Technology fundamentals to find of solutions of real time problems with different applications.

PO 2: Effective Communication Skills: Communicate effectively on complex activities with the end users 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.

PO 3: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, testing out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO 4: Problem Solving: Identify, formulate, research literature, and analyse various research and real time application scenarios reaching substantiated conclusions using first principles of mathematics, computer sciences, and information technology.

PO 5: Analytical Reasoning: Develop ability to analyse a problem, identify and define applications that resolves the end user requirement with respect to real time problems with appropriate consideration for the societal, and environmental considerations.

PO 6: Research Related Skills: Use research-based knowledge and research methods to investigate the problems that cannot be solved by straightforward application of knowledge, theories and techniques; that may not have a unique solution, which need to be defined (modelled) within appropriate mathematical framework/ scientific derivation/ global technological evolutions.

PO 7: Environment and Sustainability: Understand the impact of the scientific applications and solutions in societal and environmental contexts, and demonstrate the knowledge of green computing and need for sustainable development.

PO 8: Cooperation/ Teamwork: Function effectively as an individual, and as a member or team leader in diverse cross functional groups and in multidisciplinary settings.

PO 9: Information/Digital Literacy: Create, select, and apply appropriate techniques, resources, and modern tools including prediction and modelling to complex activities with an understanding of the limitations.

PO 10: Ethics: Apply ethical principles and commit to professional ethics & responsibilities and norms of the technological and sustainable development.

PO 11: Self-directed and Life-long Learning: Recognize the need for and have the preparation and ability to engage independent and lifelong learning in the broadest context of global technological evolution.

PO 12: Leadership Readiness/Qualities: Demonstrate knowledge and understanding of the Computer Science, Information Technology and management principles and apply these to one's own work, as a member and leader in a team, to manage research and application projects and in multidisciplinary environments.

Program Specific Outcomes

On successful completion, graduates of B.Sc. (I.T.) programme will be able to:

PSO 1: Demonstrate technical knowledge and illustrate the required skills for software development with the help of basic hardware components. Apply standard software engineering practices and strategies in the development using open-source programming environment.

PSO 2: Develop the skills of logical thinking, analytical thinking & acquire essential skills of both verbal as well as non-verbal communication.

PSO 3: Apply concepts of wired, wireless, embedded and IoT systems for demonstrating innovative solutions with consideration to real-time applications. Develop knowledge of basic concepts of computer network, security and software testing.

PSO 4: Acquaint with contemporary issues, latest trends in technological evolution and there by develop new ideas and design new solutions to existing problem

S.Y.B.Sc. (I.T.) (Semester - III)
MJ-Python Programming (1013111)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Demonstrate mastery of Python features to tackle a wide range of programming challenges.		✓				
CO2	Utilize control flow statements to ensure accurate and logical program execution.			✓			
CO3	Efficiently manipulate arrays, strings, and data structures to enhance. data handling and problem-solving.			✓			
CO4	Design modular, efficient programs by leveraging functions, modules, and string operations.			✓			
CO5	Manage file operations, employ regular expressions, and manipulate date and time data to improve program functionality and performance.		✓				

S.Y.B.Sc. (I.T.) (Semester - III)

MJ-Data Structures (1013112)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Demonstrate knowledge of core data structures and their operations		✓				
CO2	Analyze the time and space complexity of algorithms and choose the most efficient solution for a given problem.				✓		
CO3	Translate algorithmic solutions into correctly functioning code using their chosen programming language			✓			
CO4	Implement and traverse binary trees and binary search trees, demonstrating their understanding of these structures.			✓			

S.Y.B.Sc. (I.T.) (Semester - III)
MJ-Operating System (1013113)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Outline the basic concept of operating systems		✓				
CO2	Analyze the working of operating system				✓		
CO3	Examine the working of various scheduling approaches					✓	
CO4	Apply the concepts of synchronization and deadlock			✓			
CO5	Apply the file access mechanisms			✓			

S.Y.B.Sc. (I.T.) (Semester - III)

Major Practical 3 (1013114)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Apply Python programming concepts like input/output, conditional statements, and loops, to solve fundamental problems effectively.			✓			
CO2	Demonstrate proficiency in performing basic operations, indexing, slicing, and analyzing attributes of arrays using NumPy.		✓				
CO3	Apply functions, recursion, and lambda expressions to solve computational problems, and implement modular programming for reusable and efficient code design.			✓			
CO4	Implement lists and dictionaries, perform file operations, and use functions to solve real-world problems effectively.			✓			
CO5	Process text, extract information, handle dates, and measure execution time for solving complex real-world problems.					✓	
CO6	Ability to implement and manipulate basic and advanced data structures to solve real-world problems.			✓			
CO7	Capability to analyze the time and space complexity of algorithms for various data structures.				✓		
CO8	Enhanced problem-solving skills by applying data structures in different domains such as databases, networks, and operating systems			✓			

S.Y.B.Sc. (I.T.) (Semester - III)

VSC-APPLIED MATHEMATICS (1013411)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Familiar with the various forms and operations of a complex number.		✓				
CO2	Find the Laplace transform of a function of using definition			✓			
CO3	Find the Inverse Laplace transform of a function of using definition.					✓	
CO4	Solve Differential equations of first degree and first order.					✓	
CO5	Solve Differential equations of first degree and higher order.					✓	

S.Y.B.Sc. (I.T.) (Semester - III)

MINOR - Industry & Service Management (II) (Strategic Financial Management)(1253211)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Learners get depth knowledge on various types and models of dividend policy adopted in firm while declaring dividend to shareholders.	✓					
CO2	Learners will have better awareness and understanding of capital budgeting and role of capital rationing.		✓				
CO3	Learners will have a basic understanding on of strategic financing decision and working capital.		✓				
CO4	The learner will have create a basic understanding on risk management, International financial markets and taxation			✓			

S.Y.B.Sc. (I.T.) (Semester - III)

OE- Environmental Conservation and Sustainable Development- I (1573211)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Understand the concept of sustainable goals of development goals.		✓				
CO2	Understand the concept of environmental conservation and its practices.		✓				

S.Y.B.Sc. (I.T.) (Semester - III)

AEC - भाषिक कौशल्यांचे उपयोजन – २

(कथाकथन कौशल आषि अषभवाचन कौशल)(2513515)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	विद्यार्थ्यांना कथाकथन या भाषिक कौशल्याचे स्वरूप समजेल.		✓				
CO2	विद्यार्थ्यांना प्रभावी कथाकथनासाठी आवश्यक असणाऱ्या क्षमता आणि तंत्रांचा परिचय होईल.	✓					
CO3	विद्यार्थ्यांना अभिवाचन या भाषिक कौशल्याचे स्वरूप समजेल.		✓				
CO4	विद्यार्थ्यांना प्रभावी अभिवाचन करण्यासाठी आवश्यक असणाऱ्या क्षमता आणि तंत्रांचा परिचय होईल.	✓					
CO5	विद्यार्थ्यांमध्ये प्रत्यक्ष कथाकथन व अभिवाचन करण्यासाठी आवश्यक असणाऱ्या क्षमता आणि कौशल्ये विकसित होतील.						✓

S.Y.B.Sc. (I.T.) (Semester - III)
AEC -हिंदी भाषा व्यावहारिक (2513511)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	विद्यार्थियों को राजभाषा हिंदी का ज्ञान प्राप्त होगा, एवं दक्षता प्राप्त होगी।		✓				
CO2	विद्यार्थियों को राजभाषा हिंदी के व्याकरणिक प्रयोग की जानकारी प्राप्त होगी।			✓			
CO3	विद्यार्थियों को हिंदी-संज्ञा आदि का ज्ञान प्राप्त होने के साथ भाषा के शुद्ध, व्यावहारिक रूप का ज्ञान होगा।				✓		
CO4	विद्यार्थियों को कारकों, वाक्य रचना एवं भाषिक चिन्हों आदि का ज्ञान प्राप्त होगा।		✓				

S.Y.B.Sc. (I.T.) (Semester - III)

CC - Indian Theatre: Classical Roots and Contemporary Expressions

Course Outcomes (252613)

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Describe the historical and cultural development of Indian theatre across different time periods.		✓				
CO2	Interpret and apply the aesthetic principles from Natyashastra (such as Rasa and Abhinaya) in the analysis of theatrical performances.			✓			
CO3	Critically evaluate classical Indian plays for their structure, themes, character development, and historical significance.					✓	
CO4	Compare and contrast different forms of modern Indian theatre and assess their audience impact and staging methods.					✓	
CO5	Demonstrate understanding of street theatre and one-act plays by creating outlines or performing excerpts reflecting real-world issues.		✓				
CO6	Reflect on the role of performing arts in cultural preservation, education, and community engagement.			✓			

S.Y.B.Sc. (I.T.) (Semester - III)

NSS - Study of Indian Social Reformers (2523620)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							

S.Y.B.Sc. (I.T.) (Semester - III)

Field Project (2523635)

S.Y.B.Sc. (I.T.) (Semester - III)

Sports - Introduction to Sports Training & Tests and Measurement (252612)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Understand and apply the principles of sports training.		✓				
CO2	Identify and differentiate between various training methods.				✓		
CO3	Develop effective exercise plans and training schedules.		✓				
CO4	Evaluate the impact of training on performance enhancement.					✓	
CO5	Identify and explain the importance of test and measurement in sports.				✓		
CO6	Apply various skill, fitness, and psychological tests.			✓			
CO7	Evaluate test results to assess fitness and performance levels.					✓	
CO8	Utilize test data to design targeted training and rehabilitation programs		✓				

S.Y.B.Sc. (I.T.) (Semester - IV)

MJ-Core Java (1014111)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Understand the basics of Java and its runtime environment.		✓				
CO2	Be proficient in using Java's data types, control flow statements, and OOP principles such as classes, inheritance, and exception handling.				✓		
CO3	Creating own classes and objects			✓			
CO4	Develop mini projects using Class, Interface and exception handling			✓			

S.Y.B.Sc. (I.T.) (Semester - IV)
MJ-Software Engineering (1014112)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Demonstrate a comprehensive understanding of Agile concepts and Scrum practices.		✓				
CO2	Apply Scrum processes to effectively manage software development life cycles			✓			
CO3	Create and prioritize user stories for efficient Product Backlog management.				✓		
CO4	Utilize metrics to evaluate and enhance Sprint performance and team productivity.				✓		
CO5	Implement strategies for cost, customer, and risk management in Scrum projects.			✓			

S.Y.B.Sc. (I.T.) (Semester - IV)
MJ-Computer Networks (1014113)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Understanding the Transport layer protocols and their utilities		✓				
CO2	Various application layer protocols and their implementation			✓			
CO3	Mailing Services and web services implementation			✓			

S.Y.B.Sc. (I.T.) (Semester - IV)

Major Practical 3 (1014114)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Write efficient Java programs to perform arithmetic operations, manage control flow, and manipulate strings.		✓				
CO2	Demonstrate knowledge of object-oriented concepts by implementing inheritance, polymorphism, and interfaces.		✓				
CO3	Apply exception handling mechanisms to create robust Java applications.			✓			
CO4	Implement multithreading and explore dynamic initialization for advanced Java programming.			✓			
CO5	Solve computational problems, such as matrix operations and factorial calculation, using packages and Java constructs.			✓		✓	
CO6	Implementation of utility protocols			✓			
CO7	Understanding Basic Security features		✓				
CO8	Network Traffic and Packet Analysis				✓		
CO9	Basic Understanding of Wireless Network		✓				

S.Y.B.Sc. (I.T.) (Semester - IV)

SEC-Mobile Programming(1014412)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Demonstrate the ability to configure Flutter and build a functional development environment.		✓				
CO2	Create and run basic Flutter apps with appropriate UI components.			✓			
CO3	Develop responsive and adaptive UIs for multiple screen sizes.				✓		
CO4	Implement interactive features like counters, sliders, and switches in Flutter apps.			✓			
CO5	Design and validate user input forms using TextFormField.		✓				
CO6	Develop navigation flows between screens and integrate drawers for better usability.			✓			
CO7	Create animations for smooth transitions and enhanced user experiences.				✓		
CO8	Build applications that fetch and display data from public APIs asynchronously.			✓			
CO9	Apply effective state management strategies to handle app states efficiently.			✓			
CO10	Demonstrate the ability to debug, test, and optimize Flutter apps for deployment.		✓				

S.Y.B.Sc. (I.T.) (Semester - IV)

MN - Industry & Service Management (III) (Project & Customer Relationship Management) (1674211)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Articulate the fundamental relationship between project management and CRM.	✓					
CO2	Comprehend the application of CRM strategies in achieving project success through enhanced customer relationships.		✓				
CO3	Describe the process of CRM project implementation, including associated challenges and the incorporation of customer feedback.		✓				
CO4	Evaluate advanced e-CRM strategies and apply project optimization techniques.					✓	

S.Y.B.Sc. (I.T.) (Semester - IV)

OE - Environmental Management & Sustainable Development -II (1574312)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Use principles of Environmental Science for explaining sustainable development and its related ethical concerns		✓				
CO2	Display scientific perspective for issues confronting our present day environment.			✓			
CO3	Analyze the national and global environmental issues relating air, water, soil, and land use, biodiversity, and pollution.			✓			
CO4	Explain the Role of an individual in relation to human population and environmental pollution.		✓				
CO5	Recognize the importance of collective efforts for environmental sustainability as reflected in various treaties, conventions and laws	✓					

S.Y.B.Sc. (I.T.) (Semester - IV)

AEC - Introduction to Communication Skills in English II (2514514)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
OC1	Demonstrate an understanding of English Usage in Communication		✓				
OC2	Exhibit the ability to Read a variety of written text using subskills such as analyzing and interpreting text.				✓		
OC3	Show competence in comprehending a variety of oral texts.			✓			
OC4	Actively participate in group discussion, and research and prepare for the interview effectively			✓			
OC5	Display advanced formal (email writing, report writing) and creative writing skills.				✓		

S.Y.B.Sc. (I.T.) (Semester - IV)

CC - Integrated Theatre Production: Stage Craft, Costume, Music and Technology (2524613)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
OC1	Define and describe key theoretical concepts related to lighting and costume design in theatre.	✓					
OC2	Interpret the narrative and symbolic meanings conveyed through visual design elements in performance.			✓			
OC3	Analyze lighting and costume designs using appropriate theoretical and historical frameworks.				✓		
OC4	Discuss the interrelationship between text, character, and design from a theoretical standpoint.	✓					
OC5	Compare and contrast design practices across different theatrical genres and periods.		✓				
OC6	Evaluate how technological advancements have influenced theoretical approaches to stage design.					✓	

S.Y.B.Sc. (I.T.) (Semester - IV)

NSS - Youth and Disaster Management (2524611)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
OC1							
OC2							
OC3							
OC4							
OC5							
OC6							

S.Y.B.Sc. (I.T.) (Semester - IV)

CC- Sports - Advanced Sports Training and Performance Evaluation (2524612)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
OC1	Gain practical knowledge of sports training principles and methods.	✓					
OC2	Develop the ability to conduct, evaluate, and interpret various fitness and skill-based tests.			✓			
OC3	Learn to design and implement personalized and professional training programs.		✓				
OC4	Acquire experience in organizing and volunteering in sports and fitness events.				✓		
OC5	Understand the role of psychological, fitness, and skill tests in enhancing performance.		✓				

S.Y.B.Sc. (I.T.) (Semester - IV)

Community Engagement Program (2524630)

T.Y.B.Sc. (I.T.) (Semester - V)
Software Project Development (USIT501)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Explain the concept of project management and apply this knowledge to implement projects.			✓			
CO2	Describe the appropriate Project selection and interpret the concept of software effort estimation.			✓			
CO3	Identify various types of activity planning and demonstrate risk management.		✓				
CO4	Describe the monitoring and control of a project and use the concept to manage contracts.		✓				
CO5	Explain software quality in project planning and identify techniques to help enhance software quality.		✓				

T.Y.B.Sc. (I.T.) (Semester - V)

Internet Of Things : Theory & Practice (USIT502)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Apply IoT knowledge to implement small-scale IoT projects.			✓			
CO2	Explain the concepts of prototyping, prototyping embedded devices and general concepts of Internet of Things.		✓				
CO3	Recognize various mobile devices, sensors, and applications.		✓				
CO4	Execute various business models and learn the techniques and write embedded code.			✓			
CO5	Explain the interconnection and integration of the physical world and the cyber space.		✓				

T.Y.B.Sc. (I.T.) (Semester - V)
Advanced Web Development (USIT503)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Describe the concept of .NET Framework, C# language, types, objects and namespaces.		✓				
CO2	Demonstrate web form fundamentals, server controls, ASP.NET Application and form controls.			✓			
CO3	Explain the concept of error handling, logging, tracing, state management, styles, themes and master pages.		✓				
CO4	Analyse the ADO.NET objects and data controls & binding.				✓		
CO5	Apply the XML classes, XML validation, XML display, transforms and fundamentals and ASP.NET AJAX.			✓			

T.Y.B.Sc. (I.T.) (Semester - V)

Artificial Intelligence & Applications (USIT504)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Explain the concept of AI, its history and state of the art AI and describe the various types of agents used in AI		✓				
CO2	Demonstrate the performance of various problem-solving search techniques		✓				
CO3	Illustrate about the concept of adversarial search, logical agents and propositional logic.		✓				
CO4	Apply First order logic and build knowledge-based agents and discuss about the inference in First order logic			✓			
CO5	Build the various types of planning systems in AI and understand about knowledge representation concept			✓			

T.Y.B.Sc. (I.T.) (Semester - V)
Advanced Java Technologies (USIT506)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Describe the concept of Enterprise Application, Java EE Technologies and programming for Glassfish server, Java EE Architecture and demonstrate basic concepts of Java Servlet API and Servlet Lifecycle.		✓				
CO2	Explain the concept of Request dispatcher Interface, Methods and Application, cookies, sessions, files and non-blocking I/O.		✓				
CO3	Explain the concept of Java Server Pages, Disadvantages of JSP, JSP v/s Servlets, Life Cycle of a JSP Page, JSP function, JSP Implicit Objects.			✓			
CO4	Apply the concepts of Enterprise Java beans, Architecture, Benefits of Enterprise Bean, Types of Enterprise Bean, and demonstrate the working with Session Beans, Java Naming and Directory Interface			✓			
CO5	Explain the various design applications of Persistence, Object/Relational Mapping And JPA, Persistence in Java, Current Persistence Standards in Java, Architecture and Components of Hibernate, Creating and Running Hibernate Application.		✓				

T.Y.B.Sc. (I.T.) (Semester - VI)

Software Testing and Quality Assurance (USIT601)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Explain the concept of software quality and its important aspects.		✓				
CO2	Develop the test policy, test strategy, test methodology/ approach.			✓			
CO3	Identify and apply different types of unit testing methods.			✓			
CO4	Construct the validation and verification workbench.				✓		
CO5	Explain testing levels. and apply special tests, testing.			✓			

T.Y.B.Sc. (I.T.) (Semester - VI)
Information Security (USIT602)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Explain the concept of Information Security and Risk associated with Information.		✓				
CO2	Illustrate various concepts of Information Security Techniques and Types like Encryption, Decryption, Storage and Database Security etc.			✓			
CO3	Demonstrate and apply the concept of Network Device Security and Wireless Network.			✓			
CO4	Illustrate the concept of Intrusion detection and OS Model for Information Security.			✓			
CO5	Explain the concepts of Application Design physical Security.		✓				

T.Y.B.Sc. (I.T.) (Semester - VI)

Business Intelligence and Data Analytics (USIT603)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Explain the concept of business intelligence and decision support system in business decision making.		✓				
CO2	Illustrate the role of mathematical models in decision making and describe data mining and data preparation methods.		✓				
CO3	Demonstrate about the concept of classification and clustering in business intelligence.		✓				
CO4	Apply marketing models, logistic and production models and elaborate data envelopment analysis measures.			✓			
CO5	Explain the concept of knowledge management, Artificial intelligence and expert systems.		✓				

T.Y.B.Sc. (I.T.) (Semester - VI)
Fundamentals of GIS (USIT604)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Explain the basic concept of GIS and its applications, know different types of data representation in GIS		✓				
CO2	Illustrate spatial and non-spatial data features in GIS and understand the map projections and coordinates systems		✓				
CO3	Identify prepare maps and perform analysis on existing maps.			✓			
CO4	Compare raster and vector data structures and concepts.		✓				
CO5	Explain satellite positioning systems and explain different GPS.		✓				

T.Y.B.Sc. (I.T.) (Semester - VI)
IT Infrastructure Management (USIT606)

Course Outcomes

After completing this course, students will be able to:

CO	Course Outcomes	Revised Bloom's Taxonomy Learning Levels					
		R	U	A	N	E	C
CO1	Understand the fundamentals of IT service management and the ITIL 4 framework.		✓				
CO2	Explore the various management practices in ITIL, including general management, service management, and technical management.		✓				
CO3	Develop an understanding of driving stakeholder value and creating value for stakeholders.			✓			
CO4	Gain knowledge of creating, delivering, and supporting services within the ITIL service value system.			✓			
CO5	Categorize the continual service improvement principles, process and technology considerations.				✓		
