M.SC IT			
Semester I/II/III/IV/V/VI	**All Subjects / Course**	**Objective of teaching the subject (Minimum 4)**	**OUTCOME**
M.Sc. sem I	**Course Code Course Title Credits** **PSIT101 Research in Computing 4** **PSIT102 Data Science 4** **PSIT103 Cloud Computing 4** **PSIT104 Soft Computing Techniques 4**	1) Ability to apply the knowledge of Information Technology with recent trends aligned with research and industry.	A learner will be able to: solve real world problems with scientific approach. develop analytical skills by applying scientific methods. recognize, understand and apply the language, theory and models of the field of business analytics
		2) Ability to apply IT in the field of Computational Research, Soft Computing, Big Data Analytics, Data Science, Image Processing, Artificial Intelligence, Networking and Cloud Computing.	Apply quantitative modeling and data analysis techniques to the solution of real world business problems, communicate findings, and effectively present results using data visualization techniques. Recognize and analyze ethical issues in business related to intellectual property, data security, integrity, and privacy.
		3) Ability to provide socially acceptable technical solutions in the domains of Information Security, Machine Learning, Internet of Things and Embedded System, Infrastructure Services as specializations.	Analyze the Cloud computing setup with its vulnerabilities and applications using different architectures. Design different workflows according to requirements and apply map reduce programming model. Apply and design suitable Virtualization concept, Cloud Resource Management and design scheduling algorithms.
		4)Ability to apply the knowledge of Intellectual Property Rights, Cyber Laws and Cyber Forensics and various standards in interest of National Security and Integrity along with IT Industry.	Identify and describe soft computing techniques and their roles in building intelligent machines Recognize the feasibility of applying a soft computing methodology for a particular problem
		5) Ability to write effective project reports, research publications and content development and to work in multidisciplinary environment in the context of changing technologies.	-

M.Sc. sem II	**Course Code Course Title Credits** **PSIT201 Big Data Analytics 4** **PSIT202 Modern Networking 4** **PSIT203 Microservices Architecture 4** **PSIT204 Image Processing 4**	1) To understand the state-of-the-art in network protocols, architectures and applications.	Understand the key issues in big data management and its associated applications in intelligent business and scientific computing. Acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in big data analytics.
		2) Analyze existing network protocols and networks.Develop new protocols in networking	Demonstrate in-depth knowledge in the area of Computer Networking. To demonstrate scholarship of knowledge through performing in a group to identify, formulate and solve a problem related to Computer Networks Prepare a technical document for the identified Networking System Conducting experiments to analyze the identified research work in building Computer Networks
		3) Acquire a working knowledge of Web application development using ASP.NET Core MVC 6 and Visual Studio	Develop web applications using Model View Control. Create MVC Models and write code that implements business logic within Model methods, properties, and events. Create Views in an MVC application that display and edit data and interact with Models and Controllers.
		4) Review the fundamental concepts of a digital image processing system.	Understand the relevant aspects of digital image representation and their practical implications. Have the ability to design pointwise intensity transformations to meet stated specifications.Understand 2-D convolution, the 2-D DFT, and have the abitilty to design systems using these concepts.
		5) Analyze images in the frequency domain using various transforms.	-

M. Sc. sem III	**PSIT301 Technical Writing and Entrepreneurship Development** **PSIT302a Applied Artificial Intelligence** **PSIT303a Machine Learning** **PSIT304d Offensive Security**	1) This course aims to provide conceptual understanding of developing strong foundationin general writing, including research proposal and reports.	After completion of the course, a student should be able to: CO1: Develop technical documents that meet the requirements with standard guidelines. Understanding the essentials and hands-on learning about effective Website Development. CO2: Write Better Quality Content Which Ranks faster at Search Engines. Build effective Social Media Pages. CO3: Evaluate the essentials parameters of effective Social Media Pages. CO4: Understand importance of innovation and entrepreneurship. CO5: Analyze research and development projects.
		2) It covers the technological developing skills for writing Article, Blog, E-Book, Commercial web Page design, Business Listing Press Release, E-Listing and Product Description.	After completion of course the learner will: CO1: be able to understand the fundamentals concepts of expert system and its applications. CO2: be able to use probability and concept of fuzzy sets for solving AI based problems. CO3: be able to understand the applications of Machine Learning. The learner can also apply fuzzy system for solving problems. CO4: learner will be able to apply to understand the applications of genetic algorithms in different problems related to artificial intelligence. CO5: A learner can use knowledge representation techniques in natural language processing.

M. Sc. sem III	**PSIT301 Technical Writing and Entrepreneurship Development** **PSIT302a Applied Artificial Intelligence** **PSIT303a Machine Learning** **PSIT304d Offensive Security**	3) To explore the applied branches of artificial intelligence	After completion of the course, a student should be able to: CO1: Understand the key issues in Machine Learning and its associated applications in intelligent business and scientific computing. CO2: Acquire the knowledge about classification and regression techniques where a learner will be able to explore his skill to generate data base knowledge using the prescribed techniques. CO3: Understand and implement the techniques for extracting the knowledge using machine learning methods. CO4: Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc. CO5: Understand the statistical approach related to machine learning. He will also Apply the algorithms to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models.
		4) To enable the learner to understand applications of artificial intelligence	After completion of the course, a student should be able to: CO1: Understand basic security issues in cloud, IoT etc. CO2: Understand different security techniques and policies CO3: Use Vulnerability assessment and exploitation tool CO4: Analyze the network perform reconnaissance and enumerate the target to detect vulnerabilities CO5: Perform offensive tests using Metasploit on various application, generating payloads etc.
		5) Understanding nature of problems solved with Machine Learning	-
		6) How to inspect, protect assets from technical and managerial perspectives. To Learn various offensive strategies to penetrate the organizations security.	-

M. Sc. sem IV	**PSIT401 Blockchain** **PSIT402a Natural Language Processing** **PSIT403a Deep Learning** **PSIT404b Advanced Applications of Image Processing**	1) To provide conceptual understanding of the function of Blockchain as a method of securing distributed ledgers, how consensus on their contents is achieved, and the new applications that they enable.	After completion of the course, a student should be able to: CO1: The students would understand the structure of a blockchain and why/when it is better than a simple distributed database. CO2: Analyze the incentive structure in a blockchain based system and critically assess its functions, benefits and vulnerabilities CO3: Evaluate the setting where a blockchain based structure may be applied, its potential and its limitations CO4: Understand what constitutes a “smart” contract, what are its legal implications and what it can and cannot do, now and in the near future CO5: Develop blockchain DApps.
		2) To provide understanding of various NLP tasks and NLP abstractions such as Morphological analysis, POS tagging, concept of syntactic parsing, semantic analysis etc.	After completion of the course, a student should be able to: CO1: Students will get idea about know-hows, issues and challenge in Natural Language Processing and NLP applications and their relevance in the classical and modern context. CO2: Student will get understanding of Computational techniques and approaches for solving NLP problems and develop modules for NLP tasks and tools such as Morph Analyzer, POS tagger, Chunker, Parser, WSD tool etc. CO3: Students will also be introduced to various grammar formalisms, which they can apply in different fields of study. CO4: Students can take up project work or work in R&D firms working in NLP and its allied areas. CO5: Student will be able to understand applications in different sectors

M. Sc. sem IV	**PSIT401 Blockchain** **PSIT402a Natural Language Processing** **PSIT403a Deep Learning** **PSIT404b Advanced Applications of Image Processing**	3) To present the mathematical, statistical and computational challenges of building neural networks. To study the concepts of deep learning	After completion of the course, a student should be able to: CO1: Describes basics of mathematical foundation that will help the learner to understand the concepts of Deep Learning. CO2: Understand and describe model of deep learning CO3: Design and implement various deep supervised learning architectures for text & image data. CO4: Design and implement various deep learning models and architectures. CO5: Apply various deep learning techniques to design efficient algorithms for real-world applications.
		4) To apply the concepts to new areas of research in Image processing.	After completion of the course, a student should be able to: CO01: Understand the advanced applications of Image processing. CO02: Understand the application of image processing pattern recognition, encryption and image enhancement. CO03: Understand and apply the image processing techniques in identification of foreign body using radiography, watermarking techniques. CO04: Apply the image processing techniques to robot vision, biometrics, human tracking using wireless camera. CO05: Apply image processing in steganography, expert systems through GIS based cloud.