AQAR – QUALITATIVE METRIC

2022 - 2023

Criterion 1 - Curricular Aspects

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme specific outcomes (PSOs) and Course Outcomes (COs), of the Programmes offered by the Institution.

NAME OF THE PROGRAMME: M.Sc Information Technology

Programme Outcomes:

PO 1	Apply acquired scientific knowledge to solve major and complex issues in the society/industry
PO 2	Attain research skills to solve complex cultural, societal and environmental issues
PO 3	Employ latest and updated tools and technologies to solve complex issues.
PO 4	Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

Programme Specific Outcomes:

PSO 1	Understand the concepts and applications in the field of Computing Sciences like Web designing and development, Mobile application development, and Network and communication technologies.
PSO 2	Apply the learning from the courses and develop applications for real world problems.
PSO 3	Understand the technological developments in the usage of modern design and development tools to analyze and design for a variety of applications
PSO 4	Communicate in both oral and written forms, demonstrating the practice of professional ethics and the concerns for social welfare.
PSO 5	Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems
PSO 6	Ability to understand the structure and development methodologies of software systems. Possess professional skills and knowledge of software design process. Familiarity and practical competence with a broad range of programming language and

	open-source platforms.
PSO 7	Be acquainted with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing problems.

Course Outcomes:

Course Code	**Course Title**	**Nature Of TheCourse (Local/National/Regional/Global)**	**Course Description**	**Course Outcomes**
21PG1IT1	Java & J2ME	Global	This course provides various techniques of Java Programming and help them to create effective	CO1: To understand the structure and model of the Java programming language. CO2: To explain the concepts of Packages, Interfaces and strings.

			programs in this language.	CO3: To develop software implementing Exception handling mechanisms. CO4: To design software for database connectivity and able to design GUI applications. CO5: To implement server side programming using SERVLETS.
21PG1IT2	Soft Computing	Global	This course emphasizes learning various soft computing techniques.	CO1: Understand basic model in soft computing. CO2: Elaborate artificial neural network concepts. CO3: Be familiar with design of various neural networks. CO4: Understand genetic programming. CO5: Exposed to various hybrid systems.

22PG1IT3	Data Science using R Programming	Global	This course provides an in-sight to learn and understand the concepts in data science.	CO1: To understand the basic concepts in R- Programming. CO2: Illustrate various statements used in R-Programming for data management. CO3: Analyze various techniques and models to import and export the data set. CO4: To know about the Linear And Logistic Regression, Unsupervised & Advanced Methods. CO5: Implementation of documentation and effective presentations.
21PG1IT4	Distributed Operating	Global	To understand the concept of design and	CO1: Understand the core concepts of distributed

	Systems		implementation in the context of distributed operating systems.	systems. CO2: Analyze various message passing mechanisms with its model. CO3: Identify the inherent difficulties that arise due to distribution of computing resources. CO4: Explain migration with the process management policies. CO5: Explain the basic concepts, design and structure of the LINUX operating system.
21PG1IT5	LAB I: Java & J2ME	Global	This course provides programming skills on various concepts	CO1: To understand the concept of Object Oriented Programming & Java Programming

			in JAVA.	Constructs. CO2: To practice the concepts of operators, classes, objects, inheritance, packages ,Enumeration and various keywords. CO3: To apply exception handling mechanisms. CO4: To design the applications of Java & Java applet, Swings and JDBC. CO5: To Analyze and implement J2ME
22PG1IT6	LAB II : Data Science using R-Programming	Global	This course provides to understand the Data storage, management and organisation	CO1:Implement Basic Data Access, List CO2: Develop programs using Array, function. CO3: Use Linear Regression and

			techniques	ANOVA CO4: Understand Graphical Configurations. CO5: Develop program using simulation and statistical method.
21IT1EDC	Animation Software	Global	This course is designed to facilitate different animation techniques in animation software.	CO1: Understand basic concepts in Alice. CO2: Construct a scene. CO3: Build program in Alice using looping and branching. CO4: Apply event handlers in alice. CO5: Develop 3D animations
21PG2IT7	Cyber Security	Global	This course emphasizes learning various concepts in data science.	CO1:Analyze and evaluate the cyber security needs of an organization CO2: Measure the performance and troubleshoot cyber security

				systems. CO3: Comprehend and execute risk management processes, risk treatment methods, and key risk and performance indicators. CO4: Design and develop a security architecture for an organization CO5: Design operational and strategic cyber security strategies and policies.
21PG2IT8	Digital Image Processing	Global	The course helps to create interest in image processing techniques and infuse research thirst in this area.	CO1: Understand the representation of digital image and its manipulations. CO2: Analyze image sampling and quantization requirements and implications. CO3: Describe various

				Transformation and Filtering Techniques. CO4: Demonstrate Restoration And Reconstruction models. CO5: Utilize Image Compression And Segmentation for efficient storage.
21PG2IT9	Android Programming	Global	The primary goals will be design the next generation of mobile website, apps and other mobile interfaces across multiple platform such as IOS, android, windows and mobile web.	CO1: Design scripts to meet given interface and media control requirements. CO2: Utilize variables, properties and other code elements appropriately to implement the code design. CO3: Implement and evaluate techniques for the installation of mobile applications. CO4: Explain the principles of

				technologies which support media production and delivery on a variety of platforms. CO5: Evaluate alternative mobile frameworks, and contrast different programming platforms.
21PG2IT10	LAB III : Digital Image Processing	Global	The course helps to create interest in image processing techniques and infuse research thirst in this area.	CO1: Demonstrate Fundamental Steps involved in Digital Image Processing. CO2:Analyze and use Mathematical Tools for Digital Image Processing. CO3: Apply Intensity Transformation functions and Spatial filtering methods. CO4: Utilise Color Image Processing with different ColorModels.

				O5: Implement Image Segmentation Techniques and Image Compression Techniques using Huffman , Golomb and Arithmetic coding algorithms.
21PG2IT11	LAB IV: Android Programming	Global	To Mobile User Interface (UI) Design is also essential in the creation of Mobile Apps. mobile UI considers constraints, context, screen, input, and mobility as outlines for design.	CO1: Develop enterprise-level mobile solutions. CO2:Install and configure Android application development tools. CO3:Demonstrate Save State information across important operating system events. CO4:Develop advanced application programs using Android. CO5: Design and develop mobile

				applications.
21PG2ITE1	Adhoc Network	Global	This course provides architecture and protocols of ad hoc wireless networks.	CO1: Understand the design issues in ad hoc and sensor networks. CO2:Learn the different types of MAC protocols. CO3: Be familiar with different types of adhoc routing protocols. CO4: Be expose to the TCP issues in adhoc networks. CO5: Learn the architecture and protocols of wireless sensor networks.
21PG2ITE2	Machine Learning	Global	To Learn about Machine Intelligence and Machine Learning applications	CO1: Have a good understanding of the fundamental issues and challenges of machine learning concept. CO2: Understand, Analyse and

				identify the strengths and weaknesses of many popular machine learning approaches. CO3: Aware about the underlying mathematical relationships across Machine Learning algorithms and the paradigms of supervised and un-supervised learning. CO4: Ability to design and implement various machine learning algorithms in a range of real-world applications. CO5: Perform evaluation of machine learning algorithms and model selection.

21PG2ITE3	Ethical Hacking	Global	Cyber Security courses aims to equip students with the knowledge and skills required to defend the computer operating systems, networks and data from cyber-attacks.	CO1:To Understand the fundamental concepts in ethical hacking CO2: Analyze different types of protocols. CO3:Discuss the authentication requirements. CO4: Explains various types of attacks CO5: Analyze the Security issues.
21IT2EDC	Advanced Excel VBA	Global	This course is designed to facilitate different animation techniques in animation software.	CO1: Understand fundamentals of VBA CO2: Apply different conditional logics and loops. CO3: Build forms with interactivity. CO4: Apply Events and Setting in Excel sheets.

				CO5: Develop Procedures and Array concepts.
21PG3IT12	Data Mining and Data Warehousing	Global	Data Mining and Data Warehousing consists of introduction about data mining, data pre-processing, mining frequent pattern, association, classification and cluster analysis and applications of data mining.	CO1: Understand the fundamental concept of Data Mining andanalyze and evaluate the data cleaning, integration , transformation and reduction techniques. CO2: Design multidimensional data using Data Warehouse architecture. CO3: Analyze and evaluate Classification algorithms. CO4: Identify the types of data in Cluster Analysis and categorize the Cluster Methods. CO5: Utilize the Data Mining techniques in various real

				applications and in major issues.
21PG3IT13	Advanced Python Programming	Global	The course helps to create interest in image processing techniques and infuse research thirst in this area.	CO1:Understand the basic programming style in python . CO2: Apply various types of control flow statements in python programs. CO3: Identify the structure and components of a python program. CO4: Analyze Object oriented programming concepts and techniques in python. CO5: Implementing the GUI concepts in Python.
21PG3IT14	LAB V: Data Mining and Data Warehousing	Global	Data Mining and Data Warehousing consists of	CO1: Utilize Weka tool to evaluate Data Mining algorithms. CO2: Demonstrate pre

			introduction about data mining, data warehousing, data pre-processing, :mining frequent pattern, association, classification and cluster analysis and applications of data mining.	processing steps involved in different datasets. CO3: Develop the decision tree algorithm using different datasets. CO4: Demonstrate the classification and clusters algorithms using large datasets. CO5: Analyze Data Mining techniques for realistic data.
21PG3IT15	LAB VI: Advanced Python Programming	Global	This course content plays a vital role in building the basic programming skill in Python.	CO1: Demonstrate the basic concepts of variables expressions. CO2: Develop basic python programs with I/O operations. CO3: Develop programs with function control structure.

				CO4: Apply strings and lists in python. CO5: Develop python programs with files.
21PG3ITE4	Software Testing	Global	To study fundamental concepts in software testing, planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report.	CO1: Discuss various software application domains and different process model used in software development. CO2: Demonstrate the basics of software quality assurance and defect prevention. CO3: Compare different testing strategies and tactics. CO4: Apply the software testing techniques in commercial environment. CO5: Explain high performance testing using Jmeter.

22PG3ITE5	System Software & Compiler Design	Global	The course helps to create interest in image processing techniques and infuse research thirst in this area.	CO1:Interpret the concepts of system software and machine architecture. CO2: Identify the concepts of loader and linkers CO3: Analyse the concepts of working principles of compilers. CO4: Experiment Finite Automata for regular expressions. CO5: Simplify the expressions using Parser.
21PG3ITE6	Computer Forensics	Global	Linux shell programming describes about the commands used to develop the concept of shell programming.	CO1:Understand basic concepts in Computer forensics. CO2:Explain different investigation procedures. CO3: Understand different Data acquisition mode.

				CO4: Understand investigation process using computer forensics. CO5: Know how to apply forensic analysis tools to recover important evidence for identifying computer crime
21PG3ITE7	Big Data Analytics	Global	Big Data Analytics includes Introduction to Big Data, Big Data Analytics, The Big Data Technology, Introduction to MAPREDUCE Programming: and Introduction to Recommendation Engines.	CO1: Understand the Characteristics and challenges of Big Data. CO2: Describe the concepts of Big Data Analytics. CO3: Utilize Hadoop for Big Data Technologies. CO4: Demonstrate MAPREDUCE Programming. CO5: Describe types of Recommendation Systems using

				Big Data Analytics.
21PG3ITE8	Internet Of Things	Global	This Course provides knowledge of development cycle of IoT systems with sample systems. And explains the different sources needed with the integration process to build IoT systems	CO1: Understand the basic concepts of IoT. CO2: Discuss physical and logical design of IoT enabled technologies. CO3: Analyze how and where IoT can be applied. CO4: Compare M2M and IoT. CO5: Analyse the features of Python used for IoT implementation.
22PG3ITE9	Algorithm Design and Analysis	Global	This course introduces basic methods for the design and analysis of efficient algorithms emphasizing methods	CO1: To understand the basic concepts of analysis. CO2: Analyze the concept of various searching and traversal techniques. CO3: Discuss concept of

			useful in practice.	dynamic programming and greedy method. CO4: Explain the concepts of Backtracking, branch and bound methods CO5: Apply the algorithm for NP-Hard and NP- complete problems.
21PG3ITSI	Summer Internship	Global	It is a summer training programme undertaken by the students in a company of their choice. This is aimed to help them have an experience of the real time environment. It will act as a platform	CO1: Identify employment contacts leading directly to a full-time job following course completion. CO2: Create communication, interpersonal and other soft skills essential for the job interview process. CO3: Analyze the project requirements and engages in

			for the future placement. The students are mandated to complete one online course in the area of their interest. The students have to submit a report after the internship. This report will be assessed through a viva-voce internal exam.	continuing professional development. CO4: Analyze a problem and identify the computing requirements appropriate to its solution. CO5: Utilizing a new software tool.
19PG4ITPR	Project Work AndViva Voce	Global	The project will be of one semester	CO1: Discuss project development and the associated

			duration. The students will be sent to different organizations involved in IT as per the interest and specialization of students, mostly located in the place of the study. They will have to carry out a project related to the area of interest and submit a project report at the end of the semester. The students shall defend their dissertation in	business processes. CO2: Plan as an individual or in a team in development of technical projects. CO3: Communicate with engineers and the community at large in written and oral forms. CO4: Create effective communication skills for presentation. CO5: Analyse problems and formulate solutions.

			front of a panel of experts during the Viva-Voce examination.	
21PG4IT16	Biometrics	Global	This Course provides knowledge of R-Programming and explains the different statements and functions used in R-Programming.	CO1: To understand the basic concepts in R- Programming. CO2: Illustrate various statements used in R-Programming. CO3: Analyze various techniques to import and export the data set. CO4: To know about the aggregate functions. CO5: Implementation of R-Programming in current scenario