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CRITERIA 2: TEACHING-LEARNING AND EVALUATION	
Key Indicator – 2.6.	**Student Performance and Learning Outcome**
Matric No- 2.6.1	**Programme Outcomes (POs) and Course Outcomes (Cos) for all Programmes offered by the institution are stated and displayed on.**

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PROGRAMME OUTCOMES

Programme Code:**1113161**	Name of the Programme: **M.Sc. IT**

Programme Outcomes:
After successful completion of the programme, graduates will be able to;

PO1: Apply the knowledge of mathematics, science and computing in the core information technologies.

PO2: Identify, design, and analyze complex computer systems and implement and interpret the results from those systems.

PO3:Design, implement and evaluate a computer-based system, or process component

PO4:Review literature and indulge in research using research based knowledge and methods to design new experiments, analyze, and interpret data to draw valid conclusions.

PO5:Select and apply current techniques, skills, and tools necessary for computing practice and integrate IT-based solutions into the user environment effectively.

PO6:Apply contextual knowledge to assess professional, legal, health, social and cultural issues during profession practice.

PO7:Analyze the local and global impact of computing on individuals, organizations, and society.

PO8: Apply ethical principles and responsibilities during professional practice.

PO9: Function effectively as a team member or a leader to accomplish a common goal in a multidisciplinary team.

PO10:Communicate effectively with a range of audiences using a range of modalities including written, oral and graphical.

M.SC. IT PART I

COURSE OUTCOMES

SEMESTER I	
COURSE CODE : 501	COURSE TITLE: Data Science

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Apply quantitative modeling and data analysis techniques to the solution of real world business problems.(2)*

CO2: Recognize and analyze ethical issues in business related to intellectual property, data security, integrity, and privacy.(4)*

CO3:Apply ethical practices in everyday business activities and make well-reasoned ethical business and data management decisions.(3)*

CO4:Demonstrate knowledge of statistical data analysis techniques utilized in business decision making.(3)*

CO5:Apply principles of Data Science to the analysis of business problems.(3)*

SEMESTER I	
COURSE CODE : 502	COURSE TITLE: Data Science Practical

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Apply quantitative modeling and data analysis techniques to the solution of real world business problems.(3)*

CO2: Recognize and analyze ethical issues in business related to intellectual property, data security, integrity, and privacy.(4)*

CO3:Apply ethical practices in everyday business activities and make well-reasoned ethical business and data management decisions.(3)*

CO4:Demonstrate knowledge of statistical data analysis techniques utilized in business decision making.(3)*

CO5:Apply principles of Data Science to the analysis of business problems.(3)*

SEMESTER I	
COURSE CODE : 503	COURSE TITLE: Soft Computing

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand fundamental concepts underlying soft computing.(2)*

CO2:Apply variety of soft computing techniques.(3)*

CO3:Apply soft computing techniques to solve real-world problems from various domains such as engineering, finance, healthcare, and more.(3)*

CO4:Formulate problems in a way that lends itself to the application of soft computing techniques, taking into account the uncertainties and imprecision present in real-world data.(3)*

CO5:Understand how fuzzy logic works and its applications in modelling and decision making under uncertainty.(2)*

SEMESTER I	
COURSE CODE : 504	COURSE TITLE: Soft Computing Practical

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Identify and describe soft computing techniques and their roles in building intelligent machines. (1)*

CO2:Recognize the feasibility of applying a soft computing methodology for a particular problem.(2)*

CO3:Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems.(3)*

CO4:Apply genetic algorithms to combinatorial optimization problems.(3)*

CO5:Apply neural networks for classification and regression problems.(3)*

SEMESTER I	
COURSE CODE : 505	COURSE TITLE: Cloud Computing

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Analyze the Cloud computing setup with its vulnerabilities and applications using different architectures. (4)*

CO2:Design different workflows according to requirements and apply map reduce programming model.(3)*

CO3:Apply and design suitable Virtualization concept, Cloud Resource Management and design scheduling algorithms.(3)*

CO4:Create combinatorial auctions for cloud resources and design scheduling algorithms for computing cloud.(6)*

CO5:Assess cloud storage systems and cloud security, the risks involved, their impact and develop cloud applications.(5)*

SEMESTER I	
COURSE CODE : 506C	COURSE TITLE: Image Processing

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand the relevant aspects of digital image representation and their practical implications.(2)*

CO2:Design point-wise intensity transformations to meet stated specifications.(3)*

CO3:Understand 2-D convolution, the 2-D DFT, and have the ability to design systems using these concepts. (2)*

CO4:Apply basic image restoration techniques.(3)*

CO5: Understand the role of alternative colour spaces and the design requirements leading to choices of colour space.(2)*

SEMESTER I	
COURSE CODE : 510	COURSE TITLE: Research Methodology

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Solve real world problems with a scientific approach.(3)*

CO2:Develop analytical skills by applying scientific methods.(4)*

CO3:Understand and apply the language, theory and models of the field of business analytics.(2)*

CO4:Analyze, synthesize and solve complex unstructured business problems.(4)*

CO5:Understand the concepts and methods of business analytics.(2)*

SEMESTER II	
COURSE CODE : 513	COURSE TITLE: Modern Networking

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand the state-of-the-art in network protocols, architectures and applications. (2)*

CO2:Analyze existing network protocols and networks.(4)*

CO3:Develop new protocols in networking.(3)*

CO4:Understand how networking research is done.(2)*

CO5:Understand the modern networking concepts.(2)*

SEMESTER II	
COURSE CODE : 514	COURSE TITLE: Modern Networking Practical

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Demonstrate in-depth knowledge in the area of Computer Networking. (3)*

CO2:Demonstrate scholarship of knowledge through performing in a group to identify, formulate and solve a problem related to computer networks.(3)*

CO3:Prepare a technical document for the identified Networking System Conducting experiments.(3)*

CO4:Analyze the identified research work in building Computer Networks.(3)*

CO5:Formulate and solve a problem related to Computer Networks. (3)*

SEMESTER II	
COURSE CODE : 516C	COURSE TITLE: Computer Vision Practical

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand the basics of computer vision.(2)*

CO2:Understand and analyse various structures form motion and various estimates of Dense Motion. (4)*

CO3:Apply various motion models to images and understand computation photography techniques.(3)*

CO4:Apply epipolar geometry , rectification and various other 3D correspondence and stereo reconstruction techniques.(3)*

CO5:Understand image-based rendering and reconstruction.(2)*

SEMESTER II	
COURSE CODE : 511	COURSE TITLE: Big Data

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand big data concepts.(2)*

CO2:Do data collection and integration.(3)*

CO3:Develop data storage and management.(3)*

CO4:Perform data preprocessing and cleaning.(3)*

CO5:Understand data transformation and feature engineering.(2)*

SEMESTER II	
COURSE CODE : 512	COURSE TITLE: Big Data Practical

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand the key issues in big data management and its associated applications in intelligent business and scientific computing. (2)*

CO2:Acquire fundamental enabling techniques and scalable algorithms.(3)*

CO3:Interpret business models and scientific computing paradigms, and apply software tools for big data analytics. (3)*

CO4:Understand the perspectives of big data analytics in various applications.(3)*

CO5:Use Big data analytic tools.(3)*

SEMESTER II	
COURSE CODE : 515	COURSE TITLE: Microservices Architecture

Course Outcomes: After successful completion of the course, students will be able to;

CO1:Understand the philosophy and architecture of Web applications using ASP.NET Core MVC.(2)*

CO2:Understand .NET Core.(2)*

CO3:Understand web application development using ASP.NET Core MVC 6 and Visual Studio.(2)*

CO4:Persist data with XML Serialization and ADO.NET with SQL Server.(3)*

CO5:Create HTTP services using ASP.NET Core Web API.(6)*

* Note: Numbers given in the brackets () refer to learning levels of the revised Blooms' Taxonomy (2001) as follows:

(1) : Remember,(2): Understand, (3): Apply (4): Analyse (5): Evaluate (6): Create

M.Sc.IT Coordinator **IQAC Coordinator** **Principal**

Principal