COSMOPOLITAN'S
VALIA C.L. COLLEGE OF COMMERCE & VALIA L.C. COLLEGE OF ARTS
D.N.Nagar, Andheri (West), Mumbai 400 053

PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES & COURSE OUTCOMES

Master of Science

(Information Technology)

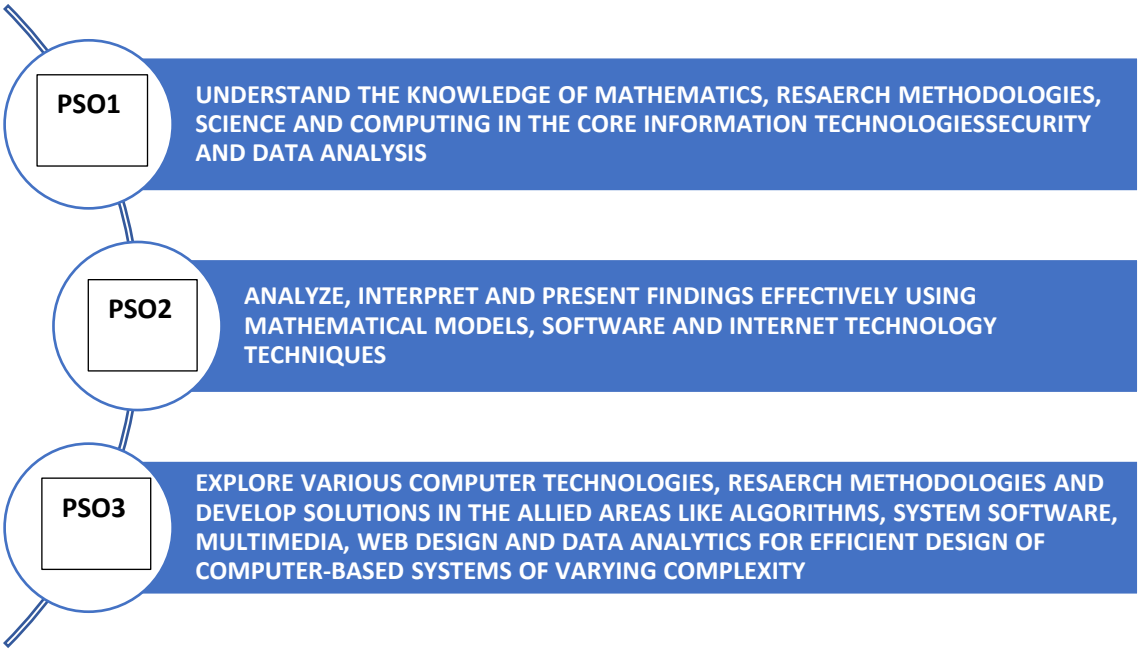
PROGRAM- MASTER OF SCIENCE

(Information Technology)

PROGRAM CODE: MSc

PROGRAM OUTCOMES

PROGRAM SPECIFIC OUTCOMES



SEMESTER I

Course: Research in Computing

COURSE OUTCOMES
CO-1 Define all the key concepts related to research. **CO-2** Understand the concepts, theories and different methods of research process. **CO-3** Apply scientific approach to real world problems. **CO-4** Compare and contrast different statistical techniques. **CO-5** Foster an ability to critically analyse, synthesize and solve complex unstructured research problems. **CO-6** Create viable solutions for a given research problem.

Course: Cloud Computing

COURSE OUTCOMES
CO-1 Describe various concepts of cloud computing and study various cloud computing architectures. **CO-2** Explain the concepts of vitalization, parallel computing and distributed computing. **CO-3** Illustrate taxonomy of virtualization, the impact of cloud computing and cloud resource management architectures. **CO-4** Analyze the cloud computing setup with its vulnerabilities and applications using different architectures. **CO-5** Estimate cloud security threats and its impact on cloud service. Assess various automation tools used in cloud resource management. **CO-6** Create combinatorial auctions for cloud resources and design scheduling algorithms for computing clouds.

Course: Soft Computing Techniques

COURSE OUTCOMES
CO-1 Describe soft computing techniques and their roles in building intelligent machines. **CO-2** Discuss different soft computing methodologies to solve a particular problem. **CO-3** Use fuzzy logic and reasoning to handle uncertainty and solve real life application problems. **CO-4** Test different genetic algorithms to solve optimization problems. **CO-5** Assess neural networks for classification and regression problems. **CO-6** Plan and design solutions by various soft computing approaches for a given problem.

Course: Data Science

COURSE OUTCOMES
CO-1 Describe Data Science technology stack. Recognize and analyse ethical issues in business related to intellectual property, data security, integrity, and privacy **CO-2** Discuss ethical practices in everyday business activities and make well-reasoned ethical business and data management decisions **CO-3A** Apply quantitative modelling and data analysis techniques for the solution of real world business problems. **CO-3B** Demonstrate knowledge of statistical data analysis techniques utilized in business decision making. **CO-4** Appraise principles of Data Science to the analysis of business problems. **CO-5** Select different data mining software's to solve real-world problems. **CO-6** Design algorithms to build machine intelligence.

SEMESTER II

Course: Big Data Analytics

COURSE OUTCOMES
CO-1 Describe the key issues in big data management and its associated applications in intelligent business and scientific computing. **CO-2** Explain fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in big data analytics. **CO-3** Apply software tools for big data analytics. **CO-4** Test business models and scientific computing paradigms. **CO-5** Assess techniques of big data analytics in various applications like recommender systems, social media applications etc. **CO-6** Develop solutions to complex real-world problems in decision support.

Course: Modern Networking

COURSE OUTCOMES
CO1 Describe various networking technologies and study modern networking architecture. **CO2** Explain the concepts of software define network and network virtualization. **CO3** Illustrate various network architectures and demonstrate the concepts of quality of service and quality of experience. **CO4** Compare and contrast various generations of networking protocols. **CO5** Estimate network vulnerability and monitor network security using various security protocols. **CO6** Create a secure network design using modern networking techniques.

Course: Micro services Architecture

COURSE OUTCOMES
CO1 Define the terms packages, meta packages and frameworks. **CO2** Explain the philosophy and architecture of .NET Core. **CO3** Examine Views in an MVC application that display and edit data and interact with Models and Controllers. **CO4** Test deploying ASP.NET Core MVC applications to the Windows Azure cloud. **CO5** Assess the implementation of multi-threading effectively in .NET applications **CO6-A** Develop web applications using Model View Control. **CO6-B** Create MVC Models and write code that implements business logic within Model methods, properties, and events.

Course: Image Processing

COURSE OUTCOMES
CO-1 Describe the relevant aspects of digital image representation and their practical implications to have the ability to design point wise intensity transformations to meet stated specifications. **CO-2** Explain 2-D convolution, the 2-D DFT to have the ability to design systems using these concepts. **CO-3** Illustrate the role of alternative color spaces, and the design requirements leading to choices of color space. **CO-4** Test the ability to design systems using standard algorithms to meet design specifications. **CO-5** Assess the utility of wavelet decompositions and their role in image processing systems. **CO-6** Plan and design solutions by various image compression approaches for a given problem.

SEMESTER III

Course: Technical Writing and Entrepreneurship

COURSE OUTCOMES
CO-1 Describe conceptual understanding of developing a strong foundation in general writing, including research proposals and reports. **CO-2** Discuss the essentials and hands-on learning about effective website and entrepreneurship development. **CO-3A** Illustrate technological developing skills for writing Article, Blog, E-Book, Commercial web Page design, Business Listing Press Release, E-Listing and Product Description. **CO-3B:** Write better quality content which ranks faster at Search Engines and also effective social media Pages. **CO-4:** Test the skills to produce a set of documents related to technology in the workplace to improve the ability to write clearly and accurately. **CO-5** Assess the effective communication principles encouraged by professional writers. **CO-6** Develop technical documents that meet the requirements with standard guidelines.

Course: Applied Artificial Intelligence

COURSE OUTCOMES
CO-1 Describe the fundamentals concepts of expert system and its applications. **CO-2** Classify different applied branches of artificial intelligence. **CO-3A** Illustrate the applications of Machine Learning and also apply fuzzy system for solving problems. **CO-3B** Apply to understand the applications of genetic algorithms in different problems related to artificial intelligence. **CO-4** Test probability and concept of fuzzy sets for solving AI based problems. **CO-5** Select knowledge representation techniques in natural language. **CO-6** Plan to solve the problem aligned with derived branches of artificial intelligence.

Course: Machine Learning

COURSE OUTCOMES
CO-1 Define the key issues in Machine Learning and its associated applications in intelligent business and scientific computing. **CO-2** Discuss 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. **CO-3** Examine and implement the techniques for extracting the knowledge using machine learning methods. **CO-4** Appraise adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc. **CO-5** Assess the statistical approach related to machine learning. **CO-6** Construct algorithms for a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models.

Course: Offensive Security

COURSE OUTCOMES
CO-1 Define basic security issues in cloud, Io T etc. **CO-2** Explain different security techniques and policies. **CO-3** Use Vulnerability assessment and exploitation tools. **CO-4** Test the network performs reconnaissance and enumerate the target to detect vulnerabilities. **CO-5** Assess offensive tests using Metasploit on various application, generating payloads etc. **CO-6** Generalize various tools that aid in offensive security testing.

SEMESTER IV

Course: Block chain

COURSE OUTCOMES
CO-1 Describe the structure of a block chain and why/when it is better than a simple distributed database. **CO-2** Discuss Block chain as a method of securing distributed ledgers, how consensus on their contents is achieved, and the new applications that they enable. **CO-3** Analyze the incentive structure in a block chain based system and critically assesses its functions, benefits and vulnerabilities. **CO-4** Discuss what constitutes a "smart" contract, what its legal implications are and what it can and cannot do, now and in the near future. **CO-5** Evaluate the setting where a block chain based structure may be applied, its potential and its limitations. **CO-6** Develop block chain D Apps.

Course: Cyber Forensics

COURSE OUTCOMES
CO-1 List and describe the laws relevant to computer forensics. **CO-2** Discuss the knowledge of network analysis and how to use it for analysing the internet attacks. **CO-3** Examine to recover and analyse the data using forensics tool. **CO-4** Investigate the cyber forensics with standard operating procedures. **CO-5** Evaluate the data recovery from the hard disk with legal procedure. **CO-6** Invent internet frauds done through various gadgets like mobile, laptops, tablets and become a forensic investigator.

Course: Deep Learning

COURSE OUTCOMES
CO-1 Describe basics of mathematical foundation that will help the learner to understand the concepts of Deep Learning. **CO-2** Understand and explain model of deep learning. **CO-3** Illustrate different deep learning techniques to support real-time applications. **CO-4** Test and evaluate various deep learning models and architectures. **CO-5** Assess various deep learning techniques to design efficient algorithms for real-world applications. **CO-6** Design and implement various deep supervised learning architectures for text & image data.

Course: Information Security Auditing

COURSE OUTCOMES
CO-1 Describe various information security policies, process flow and ethics of an Information Security Auditor. **CO2** Explain various information systems in an organization, their criticality and various governance and management policies associated with them. **CO3** Experiment the information flow across the organization and identify the weak spots, and also suggest improvements to strengthen them. **CO-4** Critically analyse various operational strategies like asset management, data governance etc. and suggest requisite changes as per organizations requirements with improvements. **CO-5** Assess an organization based on the needs and suggest the requisite information security policies to be deployed. **CO-6** Formulate strong strategies to protect information assets and come up with an efficient business continuity plan, disaster recovery strategy etc.