M.Sc COMPUTER SCIENCE COURSE OUTCOMES

S.NO	COURSE NAME	COURSE CODE	COURSE OUTCOME
1	Discrete Mathematical Structure	MSCS1.1	CO1:Understand sets and perform operations and algebra on sets CO2: Evaluate combinations and permutations on sets. CO3:Determine algebraic structures and morphism CO4: Determine properties of Boolean lattices and Boolean algebra CO5:Prove mathematical theorems using mathematical induction CO6: Ability to understand proof techniques CO7:Define graphs, digraphs and trees, and identify their main properties
2	Data Structures & File Structures	MSCS1.2	**PART A:** CO1:Understanding the Stack and its operations CO2:Understanding the Queue and its types CO3:ToUnderstand basic concept about linked lists and types CO4:Gain knowledge on trees and tree traversing techniques CO5:Ability to understand binary search tree **PART B:** CO6:Introducing fundamental concepts of file structure. CO7:Understanding the secondary storage like disk,tape CO8:Introductoin to buffer and buffer strategies CO9: learn file structures and record structures CO10:Understanding the concept of Indexing, B trees, Hashing.
3	Computer Organization & Architecture	MSCS1.3	CO1:Understanding the registers and micro operations CO2:Learn about basic computer organization and its design CO3:Ability to know the micro programmed control CO4: Understand the architecture and functionality of central processing unit. CO5: Understanding the input and output

			organization concepts like Asynchronous data transfer,DMA,modes off transfer etc CO6: Exemplify in a better way the I/O and memory organization CO7: The students will be able to demonstrate the over view of computer architecture
4	Object Oriented Programming using C++ & JAVA	MSCS1.4	CO1: Students will understand the need of object oriented programming, fundamental concepts. CO2:Gain knowledge on basic concepts of C++ like variables,data types ,operators etc CO3: Understanding the building blocks of C++ like constructor,destructor,friendfunction,thispointer,templates etc CO4: Ability to understand inheritance and polymorphism in C++ CO5: Student will understand the Java Introduction , Applets , arrays ,strings ,vectors CO6: Students will be able to create user interfaces and packages also gain knowledge on multi threading CO7: The students will be able to demonstrate programs on exceptions in C++ and Java CO8: Ability to understand the streams and files
5	Advanced Computer Networks	MSCS1.5	CO1:To learn the basic concepts of computer networks. CO2: Understand the concepts of Data Communication. CO3: Understand Wireless LANs , MANs & Wireless Sensor Networks Operation CO4: To study the design issues in networks. CO5: Gain knowledge about working of Internet Transport Protocols CO6: To learn the DNS,SNMP,FTP,HTTP and firewalls CO7:Understand the importance of network devices like bridges, routers, hubs, switches etc CO8:Understand the advanced networks and its types.
6	Data & File Structures LAB	MSCS1.6	● Design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps, graphs, and B-trees. ● Analyze and implement various kinds of searching and sorting techniques. ● Implement programs of for insert, delete, update records from file. ● Design algorithms for hashing techniques.
7	Computer Organization LAB	MSCS1.7	● Digital logic design experiments ● Understanding assembly language programming

8	Formal Languages & FiniteAutomata	MSCS2.1	CO1:Use concepts of formal languages of finite automata techniques CO2:Design Finite Automata's for different regular expressions and languages. CO3:Construct context free grammar for various languages CO4:Understanding the concept of push down automata CO5: Solve various problems of Turing Machines CO6: Understanding the concept of Universal turing machines CO7: Ability to understand the Chomsky hierarchy of languages.
9	Relational Database Management Systems	MSCS2.2	CO1: Understand concepts of database system architecture and relational models. CO2: Able to understand SQL operations and triggera. CO3: Understand the importance of ER models and concept of normalization. CO4: To learn data base application design and development. CO5: To perform the various queries on data base. CO6: Understanding the data base system architectures and cloud based data storage. CO7: Learns the impotance of transaction processing and concurreny control CO8: Students can understand oracle ,IBM ,Microsoft sql server.
10	Advanced Operating Systems	MSCS2.3	CO1:Analyze& Classify different types of operating system. CO2:Understanding the process management and different types of scheduling algorithms. CO3:Students will understand the process synchronization and also learn dead lock concepts. CO4: Understand the Memory Management policies and file system implementations. CO5: To learn the distributed operating systems goals and types CO6: Gain knowledge about clock synchrinization and consistency protocols. CO7: Understand various protection and security mechanisms. CO8: Understanding the UNIX ,LINUX , windows NT and

			android os.
11	Elective I: Embedded Systems	MSCS2.4	CO1: Acquire basic knowledge of microcontrollers CO2: Understanding the Microprocessor architecture CO3: To learn the different types of architectures like round robin ,real time operating system etc CO4: Understanding the semaphores and semaphores problems CO5:Gain knowledge about pipes , memory management in message queues CO6: Students will understand the detailed view of RTO design CO7:Learn how the embedded software installed in the target machines CO8: Students will be able to perform testing on host machine
12	Elective II : Web Technologies	MSCS2.5	CO1:Understanding the basic concepts of HTML like text , colours , css etc CO2: Students are able tounderstand the use of java script and DHTML CO3: To learn the XML syntax and XML processors CO4:Understanding the JDBC objects and learn how to create JDBC packages CO5: Students will be able to connect a java program to a DBMS and perform insert, update and delete operations on DBMS table. CO6:Students will be able to write a server side java application called Servlet to catch form data sent from client, process it and store it on database CO7:Students will be able to write a server side java application called JSP to catch form data sent from client and store it on database. CO8:Understanding the java beans and MVC architecture
13	Advanced Java Programming LAB	MSCS2.6	● Gain conceptual as well as practical knowledge of web- development Languages and web-designing tools. ● Develop skills of basic web-development. ● Able to use web design tools and to design and develop web- pages professionally.

14	RDBMS LAB	MSCS2.7	● Implement database models, schemas and instances. ● Apply the use of constraints, normal forms and relational algebra operations. ● Construct queries using SQL for efficient data transaction in a database. ● Implement aggregate functions, joins, views and triggers in relational DBMS. ● Handle relational database system like Oracle, MySQL by by applying knowledge of DBMS. ● Basics of PL/SQL
15	Data Warehousing & Mining	MSCS3.1	CO1: Develop research oriented applications of data mining and data warehousing CO2: Understand the necessity and importance of data preprocessing, data integration CO3: Learn the concepts of OLAP technology, data mining methods, various classification and prediction methods CO4: Students will understand the data processing and data cube technologies CO5: Able to apply accuracy and error measures, methods of cluster analysis, graph mining and mining sequence patterns in biological data. CO6:Understanding the classifications like bytes classification ,associative classification CO7:Evoluation of clusters and clustering solutions
16	Object Oriented Software Engineering	MSCS3.2	CO1: Understand software process framework , requirement modeling approaches, software design, software quality CO2: Students will understand the requirements of software engineering CO3:To learn the types of UML diagrams ,use case diagrams and usability principles CO4: Understanding the interaction and behavioural diagrams CO5:Understang the different types of software patterns and architectural patterns CO6: Able to apply software metrics and software testing. CO7: Able to apply the concepts of software engineering which is essentially important while working on big modules and or projects.
17	Network Security & Cryptography	MSCS3.3	CO1: Study the basic idea behind cryptography and design the algorithm to make a secure communication. CO2: Develop basic skills of secure Network

			Architecture and explain the theory behind security CO3: Knowledge about the authentication and various techniques used for the authentication. CO4: Understanding the public key and private key management. CO5: Students will understand the symmetric key cryptographic algorithms. CO6: Students will understand the Asymmetric key cryptographic algorithms. CO7:Understanding the importance of security and fire walls CO8: Students will learn the practical implementation of cryptography and security
	Elective:III Cloud Computing		CO1: Understand the concepts, characteristics, delivery models and benefits of cloud computing. CO2:Students will study the cloud computing with the titans CO3:Study the detailed view of hardware and its infrastructure CO4: Understanding the company offerings and different types of providers CO5: To learn the developing applications of different vendors CO6: Understanding the local clouds and thin clients CO7:Evoluation of cloud services and best practices
19	MOOCS-I	MSCS3.5	● Build on the engagement of learners who self-organize their participation according to learning goals, prior knowledge and skills, and common interests.
20	OOSE LAB	MSCS3.6	● Design & implement complex software solutions using state of the art software solutions using state of art software Engineering Techniques. ● To provide working knowledge of UML (Unified Modeling Languages) Sources control and project Management. ● To provide working knowledge of the technologies essentially for incorporating in the project. ● To expertise for testing and document software.
21	Network & Programming LAB	MSCS3.7	● Develop knowledge to implement client server applications. ● Develop skills in UNIX socket programming. ● Develop skills to use simulation tools. ● Analyze the performance of network protocols. ● Analyze the network traffic. ● Establish a Connection using TCP/IP Protocol

22	Seminar ON Advanced Topics	MSCS3.8	● To study the latest happenings in the field of IT for understanding of a new field, to summaries and review them. ● Provide an opportunity to pursue their interest in research, theoretical and experimental approach. ● To effectively communicate by making an oral presentation before an evaluation committee
23	Project/Thesis Work	MSCS4.1	● Learn to apply the knowledge gained through various courses in solving a real life problem. ● Practice different phases of software/system development life cycle. ● To introduce the student to a professional environment and/or style typical of a global IT industry,