PROGRAMME OUTCOME

B.Sc(Computer Science):

- **Student understands the fundamental concepts of computers, Mathematics, Electronics& applications in IT industry.**
- **Students successfully understand and analyses technical data to reach exploit conclusions including technical solution to the software Industry.**
- **Students are provided with Soft skills required in IT industries to learn new technologies and IT languages to solve the problems that could be addressed.**
- **Students improve their Programming Skill.**
- **Students are able to get job opportunities in IT, Data processing & Data warehousing industries.**

PROGRAMME OUTCOMES

M.Sc(Computer Science):

An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline

An ability to analyse a problem,& identify &define the computing requirements appropriate to its solution

An ability to design, implement and evaluate a computer – based system, process component, or program to meet desired needs

An ability to function effectively on teams to accomplish a common goal

An understanding of professional , ethical , legal , security and social issues and responsibilities

An ability to communicate effectively with a wide range of audiences

An ability to analyse the local and global impact of computing on individuals , organizations , and society

Recognition of the need for and an ability to engage in continuing professional development

An ability to use current techniques , skills , and tools necessary for computing practice

PROGRAM SPECIFIC OUTCOMES

On completion of the B.Sc(Computer science) students are able to :

1. **Serve as programmer or Software Engineer with sound knowledge of practical and theoretical concepts for developing software's.**
2. **Serve as Computer Engineer with enhanced knowledge of computers and its building blocks.**
3. **Work as Hardware designer / Engineer with knowledge of Networking concepts.**
4. **Work as Systems Engineer and System integrator.**
5. **Serve as System administrator with thorough knowledge of DBMS.**
6. **Give Technical support for various systems.**
7. **Work as support Engineer and Technical writer.**
8. **Work as Consultant and Management officers for system management.**
9. **Work as IT sales and Marketing person.**
10. **Serve as IT Officer in Banks and cooperative societies.**
11. **Work as DTP Operator in small scale industries.**
12. **Serve as Web Designer with latest web development technologies.**

PROGRAM SPECIFIC OUTCOMES

The career opportunities after M.Sc (computer science) are quite huge. Many major national and multinational firms take in aspirants who have accomplished their graduation in these fields. The top IT firms such as Microsoft , Google ,Yahoo , Rediff ,Wipro , TCS , Infosys , Accenture , Cap Gemini etc. offer aspirants very attractive packages. Jobs for professionals in these fields can also be got with management consultancy organizations , Government organizations , Banks , Educational Institutions , Research Organizations and other organizations that use computers and computer-aided systems.

On completion of the M.Sc (computer science) students are able to work as :

1. **Programmer or Software Engineer**
2. **Computer Engineer**
3. **Web designer**
4. **Hardware Designer/Engineer**
5. **Systems Engineer**

6. **System integrator**
7. **System administration**
8. **Technical support**
9. **Support Engineer**
10. **Technical writer**
11. **Consultant**
12. **Management**
13. **Administration**
14 **IT Sales and marketing**
15. **IT Officer**
16. **Computer Scientist**
17. **Professor**
18. **Research Staff Member**
19. **System Analyst**
20. **Logic Designer**
21. **Computer scientist in research and R & D laboratories.**

Department Of Computer Science

Sr. No	Names of Subject	Topics	Outcome	Cross Cutting Issues
1.	Electronics	Analog Electronics	Students of computer science, just need basic knowledge of Electronic components like resister, capacitor, inductor, diode, transistor etc.	1.Students can handle small issues of repairing of various electronics equipment
				2.Student become aware of power consumption of electronic equipment
		Digital Electronics	Students are able to design computer based digital system	Our lives are based around logical decisions. Digital electronic is based on logic circuitry. Digital electronic lends itself very nicely to solving real world logic problems
		Communication Principles	Electronic communication is the transmission, reception and processing of information between two or more location with the use of electronic circuits	Electronic communication plays and important role in modern business and society. One can't think of passing modern life and managing modern businesses without electronic communication.

		Microcontroller	**Student get knowledge of architecture of microcontroller, assemble language, programming and interfacing of hardware to microcontroller.**	**The majority of microcontrollerare embedded in other machinery such as automobile, telephone, appliences and peripherals for computer system.**
2.	**Mathematics**	**Algebra & Calculus**	**Properly using the language and notification of calculus, students will analyse functions and solve applied problems**	**Students will apply this knowledge to applied problems, such as related rates ,maximization, and in determining work, mass, volume and area.**
		Discrete Mathematics	**Students will learn some fundamental mathematics concepts and terminology.**	**Students can form different graph models. They can distinguish between two chemical compounds with the same molecular formulas but different structures using graphs.**

		Applied Algebra	**Students will do vectors operation , also they can encode and decode secret messages**	**Using cryptography one can converts data into and unreadable format to an unauthorised person , allowing it to be transmitted without unauthorised entities decoding it back into a readable format.**
		Computational Geometry	**Students learn 2D & 3D effects.**	**Students use to various 2D and 3D effects to learn more about environment**
		Operations Research	**Students learn decision making with the help of operations research**	**Operations research deals with the applications of advanced analytical methods to help make better decisions.**
3.	**Statistics**	**Statistics 1**	**Meaning of variable, systematics arrangement of collective information , representative value of collective**	**To decide better/bad by comparision. Interrelationship, to estimate the future , to arrange the data by time factor.**

			information, comparisonbetween two organization.	
		Statistics 2	**They will learn probability models, expectation, conditional probability, probability distributions and permutation, combination.**	**Students can analyse overall future by hypothesis techniques, by using hypothesis techniques and probability , students can analyse unknown values.**
4.	**Computers**	**C - Programming**	**Students learn basic concepts of computer programing and fundamentals of a computer Language.**	**The students get to learn the basics of computers which help them in understanding the internal working of computer.**
		DBMS	**Students learn concepts of file organization in Linux environment**	**Students get to learn about data storage implemented in IT industries**

		C++ Programming	**The language is a bit higher version of basic programming**	**Students get to learn about higher concepts in programming such as Object orientation**
		Java	**JAVA is a programming language most widely use in software development**	**JAVA allows the student to learn actual working of a software process and development of applications**
		Internet Programming	**Students learn about developing a web page and how things run on internet**	**Most commonly use language for developing a website and students are also assigned with a project**
		Therotical Computer Science	**TCS is all about knowing the internals of the computer and what processes are carried inside**	**Students get deep knowledge of working of System software that are implemented on basic level**
		Computer Networks	**Student learn basic concepts of networking and how manual networking is done as physical level**	**Students get theoretical as well as practical knowledge of setting up a network**

		System programming and operating system	**To analyse system software and design Assemblers. To design and implement microprocessors, linker and loader . To understand and implement Scheduling algorithms**	**Students get to learn about to internal working of CPU and how Operating system works**
		Computer Graphics	**Learn about graphical user interface and how these effects actually work.**	**Students get the information about how graphics are working and what kind of effects are to be given to a program.**

Department Of Computer Science

Outcome & Cross Cutting Issues.(M.Sc(CS))

Sr. No.	Subject Code	Subject	Outcome
SEM-1			
1	**CS-101**	**Principles of programing Language**	**1.Toanalyze the strengths and weaknesses of programing languages for effective and efficient of program development. 2.To inculcate the principles underlying the programing languages enabling to learn new programing languages. 3. To grasp different programing paradigms. 4.To use the programing paradigms effectively in application development. 5.Ability to understand basic concept & broad principles of object oriented programing using JAVA**
2	**CS-102**	**Advanced Networking**	**1.Understand network fundamentals with TCP/IP architecture.**

			2.Aware with client server programming and its application using socket interface. 3.Understand IGMP ICMP and IP datagrams. 4.Understant the mobile and advoc network programing.
3	**CS-103**	**Distributed data base concepts**	**Identify the introductory distributed data base concepts and its structures. Describe terns related to distributed object database design and management. Produce the transaction management and query processing techniques in DDBMS. Relate the importance and application of emerging database technology.**
4	**CS-104**	**Design and Analysis of Algorithms**	**1.Design efficient algorithms using various algorithm designing techniques. 2.Comprehend dynamic programming using control abstraction and longest common subsequence.**

			3.Classifying any problem as NP completed and NP hard.
5	**CS-105**	**Networking Programming**	**Analyse the requirement of a networking programming environment and identify the issues to be solved create conceptual solution to those issues and implement a programming solution understand the key protocols that support the Internal apply several common programing interface to networking communication**
SEM-II			
1	**CS-201**	**Digital Image Processing**	**1. Understand the application of digital image processing.** **2. Explore Knowledge about image processing fundamentals.** **3. Get aware about image sampling and quantization and operation on image.** **4. Understand histogram processing**

			and various image filtering algorithms. **5. Know about various noise models and transformation techniques.** **6. Be aware of various morphological technics and segmentation schemes.**
2	**CS-202**	**Advanced Operating Systems**	**1. Study files subsystem for UNIX operating system.** **2. Understand detail working of UNIX operating system.** **3. Understand process and memory management technics.**
3	**CS-203**	**Data Mining and Data Warehousing**	**1. Understand data warehousing for business analyses using OLAP, OLTP, MOLAP and ROLAP.** **2. Explore the concepts of data mining and data pre-processing.** **3. Understand concept of association rule mining** **4. Grasp classification and prediction and analyse different issues related to them.** **5. Identify different**

			cluster analyses technics **6. Know about advance data mining technics such as spatial data mining and understand the concept of big data analysis**
4	**CS-204**	**Project**	**Project work is a learning experience which aims to provide a students with the opportunity to synthesise knowledge from various areas of learning, and critically and creatively apply it to real life situation. This process, which enhances students ' knowledge and enables them to acquire skills like collaboration, communication and independent learning, prepares them for lifelong learning and the challenges ahead.**
5	**CS-205**	**Programming With DOT NET**	**1.Web application in ASP.NET for Login Processing.** **2. Demonstration of validation controls in ASP.NET**

			3. Deployment of Calendar Control in ASP.NET **4. Traversing and selecting a Product Name displayed in dropdown list, through coding in the Form Load Event in ASP.NET** **5. Creation of Web application in ASP.NET for Conditions-based book issue in a library.** **6. Deployment of Data Grid in ADO.NET for viewing product details.**
6	**CS-206**	**Artificial Intelligence**	**C0-1: To understand the basic concept of Neural Network, Inference and Learning.** **C0-2: To know the models such as Classification Models, Association Models, Optimization Models, and Self-Organization Models.** **Co-3: To explain the difference between supervised and unsupervised learning.** **C0-4: To impact the knowledge about**

			types of Neural Networks. **Co-5: To understand the Incremental learning concepts.** **Co-6: To clear the knowledge based Approaches in Incremental learning**
SEM-III			
1	**CS-301**	**Software Metrics & Project Management**	**1. Decide on a process model for a developing a software project.** **2. Classify software applications and Identify unique features of various domains.** **3. Design test cases of a software system.** **4. Understand basics of IT project management.** **5. Plan, schedule and execute a project considering the risk management .** **6. Apply quality attributes in software development life cycle.**
2	**CS-302**	**Mobile Computing**	**C0-1: Introduce various wireless systems and standards and their basic**

			operation cases. **C0-2: Learn to model radio signal propagation issues and analyse their impact on communication system performance.** **C0-3: Understand how the various signal processing and coding technics of GSM and its Architecture.** **C0-4: Understand the technics of radio spectrum allocation in multi-user systems and their impact on networks capacity .** **C0-5: To have a in depth knowledge about various wireless LAN technique.** **Co-6: To learn to simulate wireless networks and analyse the simulation results.**
3	**CS-303**	**Soft Computing**	**To understand Artificial Neural Network Architecture.** **CO-2: To clear the various concepts of learning techniques** **CO-3: To explain the concepts of Back Propagation Networks**

			. CO-4: To understand the back propagation algorithm.C0-5:To know the concepts of Fuzzy logic.C0-6:To understand Fuzzy and crisp relations and conversions.
4	**CS-304**	**Project**	**Project Work is a learning experience which aims to provide students with the opportunity to synthesise knowledge from various areas of learning , and critically and creatively applied it to real life situations. This process ,which enhances student 'knowledge and enables them to acquire skills life collaboration, communication and independent learning, prepares them for lifelong learning and the challenges ahead.**
5	**CS-305**	**Web services**	**:Understand analyse, and apply the role of markup languages like HTML , DHTML , and XML in the working of the web and web application CO-**

			2:DevelopXML documents, XML DTD and XML Schema to formulate the web services. CO-3:Able to write a XML application using structure and presentation technologies and apply XML manipulation technologies such as XSLT, XPath, XLink and XQuery.CO-4:Gainud knowledge on basic concepts of SOA and web service framework with respect to SOA.CO-5:Able to design and launch Web services. To Use , in their own programs, web services published by others.
6	**CS-306**	**Database and System Administration**	**To create an awareness of Trouble shooting PC.CO-2:To Understand the concept of BIOS.CO-3: To learn basics about Disks Trouble Shooting.CO-5:To understand the concepts of Mother Board.CO-6:To learn,**

			maintain and upgrade Mother Board Trouble Shooting.CO-7:To understand the fundamental memory concepts.CO-8:To maintain, upgrade and Trouble Shooting Memory.
7	**CS-308**	**Business Intelligence**	**Identify the major frameworks of computerize decision support: decision support system(DSS),data analytics and business intelligence(BI).Explain the foundations, definition, and capabilities of DSS, data analytics and BI. List the definitions, concepts and architectures of data warehousing. Demonstrate the impact of business reporting, information visualization, and dashboards.**
SEM-IV			
1	**CS-401**	**Industrial Training /Institutional project**	**Ability to demonstrate the use , interpretation and application of an appropriate**

			international engineering standard in a specific situation, **2.Ability to analyse a given engineering problem, identify an appropriate problem solving methodology, implement the methodology and propose a meaningful solution.** **3. Ability to apply prior acquired knowledge in problem solving.** **4. Ability to identify sources of hazards, and assess/identify appropriate health & safety measures.** **5. Ability to work in a team.** **6. Ability to take initiatives.** **7. Ability to effectively communicate solution to problems.**