# Department of Computer Science

## Program Specific Outcome

### Undergraduate students:

- Students have ability to apply knowledge of computing, mathematics, and basic sciences that may be relevant and appropriate to the domain
- They can analyze a problem, identify and define the computing requirements, which may be appropriate to its solution
- Students can design, implement, and evaluate computer-based system, process, component, or program to meet desired needs
- They can use current techniques, skills, and tools necessary for computing practices.
- Use and apply current technical concepts and practices in the core development of solutions in the form of Information technology
- Ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems
- Ability to incorporate effectively integrate IT-based solutions to applications

### Post-graduate students:

- Apply the necessary mathematical tools and fundamental & advanced knowledge of computer science.
- Develop computer/software/network systems understanding the importance of social, business, technical, environmental, and human context in which the systems would work.
- Articulate fundamental concepts, design underpinnings of computer/software/network systems, and research findings to train professionals or to educate engineering students.
- Contribute effectively as a team member/leader, using common tools and environment, in computer science and engineering projects, research, or education.
- Pursue life-long learning and research in selected fields of computer science & engineering and contribute to the growth of those fields and society at large.

# Course outcome of Computer Science Department

| Class | Course | Outcome |
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| F.Y.B.Sc. | CS 111 Basics of Computer | 1.Understand Basic concepts of computer. |
| | | 2. nderstand the Historical background of Computers. |
| | | 3. Aware about types of Computers and input-output devices. |
| | | 4. Preparation of Algorithm and Flowchart of Program. |
| | | 5.Learn computer networks, its types and basics of Internet. |
| | | 6.Understand computer viruses and its types. |
| | CS 112 C Programming - I | 1.Be familiar with programming environment with C Program structure. |
| | | 2.Understanding the Formatted and Unformatted Input Output statements |
| | | 3.Understand operators, expressions and preprocessors. |
| | | 4.Understand arrays , it's declaration and uses. |
| | CS 121 Internet Computing | 1. Understand the Types of Website, it's Structure, Site Organization Model , Site Planning and Testing. |
| | | 2. Understand how to design website with different website development models. |
| | | 3. Know the different page types on websites and it's navigations. |
| | | 4. Designing website using HTML language. |
| | | 5. Understanding the concept of CSS and types of style sheets. |
| | CS 122 C Programming - II | 1. Design programs using Functions, Pointers , Structures and Unions in C language. |
| | | 2. Understanding the function declaration and prototypes. |
| | | 3. Understand how to write programs for drawing different graphical shapes. |
| | | 4. Understand the file handling in C language. |
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| S.Y.B.Sc. | COMP 211 : Data Structure-I | 1. Understand the data structure and basic algorithmic notations. |
| | | 2. Learn to analyse the time and space requirement of any algorithm. |
| | | 3.Understand different linear data structures for conversion of mathematical expressions and |

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| | | polynomial representations. |
| | COMP 212 : OOAD & Introduction to C++ | 1. Understanding Object Oriented Programming. |
| | | 2. Differentiate between Structure oriented programming and object oriented programming. |
| | | 3. Understand different object modelling techniques and analysis like Generalization , Aggregation and Metadata. |
| | | 4. Learn Reusable , Extensible and Robust programs in C++. |
| | COMP 221 : Data Structure – II | 1. Understand the different non-linear data structures that can be used to represent hierarchical relationship between objects. |
| | | 2. Learn Traverse and represent the graphs in computer. |
| | | 3. Understand the different approaches of sorting and searching elements in the arrays. |
| | | 4. Understand different techniques of designing the algorithms. |
| | COMP 222 : Programming in C++ | |
| | | 1. Learn the polymorphism using Function and Operator Overloading. |
| | | 2. Learn to write programs for handling runtime errors using exception. |
| | | 3. Understand the concepts of pointers in C++. |
| | | 4. Understand the different aspects of hierarchy of classes and their extensibility. |
| T.Y.B.Sc. | CS-311 System Programming | |
| | | 1. Understand about system softwares and their tools. |
| | | 2. Students are familiar with language processing activities. |
| | | 3. Understand detail working of Assembler , Macro and Macro Preprocessor , Compiler and linker & Loader. |
| | | 4. Understand the Pass Structure of Assembler |
| | CS-312 Database Management System | |
| | | 1. Students can aware about describing & storing data. |
| | | 2. Understand about E-R Model by overview of database design.. |
| | | 3. Learn the Conversion of ER to Relational model. |
| | | 4. Learn about functional dependency and Data Normalisation. |

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| | | 5. Understand Database Implementations. |
| | | 6. Understand how to use of Concurrency control, Backup & recovery for large or huge of databases. |
| | CS-313 Software Engineering | |
| | | 1. Students can understand the evaluation of software and Software Development Life Cycle (SDLC). |
| | | 2. Learn about Software Development Model. |
| | | 3. Understand the requirement Analysis and Specification in software engineering . |
| | | 4. Learn use of Fact finding Techniques , Types of Requirement Modeling and Data Modeling Concepts. |
| | | 5. Get knowledge of Design Concepts in software engineering. |
| | | 6. Understand about Cohesion & Coupling , Decision Table & Decision Tree, Data flow Diagram |
| | | 7.Learn the Software Coding & Testing. |
| | CS-314 Computer Aided Graphics | |
| | | 1. Understand the difference between interactive and non interactive graphics. |
| | | 2.Learn to explore different line and circle drawing algorithms. |
| | | 3. Learn to perform 2D and 3D transformation on different images. |
| | | 4. Understand about detail working of image clipping and windowing. |
| | | 5. Understand raster graphics and hidden surface elimination. |
| | CS-315 Programming in VB.NET | 1. Lean about .Net platform. |
| | | 2. Understand looping structure, control flow statements and exception handling in VB.NET |
| | | 3. Understand object oriented programming in VB.NET |
| | | 4. Understanding the program using ADO.NET |
| | Elective -B UG-CS-316 B) JAVA Programming-I | • Get knowledge JDK Environment. |
| | | • Explore polymorphism using Function and Operator Overloading ,overriding . |
| | | • Understand the different aspects of hierarchy of classes and their extensibility . |
| | | • Understand the concepts of streams and files . |
| | | • Write programs for handling runtime errors using exception. |

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| | CS-321 Operating System | 1. To aware about functions and services of operating system. |
| | | 2. Understand about different CPU scheduling algorithms |
| | | 3. To get understand about different memory management techniques. |
| | | 4. Understand the different disk and drum scheduling algorithms as well as deadlock concepts. |
| | | 5. to Lean introductory knowledge about android operating system. |
| | CS-322 MS SQL Server | 1. Understand the features and data types in SQL server. |
| | | 2. Learn to create and manipulate databases for various applications. |
| | | 3. Understand to use procedures and trigger for performing complex operation on databases. |
| | | 4. Learn to handle errors using exception handling concept |
| | CS-323 Internet Programming using PHP | 1. Understand PHP working with lexical structure. |
| | | 2. Learn the program for different applications using arrays, functions and strings. |
| | | 3. Learn to aware about different web techniques used in PHP. |
| | | 4. Understand how to integrate PHP with MYSQL. |
| | CS-324 Theoretical Computer Science | 1. Understand what is Push down Automata and its applications. |
| | | 2. Understand the concepts of Context free grammar and normalization of CFG. |
| | | 3. Understand to convert regular expression to Finite Automata. |
| | | 4. Design Turing Machines for various applications like enumerator, function computer and universal turing machine. |
| | CS-325 Computer Network | 1. Learn the applications of network, network structures and protocol hierarchy |
| | | 2. Learn about details of physical, datalink, network and transport layer of TCP/IP network model. |
| | | 3. Understand about different aspects of network security like firewalls, IP security and VPNs. |
| | | 4. Students are aware about attacks and |

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| | | Confidentiality used in crypotgraphy. |
| **MSc-I** | Elective - B CS-326 B) JAVA Programming-II | |
| | | 1. Understand the program using graphical user interface with Swing classes. |
| | | 2. handle different kinds of events generated while handling windows. |
| | | 3. Learn to create programs using menus and dialog boxes. |
| | | 4. Learn the program for websites using applets. |
| | | 5. Understand the advanced java concepts like JDBC and servlets. |
| | CS-101 Advanced C++ Programming | |
| | | 1. Understand advanced concepts for handling runtime errors using stack unwinding, uncaught exception and automatic cleanup. |
| | | 2. Study the Runtime Type Information of the member variables, functions and the multiple inheritance that are used in the program. |
| | | 3. Study advanced concepts of C++ by resolving ambiguities and duplicate sub object in virtual base classes. |
| | | 4. Understand the applications of C++ like Smart Pointer , Generic Pointer , Object Validation and Reference Counting. |
| | | 5. Understand the detail concepts of STL. |
| | CS-102 Automata Theory and Computability | |
| | | 1.Understand what is Push down Automata and its applications. |
| | | 2. Learn to design Turing Machines for various applications like emunerator, function computer and universal turing machine. |
| | | 3. Study Post correspondence problem, decidability of membership, emptiness and equivalence problems of natural languages. |
| | | 4. Learn to get familiar with Computability and complexity measures. |
| | CS-103 Advanced Operating System | |
| | | 1. Learn to study files subsystem for UNIX operating system. |
| | | 2. Understand the detail working of UNIX operating system. |
| | | 3. Understand the process and memory management techniques. |
| | CS-104 Digital Image Processing | |
| | | 1. Learn the application of digital image processing. |
| | | 2. Learn  about image processing fundamentals. |

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| | CS-201 Advanced DBMS | 3. Students can aware about image sampling and quantization and operation on images |
| | | 4. Understand histogram processing and various image filtering algorithms. |
| | | 5. Leanrn to know about various noise models and transformation techniques. |
| | | 6. Understand of various morphological techniques and segmentation schemes. |
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| | | 1. learn to explore ideas about centralized and client server architecture of DBMS. |
| | | 2. Learn different databases like Differentiate, handle parallel and distributed databases. |
| | | 3. Understand the object oriented databases and XML databases for Dynamic website development. |
| | | 4. Students can understand about mobile and multimedia databases. |
| | CS-202 Machine Intelligence | |
| | | 1. Understand artificial intelligence and AI problem solving techniques. |
| | | 2. Learn to explore logic for solving various AI problems. |
| | | 3. Understand the techniques of knowledge representation in machine. |
| | | 4. Learn comprehend advanced machine learning techniques such as fuzzy logic and genetic algorithms. |
| | CS-203 Compiler Construction | |
| | | 1. Understand the role of compilers in program execution. |
| | | 2. Understand the detail program execution using lexical and syntax analysis |
| | | 3. Students can aware of code generation and optimization |
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| | CS-204 Design and Analysis of Algorithms | 1. Learn to design efficient algorithms using various algorithm designing techniques. |
| | | 2. Understand comprehend dynamic programming using control abstraction and longest common subsequence. |
| | | 3. Learn yto classify any problem as NP complete and NP hard |
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| MSc-II | CS-301 Software Engineering | 1. Learn to know about requirements of developing software. |
| | | 2. Students can aware of various models required for software development. |

| Course | Course Outcomes |
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| | 3. Learn to test the developed software for its functionality and performance. |
| | 4. Understand software quality and quality measures. |
| | 5. Understand the software configuration management and project planning. |
| CS-302 Optimization of Algorithm | 1. Understand the classification and limitation of quantitative techniques. |
| | 2. Take hold of linear programming problem solving techniques. |
| | 3. Learn to solve various kinds of transportation problems using different techniques. |
| | 4. Understand and explore concepts in game theory |
| | 5. Students can aware about the network models, sequencing models and simulaon models. |
| CS-303 Advanced Java Programming | 1. Learn the design programs using Remote method invocations. |
| | 2. Undestand programming techniques of Java beans and swing. |
| | 3. Can aware about Java Enterprise applications. |
| | 4. Learn bout java servlets and java struts. |
| CS-304 Windows, WCF and WPF Programming | 1. Students can understand windows environment and child window controls. |
| | 2. Understand windows communication foundation using WCF contracts, clients and services security. |
| | 3. Understand windows presentation foundation, WPF and .Net programming. |
| CS-401 Natural Language Processing | 1. Understand languages and linguistic background |
| | 2. Learn the applications and research background in NLP. |
| | 3. Understand the mathematical foundation related to NLP like probability, bays theorem and machine learning. |
| | 4. Learn about linguistics essentials and grammar as part of speech and parsing and differentiating them. |
| | 5. Learn about word morphology and N-Gram Models. |
| CS-402 Advanced Network Programming | 1. Understand network fundamentals with TCP/IP architecture. |
| | 2. Learn about client server programming and its application using socket interface. |

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| | | 3. Understand IGMP ICMP and IP datagrams |
| | | 4. Understating the mobile and advoc network programming. |
| | CS-403 Data Warehousing and Data Mining | |
| | | 1. Understand data warehousing for business analysis using OLAP, OLTP, MOLAP and ROLAP. |
| | | 2. Learn to explore the concepts of data mining and data preprocessing. |
| | | 3. Understand concept of association rule mining. |
| | | 4. Learn the classification and prediction and analysie different issues related to them. |
| | | 5. Identify different cluster analysis techniques. |
| | CS -405 Mini Project (200 marks) | |
| | | 1. Understand the use of actual data |
| | | 2. Familiar about IT industry. |
| | | 3. Understand to deal with software management. |
| | | 4. Understand the problems in preparing software or website develoent and learn to overcome it. |