Government College, Chhachhrauli (Yamuna Nagar)

COURSE : MASTER OF COMPUTER SCIENCE (SOFTWARE)
M.Sc. Computer Science (Software)

Program Outcome
Master of Computer Science (Software) i.e. M.Sc. Computer Science (Software) is a two-year Post-Graduate degree program recognized by Kurukshetra University, Kurukshetra and follows the syllabus prescribed by the university. After completing the two-year degree program, the students will be able to attain Programming Skills, Teaching Skills, Critical Thinking Skills and Employability Skills in the various fields of Software/IT industry. The program also empowers the graduates to appear for various competitive examinations or choose the research program.

Course Outcome
Year: 1st Semester: 1st
Course: MS-15-11 WEB ENGINEERING
Students will learn about • Structure of Internet and Web • Creating web pages using HTML and Cascading Style Sheets • JavaScript and Servlets • Writing XML documents and Schemas
Course: MS-15-12DATA STRUCTURES AND ALGORITHMS
Students will learn about • Implementation of various sorting algorithm and their comparisons • Learn how to represent arrays, linked lists, stacks, queues in memory using the algorithms and their common applications • Understand the concept of recursion, application of recursion and its implementation and removal of recursion • Understand about various sorting and searching algorithms • Implement Trees and Graphs along with their applications to solve some real world problems • Analyze the concept of Divide & Conquer and Greedy techniques • Implementation of Dynamic Programming concept in solving various problems • Understand the concepts such as NP-completeness and randomized algorithms
Course: MS-15-13 SOFTWARE ENGINEERING
Students will learn about • Understand the basic concepts of software engineering • Understand the requirement analysis and importance of SRS documentation • Understand the designing principles of software product

• Understand the process of Software development • Understand and plan the Software development • Understand and implement the Coding • Apply various software measures and metrics for estimation
Course: MS-15-14 DISCRETE MATHEMATICAL STRUCTURES
Students will learn about • Prove mathematical theorems using mathematical induction • Identify functions and determine their properties • Define graphs, digraphs and trees, and identify their main properties • Understand sets and perform operations and algebra on sets
Course: MS-15-15 S/W LAB – I BASED ON MS-15-11
Students will learn about • Using HTML and Cascading Style Sheetsfeatures to create, save and view web pages • Using JavaScript to develop client-side web programming • Using Servlet to develop server-side web programming • Writing XML documents and Schemas
Course: MS-15-16 S/W LAB – II BASED ON MS-15-12
At the end of this lab session, the student will be able to • Design and analyze the time and space efficiency of the data structure • Identity the appropriate data structure for given problem • Have practical knowledge on the applications of data structures
Course: MS-15-17 SEMINAR
Students will be benefitted in • Developing New Ideas • Oral Communication • Acquisition of knowledge in a particular field • Adaptation of different environment than classroom • Growth of Cognitive Skills
Year: 1st Semester: 2nd
Course: MS-15-21 JAVA PROGRAMMING
Students will learn about • Object-oriented Programming Concepts • Basic Constructs of Java Programming Language • Java Thread Model • Event Handling in Java • Java Applets
Course: MS-15-22 LINUX AND SHELL PROGRAMMING

Students will learn about

- Various Linux/UNIX commands
- Effective use of Linux utilities
- File system, Process and Signal Management
- Shell programming

Course: MS-15-23 THEORY OF COMPUTATION

Students will learn about

- Designing Finite Automata machines for given problems
- Analyzing a given Finite Automata machine and find out its Language
- Designing Pushdown Automata machine for given CF language(s)
- Generating the strings/sentences of a given context-free languages using its grammar;
- Designing Turing machines for given any computational problem

Course: MS-15-24 COMPILER DESIGN

Students will learn about

- To learn the process of translating a modern high-level language to executable code
- To develop an awareness of the function and complexity of modern compilers
- To apply the code generation algorithms to get the machine code for the optimized code
- To apply the optimization techniques to have a better code for code generation

Course: MS-15-25 S/W LAB – III BASED ON MS-15-21

Students will learn about

- Developing basic programs using Java Programming Language
- Multi-threaded programming in Java
- GUI programming in Java

Course: MS-15-26 S/W LAB – IV BASED ON MS-15-22

Students will learn about

- The basic knowledge of General purpose/File oriented/Directory oriented/ Communication oriented Linux commands
- Use of Regular Expressions and basic filters such as Grep, Sed
- Handling of file system (Mounting/Unmounting)
- Process Handling, Job Scheduling using at, batch, cron
- Shell Scripting Constructs

Course: MS-15-27 SEMINAR

Students will be benefitted in

- Developing New Ideas
- Oral Communication
- Acquisition of knowledge in a particular field

• Adaptation of different environment than classroom • Growth of Cognitive Skills
Year: 2nd Semester: 3rd
Course: MS-15-31 OBJECT ORIENTED ANALYSIS AND DESIGN USING UML
Students will learn about • Apply basic and Advanced Structural Modeling Concepts for designing real time applications • Design Class and Object Diagrams that represent Static Aspects of a Software System • Analyze Dynamic Aspects of a Software System using Use Case, Interaction and Activity Diagrams
Course: MS-15-32 ADVANCED DATABASE SYSTEMS
Students will learn about • Database Systems and its architecture • EER Model and Object Model • Query Processing and Optimization • Databases for Advance Applications • Principles of Big Data
Course: MS-15-33 COMPUTER NETWORKS
Students will learn about • Fundamentals of computer networking such as types of Networks, Topologies, Connections and Services • Working of reference models of data communication such as OSI and TCP/IP • Working of Networking Devices such as Hub, Repeater, Switch, Bridge, Router and Gateway • Routing algorithms/strategies used by router
Course: MS-15-34 ADVANCED OPERATING SYSTEMS
Students will learn about • Basic concepts of Distributed Systems, Synchronization, Mutual Exclusion • Concepts of Process/Threads, Scheduling • File System Design, Implementation • Shared Memory approaches(Consistency Models) • Features of Real time and Mobile operating System
Course: MS-15-35 S/W LAB – V BASED ON MS-15-31
Students will learn about • Developing a problem statement • Identify Use Cases and develop the Use Case model • Develop an UML Activity diagram

- Draw the State Chart Diagram Component and Deployment diagrams
- Develop architecture diagram with UML package diagram notation

Course: MS-15-36 S/W LAB – VI BASED ON MS-15-32

Students will learn about

- Relational Database Model Concepts using SQL and PL/SQL
- EER and Object Model Concepts

Course: MS-15-37 SEMINAR

Students will be benefitted in

- Developing New Ideas
- Oral Communication
- Acquisition of knowledge in a particular field
- Adaptation of different environment than classroom
- Growth of Cognitive Skills

Year: 2nd Semester: 4th

Course: MS-15-41 ADVANCED WEB TECHNOLOGY

Students will learn about

- Designing of web pages with HTML 5.0
- Internal and External CSS concepts
- Familiarization with Search Engines and techniques used
- Learn basics of JavaScripts and PHP

Course: MS-15-42 COMPUTER GRAPHICS

Students will learn about

- Understanding the basics of computer graphics, different graphics systems and applications of computer graphics
- Learn various algorithms for scan conversion of line, circle and ellipse
- Use of 2D and 3D geometric transformations on objects
- Discussion of different clipping algorithm and Projection such as Parallel/Perspective views

Course: MS-15-43 ADVANCED COMPUTER ARCHITECTURE

Students will learn about

- Understanding advanced concepts of computer architecture, computational model
- Working Parallel Processing, its levels
- Super scalar processors, Branch Handling
- Concepts of MIMD architectures(UMA,NUMA & COMA MODELS)
- Design of Interconnection Networks(Linear array, ring, chordal rings, star, tree, 2D mesh, barrel shifter, hypercubes)
- Discussion on Cache Coherence Problem and various protocols

Course: MS-15-44 (I) CLOUD COMPUTING
Students will learn about • Introduction to basic concepts terminology of cloud computing • Familiarization with cloud platform and multimedia cloud computing • SLA management and concepts cloud security • Scaling, deployment and Python for cloud in the context of cloud infrastructure
Course: MS-15-45 S/W LAB–VII BASED ON MS-15-41
Students will learn about • Design web sites for various requirements • Design web applications using both client and server side programming • Understand and apply JavaScript and PHP in depth
Course: MS-15-46 S/W LAB-VIII BASED ON MS-15-42
Students will learn about • The basic concepts of different type of geometric transformation of objects in 2D and 3D space • Design Scan conversion algorithms using C programming • Clipping and Filling techniques for modifying an object
Course: MS-15-47 SEMINAR
Students will be benefitted in • Developing New Ideas • Oral Communication • Acquisition of knowledge in a particular field • Adaptation of different environment than classroom • Growth of Cognitive Skills