KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with 'A' Grade – 3.64 CGPA out of 4 (3rd Cycle)

College of Excellence (UGC)

Coimbatore – 641 029

DEPARTMENT OF COMPUTER TECHNOLOGY (Unaided)

COURSE OUTCOMES (CO)

B.Sc. COMPUTER TECHNOLOGY

For the students admitted
In the
Academic Year 2018-2019

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT101		**Core Paper 1 – C Programming**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	I	5	75	4

Course Objectives

1. To impart adequate knowledge on the need of programming languages and problem solving techniques.
2. To develop an in-depth understanding of functional and logical concepts of C Programming.
3. To provide exposure to problem-solving through C programming.
4. Familiarize the basic syntax and semantics of C Language.

Course Outcomes (CO)

K1	CO1	Recollect various programming constructs and to develop C programs.
K2	CO2	Understand the fundamentals of C programming.
K3	CO3	Choose the right data representation formats based on the requirements of the problem.
K4	CO4	Implement different Operations on arrays, functions, pointers, structures, unions and files.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT1CL		**Core Practical 1 – C Programming Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	I	5	75	2

Course Objectives

1. To introduce the field of programming using C language.
2. To enhance the analyzing and problem solving skills and use the same for writing programs in C.

Course Outcomes (CO)

K3	CO1	Develop logical and programming skills using the fundamentals and basics of C Language.
K3	CO2	Develop programs using the control statements, Arrays and Strings
K4	CO3	Apply effective usage of arrays, structures, functions and pointers.
K5	CO4	Implement files and command line arguments.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT202		**Core Paper 2 – Digital Fundamentals and Computer Organization**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	II	4	60	4

Course Objectives

1. The students should get the Knowledge about the Number System, Number representation and Number Conversion.
2. To learn the concept of Digital Circuits, Circuit Constructions and Simplifications of Boolean functions.
3. To know the concept of Multiplexers, Flip-Flops and Registers.
4. To be familiar with the concepts of Computer Languages and Instruction Formats.
5. Familiarize the Memory Hierarchy and Peripheral Devices.

Course Outcomes (CO)

K1	CO1	Retain the information about the Computer Number systems and conversions in Digital Computer System
K2	CO2	Understand the concepts of Boolean expressions, Logic Gates and to apply the methods to simplifying the Boolean expression.
K3	CO3	Apply the knowledge to perform arithmetical operations using various logical circuits and to design various Synchronous and Asynchronous.
K4	CO4	Investigate the function of various parts of the Computer systems and Memories.

Programme Code : 11	**B.Sc Computer Technology**
Course Code: 18UCT203	**Core Paper 3 – Object Oriented Programming with C++**

Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	II	3	45	4

Course Objectives

1. To develop a greater understanding of the issues involved in programming language design and object oriented paradigms and its implementation.
2. To impart adequate knowledge on the need of object oriented programming languages.
3. To enhance problem solving and programming skills in C++ by implementing the object oriented concepts.

Course Outcomes (CO)

K1	CO1	Remember the characteristics of Procedure and Object Oriented Programming Languages
K2	CO2	Understand the fundamentals of C++ programming structure, function overloading and constructors.
K3	CO3	Using C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc.
K4	CO4	Apply the concepts in object oriented programming in terms of software reuse and managing complexity to solve real-world problems.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT2CM		**Core Practical 2 – C++ PROGRAMMING LAB**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	II	3	45	2

Course Objectives

1. To develop the programs for solving the problems using function overloading, constructors, classes and object.
2. To apply the object oriented programming concepts to solve the problems.

Course Outcomes (CO)

K3	CO1	Implement the concepts of object oriented programming.
K3	CO2	Apply string functions to perform operator overloading.
K4	CO3	Analyze virtual functions and inheritance.
K5	CO4	Implement files and command line arguments.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT304		**Core Paper 4 – Operating Systems**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	III	5	75	4

Course Objectives

1. To learn the fundamentals of Operating Systems.
2. To understand the structure and organization of the file system, process management, CPU Scheduling and Memory Management.
3. To provide the design principles of Android operating system.

Course Outcomes (CO)

K1	CO1	Recollect the basic functionality of the salient features of operating systems like DOS history, Processing states, Interrupts and Switching concepts.
K2	CO2	Understand the concepts of storage management, paging and page replacement concepts.
K3	CO3	Apply various optimization techniques in operating systems.
K4	CO4	Analyze the functionalities of Android operating system.

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 18UCT305	**Core Paper 5 – Data Structures and Analysis of Algorithms**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	III	5	75	4

Course Objectives

1. Describe and implement the advanced data structures and demonstrate Knowledge in different methods for representing a graph and tree.
2. Apply important algorithmic design paradigms and methods of analysis.
3. Analyze the asymptotic performance of algorithms.

Course Outcomes (CO)

K1	CO1	Remember the data structures algorithms and programs.
K2	CO2	Understand data structures and the concepts of algorithms for searching, sorting and dynamic programming
K3	CO3	Apply appropriate algorithms and data structures for various applications
K4	CO4	Analyze the computational complexity of various algorithms

rogramme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT306		**Core Paper 6 – Java Programming**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	III	5	75	5

Course Objectives

1. To understand the difference between C, C++ and Java Programs.
2. To explore the Java Applications and to identify the variations between Stand alone java applications and Web based applications.
3. To provide the advanced concepts in java programming like Package, Multi Thread, Applet, interface and AWT Components
4. Ability to improve their programming skills using self programs.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts of OOPs, Data Types, Control Statements and Tokens.
K2	CO2	Realize the knowledge about the java statements.
K3	CO3	Implement the concept of Package, Thread , Applet, Interfaces and AWT Components
K4	CO4	Inspect the java concepts and get the new innovative ideas.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT3CN		**Core Practical 3 – Java Programming Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	III	5	75	2

Course Objectives

1. To explore the knowledge in stand Alone java applications and web based Applications.
2. To understand the usage of Classes, Package, Interface, Multi Threading, Exception, Applet and AWT.
3. On successful completion of practical they will able to get the overall idea about java programming structure.

Course Outcomes (CO)

K3	CO1	Practice the concepts of OOPs, java control statements, data types and Tokens.
K4	CO2	Review the java package, interface, applet and AWT Components.
K5	CO3	Work out all the java unique statements through the programs.

Programme Code : 11	**B.Sc Computer Technology**
Course Code: 18UCT407	**Core Paper 7 – Relational Database Management Systems**

Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	IV	5	75	4

Course Objectives

1. To develop the knowledge in various Database concepts, queries, normalization and reports.
2. To be able to construct a new normalized database.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts of database management systems and database techniques
K2	CO2	Understand Data constraints and CODDs rules, DML and DDL statements of ORACLE,
K3	CO3	Apply various DDL and DML statements, joins queries, PL / SQL statements.
K4	CO4	Analyze the granting and revoking permissions , cursors

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT408		**Core Paper 8 – .NET Framework**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	IV	4	60	4

Course Objectives

1. To design and develop the distributed event driven programming in both VB and .Net framework
2. To Apply CLR, .NET framework classes and ADO.Net.
3. To Analyze the Properties, Events and Methods in .Net Environment.

Course Outcomes (CO)

K1	CO1	Remember the basic Visual basic concepts and advanced features of VB.Net.
K2	CO2	Understand the concepts of .Net framework Technology and summarize the advantages and disadvantages of .Net framework.
K3	CO3	Apply the web applications using VB.Net.
K4	CO4	Analyze the distributed event driven programming using .Net framework

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT409		**Core Paper 9 – Computer Networks**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	IV	5	75	4

Course Objectives

1. To provide the concepts and fundamentals of different layers used in computer networking.
2. To understand a basic knowledge of the use of cryptography and different techniques keys used for Encryption and Decryption.

Course Outcomes (CO)

K1	CO1	Understand OSI reference Model and knowledge of using different Layers in the networking model.
K2	CO2	Understand the knowledge of the use of cryptography
K3	CO3	Apply the techniques used in routing algorithms
K4	CO4	Analyze Digital Signatures Symmetric-Key Signatures and Public-Key signatures.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT4CO		**Core Practical 4 – .Net Framework and Oracle Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	IV	6	90	2

Course Objectives

1. To design and develop the applications using ADO.Net and session tracking.
2. To make the students to develop the database projects with a back end concept.
3. To construct .NET applications and to maintain the database.
4. To familiarize the students in crystal report creation.

Course Outcomes (CO)

K3	CO3	Apply the decision and control structures in .NET and apply the concepts of queries and creation of console applications.
K4	CO4	Analyze the concept of windows application and project creation and Oracle functions
K5	CO4	Execute the console, window application, crystal report, PL/SQL triggers.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT4A4		**Allied Paper 4 – Micro Processors, PC Hardware and Interfacing**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	IV	6	90	5

Course Objectives

1. To understand the basic architecture of 16 bit and 32 bit microprocessors.
2. To understand the interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.
3. To be aware of the techniques for faster execution of instructions and improve speed of operation and performance of microprocessors.

Course Outcomes (CO)

K1	CO1	Remember the basic architecture of 16 and 32 bit microprocessors
K2	CO2	Understand the 16 bit memory and peripheral devices.
K3	CO3	Apply the concepts of advanced microprocessors like Pentium pro , MMX technologies.
K4	CO4	Analyze the development tools , I/O devices.

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 18UCT510	**Core Paper 10 – Software Engineering and Testing**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	V	5	75	5

Course Objectives

1. To remember the methods and technologies involved in building complex software.
2. To understand the various steps involved in developing software including requirement elicitation, System design, object design and testing.
3. To implement the Software testing techniques in the projects.

Course Outcomes (CO)

K1	CO1	Remember the steps involved in developing the software.
K2	CO2	Understand the roles and responsibilities of various persons involved in development cycle.
K3	CO3	Implement the methods and techniques to develop a small project.
K4	CO4	Analyze the problems that may occur in each and every phase of software development cycle.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT511		**Core Paper 11 – Mobile Computing**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	V	5	75	5

Course Objectives

1. To introduce the basic concepts and principles in mobile computing.
2. To include the major techniques involved in networks & systems issues for the design and implementation of mobile computing systems and applications.
3. To Provide an opportunity for students to understand the key components and technologies involved and to gain hands-on experiences in building mobile applications.

Course Outcomes (CO)

K1	CO1	Understand the concept of Wireless LANs, PAN, Mobile Networks.
K2	CO2	Understand positioning techniques and location-based services and applications.
K3	CO3	Apply the techniques used in the GSM and GPRS.
K4	CO4	Analyze CDMA and wireless LANs.

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 18UCT512	**Core Paper 12 – Data Mining and Warehousing**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	V	6	90	5

Course Objectives

1. To understand the different techniques in Data Mining and to develop the knowledge about Data Warehousing, Data Mining and KDD process.
2. To study the methodology of data warehousing and data mining to derive business rules for decision support systems.
3. To Describe and demonstrate the data mining algorithms and methods.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts in database management system and understand the discovery of knowledge in databases.
K2	CO2	Understand the techniques of genetic algorithms, neural networks and decision trees.
K3	CO3	Apply clustering and classification algorithms in data mining.
K4	CO4	Analyze typical process flow within a data warehouse, Extract and load process, clean and transform data, Backup and archive process.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT5CP		**Core Practical 5 – Software Testing Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	V	6	90	2

Course Objectives

1. To develop a web based application for the real time project.
2. To find bugs in the product or application and to expand effective reporting.

Course Outcomes (CO)

K3	CO1	Apply the principles of system and component testing.
K4	CO2	Analyze the strategies for generating system test cases.
K5	CO3	Evaluate the tools used in automation testing.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT613		**Core Paper 13 – PHP**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	VI	6	90	5

Course Objectives

1. To understand the basic concept of website requirements and to realize the basic requirements of PHP.
2. To learn the concepts of PHP and Data base through various PHP and SQL Statements.
3. After the completion of this course, Students will get the overall idea about PHP and SQL and able to get the knowledge about Web site development.

Course Outcomes (CO)

K1	CO1	Remember the basic web development requirements and PHP concepts.
K2	CO2	Grasp the PHP program flow, arrays, string and functions.
K3	CO3	Implement classes, Cookies, Sessions, OOPs and File concepts.
K4	CO4	Review the concepts of SQLite and PHP Statements.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT614		**Core Paper 14 – Information Security**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	VI	6	90	5

Course Objectives

1. To understand all aspects of cyber security including network security, computer security and information security.
2. To become information security professionals for the high-end jobs in security.

Course Outcomes (CO)

K1	CO1	Recollect the basic security concepts of the digital computer system.
K2	CO2	Understand the malicious codes and virus attachments of a file.
K3	CO3	Apply the security mechanisms, firewalls and intrusion detection systems in the computer field.
K4	CO4	Analyze different types of security flaws , Legal and Ethical issues in computer security.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 18UCT6CQ		**Core Practical 6 – Programming Lab-PHP**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	VI	6	90	2

Course Objectives

1. To be able to get the knowledge about platform independent language.
2. To get the idea about PHP and SQL connectivity concepts.
3. To be able to design their own website.

Course Outcomes (CO)

K3	CO1	Execute array functions, file and directory functions, date and time functions in PHP Script.
K4	CO2	Inspect PHP expressions, Cookies and Sessions.
K5	CO3	Evaluate the database using PHP's MySQLite extensions

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT6Z1		**Core Project – Project Work & Viva - Voce *** **		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	VI	4	60	4

Course Objectives

On successful completion of all the above courses

1. To be able to get the knowledge about selecting the task based on their course skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To get confident for implementing the task.
4. After completing their project they get the confident for solving the real time problems.

Course Outcomes (CO)

K3	CO1	Apply the programming skill for solving the project.
K4	CO2	Analyze the task and to collect the necessary information and software.
K5	CO3	Evaluate the task based on the software.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Network Security			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	6	90	5

Course Objectives

1. To be familiar with network security awareness and its importance.
2. To understand, how the security concept is executed in the network area?
3. To master the fundamentals of secret and public cryptography.
4. To gain the knowledge from various network security procedures.

Course Outcomes (CO)

K1	CO1	Memorize the basic concept about security, virus, Worm, Trojan and types of attacks.
K2	CO2	Understand the idea about cryptography, encryption and decryption.
K3	CO3	Implement various security procedures like DES, RSA, TSP,WAP
K4	CO4	Evaluate internet protocols and computer system authentications (i.e.) Password concepts

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Cloud Computing			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	6	90	5

Course Objectives

1. To understand the basic knowledge about the cloud computing techniques and architecture.

2. To gain knowledge of cloud services and cloud security.
3. To be able to understand Cloud Segment, Cloud Deployment Models and key cloud companies.

Course Outcomes (CO)

K1	CO1	Identify the architecture and infrastructure of cloud computing including SaaS, PaaS, IaaS, public cloud, private cloud, and hybrid cloud.
K2	CO2	Understand the core issues of cloud computing, security, privacy, and interoperability.
K3	CO3	Apply the appropriate technologies and approaches for the related issues in Cloud Computing.
K4	CO4	Analyze the suitable cloud computing solutions and recommendations according to the applications used.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: System Software			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	6	90	5

Course Objectives

1. To understand the relationship between system software and machine architecture.
2. To know the design and implementation of assemblers.

Course Outcomes (CO)

K1	CO1	Remember the basics of assemblers and various loader functions
K2	CO2	Understand the data and instruction formats, dynamic linking and bootstrap loaders.
K3	CO3	Apply the concepts of text editing processes.
K4	CO4	Analyze the debugging functions

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Client/Server Techniques			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	6	90	5

Course Objectives

1. To gain Exposure on clients and servers.
2. To understand the concept of client-server development and learn problem solving skills through design scenarios for network environment.
3. To develop client–server based application.

Course Outcomes (CO)

K1	CO1	Remember the concepts of client server techniques.
K2	CO2	Understand client and server operating systems and middleware.
K3	CO3	Apply SQL database server queries and relational databases.
K4	CO4	Analyze about the internet and intranet DCOM, OLE and CORBA object web.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Artificial Intelligence			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	6	90	5

Course Objectives

1. To understand the basic concepts of Artificial Intelligence (AI) and identify the AI problems and domains.
2. To provide search techniques to solve the problems.
3. To represent and access the domain specific knowledge.

Course Outcomes (CO)

K1	CO1	Understand the nature of AI problems and task domains of AI.
K2	CO2	Apply the appropriate search procedures to solve the problems by using best algorithms.
K3	CO3	Analyze and select the suitable knowledge representation method.
K4	CO4	Manipulate the acquired knowledge and infer new knowledge.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Analysis and Design of Information Systems			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	6	90	5

Course Objectives

1. To understand the basic concepts of system analysis, design and different types of information systems.
2. To understand the concepts of prototype, files and databases.
3. To understand the basic concepts of system implementation, maintenance and hardware, software requirements.

Course Outcomes (CO)

K1	CO1	To recollect the concepts of system analysis and design.
K2	CO2	To understand the system requirements, system development and prototype models.
K3	CO3	To apply various file, input and database concepts for system development.
K4	CO4	To analyze required hardware components and suitable software for system implementations.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT3S1		**Skill Based Subject 1 – Hardware Installation and Servicing**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	III	2	30	3

Course Objectives

1. To understand the knowledge about the hardware components and trouble shooting.
2. To able to get the knowledge about hardware assembling.

Course Outcomes (CO)

K1	CO1	Remember the basic components of a computer hardware.
K2	CO2	Understand the various parts of a computer.
K3	CO3	Apply the computer trouble shooting mechanism.
K4	CO4	Analyze the computer maintenance methods.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 18UCT4SL		**Skill Based Subject 2 – Hardware Installation and Servicing Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	III	2	30	3

Course Objectives

1. To understand the knowledge about the hardware components and trouble shooting
2. To get the knowledge about hardware assembling.
3. To understand the knowledge about LAN connectivity and network file sharing.

Course Outcomes (CO)

K3	CO3	Apply the computer trouble shooting mechanism.
K4	CO4	Analyze the network file sharing, and LAN connectivity.
K5	C05	Execute the Disk defragmentation and various OS installation.

Programme Code : 11	B.Sc Computer Technology
Course Code: 18UCT5S2	Skill Based Subject 3 - Open Source Technology-Linux

Batch	Semester	Hours/Week	Total Hours	Credits
2018-2019	V	2	30	3

Course Objectives

1. To get the basic knowledge about Linux Operation system.
2. To understand the concept of Linux editor and Shell Script.
3. To be aware of shell scripting syntax, functions and file concepts and be able to create own programs using Linux.

Course Outcomes (CO)

K1	CO1	Recollect the Linux OS and Linux Distributors.
K2	CO2	Fathom text editor, compiler and shell syntax.
K3	CO3	Apply shell programming variables, input and output, pipes and Control statements.
K4	CO4	Analyze different Commands, File operations and Library concepts in Shell.

Programme Code : 11	B.Sc Computer Technology
Course Code: 18UCT6SM	**Skill Based Subject 4 - Shell Programming Lab**

Batch	Semester	Hours/Week	Total Hours	Credits
2018-2019	VI	2	30	3

Course Objectives

1. To able to gain the knowledge about shell Programming concepts
2. To recognize the difference between Windows and Linux platforms and do the programs in both platforms.
3. To understand shell syntax and create own programs.

Course Outcomes (CO)

K3	CO1	Implement various Shell concepts like read, write, Operators and array.
K4	CO2	Review shell control statements, basic calculators through various programs.
K5	CO3	Assess Shell utility dialog boxes and Color concepts in Shell Programs.

Programme Code : 11	**B.Sc Computer Technology**		
Non- Major Elective – Consumer Affairs			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2018-2019	2	30	2

Course Objectives

1. To familiarize the students with their rights and responsibilities as a consumer.
2. To understand the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards.
3. To have a handle the business firms' interface with consumers and the consumer related regulatory and business environment.

Course Outcomes (CO)

K1	CO1	Able to know the rights and responsibility of consumers.
K2	CO2	Understanding the various procedure of redress.
K3	CO3	Applying the role of different agencies in establishing product and service standards.
K4	CO4	To enable them to handle the business firms' interface with consumers.

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DEPARTMENT OF COMPUTER TECHNOLOGY (Unaided)

COURSE OUTCOMES (CO)

B.Sc. COMPUTER TECHNOLOGY

For the students admitted
In the
Academic Year 2019-2020

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT101		**Core Paper 1 – C Programming**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	I	5	75	4

Course Objectives

1. To impart adequate knowledge on the need of programming languages and problem solving techniques.
2. To develop an in-depth understanding of functional and logical concepts of C Programming.
3. To provide exposure to problem-solving through C programming.
4. Familiarize the basic syntax and semantics of C Language.

Course Outcomes (CO)

K1	CO1	Recollect various programming constructs and to develop C programs.
K2	CO2	Understand the fundamentals of C programming.
K3	CO3	Choose the right data representation formats based on the requirements of the problem.
K4	CO4	Implement different Operations on arrays, functions, pointers, structures, unions and files.

rogramme Code : 11	**B.Sc Computer Technology**			
Course Code: 19UCT1CL	**Core Practical 1 – C Programming Lab**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	I	5	75	2

Course Objectives

1. To introduce the field of programming using C language.
2. To enhance the analyzing and problem solving skills and use the same for writing programs in C.

Course Outcomes (CO)

K3	CO1	Develop logical and programming skills using the fundamentals and basics of C Language.
K3	CO2	Develop programs using the control statements, Arrays and Strings
K4	CO3	Apply effective usage of arrays, structures, functions and pointers.
K5	CO4	Implement files and command line arguments.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT202		**Core Paper 2 – Digital Logic and Computer Design**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	II	4	60	4

Course Objectives

1. The students should get the Knowledge about the Number System, Number representation and Number Conversion.
2. To learn the concept of Digital Circuits, Circuit Constructions and Simplifications of Boolean functions.
3. To know the concept of Multiplexers, Flip-Flops and Registers.
4. To be familiar with the concepts of Computer Languages and Instruction Formats.
5. Familiarize the Memory Hierarchy and Peripheral Devices.

Course Outcomes (CO)

K1	CO1	Retain the information about the Computer Number systems and conversions in Digital Computer System
K2	CO2	Understand the concepts of Boolean expressions, Logic Gates and to apply the methods to simplifying the Boolean expression.
K3	CO3	Apply the knowledge to perform arithmetical operations using various logical circuits and to design various Synchronous and Asynchronous.
K4	CO4	Investigate the function of various parts of the Computer systems and Memories.

Programme Code : 11	**B.Sc Computer Technology**
Course Code: 19UCT203	**Core Paper 3 – Object Oriented Programming with C++**

Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	II	3	45	4

Course Objectives

1. To develop a greater understanding of the issues involved in programming language design and object oriented paradigms and its implementation.
2. To impart adequate knowledge on the need of object oriented programming languages.
3. To enhance problem solving and programming skills in C++ by implementing the object oriented concepts.

Course Outcomes (CO)

K1	CO1	Remember the characteristics of Procedure and Object Oriented Programming Languages
K2	CO2	Understand the fundamentals of C++ programming structure, function overloading and constructors.
K3	CO3	Using C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc.
K4	CO4	Apply the concepts in object oriented programming in terms of software reuse and managing complexity to solve real-world problems.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT2CM		**Core Practical 2 – C++ PROGRAMMING LAB**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	II	3	45	2

Course Objectives

1. To develop the programs for solving the problems using function overloading, constructors, classes and object.
2. To apply the object oriented programming concepts to solve the problems.

Course Outcomes (CO)

K3	CO1	Implement the concepts of object oriented programming.
K3	CO2	Apply string functions to perform operator overloading.
K4	CO3	Analyze virtual functions and inheritance.
K5	CO4	Implement files and command line arguments.

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 19UCT304	**Core Paper 4 – Advanced Operating Systems**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	III	5	75	4

Course Objectives

1. To learn the fundamentals of Operating Systems.
2. To understand the structure and organization of the file system, process management, CPU Scheduling and Memory Management.
3. To provide the design principles of Android operating system.

Course Outcomes (CO)

K1	CO1	Recollect the basic functionality of the salient features of operating systems like DOS history, Processing states, Interrupts and Switching concepts.
K2	CO2	Understand the concepts of storage management, paging and page replacement concepts.
K3	CO3	Apply various optimization techniques in operating systems.
K4	CO4	Analyze the functionalities of Android operating system.

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 19UCT305	**Core Paper 5 – Data Structures and Analysis of Algorithms**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	III	5	75	4

Course Objectives

1. Describe and implement the advanced data structures and demonstrate Knowledge in different methods for representing a graph and tree.
2. Apply important algorithmic design paradigms and methods of analysis.
3. Analyze the asymptotic performance of algorithms.

Course Outcomes (CO)

K1	CO1	Remember the data structures algorithms and programs.
K2	CO2	Understand data structures and the concepts of algorithms for searching, sorting and dynamic programming
K3	CO3	Apply appropriate algorithms and data structures for various applications
K4	CO4	Analyze the computational complexity of various algorithms

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT306		**Core Paper 6 – Advanced Java Programming**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	III	5	75	5

Course Objectives

1. To understand the difference between C, C++ and Java Programs.
2. To explore the Java Applications and to identify the variations between Stand alone java applications and Web based applications.
3. To provide the advanced concepts in java programming like Package, Multi Thread, Applet, interface and AWT Components
4. Ability to improve their programming skills using self programs.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts of OOPs, Data Types, Control Statements and Tokens.
K2	CO2	Realize the knowledge about the java statements.
K3	CO3	Implement the concept of Package, Thread , Applet, Interfaces and AWT Components
K4	CO4	Inspect the java concepts and get the new innovative ideas.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT3CN		**Core Practical 3 – Advanced Java Programming Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	III	5	75	2

Course Objectives

1. To explore the knowledge in stand Alone java applications and web based Applications.
2. To understand the usage of Classes, Package, Interface, Multi Threading, Exception, Applet and AWT.
3. On successful completion of practical they will able to get the overall idea about java programming structure.

Course Outcomes (CO)

K3	CO1	Practice the concepts of OOPs, java control statements, data types and Tokens.
K4	CO2	Review the java package, interface, applet and AWT Components.
K5	CO3	Work out all the java unique statements through the programs.

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 19UCT407	**Core Paper 7 – Relational Database Management Systems**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	IV	5	75	4

Course Objectives

1. To develop the knowledge in various Database concepts, queries, normalization and reports.
2. To be able to construct a new normalized database.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts of database management systems and database techniques
K2	CO2	Understand Data constraints and CODDs rules, DML and DDL statements of ORACLE,
K3	CO3	Apply various DDL and DML statements, joins queries, PL / SQL statements.
K4	CO4	Analyze the granting and revoking permissions , cursors

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT408		**Core Paper 8 – .NET Framework**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	IV	4	60	4

Course Objectives

1. To design and develop the distributed event driven programming in both VB and .Net framework
2. To Apply CLR, .NET framework classes and ADO.Net.
3. To Analyze the Properties, Events and Methods in .Net Environment.

Course Outcomes (CO)

K1	CO1	Remember the basic Visual basic concepts and advanced features of VB.Net.
K2	CO2	Understand the concepts of .Net framework Technology and summarize the advantages and disadvantages of .Net framework.
K3	CO3	Apply the web applications using VB.Net.
K4	CO4	Analyze the distributed event driven programming using .Net framework

Programme Code : 11	**B.Sc Computer Technology**			
Course Code: 19UCT409	**Core Paper 9 – Computer Networks**			
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	IV	5	75	4

Course Objectives

1. To provide the concepts and fundamentals of different layers used in computer networking.
2. To understand a basic knowledge of the use of cryptography and different techniques keys used for Encryption and Decryption.

Course Outcomes (CO)

K1	CO1	Understand OSI reference Model and knowledge of using different Layers in the networking model.
K2	CO2	Understand the knowledge of the use of cryptography
K3	CO3	Apply the techniques used in routing algorithms
K4	CO4	Analyze Digital Signatures Symmetric-Key Signatures and Public-Key signatures.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT4CO		**Core Practical 4 – .Net Framework and Oracle Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	IV	6	90	2

Course Objectives

1. To design and develop the applications using ADO.Net and session tracking.
2. To make the students to develop the database projects with a back end concept.
3. To construct .NET applications and to maintain the database.
4. To familiarize the students in crystal report creation.

Course Outcomes (CO)

K3	CO3	Apply the decision and control structures in .NET and apply the concepts of queries and creation of console applications.
K4	CO4	Analyze the concept of windows application and project creation and Oracle functions
K5	CO4	Execute the console, window application, crystal report, PL/SQL triggers.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT4A4		**Allied Paper 4 – Micro Processors, PC Hardware and Interfacing**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	IV	6	90	5

Course Objectives

1. To understand the basic architecture of 16 bit and 32 bit microprocessors.
2. To understand the interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.
3. To be aware of the techniques for faster execution of instructions and improve speed of operation and performance of microprocessors.

Course Outcomes (CO)

K1	CO1	Remember the basic architecture of 16 and 32 bit microprocessors
K2	CO2	Understand the 16 bit memory and peripheral devices.
K3	CO3	Apply the concepts of advanced microprocessors like Pentium pro , MMX technologies.
K4	CO4	Analyze the development tools , I/O devices.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT510		**Core Paper 10 – Software Engineering and Testing**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	V	5	75	5

Course Objectives

1. To remember the methods and technologies involved in building complex software.
2. To understand the various steps involved in developing software including requirement elicitation, System design, object design and testing.
3. To implement the Software testing techniques in the projects.

Course Outcomes (CO)

K1	CO1	Remember the steps involved in developing the software.
K2	CO2	Understand the roles and responsibilities of various persons involved in development cycle.
K3	CO3	Implement the methods and techniques to develop a small project.
K4	CO4	Analyze the problems that may occur in each and every phase of software development cycle.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT511		**Core Paper 11 – Wireless Ad-Hoc Network**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	V	5	75	5

Course Objectives

1. To introduce the basic concepts Wireless Ad-Hoc Network
2. To get knowledge about various concepts in wireless Ad-Hoc Network.
3. To provide an opportunity for students to understand the concept of Routing Protocols, Trust Management and Applications

Course Outcomes (CO)

K1	CO1	Understand the concept configuration, Healing and self-Organize in Ad-Hoc Network.
K2	CO2	Understand various Routing protocols natures.
K3	CO3	Apply the various techniques used for Multicasting and Broadcasting.
K4	CO4	Analyze wireless Ad-Hoc Network Vehicular applications.

Programme Code : 11	**B.Sc Computer Technology**
Course Code: 19UCT512	**Core Paper 12 – Data Mining and Warehousing**

Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	V	6	90	5

Course Objectives

1. To understand the different techniques in Data Mining and to develop the knowledge about Data Warehousing, Data Mining and KDD process.
2. To study the methodology of data warehousing and data mining to derive business rules for decision support systems.
3. To Describe and demonstrate the data mining algorithms and methods.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts in database management system and understand the discovery of knowledge in databases.
K2	CO2	Understand the techniques of genetic algorithms, neural networks and decision trees.
K3	CO3	Apply clustering and classification algorithms in data mining.
K4	CO4	Analyze typical process flow within a data warehouse, Extract and load process, clean and transform data, Backup and archive process.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT5CP		**Core Practical 5 – Software Testing Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	V	6	90	2

Course Objectives

1. To develop a web based application for the real time project.
2. To find bugs in the product or application and to expand effective reporting.

Course Outcomes (CO)

K3	CO1	Apply the principles of system and component testing.
K4	CO2	Analyze the strategies for generating system test cases.
K5	CO3	Evaluate the tools used in automation testing.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT613		**Core Paper 13 – PHP**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	VI	6	90	5

Course Objectives

1. To understand the basic concept of website requirements and to realize the basic requirements of PHP.
2. To learn the concepts of PHP and Data base through various PHP and SQL Statements.
3. After the completion of this course, Students will get the overall idea about PHP and SQL and able to get the knowledge about Web site development.

Course Outcomes (CO)

K1	CO1	Remember the basic web development requirements and PHP concepts.
K2	CO2	Grasp the PHP program flow, arrays, string and functions.
K3	CO3	Implement classes, Cookies, Sessions, OOPs and File concepts.
K4	CO4	Review the concepts of SQLite and PHP Statements.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT614		**Core Paper 14 – Information Security**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	VI	6	90	5

Course Objectives

1. To understand all aspects of cyber security including network security, computer security and information security.
2. To become information security professionals for the high-end jobs in security.

Course Outcomes (CO)

K1	CO1	Recollect the basic security concepts of the digital computer system.
K2	CO2	Understand the malicious codes and virus attachments of a file.
K3	CO3	Apply the security mechanisms, firewalls and intrusion detection systems in the computer field.
K4	CO4	Analyze different types of security flaws , Legal and Ethical issues in computer security.

Programme Code : 11		**B.Sc Computer Technology**		
Course Code: 19UCT6CQ		**Core Practical 6 – Programming Lab-PHP**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	VI	6	90	2

Course Objectives

1. To be able to get the knowledge about platform independent language.
2. To get the idea about PHP and SQL connectivity concepts.
3. To be able to design their own website.

Course Outcomes (CO)

K3	CO1	Execute array functions, file and directory functions, date and time functions in PHP Script.
K4	CO2	Inspect PHP expressions, Cookies and Sessions.
K5	CO3	Evaluate the database using PHP's MySQLite extensions

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT6Z1		**Core Project – Project Work & Viva - Voce *****		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	VI	4	60	4

Course Objectives

1. To be able to get the knowledge about selecting the task based on their course skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To get confident for implementing the task.
4. After completing their project they get the confident for solving the real time problems.

Course Outcomes (CO)

K3	CO1	Apply the programming skill for solving the project.
K4	CO2	Analyze the task and to collect the necessary information and software.
K5	CO3	Evaluate the task based on the software.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Network Security			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	6	90	5

Course Objectives

1. To be familiar with network security awareness and its importance.
2. To understand, how the security concept is executed in the network area?
3. To master the fundamentals of secret and public cryptography.
4. To gain the knowledge from various network security procedures.

Course Outcomes (CO)

K1	CO1	Memorize the basic concept about security, virus, Worm, Trojan and types of attacks.
K2	CO2	Understand the idea about cryptography, encryption and decryption.
K3	CO3	Implement various security procedures like DES, RSA, TSP,WAP
K4	CO4	Evaluate internet protocols and computer system authentications (i.e.) Password concepts

Programme Code : 11	B.Sc Computer Technology		
Elective Paper: Cloud Computing			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	6	90	5

Course Objectives

1. To understand the basic knowledge about the cloud computingtechniques and architecture.
2. To gain knowledge of cloud services and cloud security.
3. To be able to understand Cloud Segment, Cloud Deployment Models and key cloud companies.

Course Outcomes (CO)

K1	CO1	Identify the architecture and infrastructure of cloud computing including SaaS, PaaS, IaaS, public cloud, private cloud, and hybrid cloud.
K2	CO2	Understand the core issues of cloud computing, security, privacy, and interoperability.
K3	CO3	Apply the appropriate technologies and approaches for the related issues in Cloud Computing.
K4	CO4	Analyze the suitable cloud computing solutions and recommendations according to the applications used.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: System Software			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	6	90	5

Course Objectives

1. To understand the relationship between system software and machine architecture.
2. To know the design and implementation of assemblers.

Course Outcomes (CO)

K1	CO1	Remember the basics of assemblers and various loader functions
K2	CO2	Understand the data and instruction formats, dynamic linking and bootstrap loaders.
K3	CO3	Apply the concepts of text editing processes.
K4	CO4	Analyze the debugging functions

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Client/Server Techniques			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	6	90	5

Course Objectives

1. To gain Exposure on clients and servers.
2. To understand the concept of client-server development and learn problem solving skills through design scenarios for network environment.
3. To develop client–server based application.

Course Outcomes (CO)

K1	CO1	Remember the concepts of client server techniques.
K2	CO2	Understand client and server operating systems and middleware.
K3	CO3	Apply SQL database server queries and relational databases.
K4	CO4	Analyze about the internet and intranet DCOM, OLE and CORBA object web.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Artificial Intelligence			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	6	90	5

Course Objectives

1. To understand the basic concepts of Artificial Intelligence (AI) and identify the AI problems and domains.
2. To provide search techniques to solve the problems.
3. To represent and access the domain specific knowledge.

Course Outcomes (CO)

K1	CO1	Understand the nature of AI problems and task domains of AI.
K2	CO2	Apply the appropriate search procedures to solve the problems by using best algorithms.
K3	CO3	Analyze and select the suitable knowledge representation method.
K4	CO4	Manipulate the acquired knowledge and infer new knowledge.

Programme Code : 11	**B.Sc Computer Technology**		
Elective Paper: Analysis and Design of Information Systems			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	6	90	5

Course Objectives

1. To understand the basic concepts of system analysis, design and different types of information systems.
2. To understand the concepts of prototype, files and databases.
3. To understand the basic concepts of system implementation, maintenance and hardware, software requirements.

Course Outcomes (CO)

K1	CO1	To recollect the concepts of system analysis and design.
K2	CO2	To understand the system requirements, system development and prototype models.
K3	CO3	To apply various file, input and database concepts for system development.
K4	CO4	To analyze required hardware components and suitable software for system implementations.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT3S1		**Skill Based Subject 1 – Hardware Installation and Servicing**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	III	2	30	3

Course Objectives

1. To understand the knowledge about the hardware components and trouble shooting.
2. To able to get the knowledge about hardware assembling.

Course Outcomes (CO)

K1	CO1	Remember the basic components of a computer hardware.
K2	CO2	Understand the various parts of a computer.
K3	CO3	Apply the computer trouble shooting mechanism.
K4	CO4	Analyze the computer maintenance methods.

ogramme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT4SL		**Skill Based Subject 2 – Hardware Installation and Servicing Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	III	2	30	3

Course Objectives

1. To understand the knowledge about the hardware components and trouble shooting
2. To get the knowledge about hardware assembling.
3. To understand the knowledge about LAN connectivity and network file sharing.

Course Outcomes (CO)

K3	CO3	Apply the computer trouble shooting mechanism.
K4	CO4	Analyze the network file sharing, and LAN connectivity.
K5	C05	Execute the Disk defragmentation and various OS installation.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT5S2		Skill Based Subject 3 - Open Source Technology-Linux		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	V	2	30	3

Course Objectives

1. To get the basic knowledge about Linux Operation system.
2. To understand the concept of Linux editor and Shell Script.
3. To be aware of shell scripting syntax, functions and file concepts and be able to create own programs using Linux.

Course Outcomes (CO)

K1	CO1	Recollect the Linux OS and Linux Distributors.
K2	CO2	Fathom text editor, compiler and shell syntax.
K3	CO3	Apply shell programming variables, input and output, pipes and Control statements.
K4	CO4	Analyze different Commands, File operations and Library concepts in Shell.

Programme Code : 11		B.Sc Computer Technology		
Course Code: 19UCT6SM		**Skill Based Subject 4 - Shell Programming Lab**		
Batch	**Semester**	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	VI	2	30	3

Course Objectives

1. To able to gain the knowledge about shell Programming concepts
2. To recognize the difference between Windows and Linux platforms and do the programs in both platforms.
3. To understand shell syntax and create own programs.

Course Outcomes (CO)

K3	CO1	Implement various Shell concepts like read, write, Operators and array.
K4	CO2	Review shell control statements, basic calculators through various programs.
K5	CO3	Assess Shell utility dialog boxes and Color concepts in Shell Programs.

Programme Code : 11	**B.Sc Computer Technology**		
Non- Major Elective – Consumer Affairs			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2019-2020	2	30	2

Course Objectives

1. To familiarize the students with their rights and responsibilities as a consumer.
2. To understand the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards.
3. To have a handle the business firms' interface with consumers and the consumer related regulatory and business environment.

Course Outcomes (CO)

K1	CO1	Able to know the rights and responsibility of consumers.
K2	CO2	Understanding the various procedure of redress.
K3	CO3	Applying the role of different agencies in establishing product and service standards.
K4	CO4	To enable them to handle the business firms' interface with consumers.