HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.)
Re-Accredited with A++ Grade by NAAC (3rd Cycle)
Uthamapalayam -625533.

DEPARTMENT OF INFORMATION TECHNOLOGY

BACHELOR OF SCIENCE – INFORMATION TECHNOLOGY

SYLLABUS (I Year)

Choice Based Credit System – CBCS

(As per TANSCHE/MKU Guidelines)

with

Outcome Based Education (OBE)

(With effect from Academic Year 2023 -2024 onwards)

HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.)
Re-Accredited with A++ Grade by NAAC (3rd Cycle)
Uthamapalayam - 625 533.

College Vision and Mission

Vision

Our vision is to provide the best type of higher education to all, especially to students hailing from minority Muslim community, rural agricultural families and other deprived, under privileged sections of the society, inculcating the sense of social responsibility in them. Our college is committed to produce talented, duly-bound citizens to take up the challenges of the changing times.

Mission

Our mission is to impart and inculcate social values, spirit of service and religious tolerance as envisioned by our beloved Founder President Hajee Karutha Rowther.

The Vision beckons..... the Mission continuous forever

HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.)
Re-Accredited with A++ Grade by NAAC (3rd Cycle)
Uthamapalayam - 625 533.

Department Vision and Mission

Vision

To transform the students into good citizens and develop them to lead the country as IT professionals

Mission

- To provide the practical skill in developing the simple applications.
- To enrich the students knowledge in the recent trends that the industry is seeking for.
- To impart comprehensive knowledge with equal emphasis on theory and practices.

To enhance the employability, the students are to be stimulated to work in a team

1. Introduction

B.Sc. Information Technology

Education is the key to development of any society. Role of higher education is crucial for securing right kind of employment and also to pursue further studies in best available world class institutes elsewhere within and outside India. Quality education in general and higher education in particular deserves high priority to enable the young and future generation of students to acquire skill, training and knowledge in order to enhance their thinking, creativity, comprehension and application abilities and prepare them to compete, succeed and excel globally. Learning Outcomes-based Curriculum Framework (LOCF) which makes it student-centric, interactive and outcome-oriented with well-defined aims, objectives and goals to achieve. LOCF also aims at ensuring uniform education standard and content delivery across the state which will help the students to ensure similar quality of education irrespective of the institute and location.

Information Technology is the study of quantity, structure, space and change, focusingon problem solving, application development with wider scope of application in science, engineering, technology, social sciences etc. throughout the world in last couple of decades and it has carved out a space for itself like any other disciplines of basic science and engineering. Computer science is a discipline that spans theory and practice and it requires thinking both in abstract terms and in concrete terms. Nowadays, practically everyone is a computer user, and many people are even computer programmers. Computer Science can be seen on a higher level, as a science of problem solving and problem solving requires precision, creativity, and careful reasoning. The ever-evolving discipline of computer science also has strong connections to other disciplines. Many problems in science, engineering, health care, business, and other areas can be solved effectively with computers, but finding a solution requires both computer science expertise and knowledge of the particular application domain. Computer science has a wide range of specialties. These include Computer Architecture, Software Systems, Graphics, Artificial Intelligence, Computational Science, and Software Engineering. Drawing from a common core of computer science knowledge, each specialty area focuses on specific challenges. Computer Science is practiced by mathematicians, scientists and engineers. Mathematics, the origins of Computer Science, provides reason and logic. Science provides the methodology for learning and refinement. Engineering provides the techniques for building hardware and software.

The Students completing this programme will be able to present Software

application clearly and precisely, make abstract ideas precise by formulating them in the Computer languages. Completion of this programme will also enable the learners to join teaching profession, enhance their employability for government jobs, jobs in software industry, banking, insurance and investment sectors, data analyst jobs and jobs in various other public and private enterprises.

LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK GUIDELINES BASED REGULATIONS FOR UNDER GRADUATE PROGRAMME	
Programme:	**B.Sc., Information Technology**
Programme Code:	
Duration:	**3 years [UG]**
Programme Outcomes:	**PO1: Disciplinary knowledge:** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate Programme of study **PO2: Communication Skills:** Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups. **PO3: Critical thinking:** Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development. **PO4: Problem solving: Capacity** to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations. **PO5: Analytical reasoning**: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints. **PO6: Research-related skills**: A sense of inquiry and capability for asking

	relevant/appropriate questions, problem arising, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experimentor investigation **PO7: Cooperation/Team work:** Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the partof a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team **PO8: Scientific reasoning**: Ability to analyse, interpret and draw conclusionsfrom quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective. **PO9: Reflective thinking**: Critical sensibility to lived experiences, with selfawareness and reflexivity of both self and society. **PO10 Information/digital literacy:** Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety ofrelevant information sources; and use appropriate software for analysis of data. **PO 11 Self-directed learning**: Ability to work independently, identify appropriate resources required for a project, and manage a project through tocompletion. **PO 12 Multicultural competence:** Possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully withdiverse groups. **PO 13: Moral and ethical awareness/reasoning**: Ability to embrace moral/ethical values in conducting one‘s life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demon starting the ability to identify ethical issues

	relatedto one‟s work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectualproperty rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work. **PO 14: Leadership readiness/qualities:** Capability for mapping out the tasksof a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way. **PO 15: Lifelong learning:** Ability to acquire knowledge and skills, including „learning how to learn‟, that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling.
Programme Specific Outcomes:	**PSO1:** Excel themselves as Software Engineers, System Analyst, Tester, Developer etc and acquire the leadership qualities **PSO2:** Get specialization in the course through their Master's Degree **PSO3:** Promote the students with cumulative skill set to provide solutions to a given real world problem using current trends and technology. **PSO4:** Students will be equipped with the life-long learning process for self- sustainability, employability and leadership roles in our dynamic society **PSO5:** Deliver a new generation with proficient on fundamental knowledge and recent trends on different disciplines in Information Technology.

	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
PSO 1	Y	Y	Y	Y	Y	Y	Y	Y
PSO 2	Y	Y	Y	Y	Y	Y	Y	Y
PSO3	Y	Y	Y	Y	Y	Y	Y	Y
PSO 4	Y	Y	Y	Y	Y	Y	Y	Y
PSO 5	Y	Y	Y	Y	Y	Y	Y	Y

3 – Strong, 2- Medium, 1- Low

Highlights of the Revamped Curriculum:

- Student-centric, meeting the demands of industry & society, incorporating industrial components, hands-on training, skill enhancement modules, industrial project, project with viva-voce, exposure to entrepreneurial skills, training for competitive examinations, sustaining the quality of the core components and incorporating application oriented content wherever required.
- The Core subjects include latest developments in the education and scientific front, advanced programming packages allied with the discipline topics, practical training, devising mathematical models and algorithms for providing solutions to industry / real life situations. The curriculum also facilitates peer learning with advanced mathematical topics in the final semester, catering to the needs of stakeholders with research aptitude.
- The General Studies and Mathematics based problem solving skills are included as mandatory components in the ‗Training for Competitive Examinations' course at the final semester, a first of its kind.
- The curriculum is designed so as to strengthen the Industry-Academia interface and provide more job opportunities for the students.
- The Industrial Statistics course is newly introduced in the fourth semester, to expose the students to real life problems and train the students on designing a mathematical model to provide solutions to the industrial problems.
- The Internship during the second year vacation will help the students gain valuable work experience, that connects classroom knowledge to real world experience and to narrow down and focus on the career path.
- Project with viva-voce component in the fifth semester enables the student, application of conceptual knowledge to practical situations. The state of art technologies in conducting a Explain in a scientific and systematic way and arriving at a precise solution is ensured. Such innovative provisions of the industrial training, project and internships will give students an edge over the counterparts in the job market.
- State-of Art techniques from the streams of multi-disciplinary, cross disciplinary and inter disciplinary nature are incorporated as Elective courses, covering conventional topics to the latest - Artificial Intelligence.

Value additions in the Revamped Curriculum:

Semester	Newly introduced Components	Outcome/ Benefits
I	**Foundation Course** To ease the transition oflearning from higher secondaryto higher education, providing an overview of the pedagogy of learning Literature and analyzing the world through the literary lens gives rise to a new perspective.	Instill Confidence among students Create interest for the sub jest
I,II,III,IV	**Skill Enhancement papers**(Discipline centric /Generic/Entrepreneurial)	Industry Ready graduates Skilled humanre source Students are equipped with the essential skills to make them employable
		Training on language and communication skills

		enable the students to gain knowledge and exposure in the competitive world
		Discipline-centric skill will improve the technical know-how of solving real-life problems

III,IV,V& VI	Elective papers	Strengthening the domain knowledge Introducing the stakeholders to the State-of-Art techniques from the streams of multi-disciplinary, cross-disciplinary, and interdisciplinary nature Emerging topics in higher education/industry/communication network/health sector etc. are introduced with hands-on training.
IV	Elective Papers	Exposure to industry modules students into solution providers Generates Industry readygraduates Employment opportunities enhanced
V Semester	Elective papers	Self-learning is enhanced Application of the concept to real situation is conceived resulting in tangible outcome
VI Semester	Elective papers	➢ Enriches the study beyond the course. ➢ Developing a research frame work and presentingtheir independent andintellectual ideas effectively.
Extra Credits: For Advanced Learners/Honors degree		➢ To cater to the needs of pee rlearners/research Aspirants
Skills acquired from the Courses		Knowledge, Problem Solving, Analytical ability, Professional Competency, Professional Cation and Transferrable Skill

Methods of Evaluation		
Internal Evaluation	Continuous Internal Assessment Test	25 Marks
	Assignments	
	Seminars	
	Attendance and Class Participation	
External Evaluation	End Semester Examination	75 Marks
	Total	100 Marks

Methods of Assessment	
Recall(K1)	Simple definitions, MCQ, Recall steps, Concept definitions
Understand/Comprehend(K2)	MCQ, True/False, Short essays, Concept explanations, Short summary or Overview
Application (K3)	Suggest idea/concept with examples, suggest formulae, Solve problems, Observe, Explain
Analyze(K4)	Problem- solving questions Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
Evaluate(K5)	Longer essay/Evaluation essay, Critique or justify with pros and cons
Create(K6)	Check knowledge in specific or off beat situations, Discussion, Debating or Presentations

Programme Scheme

Eligibility

A Pass in +2 examination conducted by Board of Higher Secondary Education, Government of Tamilnadu or equivalent with Mathematics as one of the subjects.

For Programme Completion

A Candidate shall complete:

- Part I - Language papers – Tamil/Arabic in semesters I, II, III and IV respectively
- Part II - Language papers - English in semesters I, II, III, IV respectively
- Part III - Core papers in semesters I, II, III, IV, V and VI respectively
- Part III - Elective papers (Discipline / Generic) in semesters I, II, III, IV, V and VI respectively
- Part IV – Skill Enhancement Course (NME) papers in semesters I and II respective
- Part IV - Skill Enhancement Course papers in semesters I, II, III, and IV respectively
- Part IV - Skill Enhancement Course (Foundation Course) paper in semester I respectively
- Part IV - Skill Enhancement Course (Professional Competency Skill) in semester VI respectively
- Part IV - Value Education paper in semester V respectively

- Part IV - Environmental Studies paper in semesters III and IV respectively
- Part IV – Summer Internship/Industrial Training paper in semester V respective
- Part V - Extension activity in semester VI respectively

Scheme of Examinations under Choice Based Credit System

Term End Examinations (TEE)	- 75 Marks
Continuous Internal Assessment Examinations (CIAE)	- 25 Marks
Total	- 100 Marks

Pattern of Continuous Internal Assessment Examinations (CIAE)

Average of Two Internal Tests (each 20 marks)	- 20 Marks
Assignment	- 05 Marks
Total	- 25 Marks

Pattern of Term End Examinations

(Max. Marks: 75 / Time: 3 Hours)

External Examinations Question Paper Pattern for Part I & III and Part IV (Elective & Skill Enhancement Course)

Section – A (10 X 1 = 10 Marks)

Answer ALL questions.

- Questions 1 - 10
- Two questions from each unit
- Multiple choice questions and each question carries Four choices

Section – B (5 X 7 = 35 Marks)

Answer ALL questions choosing either A or B.

- Questions 11 - 15
- Two questions from each unit (either…. or…. type)
- Descriptive Type

Section – C (3 X 10 = 30 Marks)

Answer any THREE out of five questions.

- Questions 16 - 20
- One question from each unit
- Descriptive Type

External Examinations Question Paper Pattern for Environmental Studies and Value Education

Section – A: (5 X 6 = 30 Marks)

Answer ALL questions choosing either A or B.

- Questions 1 - 5
- Two questions from each unit (either…. or…. type)
- Descriptive Type

Section – B (3 X 15 = 45 Marks)

Answer any THREE out of five questions.

- Questions 6 – 10
- One question from each unit
- Descriptive Type

Part V (Extension Activities)

- Internal Evaluation

Passing Marks

Minimum 27 for External Exam
Eligibility for the degree – passing minimum is **40%**

Practical Examination

Internal – 40 marks

External – 60 marks

Total – 100 marks

Passing minimum is **40%**

Semester-I

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part I	23UTALL11	பொதுத்தமிழ் - 1 தமிழ் இலக்கிய வரலாறு - 1	6	25	75		3
	23UARLL11	Paper I : Prose	6	25	75		3
	23UMMLL11	Prose, Composition and Translation	6	25	75		3
Part II	23UENLL11	General English - I	6	25	75	100	3
Part – III	23UCTCC11	CCI-Programming in C	5	25	75	100	5
	23UCTCC1P	CC2-C programming Practical	5	40	60	100	5
	23UCTGE11	ECI: Elective Course Digital Logic Fundamentals (Generic/Discipline Specific)	4	25	75	100	3
Part IV	23UCTSE11	SEC-1: Skill Enhancement Course Basics of Internet (Non Major Elective)	2	25	75	100	2
	23UCTFN11	Foundation Course FCFCI: Fundamentals of Computers	2	25	75	100	2
Total			**30**				**23**

Semester-II

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part I	23UTALL21	பொதுத்தமிழ் - 2 தமிழ் இலக்கிய வரலாறு - 2	6	25	75		3
	23UARLL21	Paper II : Grammar	6	25	75		3
	23UMMLL21	Office Communication Malayalam	6	25	75		3
Part II	23UENLL21	General English - II	6	25	75	100	3
Part – III	23UCTCC21	CC3: Java Programming and Data Structures	5	25	75	100	5
	23UCTCC2P	CC4: Java Programming and Data Structures Practical	5	40	60	100	5
	23UCTGE21	EC2:ElectiveCourse(Generic/ Discipline Specific) Discrete Mathematics -I	4	25	75	100	3
Part IV	23UCTSE21	Skill Enhancement Course – SEC-2(Non Major Elective) Introduction to HTML	2	25	75	100	2
	23UCTSE2P	Skill Enhancement Course– SEC-3 (Generic/Discipline Specific) Office Automation Lab	2	40	60	100	2
Total			**30**				**23**

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTCC11	**PROGRAMMING IN C**	**Core**	**5**	**5**	**25**	**75**	**100**

Learning Objectives		
L1	To familiarize the students with the understanding of code organization	
L2	To improve the programming skills	
L3	Learning the basic programming constructs	
UNIT	**Contents**	**No. of Hours**
I	**Studying Concepts of Programming Languages**- Language Evaluation Criteria - Language design - Language Categories -Implementation Methods– Programming Environments-Overview of C: History of C-Importance of C-Basic Structure of C Programs-Executing a C Program- Constants, Variables and Data types-Operators and Expressions –Managing Input and Output Operations	15
II	**Decision Making and Branching**: Decision Making and Looping- Arrays- Character Arrays and Strings	15
III	**User Defined Functions:** Elements of User Defined Functions-Definition of Functions- Return Values and their Types- Function Call-Function Declaration-Categories of Functions-Nesting of Functions-Recursion	15
IV	**Structures and Unions:** Introduction- Defining a Structure- Declaring Structure Variables Accessing Structure Members-Structure Initialization-Arrays of Structures-Arrays within Structures-Unions-Size of Structures.	15
V	**Pointers:** Understanding Pointers-Accessing the Address of a Variable- Declaring Pointer Variables-Initializing of Pointer Variables-Accessing a Variable through its Pointer- Chain of Pointers- Pointer Expressions-Pointer and Scale Factor-Pointer and Arrays-Pointers and Character Strings-Array of Pointers-Pointer as Function Arguments-Functions Returning Pointers-Pointers to Functions-File Management in C.	15
	Total	**75**
Course Outcomes		**Knowledge Level**

CO	On completion of this course, students will	
1	Outline the fundamental concepts of C programming languages, and its features.	K1,K2,K3,K4
2	Demonstrate the programming methodology.	K1,K2,K3,K4,K5,K6
3	Identify suitable programming constructs for problem solving.	K1,K2,K3,K4,K5,K6
4	Select the appropriate data representation, control structures, functions and concepts based on the problem requirement.	K1,K2,K3,K4,K5,K6
5	Evaluate the program performance by fixing the errors.	K1,K2,K3,K4,K5
Textbooks		
1	Robert W.Sebesta, (2012),—***Concepts of Programming Languages‖,*** Fourth Edition, Addison Wesley (Unit I:Chapter – 1).	
2	E.Balaguruswamy,(2010),—***Programming in ANSIC‖,*** Fifth Edition,Tata Mc Graw Hill Publications.	
Reference Books		
1	Ashok Kamthane,(2009),—***Programming with ANSI & TurboC‖,*** Pearson Education.	
2	Byron Gottfried,(2010),—***Programming with C‖,*** Schaums Outline Series, Tata Mc Graw Hill Publications.	
NOTE: Latest Edition of Textbooks May be Used		
Web Resources		
1	http://www.tutorialspoint.com/cprogramming/	
2	http://www.cprogramming.com/	
3	http://www.programmingsimplified.com/c-program-examples	
4	http://www.programiz.com/c-programming	
5	http://www.cs.cf.ac.uk/Dave/C/CE.html	
6	http://fresh2refresh.com/c-programming/c-function/	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	3	2
CO2	3	3	2	3	2
CO3	3	3	3	3	2
CO4	3	3	2	3	2
CO5	3	3	2	2	2

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	2
CO2	3	3	2	3	2
CO3	3	3	3	3	2
CO4	3	3	2	3	2
CO5	3	3	2	3	2

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTCC1P	**C Programming Practical**	**Core**	**5**	**5**	**40**	**60**	**100**

Learning Objectives	
L1	The Course aims to provide exposure to problem-solving through C programming
L2	It aims to train the student to the basic concepts of the C-Programming language
L3	Apply different concepts of C language to solve the problem

Contents	**No. of Hours**
• Programs using Input/ Output functions. • Programs on conditional structures. • Command Line Arguments. • Programs using Arrays. • String Manipulations. • Programs using Functions. • Recursive Functions. • Programs using Pointers. • Files. • Programs using Structures & Unions.	75

Course Outcomes		**Knowledge Level**
CO	**On completion of this course, students will**	
1	Demonstrate the understanding of syntax and semantics of C programs.	K1,K2,K3,K4
2	Identify the problem and solve using C programming techniques.	K1,K2,K3,K4,K5,K6
3	Identify suitable programming constructs for problem solving.	K1,K2,K3,K4,K5,K6
4	Analyze various concepts of C language to solve the problem in an efficient way.	K1,K2,K3,K4,K5,K6
5	Develop a C program for a given problem and test for its correctness.	K1,K2,K3,K4,K5

Textbooks	
1	Robert W.Sebesta, (2012),—***Concepts of Programming Languages‖,*** Fourth Edition, Addison Wesley (Unit I:Chapter – 1).
2	E.Balaguruswamy,(2010),—***Programming in ANSIC‖,*** Fifth Edition,Tata Mc Graw Hill Publications.
Reference Books	

1	Ashok Kamthane,(2009),—***Programming with ANSI & TurboC‖,*** Pearson Education.
2	Byron Gottfried,(2010),—***Programming with C‖,*** Schaums Outline Series, Tata Mc Graw Hill Publications.
NOTE: Latest Edition of Textbooks May be Used	
Web Resources	
1	http://www.tutorialspoint.com/cprogramming/
2	http://www.cprogramming.com/
3	http://www.programmingsimplified.com/c-program-examples
4	http://www.programiz.com/c-programming
5	http://www.cs.cf.ac.uk/Dave/C/CE.html
6	http://fresh2refresh.com/c-programming/c-function/

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	3	2
CO2	3	3	2	3	2
CO3	3	2	3	3	2
CO4	3	3	2	3	2
CO5	3	3	2	2	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	2
CO2	3	3	2	3	2
CO3	3	3	3	3	2
CO4	3	3	2	3	2
CO5	3	3	2	3	3

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTGE11	**Digital Logic Fundamentals**	**Generic Elective**	**3**	**4**	**25**	**75**	**100**

Learning Objectives		
L1	It aims to train the student to the basic concepts of Digital Computer Fundamentals.	
L2	To impart the in-depth knowledge of logic gates, Boolean algebra, combinational circuits and sequential circuits.	
UNIT	**Contents**	**No. of Hours**
I	Number Systems and Codes: Number System–Base Conversion–Binary Codes–Code Conversion. Digital Logic: Logic Gates – Truth Tables–Universal Gates.	12
II	Boolean Algebra: Laws and Theorems–SOP, POS Methods –Simplification of Boolean Functions –Using Theorems, K-Map, Prime– Implicant Method–Binary Arithmetic: Binary Addition–Subtraction–Various Representations of Binary Numbers–Arithmetic Building Blocks–Adder–Subtractor.	12
III	Combinational Logic: Multiplexers–Demultiplexers–Decoders–Encoders –Code Converters –Parity Generators and Checkers.	12
IV	Sequential Logic: RS, JK, D, and T Flip- Flops–Master-Slave Flip-Flops. Registers: Shift Registers–Types of Shift Registers.	12
V	Counters: Asynchronous and Synchronous Counters-Ripple, Mod, Up-Down Counters–Ring Counters. Memory: Basic Terms and Ideas–Types of ROMs –Types of RAMs.	12
	Total	**60**

Course Outcomes		**Knowledge Level**
CO	**On completion of this course, students will**	
1	Identify the logic gates and their functionality.	K1,K2,K3,K4
2	Perform number conversions from one system to another system.	K1,K2,K3,K4,K5,K6
3	Understand the functions of combinational circuits.	K1,K2,K3,K4,K5,K6

4	Perform number conversions.	K1,K2,K3,K4,K5,K6
5	Perform Counter design and learn its operations.	K1,K2,K3,K4,K5
Textbooks		
1	V.Rajaraman and T.Radhakrishnan, ***Digital Computer Design***, Prentice Hall of India, 2001.	
2	D.P.Leach and A.P.Malvino, ***Digital Principles and Applications***–TMH–Fifth Edition–2002.	
3	M.Moris Mano, ***Digital Logic and Computer Design***, PHI, 2001.	
4	T.C.Bartee, ***Digital Computer Fundamentals***, 6th Edition, Tata Mc Graw Hill,1991.	
Web Resources		
1	Web resources from NDL Library, E-content from open-source libraries.	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	3
CO2	3	3	3	3	3
CO3	3	3	2	3	3
CO4	3	3	3	3	3
CO5	3	2	3	3	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	2	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Hours	Marks		
					CIAE	TEE	Total
23UCTSE11	BASICS OF INTERNET	NME	2	2	25	75	100

Learning Objectives		
L1	Knowledge of Internet medium	
L2	Internet as a mass medium	
L3	Features of Internet Technology,	
L4	Internets source of infotainment	
L5	Study of internet audiences and about cyber crime	
UNIT	**Contents**	**No. of Hours**
I	The emergence of internet as a mass medium–the world of‗ world wide web'.	6
II	Features of internet as a technology.	6
III	Internet as a source of infotainment – classification based on content and style.	6
IV	Demographic and psychographic descriptions of internet ‗audiences' – effect of internet on the values and life-styles.	6
V	Present issues such as cybercrime and future possibilities.	6
	Total	30

Course Outcomes		Knowledge Level
CO	On completion of this course, students will	
1	Knows the basic concept in HTMLConcept of resources in HTML	K1,K2,K3,K4
2	Knows Design concept.Concept of Meta Data Understand the concept of save the files.	K1,K2,K3,K4,K5,K6
3	Understand the page formatting. Concept of list	K1,K2,K3,K4,K5,K6
4	Creating Links. Know the concept of creating link to email address	K1,K2,K3,K4,K5,K6
5	Concept of adding images Understand the table creation.	K1,K2,K3,K4,K5

Textbooks	
1	–Mastering HTML5 and CSS3 Made Easy‖, TeachUComp Inc., 2014.
2	**Thomas Michaud, "Foundations of Web Design: Introduction to HTML & CSS"**
3	

Reference Books	
1.	The Internet as Mass Medium - Morris - 1996 - Journal of Computer-Mediated Communication - Wiley Online Library
2.	11.2 The Evolution of the Internet – Understanding Media and Culture
3.	

Web Resources	
1.	https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf
2.	https://www.w3schools.com/html/default.asp
3.	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	1	2
CO2	3	3	3	2	3
CO3	3	1	2	2	3
CO4	3	2	2	3	3
CO5	3	2	1	3	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	2	2	3
CO2	1	3	3	3	3
CO3	2	2	3	3	3
CO4	3	3	1	2	3
CO5	3	3	3	3	3

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTFN11	**FUNDAMENTALS OF COMPUTERS**	**FC**	**2**	**2**	**25**	**75**	**100**

Learning Objectives		
L1	To analyze a problem with appropriate problem solving techniques.	
L2	To understand the main principles of imperative, functional and logic oriented programming languages.	
L3	To increase the ability to learn new programming languages.	
UNIT	**Contents**	**No. of Hours**
I	**Introduction:** Characteristics of Computers-Evolution of Computers **Basic Computer Organization:** I/O Unit-Storage Unit-Arithmetic Logic Unit-Control Unit -Central Processing Unit	6
II	**Computer Software:** Types of Software-System Architecture **Computer Languages:** Machine Language-Assembly Language-High Level Language- Object Oriented Languages	6
III	**Problem Solving Concepts:** Problem Solving in Everyday life –Types of Problems-Problem solving with computers-Difficulties with Problem Solving	6
IV	**Problem Solving concepts for the computer:** Constant Variables –Data Types-Functions - Operators-Expressions and Equations **Organizing the Solution:** Analyzing the problem-Algorithm-Flow chart-Pseudo code	6
V	**Programming Structure:** Structuring a solution - Modules and their function - Local and Global variables - Parameters - Return values –Sequential Logic Structure-Problem solving with Decision-Problem Solving with Loops	6
	Total	**30**
Course Outcomes		**Knowledge Level**
CO	**On completion of this course, students will**	
1	Outline the Computer fundamentals and various problem solving concepts in computers	K1,K2,K3,K4
2	Describe the basic computer organization, software,	K1,K2,K3,K4,K5,K6

	computer languages, software development life cycle and the need of structured programming in solving a computer problem	
3	Identify the types of computer languages, software, computer problems and examine how to set up expressions and equations to solve the problem.	K1,K2,K3,K4,K5,K6
4	Choose most appropriate programming languages, constructs and features to solve the problems in diversified domains.	K1,K2,K3,K4,K5,K6
5	Analyze the design of modules and functions in structuring the solution and various organizing tools in problem solving.	K1,K2,K3,K4,K5
Textbooks		
1	Pradeep K.Sinha and Priti Sinha,(2004)—***Computer Fundamentals‖*** ,Sixth Edition, BPB Publications.(Unit I:Chapter 1 & 2,Unit II: Chapter 10 & 12)	
2	Maureen Sprankle and Jim Hubbard, (2009) —***Problem Solving and Programming Concept***,Ninth Edition,Prentice Hall.(Unit III: Chapter1,2 & 3)Unit IV : Chapter 3, Unit V : Chapter4,5 ,6,7 &8)	
Reference Books		
1	R.G.Dromey, (2007),—***How to Solve it by Computer‖***, Prentice Hall International Series in Computer Science.	
2	C.S.V.Murthy, (2009), —***Fundamentals of Computers‖,*** Third Edition, Himalaya Publishing House.	
NOTE: Latest Edition of Textbooks May be Used		
Web Resources		
1	http://www.tutorialspoint.com/computer_fundamentals/	
2	http://www.comptechdoc.org/basic/basictut/	
3	http://www.homeandlearn.co.uk/	
4	http://www.top-windows-tutorials.com/computer-basics/	
5	https://www.programiz.com/article/flowchart programming(Algorithm and flow chart)	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	3	3
CO2	3	3	3	2	3
CO3	2	3	2	3	1
CO4	3	2	3	3	2
CO5	3	2	3	3	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	3
CO2	3	3	3	2	3
CO3	2	3	2	3	1
CO4	3	2	3	3	2
CO5	3	2	3	3	3

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTCC21	JAVA PROGRAMMING & DATA STRUCTURES	Core	5	5	25	75	100

Learning Objectives		
L1	To provide knowledge on fundamentals of object-oriented programming	
L2	To have the ability to use the SDK environment to create, debugandrun servlet programs	
UNIT	**Contents**	**No. of Hours**
I	**INTRODUCTION TO DATA STRUCTURES:** Data Structures: Definition- Time & Space Complexity, Arrays, Linear list: Singly linked list implementation, STACKS and QUEUES Operations, array and linked representations of stack, stack applications, Queues: operations on queues, array and linked representations. Circular Queue: operations, Trees: Definitions and Concepts-Representation of binary tree, Binary tree traversals. Fundamentals of Object-Oriented Programming: Introduction– Object Oriented Paradigm– Concepts of Object–Oriented Programming–Benefits of OOP–Evolution: Java History-Java Features-Differs from C and C++-Overview of Java Language: Java Program-Structure–Tokens–Java Statements–Java Virtual Machine–Command Line Arguments.	15
II	Constants, Variables and Data Types–Operators and Expressions–Decision making and Branching–Looping–Arrays-Strings–Collection Interfaces and classes.	15
III	Classes objects and methods: Introduction– Defining a class–Method Declaration–Constructors-Method Overloading–Static Members–Nesting of methods–Inheritance–Overriding–Final variables and methods–Abstract methods and classes.	15
IV	Multiple Inheritance: Defining Interfaces–Extending Interfaces–Implementing Interfaces– Packages: Creating Package-Accessing Packages – Using a Package –Managing Errors and Exceptions-Multi threaded Programming. Layout Managers-JDBC–Java Servlet:-Servlet Environment Role–Servlet API–Servlet Life Cycle.	15
V	Layout Managers-JDBC–Java Servlet:-Servlet Environment Role–Servlet API–Servlet Life Cycle–Servlet Context–HTTP Support–HTML to Servlet Communication.	15
	Total	**75**

Course Outcomes		Knowledge Level
CO	**On completion of this course, students will**	
1	Understand the concepts of Data Structures and simple linear data structure, Outline the basic terminologies of OOP, programming language techniques, JDBC and Internet programming concepts	K1,K2,K3,K4
2	Solve problems using basic constructs, mechanisms, techniques and technologies of Java	K1,K2,K3,K4, K5,K6
3	Analyse and explain the behavior of simple programs involving different techniques such as Inheritance, Packages, Interfaces, Exception Handling and Threadand technologies such as JDBC and Servlets	K1,K2,K3,K4, K5,K6
4	Assess various problem-solving strategies involved in Java to develop a high-level application.	K1,K2,K3,K4, K5,K6
5	Design GUI based JDBC applications and able to develop Servlets using suitable OOP concepts and techniques	K1,K2,K3,K4, K5
Textbooks		
1	Ellis Horowitz, Sartaj Sahni, Second Edition ,-***Fundamentals of Data Structures||,***Universities Press. E Balagurusamy (2010), -***Programming with Java ||***, Tata Mc Graw Hill Edition India Private Ltd,4th Edition	
2	C Xavier, ***|| Java Programming–A Practical Approach||,*** Tata Mc Graw Hill Edition Private Ltd	
Reference Books		
1	P.Naughton and H.Schildt (1999),-***Java2 The Complete Reference||,***TMH, 3rdEdition	
2	Jaison Hunder & William Crawford(2002) , ***||Java Servlet Programming||,*** O'Reilly	
3	Jim Keogh (2002), -***J2EE: The Complete Reference||***, Tata Mc Graw Hill Edition.	
NOTE: Latest Edition of Textbooks May be Used		
Web Resources		
1	http://javabeginnerstutorial.com/core-java/	
2	http://www.tutorialspoint.com/java/	
3	http://beginnersbook.com/java-tutorial-for-beginners-with-examples/	
4	http://www.homeandlearn.co.uk/java/java.html	
5	http://www.journaldev.com/1877/servlet-tutorial-java(Unit V:ServletAPI)	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	2	2
CO2	2	3	2	2	2
CO3	2	2	2	2	2
CO4	2	3	3	2	2
CO5	3	2	2	3	2

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	2
CO2	2	2	2	2	3
CO3	3	2	2	2	2
CO4	2	3	2	3	2
CO5	3	2	2	2	3

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTCC2P	JAVA PROGRAMMING& DATA STRUCTURES PRACTICAL	Core	5	5	40	60	100

Learning Objectives	
L1	To design and develop applications using different Java programming language techniques, JDBC & Servlets.
L2	To organize and manipulate the data with the help of fundamental data structures.

Contents	No. of Hours
• Basic Programs • Arrays • Strings • Array List, Hash Set and Vector collection classes • Classes and Objects • Interfaces • Inheritance • Packages • Exception Handling • Threads • Linked List • Stacks • Queue • Sorting • Binary Tree Representation • Working with Data base using JDBC • Web application using Servlet	75

Course Outcomes		Knowledge Level
CO	On completion of this course, students will	
1	Identify and explain the way of solving the simple problems.	K1,K2,K3,K4
2	Use appropriate soft ware development environment to write, compile and execute object-oriented Java programs.	K1,K2,K3,K4, K5,K6
3	AnalyzeandidentifynecessarymechanismsofJavaneededtosolvereal-world problem.	K1,K2,K3,K4, K5,K6
4	Test for defects and validate a Java program with different inputs.	K1,K2,K3,K4, K5,K6
5	Design, develop and compile Core Java, GUI, JDBC and servlet applications that utilize OOP and data structure concepts.	K1,K2,K3,K4, K5

Textbooks	
1	Ellis Horowitz, Sartaj Sahni, Second Edition ,-***Fundamentals of Data Structures*//,**Universities Press. E Balagurusamy (2010), -***Programming with Java* //**, Tata Mc Graw Hill Edition India Private Ltd,4th Edition
2	C Xavier, *// **Java Programming–A Practical Approach*//,** Tata Mc Graw Hill Edition Private Ltd
Reference Books	
1	P.Naughton and H.Schildt (1999),-***Java2 The Complete Reference*//,**TMH, 3rdEdition
2	Jaison Hunder & William Crawford(2002) , ***//Java Servlet Programming*//,** O'Reilly
3	Jim Keogh (2002), -***J2EE: The Complete Reference*//**, Tata Mc Graw Hill Edition.
NOTE: Latest Edition of Textbooks May be Used	
Web Resources	
1	http://javabeginnerstutorial.com/core-java/
2	http://www.tutorialspoint.com/java/
3	http://beginnersbook.com/java-tutorial-for-beginners-with-examples/
4	http://www.homeandlearn.co.uk/java/java.html
5	http://www.journaldev.com/1877/servlet-tutorial-java(Unit V:ServletAPI)

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	2
CO2	3	3	3	2	2
CO3	3	2	3	3	2
CO4	2	2	2	3	2
CO5	3	3	2	3	2

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	3
CO2	3	2	2	3	2
CO3	3	2	3	2	2
CO4	3	2	3	2	3
CO5	3	2	2	2	2

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTGE21	**Discrete Mathematics–I**	**Elective**	**3**	**4**	**25**	**75**	**100**

Learning Objectives		
L1	To understand the mathematical concepts like set theory, logics, number theory, combinatory and relations.	
L2	To Understand Graphs and Graphs Model.	
UNIT	**Contents**	**No. of Hours**
I	The Foundations: Logic and Proofs: Propositional logic– Applications of Propositional logic – Propositional equivalences – (Exclude Propositional satisfiability, Applications of satisfiability, Solving satisfiability problems, and its related problems)–Predicates and Quantifiers–Rules of inference.	12
II	Relations: Relations and their properties–Representing relations– Closures of relations–Partial orderings (Theorems statement only; Exclude lexicographic ordering-Exclude Lattices)	12
III	Counting: The basic of counting-The pigeon hole principle– Permutation and Combinations – Applications of recurrence relations –Solving recurrence relations–Divide and Conquer algorithms and Recurrence relations.(All theorems and Results statement only)	12
IV	Graphs: Graphs and Graphs models, (Excluding Biological networks; Tournaments; all its related examples and problems)–Graph terminology and special types of graphs – Representing graphs and Graph isomorphism–Connectivity (paths–connectednessinundirectedgraphs– pathsandisomorphism–counting paths between vertices) – shortest path problems.	12
V	Matrices: Introduction–operations–inverse–Rank of a matrix, solution of simultaneous linear equations–Eigen values and Eigen Vectors	12
	Total	**60**

Course Outcomes		**Knowledge Level**
CO	**On completion of this course, students will**	
1	To understand the mathematical concepts like set theory, logics, number theory, combinatory and relations.	K1,K2,K3,K4
2	To understand different mathematical logics and functions.	K1,K2,K3,K4,K5,K

		6
3	To Understanding the different form of number theory.	K1,K2,K3,K4,K5,K6
4	To gain knowledge on set theory.	K1,K2,K3,K4,K5,K6
5	Able to understand Relations and its applications.	K1,K2,K3,K4,K5

	Textbooks
1	***Discrete Mathematics and its applications***, Seventh Edition, Kenneth.H.Rosen, Mc Graw Hill Publishing Company, 2012.
2	***Discrete Mathematics***, M.Venkataraman, N.Sridharan and N.Chandrasekaran, TheNational Publishing Company, 2009. Unit I:Textbook1 Chapter1:Sections:1.1,1.2,1.3,1.4,1.6 Unit II: Textbook1 Chapter9: Sections:9.1, 9.3, 9.4,9.5, 9.6 Unit III:Textbook1Chapter6:Sections:6.1,6.2,6.3 Chapter 8: Sections: 8.1, 8.2, 8.3 (Pages: 527 -529only) (Exclude algorithms and relations, on page 507 and its related problems) Unit IV: Textbook1Chapter10:Sections: 10.1,10.2,10.3, 10.4,10.6) Unit V : Textbook2 Chapter6:Sections :6.1 to6.5, and 6.7)
	Reference Books
1	***Modern Algebra***-S.Arumugam and A.Thangapandi Isaac, Scitech publications 2005.
2	***Invitation to Graph Theory***-S.Arumugam and S.Ramachandran, ScitechPublications, 2005, Chennai.
3	***Discrete Mathematical Structures with applications to Computer Science***-Tremblay and Manohar, Mc Graw Hill, 1997.
	Web Resources
1	Web resources from NDL Library, E-content from open-source libraries

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	2	3	2	3	2
CO2	3	1	3	1	3
CO3	2	2	2	2	2
CO4	3	2	3	2	3
CO5	2	3	2	3	2

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	2
CO2	3	1	3	1	3
CO3	2	2	2	2	2
CO4	3	2	3	2	3
CO5	2	3	2	3	2

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Hours	Marks		
					CIAE	TEE	Total
23UCTSE21	INTRODUCTION TO HTML	NME	2	2	25	75	100

Learning Objectives		
L1	Insert a graphic within a web page.	
L2	Create a link within a web page.	
L3	Create a table within a web page.	
L4	Insert heading levels within a web page.	
L5	Insert ordered and unordered lists within a web page. Create a web page.	
UNIT	**Contents**	**No. of Hours**
I	Introduction: Web Basics: What is Internet–Web browsers–What is Webpage – HTML Basics: Understanding tags	6
II	Tags for Document structure (HTML, Head, and Body Tag). Block level text elements: Headings paragraph(<p> tag) – Font style elements:(bold, italic, font, small, strong, strike, big tags)	6
III	Lists: Types of lists: Ordered, Unordered– Nesting Lists– Other tags: Marquee, HR, BR- Using Images –Creating Hyperlinks.	6
IV	Tables: Creating basic Table, Table elements, Caption–Table and cell alignment– Row span, Col span–Cell padding.	6
V	Frames: Frameset– Targeted Links– No frame– Forms: Input,Text area, Select, Option.	6
	Total	**30**

Course Outcomes		Knowledge Level
CO	**On completion of this course, students will**	
1	Knows the basic concept in HTML Concept of resources in HTML	K1,K2,K3,K4
2	Knows Design concept. Concept of Meta Data. Understand the concept of save the files.	K1,K2,K3,K4,K5,K6
3	Understand the page formatting.Concept of list	K1,K2,K3,K4,K5,K6
4	Creating Links. Know the concept of creating link to email address	K1,K2,K3,K4,K5,K6
5	Divide browser window sections with frames retrieve user input with forms	K1,K2,K3,K4,K5

Textbooks	
1	–Mastering HTML5 and CSS3 Made Easy‖, TeachUComp Inc., 2014.
2	**Thomas Michaud, "Foundations of Web Design: Introduction to HTML & CSS"**
3	

Reference Books	
1.	Julie C Meloni, "HTML, CSS and Java Script".
2.	John Duckett, "HTML and CSS".
3.	

Web Resources	
1.	https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf
2.	https://www.w3schools.com/html/default.asp
3.	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	1
CO2	3	3	2	3	2
CO3	2	3	3	1	3
CO4	3	1	3	3	3
CO5	3	3	3	2	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	3	2	3
CO2	3	2	2	1	3
CO3	2	3	3	3	1
CO4	1	3	3	3	2
CO5	3	2	1	2	3

Strong-3 Medium-2 Low-1

Course Code	Course Title	Category	Credits	Inst. Hours	Marks		
					CIAE	External	Total
23UCTSE2P	**OFFICE AUTOMATION LAB**	**SEC**	**2**	**2**	**40**	**60**	**100**

Learning Objectives		
L1	Understand the basics of computer systems and its components.	
L2	Understand and apply the basic concepts of a word processing package.	
L3	Understand and apply the basic concepts of electronic spreadsheet software.	
L4	Understand and apply the basic concepts of database management system.	
L5	Understand and create a presentation using PowerPoint tool.	
UNIT	**Contents**	**No. of Hours**
I	**Introductory concepts:** Memory unit– CPU-Input Devices: Key board, Mouse and Scanner. Output devices: Monitor, Printer. Introduction to Operating systems & its features: DOS–UNIX–Windows. Introduction to Programming Languages.	6
II	**Word Processing:** Open, Save and close word document; Editing text–tools, formatting, bullets; Spell Checker-Document formatting – Paragraph alignment, indentation, headers and footers, numbering; printing–Preview, options, merge.	6
III	**Spreadsheets:** Excel–opening, entering text and data, formatting, navigating; Formulas–entering, handling and copying; Charts–creating, formatting and printing, analysis tables, preparation of financial statements, introduction to data analytics.	6
IV	**Database Concepts:** The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking of data files; Understanding Programming environment in DBMS; Developing menu drive applications in query language(MS–Access).	6
V	**Power point:** Introduction to Power point-Features–Understanding slide type casting & viewing slides–creating slideshows. Applying special object–including objects & pictures–Slide transition–Animation effects, audio inclusion, timers.	6
	Total	**30**

Course Outcomes		**Knowledge Level**
CO	**On completion of this course, students will**	
1	Possess the knowledge on the basics of computers and its components	K1,K2,K3,K4
2	Gain knowledge on Creating Documents, spreadsheet and	K1,K2,K3,K4,K

	presentation.	5,K6
3	Learn the concepts of Database and implement the Query in Database.	K1,K2,K3,K4,K5,K6
4	Demonstrate the understanding of different automation tools.	K1,K2,K3,K4,K5,K6
5	Utilize the automation tools for documentation, Calculation and presentation purpose.	K1,K2,K3,K4,K5
Textbooks		
1	Peter Norton, — ***Introduction to Computers‖***–Tata Mc Graw-Hill.	
Reference Books		
1	Jennifer Ackerman Kettel, Guy Hat-Davis, Curt Simmons, -***Microsoft 2003‖***, Tata Mc Graw Hill.	
Web Resources		
1	https://www.udemy.com/course/office-automation-certificate-course/	
2	https://www.javatpoint.com/automation-tools	

Mapping with Programme Outcomes:

CO /PO	PO1	PO2	PO3	PO4	PO5
CO1	2	3	2	2	1
CO2	3	3	3	2	2
CO3	3	3	2	3	2
CO4	3	2	3	2	1
CO5	2	3	2	2	1

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	2	2
CO2	3	3	2	2	2
CO3	2	3	2	3	2
CO4	3	2	3	2	1
CO5	2	2	2	2	1

Strong-3 Medium-2 Low-1