

**SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE  
(AUTONOMOUS)**



*(Affiliated to Bharathidasan University)*  
*(Accredited by NAAC; An ISO 9001:2015 Certified Institution)*  
**SUNDARAKKOTTAI, MANNARGUDI – 614016.**  
**TAMILNADU, INDIA.**

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**B.Sc., COMPUTER SCIENCE**  
**LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK(CBCS-LOCF)**  
*(For the candidates admitted in the academic year 2023–2024)*



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**B.Sc., COMPUTER SCIENCE**  
**CHOICE BASED CREDIT SYSTEM- LEARNING OUTCOMES BASED**  
**CURRICULUM FRAME WORK (CBCS-LOCF)**

*(For the candidates admitted in the academic year 2023-2024)*

**CHOICE BASED CREDIT SYSTEM**

The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning. Our College has moved to CBCS and implemented the grading system.

**OUTCOME-BASED EDUCATION (OBE)**

**LEARNING OUTCOME-BASED CURRICULUM FRAMEWORK (LOCF)**

The fundamental premise underlying the learning outcomes-based approach to curriculum planning and development is that higher education qualifications are awarded on the basis of demonstrated achievement of outcomes (expressed in terms of knowledge, understanding, skills, attitudes and values) and academic standards expected of graduates of a programme of study. Learning outcomes specify what graduates completing a particular programme of study are expected to know, understand and be able to do at the end of their programme of study. The expected learning outcomes are used as reference points that would help to formulate graduate attributes, qualification descriptors, programme learning outcomes and course learning outcomes which in turn will help in curriculum planning and development, and in the design, delivery and review of academic programmes. They provide general guidance for articulating the essential learnings associated with programmes of study and courses within a programme, maintain national standards and international comparability of learning outcomes and academic standards to ensure global competitiveness, and to facilitate student/graduate mobility and provide higher education institutions an important point of reference for designing teaching-learning strategies, assessing student learning levels, and periodic review of programmes and academic standards.

**Some important aspects of the Outcome Based Education Course:** is defined as a theory, practical or theory cum practical subject studied in a semester.

**Course Outcomes (COs):** are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course. Generally three or more course outcomes may be specified for each course based on its weightage.

**Programme:** is defined as the specialization or discipline of a Degree.

**Programme Outcomes (POs):** Programme outcomes are narrower statements that describe what students are expected to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.

**Programme Specific Outcomes (PSOs):** PSOs are what the students should be able to do at the time of graduation with reference to a specific discipline.

**Some important terminologies repeatedly used in LOCF.**

**Core Courses (CC)** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course. These are the courses which provide basic understanding of their main discipline. In order to maintain a requisite standard certain core courses must be included in an academic program. This helps in providing a universal recognition to the said academic program.

**Discipline Specific Elective Courses (DSE)** Elective course may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective (DSE). These courses offer the flexibility of selection of options from a pool of courses. These are considered specialized or advanced to that particular programme and provide extensive exposure in the area chosen; these are also more applied in nature.

**Generic Elective Courses** An elective course chosen generally from an **unrelated discipline/subject**, with an intention to seek exposure is called a Generic Elective. Generic Elective courses are designed for the students of **other disciplines**. Thus, as per the CBCS policy, the students pursuing particular disciplines would have to opt Generic Elective courses offered by other disciplines, as per the basket of courses offered by the college. The scope of the Generic Elective (GE) Courses is positively related to the diversity of disciplines in which programmes are being offered by the college.

**Non Major Elective (NME).** A student shall choose at least two Non – major Elective Courses (NME) from outside his /her department. Non –Major Elective I – Those who choose Tamil in Part I can choose a non –major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level or b) Special Tamil if Tamil language was studied upto 10<sup>th</sup> & 12<sup>th</sup> std.

**Skill Enhancement Courses (SECs)** These courses focus on developing skills or proficiencies in the student, and aim at providing hands-on training. Skill enhancement courses can be opted by the students of any other discipline, but are highly suitable for students pursuing their academic programme. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

**Field Study/Industrial Visit/Case Study:** It has to be completed during the fifth semester of the degree programme. Credit for this course will be entered in the fifth semester's marks statement.

**Internship:** Students must complete internship during summer holidays after the fourth semester. They have to submit a report of internship training with the necessary documents and have to appear for a viva-voce examination during fifth semester. Credit for internship will be entered in the fifth semester's mark statement.

**Extra Credit Courses:** In order to facilitate the students, gaining knowledge/skills by attending online courses MOOC, credits are awarded as extra credits, the extra credit are at three semesters after verifying the course completion certificates. According to the guidelines of UGC, the students are encouraged to avail this option of enriching their knowledge by enrolling themselves in the Massive Open Online Courses (MOOC) provided by various portals such as SWAYAM, NPTEL etc.

### **Undergraduate Programme:**

**Programme Pattern:** The Under Graduate degree programme consists of **FIVE** vital components. They are as follows:

Part -I : Languages (Tamil / Hindi / French / Sanskrit)

Part-II : General English

Part-III: Core Course (Theory, Practicals, Generic Elective courses , Discipline Specific Elective courses , Compulsory and Optional Allied courses, Project )

Part-IV: Non Major Elective, Foundation Course, Value Education, Environmental studies, Skill Enhancement Courses/ Soft Skills, Internship / field visit / industrial visit/ Case Study), Professional Competency Course

### **Part –V**

Extension activity, Gender studies

## **EXAMINATION**

### **Continuous Internal Assessment (CIA):**

### **UG - Distribution of CIA Marks**

**Passing Minimum: 40 %**

Assignment-3	=	30%
Test-3 (Best 2 out of 3)	=	50%
Seminar	=	10%
Attendance	=	10%

**Question Paper Pattern****Part A:****Part A 1** (10X1=10 marks)

One word question/ Fill in/ Match the following/True or False/ Multiple Choice Questions

Two Questions from Each unit

**Part A 2** (5X2=10 marks)

Short Answers

One question from Each unit

**Total Marks – 20****Part B:** (5X5=25 marks)

Paragraph Answers

Either/ or type, One Question from each unit

**Part C:** (10X3=30)

Essay Type Answers

Answer 3 out of 5 Questions

One Question from each unit

**Part A:** K1 Level**Part B:** K2, K3 and K4 Level**Part C:** K5 and K6 Level***Knowledge levels for assessment of Outcomes based on Blooms Taxonomy***

S. No.	Level	Parameter	Description
1	K1	Knowledge/Remembering	It is the ability to remember the previously learned
2	K2	Comprehension/ Understanding	The learner explains ideas or concepts
3	K3	Application/Applying	The learner uses information in a new way
4	K4	Analysis/Analysing	The learner distinguishes among different parts
5	K5	Evaluation/Evaluating	The learner justifies a stand or decision
6	K6	Synthesis /Creating	The learner creates a new product or point of view

**WEIGHTAGE of K – LEVELS IN QUESTION PAPER**

(Cognitive Level) K- LEVELS →	Lower Order Thinking			Higher Order Thinking			Total
	K1	K2	K3	K4	K5	K6	
<b>END SEMESTER EXAMINATIONS (ESE)</b>	20	25			30		<b>75</b>
<b>Continuous Internal Assessment (CIA)</b>	20	25			30		<b>75</b>

**QUESTION PATTERN FOR END SEMESTER EXAMINATION/Continuous Internal Assessment**

<b>PART</b>	<b>MARKS</b>
<b>PART –A I.</b> (No choice ,One Mark) <b>TWO</b> questions from each unit (10x1 =10)	20
<b>II.</b> (No choice ,Two Mark) <b>ONE</b> question from each unit (5x2 =10)	
<b>PART -B</b> (Either/ or type ,5-Marks) <b>ONE</b> questions from each unit (5x5 =25)	25
<b>PART -C</b> (3 out of 5) (10 Marks) <b>ONE</b> question from each unit (3x10 =30)	30
<b>Total</b>	<b>75</b>

**BLUE PRINT OF QUESTION PAPER FOR END SEMESTER EXAMINATION**

<b>DURATION: 3.00 Hours.</b>		<b>Max Mark : 75</b>						
<b>K- LEVELS</b>		<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>K4</b>	<b>K5</b>	<b>K6</b>	<b>Total Marks</b>
<b>PART</b>								
<b>PART –A</b> (One Mark, No choice) (10x1 =10)		10						10
(2-Marks, No choice) (5x2=10)		10						10
<b>PART –B</b> (5- Marks) (Either/or type) (5x5=25)			5	10	10			25
<b>PART -C</b> (10 Marks) (3 out of 5) (3x10=30)								
Courses having only <b>K5,K6</b> levels, K5 level- 3 Questions, K6 level- 2 Questions (One <b>K6</b> level question is compulsory)						20	10	30
<b>Total</b>		<b>20</b>	<b>05</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>10</b>	<b>75</b>

## EVALUATION

### GRADING SYSTEM

Once the marks of the CIA and the end-semester examination for each of the courses are available, they will be added and converted as final mark. The marks thus obtained will then be graded as per the scheme provided in Table-1.

Grade Point Average (GPA) will be calculated from the first semester onwards for all semester. From the second semester onwards, the total performance within a semester and the continuous performance starting from the first semester are indicated by semester Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA), respectively. These two are calculated by the following formulae:

$\text{GPA} = \frac{\sum_{i=1}^n C_i G_i}{\sum_{i=1}^n C_i}$	$\text{WAM (Weighted Average Marks)} = \frac{\sum_{i=1}^N C_i M_i}{\sum_{i=1}^n C_i}$
<p>Where,</p> <p><math>C_i</math> is the Credit earned for the Course <math>i</math></p> <p><math>G_i</math> is the Grade Point obtained by the student for the Course <math>i</math></p> <p><math>M_i</math> is the marks obtained for the course <math>i</math> and</p> <p><math>n</math> is the number of Courses <b>Passed</b> in that semester.</p>	

**CGPA:** Average GPA of all the Courses starting from the first semester to the current semester.

### **CLASSIFICATION OF FINAL RESULTS:**

1. For each of the first three parts, there shall be separate classification on the basis of CGPA, as indicated in Table-2.
2. For the purpose of declaring a candidate to have qualified for the Degree of Bachelor of Arts/Science/Commerce/Management as Outstanding/Excellent/Very Good/Good/Above Average/Average, the marks and the corresponding CGPA earned by the candidate in Part-III alone will be the criterion, provided the candidate has secured the prescribed passing minimum in the all the Five parts of the Programme.
3. Grade in Part –IV and Part-V shall be shown separately and it shall not be taken into account for classification.
4. A Pass in PART- V will be mandatory although the marks will not count for the calculation of the CGPA.
5. Absence from an examination shall not be taken an attempt.

**Table-1: Grading of the Courses - UG**

<b>Marks Range</b>	<b>Grade Point</b>	<b>Corresponding Grade</b>
90 and above	10	O
80 and above and below 90	9	A+
70 and above and below 80	8	A
60 and above and below 70	7	B+
50 and above and below 60	6	B
40 and above and below 50	5	C
Below 40	NA	RA

The candidate's performance in every current semester is indicated by **Semester Grade Point Average (SGPA)** and from the second semester onwards, the continuous performance including previous semester /s is indicated by **Cumulative Grade Point Average (CGPA)**.

**Table-3: Final Result**

<b>CGPA</b>	<b>Corresponding Grade</b>	<b>Classification of Final Result</b>
9.00 and above	O	Outstanding
8.00 to 8.99	A+	Excellent
7.00 to 7.99	A	Very Good
6.00 to 6.99	B+	Good
5.00 to 5.99	B	Above Average
4.00 to 4.99	C	Average
Below 4.00	RA	Re-appearance

The candidates who have passed in the first appearance and within the prescribed duration of the UG programme are eligible. If the candidate's Grade is O/A+ with more than one attempt, the performance is fixed as "Very Good".

**VISION**

Attaining Global Recognition in Computer Science Education and to Develop the Software Professionals

**MISSION**

Imparting Quality Education through a Well – Designed Curriculum in tune with the Challenging Software Needs of the Industry



## PROGRAMME OUTCOMES FOR B.Sc., DEGREE

PO No.	Programme Outcomes (Upon completion of the B.Sc. Degree Programme, the Undergraduate will be able to)
PO-1	<b>Disciplinary knowledge:</b> Demonstrate comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate program of study in Bachelor of Science.
PO-2	<b>Critical thinking, Problem Solving and Reflective thinking:</b> think critically about the issues and identify, critically analyze and solve problems from the disciplines of concern using appropriate tools and techniques and the knowledge, skills and attitudes acquired and extrapolate the same to real life situations; show critical sensibility to life experiences, with self awareness and reflexivity of both self and society.
PO-3	<b>Analytical &amp; Scientific Reasoning:</b> 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; critically evaluate ideas, evidence, and experiences from an open minded and reasoned perspective.
PO-4	<b>Research-related Skills:</b> develop a sense of capability for relevant/appropriate inquiry and asking questions, synthesize, articulate and report results and to recognize and predict cause and effect relationships, define problems, formulate and establish hypothesis, analyze and interpret and draw conclusions from data, execute and report the results of an experiment or investigation.
PO-5	<b>Digital literacy and Effective Communication:</b> use ICT in a variety of learning situations and speak, read, write and listen clearly in person and through electronic media in English and in one or more Indian languages, and make meaning of the world by connecting people, ideas ,books, media and technology; efficiently communicate thoughts and ideas in a clear and concise manner.
PO-6	<b>Individual and Team Work:</b> effectively accomplish tasks individually as well as work effectively and respectfully as member or leader with diverse teams, facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interest so for a common cause and work efficiently as a member of a team.
PO-7	<b>Multicultural Competence and Social Interaction:</b> understand the values and beliefs of multiple cultures, global perspectives, engage and interact respectfully with diverse groups and elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO-8	<b>Awareness of Ethical issues, Human values and Gender Issues:</b> 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 and understand the value of relationship between self and the community and aware of the various issues concerning women and society.
PO-9	<b>Awareness of Environment and Sustainability:</b> understand the impacts of technology and business practices in societal and environmental contexts, and sustainable development.
PO-10	<b>Self directed and Lifelong learning:</b> acquire knowledge and skills, including learning “how to learn”, that are necessary for participating in learning activities throughout life and to engage in independent and life-long learning in the broadest context of socio-technological changes.

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., COMPUTER SCIENCE**

<b>PSO No.</b>	<b>Program Specific Outcomes</b> <i>(Upon completion of the B.Sc., COMPUTER SCIENCE Degree Programme, the Undergraduate will be able to)</i>
<b>PSO-1</b>	Think in a critical and logical based manner
<b>PSO-2</b>	Familiarize the students with suitable software tools of computer science and industrial applications to handle issues and solve problems in mathematics or statistics and real time application related sciences.
<b>PSO-3</b>	Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
<b>PSO-4</b>	Understand, formulate, develop programming model with logical approaches to a Address issues arising in social science, business and other contexts.
<b>PSO-5</b>	Acquire good knowledge and understanding to solve specific theoretical and applied problems in advanced areas of Computer science and Industrial statistics.



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**B.Sc., COMPUTER SCIENCE**

**CHOICE BASED CREDIT SYSTEM – LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS –LOCF)**

*(For the candidates admitted in the academic year 2023 – 2024)*

**ELIGIBILITY:** Those who have completed in 10<sup>th</sup> , +2 examinations with Mathematics as one the core subject

Sem	Part	Nature of the Course	Course Code	Title of the Paper	Ins. Hours/Week	L	T	P	S	Credit	Exam Hours	Marks		Total
												CIA	ESE	
I	I	Language Course-I	U23LC101	Pothu Tamil – I	6	5	1	-	-	3	3	25	75	100
	II	English Language Course-I	U23ELC101	General English – I	6	5	1	-	-	3	3	25	75	100
	III	Core Course-I	U23CS101	Python Programming	5	4	1	-	-	5	3	25	75	100
		Core Practical-I	U23CS102P	Python Programming Lab	4	1	-	3	-	4	3	25	75	100
		Allied Course-I	U23AMA101	Statistics	3	2	1	-	-	2	3	25	75	100
		Allied course-II	U23AMA102	Numerical Analysis	2	2	-	-	-	-	-	-	-	-
	IV	Non Major Elective –I	U23NMECS11		2	2	-	-	-	2	3	25	75	100
Foundation Course		U23FCCS11	Problem Solving Techniques	2	2	-	-	-	2	3	25	75	100	
<b>TOTAL</b>					<b>30</b>	<b>23</b>	<b>4</b>	<b>3</b>	<b>-</b>	<b>21</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>700</b>
II	I	Language Course-II	U23LC202	Pothu Tamil – II	6	5	1	-	-	3	3	25	75	100
	II	English Language Course-II	U23ELC202	General English – II	6	5	1	-	-	3	3	25	75	100
	III	Core Course-II	U23CS203	Data Structures and Algorithms	5	4	1	-	-	5	3	25	75	100
		Core Practical-II	U23CS204P	Data Structures and Algorithms Lab	4	1	-	3	-	4	3	25	75	100
		Allied Course-II	U23AMA102	Numerical Analysis	2	2	-	-	-	2	3	25	75	100
		Allied Course – III	U23AMA203	Operations Research	3	2	1	-	-	2	3	25	75	100
	IV	Non Major Elective-II	U23NMECS22		2	2	-	-	-	2	3	25	75	100
Skill Enhancement Course-I		U23SECS21	Object Oriented Programming with C++	2	2	-	-	-	2	3	25	75	100	
<b>TOTAL</b>					<b>30</b>	<b>23</b>	<b>4</b>	<b>3</b>	<b>-</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>
III	I	Language Course-III		Pothu Tamil – III	6	5	1	-	-	3	3	25	75	100
	II	English Language course-III		General English –III	6	5	1	-	-	3	3	25	75	100
	III	Core Course-III		Microprocessor and Microcontroller	5	4	1	-	-	5	3	25	75	100
		Core Practical-III		Microprocessor and Microcontroller Lab	4	1	-	3	-	4	3	25	75	100

Sem	Part	Course	Course Code	Title of the Paper	Ins. Hours /Week	L	T	P	S	Credit	Exam Hours	Marks		Total	
												CIA	ESE		
		Allied Course-IV		Physics –I	3	2	1	-	-	2	3	25	75	100	
		Allied Practical –I		Physics -II Practical I	2	-	-	2	-	-	-	-	--	--	--
		Skill Enhancement Course-II		PHP Programming	2	2	-	-	-	-	2	3	25	75	100
	IV	Skill Enhancement Course-III		Web Application Development	2	2	-	-	-	-	2	3	25	75	100
		<b>TOTAL</b>				<b>30</b>	<b>21</b>	<b>4</b>	<b>5</b>	<b>-</b>	<b>21</b>		<b>-</b>	<b>-</b>	<b>700</b>
IV	I	Language Course-IV		Pothu Tamil – IV	6	5	1	-	-	3	3	25	75	100	
	II	English Language Course-IV		English – General English - IV	6	5	1	-	-	3	3	25	75	100	
	III	Core Course IV		Industry Module-Java programming	5	4	1	-	-	5	3	25	75	100	
		Core Practical -IV		Java Programming Lab	4	1	-	3	-	4	3	25	75	100	
		Allied Practical –I		Physics -II Practical I	2	-	-	2	-	2	3	25	75	100	
	IV	Allied Course – V		Physics III	3	2	1	-	-	2	3	25	75	100	
		Skill Enhancement Course-IV		Distributed Computing	2	2	-	-	-	2	3	25	75	100	
		Skill Enhancement Course –V		Skill Enhancement Course –V Machine Learning	2	2	-	-	-	2	3	25	75	100	
		<b>TOTAL</b>				<b>30</b>	<b>21</b>	<b>4</b>	<b>5</b>	<b>-</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>
	V	III	Core Course- V		Computer Networks	6	5	1	-	-	5	3	25	75	100
Core Course – VI				Advanced Database Management System	5	4	1	-	-	5	3	25	75	100	
Core Course- VII				Software Engineering	5	4	1	-	-	4	3	25	75	100	
Core Practical- V				Advanced Database Management System Lab	4	-	-	4	-	4	3	25	75	100	
Elective Course-I				Artificial Intelligence	4	3	1	-	-	3	3	25	75	100	
Elective Course –II				Cloud Computing	4	3	1	-	-	3	3	25	75	100	
IV		Environmental Studies		Environmental Studies	2	2	-	-	-	2	3	25	75	100	
		Internship/ Industrial visit/ Field visit		Internship/ Industrial visit/ Field visit	-	-	-	-	-	2	-	-	-	-	-
<b>TOTAL</b>				<b>30</b>	<b>19</b>	<b>6</b>	<b>5</b>	<b>-</b>	<b>28</b>		<b>-</b>	<b>-</b>	<b>700</b>		
VI	III	Core course-VIII		.NET Programming	6	5	1	-	-	4	3	25	75	100	
		Core Practical-VI		.NET Programming Lab	6	5	1	5	-	4	3	25	75	100	
		Core Project		Project with viva- voce/ Group Project	5	-	1	4	-	5	3	25	75	100	
		Elective Course-III		Elective Course-III Introduction to Data Science	4	3	1	-	-	3	3	25	75	100	

Sem	Part	Course	Course Code	Title of the Paper	Ins. Hours/Week	L	T	P	S	Credit	Exam Hours	Marks		Total
												CI A	ESE	
		Elective Course-IV		Elective Course-IV Information Security	4	3	1	-	-	3	3	25	75	100
	IV	Value Education		Value Education	2	2	-	-	-	2	3	25	75	100
		Professional competency Course		Aptitude and reasoning skills for competitive examinations	2	2	-	-	-	2	3	25	75	100
	V	Gender Studies		Gender Studies	1	1	-	-	-	1	3	25	75	100
		Extension activity		Extension activity	-	-	-	-	-	1	-	-	-	-
		<b>TOTAL</b>			<b>30</b>	<b>14</b>	<b>3</b>	<b>13</b>	<b>-</b>	<b>25</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>
		<b>GRAND TOTAL</b>			<b>180</b>	<b>121</b>	<b>25</b>	<b>34</b>	<b>-</b>	<b>141</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4500</b>
		*Extra Credit		MOOC/SWAYAM/NPTEL (Atleast one)						2	-	-	-	-
				Value Added Courses (At least One Per Year)						2	-	-	-	-

T-Tutorial

P-Practical

S-Seminar

### Credit Distribution for UG PROGRAMME-Science

S.No	Part	Subject	No. of Courses	Total Credits
1	I	Language Course	4	12
2	II	English Language Course	4	12
3	III	Core Course –Theory	8	38
4		Core Practical	6	24
5		Core Project	1	05
6		Allied Course	5	10
7		Allied Practical	1	02
8		Elective Course	4	12
9	IV	Non-Major Elective	2	04
10		Foundation Course – FC	1	02
12		Skill Enhancement Course	5	10
13		Internship/ Industrial visit/ Field visit	1	02
14		Environmental Studies	1	02
15		Value Education	1	02
16		Professional competency Course	1	02
17	V	Gender Studies	1	01
18		Extension Activity	1	01
<b>Total</b>			<b>47</b>	<b>141</b>

**\*Part I, II, and Part III components will be separately taken into account for CGPA calculation and classification for the under graduate programme and the other components IV and V have**

to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.

\* For those who studied Tamil upto 10<sup>th</sup> +2 (Regular Stream)

+ Syllabus for other Languages should be on par with Tamil at degree level

#those who studied Tamil upto 10<sup>th</sup> +2 but opt for other languages in degree level under Part I should study special Tamil in Part IV

\*\* Extension Activities shall be outside instruction hours

**Note:**

	<b>CIA</b>	<b>ESE</b>
1. Theory	25	75
2. Practical	25	75
3. Separate passing minimum is prescribed for Internal and External marks		

**FOR THEORY**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]

The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

**FOR PRACTICAL**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]

The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

**NON MAJOR ELECTIVE (NME) OFFERED BY THE DEPARTMENT**

Semester	Part	Course	Course Code	Title of the Paper
I	IV	NME -I	U23NMECS11	Office Automation
II		NME -II	U23NMECS22	Introduction to Web design

**EXTRA CREDIT COURSE -VALUE ADDED COURSE OFFERED BY THE DEPARTMENT**

Semester	Course	Course Code	Title of The Paper
I	VAC-I	U23CSVA1	Advanced Excel
II	VAC-II	U23CSVA2	Fundamentals of Artificial Intelligence

**SKILL ENHANCEMENT COURSE(SEC) OFFERED BY THE DEPARTMENT**

<b>Semester</b>	<b>Part</b>	<b>Course</b>	<b>Title of the Paper</b>
<b>II</b>	<b>IV</b>	SEC-I	Object Oriented Programming with C++
<b>III</b>		SEC-II	PHP Programming
<b>III</b>		SEC-III	Web Application Development
<b>IV</b>		SEC-IV	Distributed Computing
<b>V</b>		SEC-V	Machine Learning



# **SEMESTER I**

**SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE**  
**(AUTONOMOUS)**



**SUNDARAKKOTTAI, MANNARGUDI- 614016**  
*(For the Candidates admitted in the academic year 2023 – 2024)*

**DEPARTMENT OF COMPUTER SCIENCE**

**B.Sc., COMPUTER SCIENCE**

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**Semester: I- CC-I: Python Programming**

**Ins. Hrs. /Week: 5**

**Course Credit: 5**

**Course Code:U23CS101**

**OBJECTIVES**

- Describe the core syntax and semantics of Python programming language.
- Discover the need for working with the strings and functions.
- Illustrate the process of structuring the data using lists, dictionaries, tuples and sets.
- Understand the usage of packages and Dictionaries

**UNIT-I:**

**(15 Hours)**

Introduction: The essence of computational problem solving – Limits of computational problem solving-Computer algorithms-Computer Hardware-Computer Software-The process of computational problem solving-Python programming language - Literals - Variables and Identifiers - Operators - Expressions and Data types, Input / output.

**UNIT- II:**

**(15 Hours)**

Control Structures: Boolean Expressions - Selection Control - If Statement- Indentation in Python- Multi-Way Selection -- Iterative Control- While Statement- Infinite loops- Definite vs. Indefinite Loops- Boolean Flag. String, List and Dictionary, Manipulations Building blocks of python programs, Understanding and using ranges.

**UNIT -III:**

**(14 Hours)**

Functions: Program Routines- Defining Functions- More on Functions: Calling Value-Returning Functions- Calling Non-Value-Returning Functions- Parameter Passing - Keyword Arguments in Python - Default Arguments in Python-Variable Scope. Recursion: Recursive Functions.

**UNIT -IV:**

**(16 Hours)**

Objects and their use: Software Objects - Turtle Graphics – Turtle attributes-Modular Design: Modules - Top-Down Design - Python Modules - Text Files: Opening, reading and writing text files – Database Programming: Connecting to a database, Creating Tables, INSERT, UPDATE, DELETE and READ operations, Transaction Control, Disconnecting from a database, String Processing - Exception Handling.

**UNIT-V:**

**(15 Hours)**

Dictionaries and Sets: Dictionary type in Python - Set Data type. Object Oriented Programming using Python: Encapsulation - Inheritance – Polymorphism. Python packages: Simple programs using the built-in functions of packages matplotlib, numpy, pandas etc.

**Total Lecture Hours-75**

## **COURSE OUTCOME**

The students are able to

1. Develop and execute simple Python programs
2. Write simple Python programs using conditionals and looping for solving problems
3. Decompose a Python program into functions
4. Represent compound data using Python lists, tuples, dictionaries etc.
5. Read and write data from/to files in Python programs

## **TEXT BOOK(S)**

1. Charles Dierbach, “Introduction to Computer Science using Python - A computational Problem solving Focus”, Wiley India Edition, 2015.
2. Wesley J. Chun, “Core Python Applications Programming”, 3rd Edition , Pearson Education, 2016

## **REFERENCE BOOK(S)**

1. Mark Lutz, “Learning Python Powerful Object Oriented Programming”, O’reilly Media 2018, 5th Edition.
2. Timothy A. Budd, “Exploring Python”, Tata MCGraw Hill Education Private Limited 2011, 1 st Edition.
3. John Zelle, “Python Programming: An Introduction to Computer Science”, Second edition, Course Technology Cengage Learning Publications, 2013, ISBN 978- 1590282410
4. Michel Dawson, “Python Programming for Absolute Beginners” , Third Edition, Course Technology Cengage Learning Publications, 2013, ISBN 978-1435455009

## **E- RESOURCES**

1. [https://onlinecourses.swayam2.ac.in/cec22\\_cs20/preview](https://onlinecourses.swayam2.ac.in/cec22_cs20/preview)



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B.Sc., COMPUTER SCIENCE

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**Semester: I - CP-I: Python Programming Lab**

**Ins. Hrs. /Week: 4**

**Course Credit:4**

**Course Code:U23CS102P**

**OBJECTIVES**

- Acquire programming skills in core Python.
- Acquire Object-oriented programming skills in Python.
- Develop the skill of designing graphical-user interfaces (GUI) in Python.
- Develop the ability to write database applications in Python.
- Acquire Python programming skills to move into specific branches

**EXERCISES**

1. Program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Program to calculate total marks, percentage and grade of a student. Marks obtained in each of the five subjects are to be input by user. Assign grades according to the following criteria:  
Grade A: Percentage  $\geq 80$       Grade B: Percentage  $\geq 70$  and  $< 80$   
Grade C: Percentage  $\geq 60$  and  $< 70$       Grade D: Percentage  $\geq 40$  and  $< 60$   
Grade E: Percentage  $< 40$
3. Program, to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
4. Write a Python script that prints prime numbers less than 20.
5. Program to find factorial of the given number using recursive function.
6. Write a Python program to count the number of even and odd numbers from array of N numbers.
7. Write a Python class to reverse a string word by word.
8. Given a tuple and a list as input, write a program to count the occurrences of all items of the list in the tuple. (Input : tuple = ('a', 'a', 'c', 'b', 'd'), list = ['a', 'b'], Output : 3)
9. Create a Savings Account class that behaves just like a Bank Account, but also has an interest rate and a method that increases the balance by the appropriate amount of interest (Hint:use Inheritance).

10. Write a Python program to construct the following pattern, using a nested loop

```
*  
**  
***  
****  
***  
**  
*
```

11. Read a file content and copy only the contents at odd lines into a new file.

12. Create a Turtle graphics window with specific size.

13. Write a Python program for Towers of Hanoi using recursion

14. Create a menu driven Python program with a dictionary for words and their meanings.

15. Devise a Python program to implement the Hangman Game.

**Total Lecture Hours:60**

### **COURSE OUTCOME**

The Students are able to

1. To understand the problem solving approaches
- 2 To learn the basic programming constructs in Python
- 3 To practice various computing strategies for Python-based solutions to real world problems
4. To use Python data structures - lists, tuples, dictionaries.
5. To do input/output with files in Python.

### **TEXT BOOKS:**

1. Charles Dierbach, “Introduction to Computer Science using Python - A computational Problem solving Focus”, Wiley India Edition, 2015.
2. Wesley J. Chun, “Core Python Applications Programming”, 3rd Edition , Pearson Education, 2016

### **REFERENCE BOOKS:**

1. Mark Lutz, “Learning Python Powerful Object Oriented Programming”, O’reilly Media 2018, 5th Edition.
2. Timothy A. Budd, “Exploring Python”, Tata MCGraw Hill Education Private Limited 2011, 1 st Edition.
3. John Zelle, “Python Programming: An Introduction to Computer Science”, Second edition, Course Technology Cengage Learning Publications, 2013, ISBN 978- 1590282410
4. Michel Dawson, “Python Programming for Absolute Beginners” , Third Edition, Course Technology Cengage Learning Publications, 2013, ISBN 978-1435455009



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B.Sc., COMPUTER SCIENCE

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**Semester: I - FC: Problem Solving Techniques**

**Ins. Hrs. /Week: 2**

**Course Credit:2**

**Course Code:U23FCCS11**

**OBJECTIVES:**

- To understand the importance of algorithms and programs, and to know of the basic problem solving strategies.
- To learn efficient strategies and algorithms to solve standard problems, thus laying a firm foundation for designing algorithmic solutions to problems.

**UNIT-I:**

**Introduction:** Notion of algorithms and programs – Requirements for solving problems by computer – The problem-solving aspect: Problem definition phase, Getting started on a problem, The use of specific examples, Similarities among problems, Working backwards from the solution – General problem-solving strategies - Problem solving using top-down design – Implementation of algorithms – The concept of Recursion. **(5 Hours)**

**UNIT- II:**

**Fundamental Algorithms:** Exchanging the values of two variables – Counting - Summation of a set of numbers - Factorial computation - Sine function computation - Fibonacci Series generation - Reversing the digits of an integer – Base Conversion. **(5 Hours)**

**UNIT -III:**

**Factoring Methods:** Finding the square root of a number – The smallest divisor of an integer – Greatest common divisor of two integers - Generating prime numbers – Computing the prime factors of an integer – Generation of pseudo-random numbers - Raising a number to a large power – Computing the  $n$ th Fibonacci number. **(5 Hours)**

**UNIT -IV:**

**Array Techniques:** Array order reversal – Array counting or histogramming – Finding the maximum number in a set - Removal of duplicates from an ordered array - Partitioning an array – Finding the  $k^{\text{th}}$  smallest element – Longest monotone subsequence. **(5 Hours)**

**UNIT-V:**

**Text Processing and Pattern Searching:** Text line length adjustment – Left and right justification of text – Keyword searching in text – Text line editing – Linear pattern search. **Recursive algorithms:** Towers of Hanoi – Permutation generation.

**Total Lecture Hours-30**

## **COURSE OUTCOME**

The Students are able to

1. Understand the systematic approach to problem solving.
2. Know the approach and algorithms to solve specific fundamental problems.
3. Understand the efficient approach to solve specific factoring-related problems.
4. Understand the efficient array-related techniques to solve specific problems.
5. Understand the efficient methods to solve specific problems related to text processing.
6. Understand how recursion works.

## **TEXT BOOKS:**

1. R. G. Dromey, *How to Solve it by Computer*, Pearson India, 2007.

## **REFERENCE BOOKS:**

1. George Polya, Jeremy Kilpatrick, *The Stanford Mathematics Problem Book: With Hints and Solutions*, Dover Publications, 2009 (Kindle Edition 2013).
2. Greg W. Scragg, *Problem Solving with Computers*, Jones & Bartlett 1st edition, 1996

**SEMESTER II**



**SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE**  
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**B.Sc., COMPUTER SCIENCE**

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**Semester: II –CC-II- Data Structures and Algorithms**

**Ins. Hrs. /Week: 5**

**Course Credit:5**

**Course Code:U23CS203**

**OBJECTIVES**

- To impart the basic concepts of data structures and algorithms.
- To acquaint the student with the basics of the various data structures and make the students knowledgeable in the area of data structures.
- This course also gives insight into the various algorithm design techniques

**UNIT-I: INTRODUCTION TO DATA STRUCTURES: (15 Hours)**

Data Structures: Definition- Time & Space Complexity, Arrays: Representation of arrays, Applications of arrays, sparse matrix and its representation, Linear list: Singly linked list implementation, insertion, deletion and searching operations on linear list Circular linked list: implementation, Double linked list implementation, insertion, deletion and searching operations. Applications of linked lists- Dynamic Storage management.

**UNIT- II : STACKS: (12 Hours)**

Operations, array and linked representations of stack, stack applications, infix to postfix conversion, postfix expression evaluation, recursion implementation

**UNIT-III: QUEUES, TREES & GRAPHS : (18 Hours)**

**Queues:** operations on queues, array and linked representations. **Circular Queue:** operations,, applications of queues. **Trees:** Definitions and Concepts- Representation of binary tree, Binary tree traversals (Inorder, Postorder , preorder), Binary search trees .**Graphs :** Representation of Graphs- Types of graphs -Breadth first traversal – Depth first traversal- -Applications of graphs .

**UNIT -IV : INTRODUCTION TO ALGORITHMS: (15 Hours)**

**INTRODUCTION:** Definition of Algorithms- Overview and importance of algorithms- pseudocode conventions, Asymptotic notations, practical complexities. **Divide-and-Conquer:** : General Method – Binary Search- Quick Sort- Merge Sort. **Greedy Method:** General method- Knapsack problem- Tree vertex splitting- Job sequencing.

**UNIT -V: DYNAMIC PROGRAMMING, BACKTRACKING & BRANCH & BOUND**

**Dynamic programming:** General method, Multistage Graphs, All pairs shortest path, Single source shortest path. **Backtracking:** General method, 8 Queens, Graph coloring, Hamiltonian cycle. **Branch & Bound:** General method, Travelling salesperson problem. (15 Hours)

**Total Lecture Hours-75**

## **COURSE OUTCOME**

The students are able to,

1. To introduce the concepts of Data structures and to understand simple linear data structures.
2. Learn the basics of stack data structure, its implementation and application
3. Use the appropriate data structure in context of solution of given problem and demonstrate a
4. familiarity with major data structures.
5. To introduce the basic concepts of algorithms
6. To give clear idea on algorithmic design paradigms like Dynamic Programming, Backtracking, Branch and Bound .

## **TEXT BOOK(S)**

1. Ellis Horowitz , Sartaj Sahni, Susan Anderson Freed, Second Edition , “Fundamentals of Data in C”, Universities Press
2. E. Horowitz, S. Sahni and S. Rajasekaran, Second Edition , “Fundamentals of Computer Algorithms “ Universities Press

## **REFERENCE BOOK(S)**

1. Seymour Lipschutz ,”Data Structures with C”, First Edition, Schaum’s outline series in computers, Tata McGraw Hill.
2. .2. R.Krishnamoorthy and G.Indirani Kumaravel, Data Structures using C, Tata McGrawHill – 2008.
3. A.K.Sharma, Data Structures using C , Pearson Education India,2011.
4. . G. Brassard and P. Bratley, “Fundamentals of Algorithms”, PHI, New Delhi, 1997.
5. 4, . A.V. Aho, J.E. Hopcroft, J.D. Ullmann,, “The design and analysis of Computer
6. Algorithms”, Addison Wesley, Boston, 1974
7. 5. Thomas H. Cormen, C.E. Leiserson, R L.Rivest and C. Stein, Introduction to Algorithms, Third edition, MIT Press, 2009
8. Sanjoy Dasgupta, C.Papadimitriou and U.Vazirani , Algorithms , Tata McGraw-Hill, 2008.

## **E- RESOURCES**

1. Web resources from NDL Library, E-content from open source libraries

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**DEPARTMENT OF COMPUTER SCIENCE**  
B.Sc., COMPUTER SCIENCE

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**Semester: II-CP-II- Data Structures and Algorithms Lab**

**Ins. Hrs. /Week: 4**

**Course Credit:4**

**Course Code:U23CS204P**

**OBJECTIVES**

- To understand and implement basic data structures using C
- To apply linear and non-linear data structures in problem solving.
- To learn to implement functions and recursive functions by means of data structures
- To implement searching and sorting algorithms

**EXERCISES**

1. Array implementation of stacks
2. Array implementation of Queues
3. Linked list implementation of stacks
4. Linked list implementation of Queues
5. Binary Tree Traversals (Inorder, Preorder, Postorder)
6. Implementation of Linear search and binary search
7. Implementation Insertion sort, Quick sort and Merge Sort
8. Implementation of Depth-First Search & Breadth- First Search of Graphs.
9. Finding all pairs of Shortest Path of a Graph.
10. Finding single source shortest path of a Graph.

**Total Hours:60**

**COURSE OUTCOME**

The Students are able to

1. Implement data structures using C
2. Implement various types of linked lists and their applications
3. Implement Tree Traversals
4. Implement various algorithms in C
5. Implement different sorting and searching algorithms

**TEXT BOOKS:**

1. Ellis Horowitz , Sartaj Sahni, Susan Anderson Freed, Second Edition , “Fundamentals of Data in C”, Universities Press
2. E. Horowitz, S. Sahni and S. Rajasekaran, Second Edition , “Fundamentals of Computer Algorithms “ Universities Press

**REFERENCE BOOKS**

- 1.Seymour Lipschutz ,”Data Structures with C”, First Edition, Schaum’s outline series in computers, Tata McGraw Hill.
2. R.Krishnamoorthy and G.Indirani Kumaravel, Data Structures using C, Tata McGrawHill – 2008.
- 3.A.K.Sharma, Data Structures using C , Pearson Education India,2011.
- 4.G. Brassard and P. Bratley, “Fundamentals of Algorithms”, PHI, New Delhi, 1997.
5. A.V. Aho, J.E. Hopcroft, J.D. Ullmann,, “The design and analysis of Computer
- 6.Algorithms”, Addison Wesley, Boston, 1974
- 7.Thomas H. Cormen, C.E. Leiserson, R L.Rivest and C. Stein, Introduction to Algorithms, Third edition, MIT Press, 2009
8. Sanjoy Dasgupta, C.Papadimitriou and U.Vazirani , Algorithms , Tata McGraw-Hill, 2008.

**WEB RESOURCES:**

Web resources from NDL Library, E-content from open source libraries

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# SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

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**DEPARTMENT OF COMPUTER SCIENCE**

B.Sc., COMPUTER SCIENCE



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Semester: II –SEC-I- Object Oriented Programming with C++

Ins. Hrs. /Week: 2

Course Credit:2

Course Code:U23SECS21

## OBJECTIVES

- To engender an appreciation for the need and characteristics of Object-orientation.
- To impart knowledge of the C++ language grammar in order to design and implement programming solutions to simple problems by applying Object-oriented thinking.

### UNIT-I:

**Object Oriented Programming Concepts:** Complexity in software - The need for object-orientation – Abstraction – Encapsulation – Modularity – Hierarchy.**Basic Elements of C++:** Classes – Objects – Data members and member functions – *private* and *public* access specifier - Static members - Constructors – Singleton class - Destructors - Friend Functions and Friend Classes - Array of objects – Pointer to objects - *this* pointer – References – Dynamic memory allocation - Namespaces. (5 Hours)

### UNIT- II :

**Function Overloading:** Overloading a function - Default arguments – Overloading Constructors. **Operator Overloading:** Overloading an operator as a member function – Overloading an operator as a friend function – Overloading the operators [], (), -> and comma operators – Conversion Functions. (5 Hours)

### UNIT-III:

**Inheritance:** Types of inheritance – *protected* access specifier –Virtual Base Class – Base class and derived class constructors. **Run-time Polymorphism:** Virtual Functions – Function overriding - Pure virtual function – Abstract base class. (5 Hours)

### UNIT -IV :

**Templates:** Function templates – Overloading a function template – Class templates.**Standard Template Library (STL):** Containers: vector, list – Iterators: forward, backward – Algorithms: removing and replacing elements, sorting, counting, reversing a sequence.**Exception Handling:** Exceptions – *try*, *catch*, *throw* – Rethrowing an exception – Restricting exceptions - Handling exceptions in derived classes - *terminate()*, *abort()*, *unexpected()*, *set\_terminate()*. (5 Hours)

### UNIT -V:

**I/O Streams:** Formatted I/O with *ios* class functions - Manipulators – Creating own manipulator – Overloading << and >> operators.**File I/O:** *fstream* class – Opening and closing a file – Reading from and writing to a text file - Unformatted and Binary I/O – Random access I/O. (5 Hours)

**Total Lecture Hours-30**

## **COURSE OUTCOME**

The students are able to,

7. To introduce the concepts of Data structures and to understand simple linear data structures.
8. Learn the basics of stack data structure, its implementation and application
9. Use the appropriate data structure in context of solution of given problem and demonstrate a
10. familiarity with major data structures.
11. To introduce the basic concepts of algorithms
12. To give clear idea on algorithmic design paradigms like Dynamic Programming, Backtracking, Branch and Bound .

## **TEXT BOOK(S)**

1. Herbert Schildt, C++ - The Complete Reference, Third Edition, TMH, 1999.
2. Grady Booch, Object Oriented Analysis and Design, Pearson Education, 2008. (For Unit I)

## **REFERENCE BOOK(S)**

1. Bjarne Stroustrup, The C++ Programming Language, Addison Wesley, 2000.
2. J. P. Cohoon and J. W. Davidson, C++ Program Design – An Introduction to Programming and Object-Oriented Design, Second Edition, McGraw Hill, 1999.
3. C. J. Lippman, C++ Primer, Third Edition, Addison Wesley, 2000.

**NON MAJOR ELECTIVE**

**SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE  
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**DEPARTMENT OF COMPUTER SCIENCE**

**B.Sc., COMPUTER SCIENCE**

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**Semester: I –NME-I- Office Automation**

**Ins. Hrs. /Week: 2**

**Course Credit:2**

**Course Code:U23NMECS11**

**OBJECTIVES**

- The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like MS Word, MS Excel and Power point.
- The course is highly practice oriented rather than regular class room teaching.
- To acquire knowledge on editor, spread sheet and presentation software.

**UNIT-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. **(5 Hours)**

**UNIT- 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. **(5 Hours)**

**UNIT-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. **(5 Hours)**

**UNIT -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). **(5 Hours)**

**UNIT -V:**

**Power point:** Introduction to Power point - Features – Understanding slide typecasting & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition – Animation effects, audio inclusion, timers.

**Total Lecture Hours-30**



## **COURSE OUTCOME**

The students are able to,

1. Understand the basics of computer systems and its components.
- 2 Understand and apply the basic concepts of a word processing package.
- 3 Understand and apply the basic concepts of electronic spreadsheet software.
- 4 Understand and apply the basic concepts of database management system.
5. Understand and create a presentation using PowerPoint tool.

## **TEXT BOOK(S)**

1. Peter Norton, "Introduction to Computers" –Tata McGraw-Hill.

## **REFERENCE BOOK(S)**

1. Jennifer Ackerman Kettel, Guy Hat-Davis, Curt Simmons, "Microsoft 2003", Tata McGraw-Hill.

## **Web resources :**

Web content from NDL / SWAYAM or open source web resources

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**Semester: I –NME-II- Introduction to Web Design**

**Ins. Hrs. /Week: 2**

**Course Credit:2**

**Course Code:U23NMECS22**

**OBJECTIVES**

- To understand the concepts of Internet.
- To understand the basic concepts of HTML and DHTML.
- To understand the basic concepts of Table,Forms and Frames.

**Unit-I: Introduction to Internet**

**(2 Hours)**

Computers in Business-Networking-internet-Electronic Mail (E-Mail)-Resource Sharing-Gopher-World Wide Web-Usenet-Telnet-Bulletin Board Service- Wide area Information Service-**Internet Technologies:** Modem-Internet Addressing-Physical Connections-Telephone Lines-**Internet Browsers:** Internet Explorer-Netscape Navigator-Google Chrome-Mozilla Firefox-Opera.

**Unit-II: Introduction to HTML**

**(2 Hours)**

Designing Home page-History of HTML-Characteristics of HTML-HTML Generations-HTML Documents-Anchor Tags-Marquee-Formatting Text-Hyper Links-Sample HTML Documents-**Head and Body Sections:** Header Section-Title- Colorful Web Page-Comments Lines-Some Sample HTML Documents.

**Unit-III: Designing Body Section**

**(2 Hours)**

Heading Printing-Aligning the Headings-Horizontal Rule-Paragraph-Tab Settings-Images and Pictures-Embedding PNG Format images-Difference between Background image and image-**Lists:** Definition of List-Types of List-Unordered Lists-Ordered Lists-Nested Lists-descriptive Lists.

**Unit-IV: Table Handling**

**(2 Hours)**

Tables- Table Creation in HTML-Width of the Tables and Cells-Cell Spanning Multiple Rows/ Columns- Coloring Cells-Column Specifications-Some Sample Tables- **DHTML** :Definition of DHTML-Uses of HTML-Difference between HTML and

**Unit-V: Forms and Frames**

**(2 Hours)**

**Frames:** Frameset Definition-Frame Definition-Uses of Frame-Nested Framesets- **-Forms:** Action Attribute-Method Attribute-Enctype Attribute-Drop down List-Sample Forms-HTML Accessories.

**Total Lecture Hours-30**

## **COURSE OUTCOME**

The students are able to,

1. Understand the Internet Concepts and its Technologies.
2. Describe importance of HTML Tags using Designing Home Page.
3. Use and Examine Ordered and Unordered Lists using HTML Documents.
4. Understand the Table Handling , Frames and Forms in web page
5. Understand the concepts of CSS using in Web Page.

## **TEXT BOOKS:**

1. C.Xavier “World Wide Web design with HTML”Tata McGraw-Hill Publishing Company Limited,2000.
2. Preston Gralla, 2006, How the Internet Works, Eighth Edition, Pearson Education, London, England.

## **Reference Books:**

1. Alexis Leon, 2012, Internet for Everyone, Second Edition, S. Chand (G/L) & Company Ltd, S. Chand (G/L) & Company Ltd , New Delhi, India.
2. Harvey & Paul Dietel & Associates, Harvey Deital and Abbey Dietel, 2011, Internet and world wide web, Fifth Edition, Pearson Education, London, England.
3. Keith Sutherland, 2000, Understanding the Internet, First Edition, A division of Reed Educational and professional Publication Ltd, Oxford, United Kingdom.

## **E-Resources:**

1. <https://bit.ly/3e6ZrS>
2. <https://bit.ly/3h4e0bp>
3. <https://bit.ly/2QAZa1d>