



V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)

An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai

Reaccredited with 'A++' Grade (4th Cycle) by NAAC

VIRUDHUNAGAR

Quality Education with Wisdom and Values

OUTCOME BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM REGULATIONS AND SYLLABUS (With effect from Academic Year 2024 - 2025)

V.V.Vanniaperumal College for Women, Virudhunagar, established in 1962, offers 13 UG Programmes (Aided), 15 UG Programmes(SF), 15 PG Programmes and 6 Ph.D. Programmes. The curricula for all these Programmes, except Ph.D. Programmes, have been framed as per the guidelines given by the University Grants Commission (UGC) & Tamil Nadu State Council for Higher Education (TANSCH) under Choice Based Credit System (CBCS) and the guidelines for Outcome Based Education (OBE).

The Departments of Commerce, English, History, Mathematics, Biochemistry and Tamil upgraded as Research Centres offer Ph.D. Programmes as per the norms and regulations of Madurai Kamaraj University, Madurai and do not come under the purview of CBCS.

A. CHOICE BASED CREDIT SYSTEM (CBCS)

The CBCS provides an opportunity for the students to choose Courses from the prescribed Courses. The CBCS is followed as per the guidelines formulated by the UGC. The performance of students is evaluated based on the uniform grading system. Computation of the Cumulative Grade Point Average (CGPA) is made to ensure uniformity in evaluation system.

List of Programmes in which CBCS/Elective Course System is implemented

UG PROGRAMMES

Arts & Humanities	History (E.M. & T.M.), English, Tamil
Physical & Life Sciences	Mathematics, Zoology, Chemistry, Physics, Biochemistry, Home Science - Nutrition and Dietetics, Costume Design and Fashion, Microbiology, Biotechnology, Computer Science, Information Technology, Data Science, Computer Applications and Computer Applications - Graphic Design
Commerce & Management	Commerce, Commerce (Computer Applications), Commerce (Professional Accounting), Business Administration

PG PROGRAMMES

Arts & Humanities	History, English, Tamil
Physical & Life Sciences	Mathematics, Physics, Chemistry, Zoology, Biochemistry, Home Science - Nutrition and Dietetics, Biotechnology, Computer Science, Computer Science (Data Science) and Computer Applications (MCA) *
Commerce & Management	Commerce, Business Administration (MBA) *

* AICTE approved Programmes

OUTLINE OF CHOICE BASED CREDIT SYSTEM – UG

1. Core Courses
2. Elective Courses
 - Generic Elective Courses
 - Discipline Specific Elective Courses (DSEC)
 - Non Major Elective Courses (NMEC)
3. Skill Enhancement Courses (SEC)
4. Environmental Studies (EVS)
5. Value Education
6. Self Study Courses (Online)
7. Extra Credit Courses (Self Study Courses) (Optional)

**List of Non Major Elective Courses (NME)
(2024-2025 onwards)**

UG PROGRAMMES

Name of the Course	Course Code	Semester	Department
Introduction to Tourism	24UHIN11	I	History (E.M)
Indian Constitution	24UHIN21	II	
சுற்றுலா ஓர் அறிமுகம்	24UHIN11	I	History (T.M)
இந்திய அரசியலமைப்பு	24UHIN21	II	
Popular Literature and Culture	24UENN11	I	English
Philosophy for Literature	24UENN21	II	
அடிப்படைத் தமிழ் இலக்கணம் - I எழுத்தறிதல் பேச்சுக்கலைத்திறன்	24UBTN11/ 24UTAN11	I	Tamil

அடிப்படைத்தமிழ் - மொழித் திறனறிதல் / பயன்முறைத் தமிழ்	24UBTN21/ 24UTAN21	II	
Basic Hindi - I	24UBHN11	I	Hindi
Basic Hindi - II	24UBHN21	II	
Practical Banking/ Financial Literacy-I	24UCON11/ 24UCON12	I	Commerce
Basic Accounting Principles/ Financial Literacy-II	24UCON21/ 24UCON22	II	
Practical Banking / Self-Employment and Startup Business	24UCON11/ 24UCCN11	I	Commerce C.A.
Basic Accounting Principles / Fundamentals of Marketing	24UCON21/ 24UCCN21	II	
Women Protection Laws	24UCPN11	I	Commerce
Basic Labour Laws	24UCPN21	II	Professional Accounting
Basics of Event Management	24UBAN11	I	Business Administration
Managerial Skill Development	24UBAN21	II	
Quantitative Aptitude -I	24UMTN11	I	Mathematics
Quantitative Aptitude - II	24UMTN21	II	
Physics for EveryDay Life	24UPHN11	I	Physics
Astrophysics	24UPHN21	II	
Food Chemistry	24UCHN11	I	Chemistry
Dairy Chemistry	24UCHN21	II	
Ornamental fish farming and Management	24UZYN11	I	Zoology
Biocomposting for Entrepreneurship	24UZYN21	II	
Foundations of Baking and Confectionery	24UHSN11	I	Home Science – Nutrition and Dietetics
Women's Health and	24UHSN21	II	
Nutrition and Health	24UBCN11	I	Biochemistry
Life Style Diseases	24UBCN21	II	
Social and Preventive Medicine	24UMBN11	I	Microbiology
Nutrition & Health Hygiene	24UMBN21	II	
Herbal Medicine	24UBON11	I	Biotechnology
Organic Farming and Health Management	24UBON21	II	
Basics of Fashion	24UCFN11	I	Costume Design And

Interior Designing	24UCFN21	II	Fashion
Office Automation	24UCSN11	I	Computer Science
Introduction to HTML	24UCSN21	II	
Office Automation	24UITN11	I	Information Technology
Basics of Internet	24UITN21	II	
Fundamentals of Information Technology	24UDSN11	I	Data Science
Computer Fundamentals	24UDSN21	II	
Office Automation	24UCAN11	I	B.C.A.
Web Designing	24UCAN21	II	
Organic Farming	24UBYN11	I	Botany
Nursery and Landscaping	24UBYN12	I	
Mushroom Cultivation	24UBYN21	II	Botany
Medicinal Botany	24UBYN22	II	
Library and Information Science - I	24ULSN11	I	Library Science
Library and Information Science - II	24ULSN21	II	
Cadet Corps for Career Development I	24UNCN11	I	National Cadet Corps
Cadet Corps for Career Development II	24UNCN21	II	

B. OUTCOME BASED EDUCATION (OBE) FRAMEWORK

The core philosophy of Outcome Based Education rests in employing a student - centric learning approach to measure the performance of students based on a set of pre-determined outcomes. The significant advantage of OBE is that it enables a revamp of the curriculum based on the learning outcomes, upgrade of academic resources, quality enhancement in research and integration of technology in the teaching –learning process. It also helps in bringing clarity among students as to what is expected of them after completion of the Programme in general and the Course in particular. The OBE directs the teachers to channelize their teaching methodologies and evaluation strategies to attain the PEOs and fulfill the Vision and Mission of the Institution.

Vision of the Institution

The founding vision of the Institution is to impart Quality Education to the rural womenfolk and to empower them with knowledge and leadership quality.

Mission of the Institution

The mission of the Institution is to impart liberal education committed to quality and excellence. Its quest is to mould learners into globally competent individuals instilling in them life-oriented skills, personal integrity, leadership qualities and service mindedness.

B.1 Programme Educational Objectives, Programme Outcomes and Programme Specific Outcomes

It is imperative for the institution to set the Programme Educational Objectives (PEOs), Programme Outcomes (POs) and Course Outcomes (COs), consistent with its Vision and Mission statements. The PEOs and the POs should be driven by the mission of the institution and should provide distinctive paths to achieve the stated goals. The PEOs for each Programme have to fulfill the Vision and Mission of the Department offering the Programme.

Vision of the Department of Computer Applications

To enrich the students to be technologically skilled, ethical responsibilities, technical and professional values and face the challenges of the ever changing world.

Mission of the Department of Computer Applications

- To impart the fundamental principles of computer science, and continue to develop their technical competencies.
- To train students for careers as socially responsible IT professionals, entrepreneurs and researchers
- To empower the student in rural communities with effective communication skills and high ethical values.

Programme Educational Objectives (PEOs)

PEOs are broad statements that describe the career and professional achievements that the Programme is preparing the graduates to achieve within the first few years after graduation. PEOs are framed for each Programme and should be consistent with the mission of the Institution.

Programme Educational Objectives (PEOs) of B.C.A. Programme

The students will be able to

- PEO1:** Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.
- PEO2:** employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur.

PEO3: Shine as socially committed computer professionals having mutual respect, efficient programming skills and satisfy the needs of society.

Key Components of Mission Statement	Programme Educational Objectives		
	PEO1	PEO2	PEO3
continues development of technical competency	√	√	
train students for careers as IT professionals	√	√	
empower the student in rural communities	√		√

B.1.2 Programme Outcomes (POs)

POs shall be based on Graduate Attributes (GAs) of the Programme. The GAs are the attributes expected of a graduate from a Programme in terms of knowledge, skills, attitude and values. The Graduate Attributes include Disciplinary Knowledge, Communication Skills, Critical Thinking, Problem Solving, Analytical Reasoning, Research Related Skills, Co- operation/Team Work, Scientific Reasoning, Reflective Thinking, Information/Digital Literacy, Multicultural Competence, Moral and Ethical Awareness/Reasoning, Leadership Qualities and Lifelong Learning.

On successful completion of the Programme, the students will be able to

- 1 apply effectively the acquired knowledge and skill in the field of Arts, Physical Science, Life Science, Computer Science, Commerce and Management for higher studies and employment. (*Disciplinary Knowledge*)
- 2 articulate innovative thoughts and ideas proficiently in both in spoken and written forms. (*Communication Skills*)
- 3 identify, formulate and solve problems in real life situations scientifically / systematically by adapting updated skills in using modern tools and techniques. (*Scientific Reasoning and Problem Solving*)
- 4 critically analyse, synthesize and evaluate data, theories and ideas to provide valid suggestions through assignments, case studies, Internship and projects for the fulfillment of the local, national and global developmental needs. (*Critical Thinking and Analytical Reasoning*)
- 5 use ICT in a variety of self-directed lifelong learning activities to face career challenges in the changing environment. (*Digital Literacy, Self - directed and Lifelong Learning*)
- 6 self-manage and function efficiently as a member or a leader in diverse teams in a multicultural society for nation building. (*Co-operation/Team Work and Multicultural Competence*)

- 7 uphold the imbibed ethical and moral values in personal, professional and social life for sustainable environment. (*Moral and Ethical Awareness*)

B.1.3 Programme Specific Outcomes (PSOs)

Based on the Programme Outcomes, Programme Specific Outcomes are framed for each UG Programme. Programme Specific Outcomes denote what the students would be able to do at the time of graduation. They are Programme specific. It is mandatory that each PO should be mapped to the respective PSO.

On completion of B.C.A. Programme, the students will be able to

PO1 - *Disciplinary Knowledge*

PSO 1.a: Apply the acquired knowledge in Computer Science and in interdisciplinary fields for successful career and higher studies.

PSO1.b: Make use of the technical knowledge in various technology field of computer science to identify the problem, analyze, design and develop the system as the solution to the problem.

PO2 – *Communication Skills*

PSO2: ability to express the computer knowledge by preparing documentation and communicate to the society with effective presentation.

PO3 – *Scientific Reasoning and Problem Solving*

PSO3.a: Apply theoretical foundations of computer applications with emphasis on strong practical training that enable them to solve real world problems related to sustainable environment.

PSO3.b: Analyze needed information and/or eliminate extraneous information towards solving contextual problems.

PO4 – *Critical Thinking and Analytical Reasoning*

PSO 4.a: Analyze, sketch and attain the innovative solutions to the problems related to Computer Industry.

PSO 4.b: Critically evaluate the software systems and find the optimum solution through research for the betterment of society.

PO5 – *Digital Literacy, Self - Directed and Lifelong Learning*

PSO5: Utilize modern computing tools, skills and techniques necessary for facing issues in finding software solutions in their career.

PO6 – *Co-operation/Team Work and Multi-Cultural Competence*

PSO6: Apply their leadership qualities, and cooperative spirit to achieve the project targets.

PO7 –Moral and Ethical Awareness

PSO 7: Solve and work with a professional context pertaining to ethics, cultural and cyber regulations

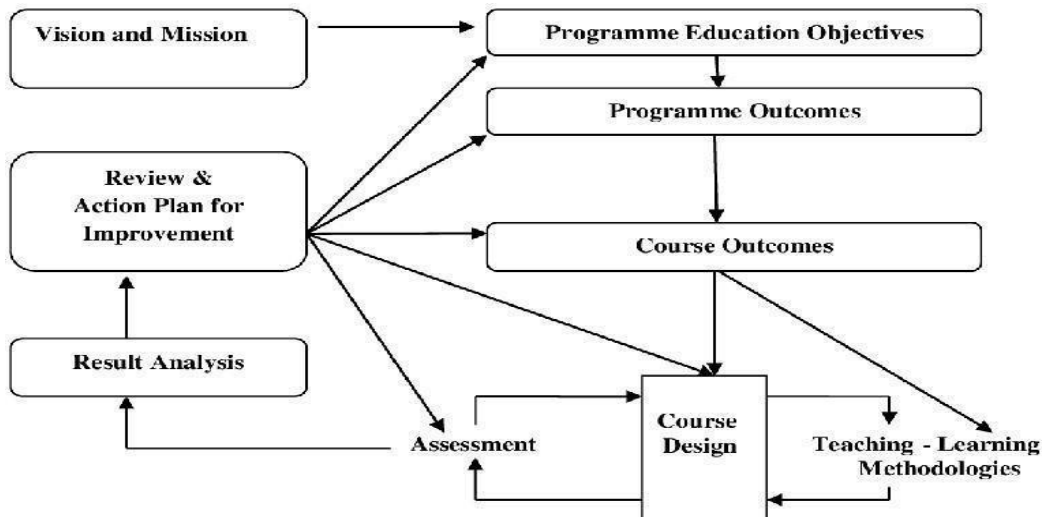
PO-PEO Mapping Matrix

Attainment of PEOs can be measured by a PO-PEO matrix. PEOs should evolve through constant feedback from alumnae, students, industry, management, *etc.* It is mandatory that each PEO should be mapped to at least one of the POs.

PEOs POs/PSOs	PEO1	PEO2	PEO3
PO1/PSO1.a	-	✓	✓
PO1/PSO1.b	✓	✓	✓
PO2/PSO2.a	✓	✓	-
PO2/PSO2.b	✓	✓	-
PO3/PSO3	-	✓	✓
PO4/PSO4.a	-	✓	✓
PO4/PSO4.b	✓	✓	-
PO5/PSO5	✓	✓	-
PO6/PSO6	-	✓	✓
PO7/PSO7	-	-	✓

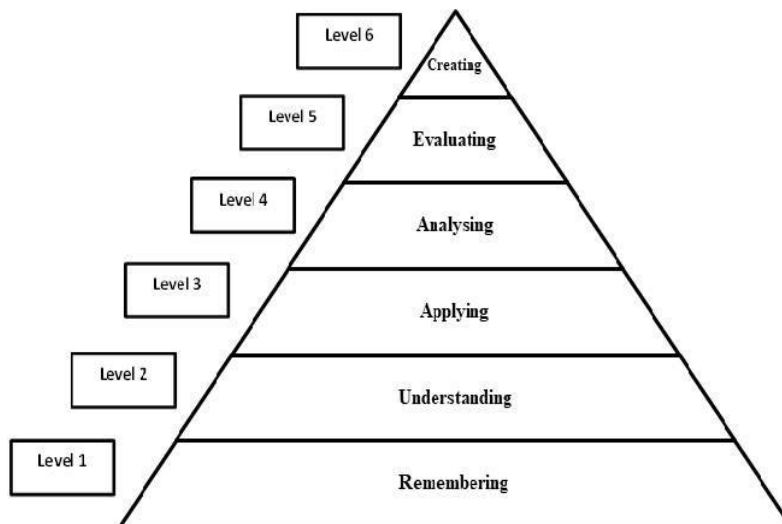
B.1.4 Course Outcomes (COs)

Course Outcomes are narrow statements restricted to the Course contents given in five units. Course Outcomes describe what students would be capable of, after learning the contents of the Course. They reflect the level of knowledge gained, skills acquired and attributes developed by the students after learning of Course contents. COs are measurable, attainable and manageable in number. COs contribute to attain POs in such a way that each CO addresses at least one of the POs and also each PO is reasonably addressed by adequate number of COs.



It is important to determine the methods of assessment. A comprehensive assessment strategy may be outlined using the revised Bloom's Taxonomy levels.

BLOOM'S TAXONOMY



CO – PO Mapping of Courses

After framing the CO statements, the COs framed for each Course is mapped with POs based on the relationship that exists between them. The COs which are not related to any of the POs is indicated with (-), signifying Nil. Measurement Mapping is based on Four Points Scale [High (H), Medium (M), Low (L) and Nil (-)]. For calculating weighted percentage of contribution of each Course in the attainment of the respective POs, the weights assigned for H, M and L are 3, 2 and 1 respectively.

CO-PO/PSO Mapping Table (Course Articulation Matrix)

PO/PSOs	PO1/ PSO1	PO2/ PSO2	PO3/ PSO3	PO4/ PSO4	PO5/ PSO5	PO6/ PSO6	PO7/ PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

ELIGIBILITY FOR ADMISSION

The Candidate should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Education, Tamil Nadu or any other examination accepted by Academic Council with Mathematics as one of the subjects.

DURATION OF THE PROGRAMME

The candidates shall undergo the prescribed Programme of study for a period of three academic years (six semesters).

MEDIUM OF INSTRUCTION

English

COURSES OFFERED

Part I	:	Tamil/Hindi Course
Part II	:	English
Part III	:	Core Courses
		Elective Courses <ul style="list-style-type: none"> • Generic Elective Courses • Discipline Specific Elective Courses
		Self Study Course - online
Part IV	:	Skill Enhancement Courses (SEC)
		Elective Course (NMEC)
		Environmental Studies Value Education
		Field Project/Internship
		Self Study Course - online
Part V	:	National Service Scheme/ Physical Education/ Youth Red Cross Society/ Red Ribbon Club/ Science Forum/ Eco Club/ Library and Information Science/ Consumer Club/ Health and Fitness Club/ National Cadet Corps/ Rotaract Club

B.2 EVALUATION SCHEME

B.2.1.PART II

Components	Internal Assessment Marks	Summative Examination Marks	Total Marks
Theory	15	60	100
Practical	5	15	
Assignment	5	-	

Three Periodic Tests - Average of the best two will be considered

B.2.2.Part I & PART III - Core Courses, Elective Courses (Generic, DSEC)

Components	Internal Assessment Marks	External Examination Marks	Total Marks
Theory	25	75	100

INTERNAL ASSESSMENT**Distribution of Marks****Theory**

Mode of Evaluation	Marks
Periodic Test	15
Assignment	5
Quiz	5
Total	25

Three Periodic Tests - Average of the best two will be considered

Two Assignments - Better of the two will be considered

Three Quiz Tests - Best of the three will be considered

Practical

Mode of Evaluation	Marks
Model Test	30
Record & Performance	10
Total	40

Two Model Tests - Average of the two will be considered

Question Pattern for Internal Tests**Duration: 2 Hours**

Section	Q. No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 - 4	Multiple Choice	4	4	1	4
B	5 -6	Internal Choice - Either ... or Type	3	3	7	21
C	8 -9	Internal Choice - Either... or Type	2	2	10	20
Total						45*

*The total marks obtained in the Periodic Test will be calculated for 15 marks

SUMMATIVE EXAMINATION**Question Pattern****Duration: 3 Hours**

Section	Q. No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 -10	Multiple Choice	10	10	1	10
B	11 - 15	Internal Choice – Either ...or Type	5	5	7	35
C	16 - 18	Internal Choice – Either... or Type	3	3	10	30
Total						75

PROJECT**Assessment by Internal Examiner Only****Internal Assessment****Distribution of Marks**

Mode of Evaluation	:	Marks
Project work and Report	:	60
Presentation and Viva –Voce	:	40
Total	:	100

B.2.3 PART IV - Skill Enhancement Courses, Non Major Elective Courses and Foundation Course

B.2.3.1 FOUNDATION COURSE

INTERNAL ASSESSMENT

Distribution of Marks

Theory

Mode of Evaluation		Marks
Periodic Test	:	15
Assignment	K2 Level	5
Quiz	K1 Level	5
Total	:	25

Three Periodic Tests - Average of the best two will be considered

Two Assignments - Better of the two will be considered

Three Quiz Tests - Best of the three will be considered

Question Pattern for Periodic Tests

Duration: 1 Hour

Section	Q.No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 - 3	Internal Choice - Either ...or Type	3	3	5	15
B	4	Internal Choice – Either ...or Type	1	1	10	10
Total						25*

*The total marks obtained in the Periodic Test will be calculated for 15 marks

SUMMATIVE EXAMINATION

Mode of Evaluation	Marks
Summative Examination	50
Online Quiz (Multiple Choice Questions - K2 Level)	25
Total	75

Question Pattern**Duration: 2 Hours**

Section	Q.No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 - 5	Internal Choice - Either ... or Type	5	5	6	30
B	6 - 7	Internal Choice – Either... or Type	2	2	10	20
Total						50

B.2.3.2 Skill Enhancement Course - Entrepreneurial skills**INTERNAL ASSESSMENT ONLY****Distribution of Marks**

Mode of Evaluation	Marks
Periodic Test	: 15
Assignment	: 5
Quiz	: 5
Model Examinations	: 60
Online Quiz (Multiple Choice Questions - K2 Level)	: 15
Total	: 100

Question Pattern for Periodic Tests**Duration: 1 Hour**

Section	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. No.(1- 3)	Internal Choice – Either Or Type	3	3	6	18
B Q. No.(4)	Internal Choice – Either Or Type	1	1	12	12
Total					30

Two Periodic Tests - Better of the two will be considered

Two Assignments - Better of the two will be considered

Question Pattern for Model Examination**Duration: 2 Hours**

Section	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. No.(1-5)	Internal Choice – Either Or Type	5	5	6	30
B Q. No.(6- 8)	Internal Choice – Either Or Type	3	3	10	30
Total					60

B.2.3.3 Skill Enhancement Courses/ Non Major Elective Courses**INTERNAL ASSESSMENT****Distribution of Marks****Theory**

Mode of Evaluation		Marks
Periodic Test	:	15
Assignment	K3 Level	5
Quiz	K2 Level	5
Total		25

Three Periodic Tests - Average of the best two will be considered

Two Assignments - Better of the two will be considered

Three Quiz Tests - Best of the three will be considered

Question Pattern for Periodic Tests**Duration: 1 Hour**

Section	Q.No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 - 3	Internal Choice - Either ...or Type	3	3	5	15
B	4	Internal Choice – Either ...or Type	1	1	10	10
Total						25*

*The total marks obtained in the Periodic Test will be calculated for 15 marks

SUMMATIVE EXAMINATION

Mode of Evaluation		Marks
Summative Examination	:	50
Online Quiz (Multiple Choice Questions - K2 Level)	:	25
Total		75

Question Pattern**Duration: 2 Hours**

Section	Q.No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 - 5	Internal Choice - Either ... or Type	5	5	6	30
B	6 - 7	Internal Choice – Either... or Type	2	2	10	20
Total						50

B.2.4 PART IV- ENVIRONMENTAL STUDIES / VALUE EDUCATION**INTERNAL ASSESSMENT ONLY****Evaluation Pattern**

Mode of Evaluation	Marks
Periodic Test	: 15
Assignment (Based on the Listed activities) - K3 Level	: 10
Online Quiz (Multiple Choice Questions - K2 Level)	: 25
Poster Presentation - K3 Level	10
Report on Student's Awareness creation on Environmental Protection / Ethical Values -- K3 Level	10
Model Examination	: 30
Total	: 100

Three Assignment - Best of the three will be considered

Question Pattern for Periodic Tests**Duration: 1 Hour**

Section	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. No.(1- 3)	Internal Choice – Either Or Type	3	3	6	18
B Q. No.(4)	Internal Choice – Either Or Type	1	1	12	12
Total					30

Two Periodic tests - Better of the two will be considered

*The total marks obtained in the Periodic Test will be calculated for 15 marks

Question Pattern for Model Examination**Duration: 2 ½ Hours**

Section	Q.No.	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A	1 - 5	Internal Choice - Either ... or Type	5	5	6	30
B	6 - 8	Internal Choice – Either... or Type	3	3	10	30
Total						60*

*The total marks obtained in the Model Examination will be calculated for 30 marks

B.2.5 PART IV- Internship/ Field Project

Internship / Field Project is compulsory for II year UG Science Students

- **Internship:** A designated activity that carries one credit involving not less than 15 days of working in an organization under the guidance of an identified mentor
- **Field Project:** Students comprising of maximum 5 members in a team need to undertake project that involve conducting surveys inside/outside the college premises and collection of data from designated communities or natural places.
- Assessment by Internal Examiner only

Mode of Evaluation		Marks
Onsite Learning/Survey	:	50
Report	:	25
Viva-Voce	:	25
Total		100

B.2.6 SELF STUDY COURSE**B.2.6 .1 PART III - Core & Elective Courses Quiz – Online**

- Assessment by Internal Examiner only
- Question Bank is prepared by the Faculty Members of the Departments for all the Core and Elective Courses offered in all the Semesters.
- No. of Questions to be taken 700.
- Multiple Choice Question pattern is followed.
- Online Test will be conducted in VI Semester for 100 Marks.
- Model Examination is conducted after two periodic tests.

Distribution of Marks

Mode of Evaluation		Marks
Periodic Test	:	25
Model Examination	:	75
	:	100

Two Periodic Tests - Better of the two will be considered

B.2.6 .2 PART IV - Practice for Competitive Examinations – Online

Assessment by Internal Examiner only

- Question Bank prepared by the Faculty Members of the respective Departments will be followed.
- Multiple Choice Question pattern is followed.
- Online Test will be conducted in V Semester for 100 Marks.
- Model Examination is conducted after two periodic tests.

Subject wise Allotment of Marks

Subject		Marks
Tamil	:	10
English	:	10
History	:	10
Mathematics	:	10
Current affairs	:	10
Commerce, Law & Economics	:	10
Physical Sciences	:	10
Life Sciences	:	15
Computer Science	:	5
Food and Nutrition	:	5
Sports and Games	:	5
Total	:	100

Distribution of Marks

Mode of Evaluation		Marks
Periodic Test	:	25
Model Examination	:	75
Total	:	100

Two Periodic Tests - Better of the two will be considered

B.2.7. Part V – Extension Activities**INTERNAL ASSESSMENT ONLY****Distribution of Marks**

Mode of Evaluation		Marks
Attendance	:	5
Performance	:	10
Report/Assignment/Project/Camp/Practical	:	10
Total	:	25*

*The marks obtained will be calculated for 100 marks

B.2.8 EXTRA CREDIT COURSES (OPTIONAL)**2.8.1 Extra Credit Course offered by the Department.**

Assessment by Internal Examiner Only (To be conducted along with the III Periodic Test)

Distribution of Marks

Mode of Evaluation		Marks
Quiz (Multiple Choice Questions)	:	25
Model Examination	:	75
Total	:	100

Question Pattern for Model Examination

Section	Types of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q.No.(1-5)	Internal Choice- Either or Type	5	5	7	35
B Q.No.(6-9)	Internal Choice- Either or Type	4	4	10	40
				Total	75

2.8.2 Extra credit Course offered by MOOC (Massive Open Online Course)

- The Courses shall be completed within the first V Semesters of the Programme.
- The allotment of credits is as follows (**Maximum of 10 credits**)

4weeks Course	- 1 credit
8 weeks Course	- 2 credits
12 weeks Course	- 3 credits

ELIGIBILITY FOR THE DEGREE

- The candidate will not be eligible for the Degree without completing the prescribed Courses of study, lab work, *etc.*, and a minimum Pass marks in all the Courses.

- No Pass minimum for Internal Assessment.
 - Pass minimum for External Examination is 27 marks out of 75 marks for Core Courses, Elective Courses (Generic Elective, DSEC Courses)
 - Pass minimum for External Examination is 18 marks out of 50 marks for Skill Enhancement Courses and Non Major Elective Courses (NMEC).
 - The aggregate minimum pass percentage is 40.
 - Pass minimum for External Practical Examination is 21 marks out of 60 marks.
 - Pass minimum for Ability Enhancement Compulsory Courses is 40 marks.
 - Pass minimum for Self Study Courses is 40 marks.
- Attendance
 - For UG, PG Programmes,
 - a) The students who have attended the classes for 76 days (85%) and above are permitted to appear for the Summative Examinations without any condition.
 - b) The students who have only 60-75 days (66% - 84%) of attendance are permitted to appear for the Summative Examinations after paying the required fine amount and fulfilling other conditions according to the respective cases.
 - c) The students who have attended the classes for 59 days and less – upto 45 days (50% - 65%) can appear for the Summative Examinations only after getting special permission from the Principal.
 - d) The students who have attended the classes for 44 days or less (<50%) cannot appear for the Summative Examinations and have to repeat the whole semester.
 - For Part V in UG Programmes, the students require 75 % of attendance to get a credit.
 - For Certificate, Diploma, Advanced Diploma and Post Graduate Diploma Programmes, the students require 75% of attendance to appear for the Theory/Practical Examinations.
- These rules come into effect from 2023-2024 onwards.

B.3 ASSESSMENT MANAGEMENT PLAN

An Assessment Management Plan that details the assessment strategy both at the Programme and the Course levels is prepared. The continuous assessment is implemented using an assessment rubric to interpret and grade students.

B.3.1 Assessment Process for CO Attainment

Assessment is one or more processes carried out by the institution that identify, collect and prepare data to evaluate the achievement of Course Outcomes and Programme Outcomes. Course Outcome is evaluated based on the performance of students in the Continuous Internal Assessments and in End Semester Examination of a Course. Target levels of attainment shall be fixed by the Course teacher and Heads of the respective departments.

Direct Assessment (Rubric based) - Conventional assessment tools such as Term Test, Assignment, Quiz and End Semester Summative Examination are used.

Indirect Assessment – Done through Course Exit Survey.

CO Assessment Rubrics

For the evaluation and assessment of COs and POs, rubrics are used. Internal assessment contributes 40% and End Semester assessment contributes 60% to the total attainment of a CO for the theory Courses. For the practical Courses, internal assessment contributes 50% and Semester assessment contributes 50% to the total attainment of a CO. Once the Course Outcome is measured, the PO can be measured using a CO-PO matrix.

CO Attainment

Direct CO Attainment

Course Outcomes of all Courses are assessed and the CO – wise marks obtained by all the students are recorded for all the assessment tools. The respective CO attainment level is evaluated based on set attainment rubrics.

Target Setting for Assessment Method

For setting up the target of internal assessment tools, 55% of the maximum mark is fixed as target. For setting up the target of End Semester Examination, the average mark of the class shall be set as target.

Formula for Attainment for each CO

Attainment = Percentage of students who have scored more than the target marks

$$\text{Percentage of Attainment} = \frac{\text{Number of Students who scored more than the Target}}{\text{Total Number of Students}} \times 100$$

Attainment Levels of Cos

Assessment	Attainment Levels	
Internal Assessment	Level 1	50% of students scoring more than set target marks in Internal Assessment tools
	Level 2	55% of students scoring more than set target marks in Internal Assessment tools
	Level 3	60% of students scoring more than set target marks in internal Assessment tools
End Semester Summative Examination	Level 1	50% of students scoring more than average marks in End Semester Summative Examination
	Level 2	55% of students scoring more than average marks in End Semester Summative Examination
	Level 3	60% of students scoring more than average marks in End Semester Summative Examination

Indirect CO Attainment

At the end of each Course, an exit survey is conducted to collect the opinion of the students on attainment of Course Outcomes. A questionnaire is designed to reflect the views of the students about the Course Outcomes.

Overall CO Attainment= 75% of Direct CO Attainment + 25 % of Indirect CO Attainment

In each course, the level of attainment of each CO is compared with the predefined targets. If the target is not reached, the Course teacher takes necessary steps for the improvement to reach the target.

For continuous improvement, if the target is reached, the Course teacher can set the target as a value greater than the CO attainment of the previous year.

B.3.2 Assessment Process for Overall PO Attainment

With the help of CO - PO mapping, the PO attainment is calculated. PO assessment is done by giving 75% weightage to direct assessment and 25% weightage to indirect assessment. Direct assessment is based on CO attainment, where 75% weightage is given to attainment through End Semester Examination and 25% weightage is given to attainment through Internal assessments. Indirect assessment is done through Graduate Exit Survey and participation of students in Co-curricular/ Extra-curricular activities.

PO Assessment Tools

Mode of	Assessment	Description
Direct Attainment (Weightage -75%)	CO Assessment	This is computed from the calculated CO Attainment value for each Course
Indirect Attainment (Weightage - 25%)	Graduate Exit Survey 10%	At the end of the Programme, Graduate Exit Survey is collected from the graduates and it gives the opinion of the graduates on attainment of Programme Outcomes
	Co-curricular/ Extra-curricular activities 15%	For participation in Co-curricular/Extra-curricular activities during the period of their study.

Programme Articulation Matrix (PAM)

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Average Direct PO Attainment								
Direct PO Attainment in percentage								

Indirect Attainment of POs for all Courses

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Graduate Exit Survey							
Indirect PO Attainment							

Attainments of POs for all Courses

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Direct Attainment (Weightage							
Indirect Attainment (Weightage -							
Overall PO Attainment							

**Overall PO Attainment= 75% of Direct PO Attainment +
25% of Indirect PO Attainment (Graduate Exit Survey
& Participation in Co- curricular and
Extra curricular Activities)**

Expected Level of Attainment for each of the Programme Outcomes

POs	Level of Attainment
Attainment Value $\geq 70\%$	Excellent
$60\% \leq$ Attainment Value $< 70\%$	Very Good
$50\% \leq$ Attainment Value $< 60\%$	Good
$40\% \leq$ Attainment Value $< 50\%$	Satisfactory
Attainment Value $< 40\%$	Not Satisfactory

Level of PO Attainment

Graduation Batch	Overall PO Attainment (in percentage)	Whether Expected Level of PO is Achieved? (Yes/No)

B.3.3 Assessment Process for PEOs

The curriculum is designed so that all the Courses contribute to the achievement of PEOs. The attainment of PEOs is measured after 5 years of completion of the Programme only through indirect methods.

Target for PEO Attainment

Assessment Criteria	Target (UG)	Target (PG)
Record of Employment	15% of the class strength	30% of the class strength
Progression to Higher Education	50% of the class strength	5% of the class strength
Record of Entrepreneurship	2% of the class strength	5% of the class strength

Attainment of PEOs

Assessment Criteria & Tool	Weightage
Record of Employment	10
Progression to Higher Education	20
Record of Entrepreneurship	10
Feedback from Alumnae	30
Feedback from Parents	10
Feedback from Employers	20
Total Attainment	100

$$\text{Percentage of PEO Attainment from Employment} = \frac{\text{Number of Students who have got Employment}}{\text{Target}} \times 100$$

$$\text{Percentage of PEO Attainment from Higher Education} = \frac{\text{Number of Students who pursue Higher Education}}{\text{Target}} \times 100$$

$$\text{Percentage of PEO Attainment from Entrepreneurship} = \frac{\text{Number of Students who have become Entrepreneurs}}{\text{Target}} \times 100$$

Expected Level of Attainment for each of the Programme Educational Objectives

POs	Level of Attainment
Attainment Value $\geq 70\%$	Excellent
$60\% \leq \text{Attainment Value} < 70\%$	Very Good
$50\% \leq \text{Attainment Value} < 60\%$	Good
$40\% \leq \text{Attainment Value} < 50\%$	Satisfactory
Attainment Value $< 40\%$	Not Satisfactory

Level of PEO Attainment

Graduation Batch	Overall PEO Attainment (in percentage)	Whether Expected Level of PEO is Achieved? (Yes/No)

C. PROCESS OF REDEFINING THE PROGRAMME EDUCATIONAL OBJECTIVES

The College has always been involving the key stakeholders in collecting information and suggestions with regard to curriculum development and curriculum revision. Based on the information collected the objectives of the Programme are defined, refined and are inscribed in the form of PEOs. The level of attainment of PEOs defined earlier will be analyzed and will identify the need for redefining PEOs. Based on identified changes in terms of curriculum, regulations and PEOs, the administrative system like Board of Studies, Academic Council and Governing Body may recommend appropriate actions. As per the Outcome Based Education Framework implemented from the Academic Year 2020 -2021, the following are the Programme Structure, the Programme Contents and the Course Contents of B.C.A. Programme.


V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

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BACHELOR OF COMPUTER APPLICATIONS (UG) (3026)
Outcome Based Education with Choice Based Credit System

Programme Structure - Allotment of Hours and Credits

For those who join in the Academic Year 2024-2025

Components	Semester						Total Number of Hours (Credits)
	I	II	III	IV	V	VI	
Part I : Tamil /Hindi	6 (3)	6 (3)	6 (3)	6 (3)	-	-	24 (12)
Part II : English	6 (3)	6(3)	6 (3)	6 (3)	-	-	24 (12)
Part III : Core Courses, Elective Courses & Self Study Course							
Core Course	5 (5)	5 (5)	5 (5)	5 (5)	5 (4)	5 (4)	30 (28)
Core Course	-	-	-	-	5 (4)	5 (4)	10 (8)
Core Course	-	-	-	-	5 (4)	5(4)	10(8)
Core Course Practical	5(3)	5 (3)	5(3)	4 (3)	4 (3)	5 (3)	28(18)
Core Course Project	-	-	-	-	1 (3)	-	1 (3)
Elective Course (DSEC)	-	-	-	-	5(3)	5 (3)	10 (6)
Elective Course (DSEC Practical)	-	-	-	-	3(2)	3(2)	6(4)
Elective Course I (Allied)	4 (4)	4 (4)	4 (4)	4 (4)	-	-	16(16)
Elective Course I Practical I(Allied)	-	-	-	-	-	-	-
Elective Course II(Allied)	-	-	-	-	-	-	-
Elective Course II Practical II(Allied)	-	-	-	-	-	-	-
Self Study Course	-	-	-	-	-	0 (1)	0 (1)
Part IV : Skill Enhancement Courses, Elective Courses, Environmental Studies, Value Education, Self Study Course & Internship/ Field Project							
SEC	2 (2)	-	1 (1)	2 (2)	-	-	5(5)
SEC	-	2 (2)	2 (2)	2 (2)	-	2 (2)	8 (8)
Elective Course(NME)	2 (2)	2 (2)	-	-	-	-	4 (4)
Value Education	-	-	-	-	2 (2)	-	2 (2)
Environmental Studies	-	-	1 (0)	1 (2)	-	-	2 (2)
Self Study Course	-	-	-	-	0 (1)	-	0 (1)
Internship/ Field Project	-	-	-	-	0 (1)	-	0 (1)
Part V : Extension Activities	-	-	-	-	-	0 (1)	0 (1)
Total	30 (22)	30 (22)	30(21)	30 (24)	30 (27)	30(24)	180 (140)
Extra Credit Course (Self Study Course)	-	-	-	-	0(2)	-	0(2)

DSEC: Discipline Specific Elective Course

SEC: Skill Enhancement Course

NMEC: Non Major Elective Course



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BACHELOR OF COMPUTER APPLICATIONS

Programme Code – 3026

PROGRAMME CONTENT

SEMESTER I

S.No	Components	Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks			
							Int.	Ext.	Total	
1	Part I	Tamil / Hindi	24UTAG11/ 24UHDG11	6	3	3	25	75	100	
2	Part II	English	24UENG11	6	3	3	25	75	100	
3	Part III	Core Course-1	Python Programming	24UCAC11	5	5	3	25	75	100
4		Core Course - 2 Practical 1	Python Programming Practical	24UCAC11P	5	3	3	40	60	100
5		Elective Course	Discrete Mathematics - I	24UCAA11	4	4	3	25	75	100
6	Part IV	NME- 1	Office Automation	24UCAN11	2	2	2	25	75	100
7		SEC -1 Foundation Course	Programming in C	24UCAF11	2	2	2	25	75	100
Total				30	22				700	

BACHELOR OF COMPUTER APPLICATIONS
SEMESTER II

S.No	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	Part I		Tamil / Hindi	24UTAG21/ 24UHDG21	6	3	3	25	75	100
2	Part II		English	24UENG21	6	3	3	25	75	100
3	Part III	Core Course -3	Object Oriented Programming Concepts using C++	24UCAC21	5	5	3	25	75	100
4		Core Course - 4 Practical - 2	C++ Programming Practical	24UCAC21P	5	3	3	40	60	100
5		Elective Course	Resource Management Techniques	24UCAA21	4	4	3	25	75	100
6	Part IV	NME -2	Web Designing	24UCAN21	2	2	2	25	75	100
7		SEC -2	Office Automation Practical	24UCAS21P	2	2	2	40	60	100
Total					30	22				700

BACHELOR OF COMPUTER APPLICATIONS**Programme Code – 3026****PROGRAMME CONTENT****SEMESTER III**

S.No.	Components	Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
							Int.	Ext.	Total
1	Part I	Tamil / Hindi	24UTAG31/ 24UHDG31	6	3	3	25	75	100
2	Part II	English	24UENG31	6	3	3	25	75	100
3	Part III	Core Course - 5 Data Structures and Algorithms	24UCAC31	5	5	3	25	75	100
4		Core Course - 6 Practical- 3 Data Structures and Algorithms using C++ Practical	24UCAC31P	5	3	3	40	60	100
5		Elective Course Numerical Methods	24UCAAA31	4	4	3	25	75	100
6	Part IV	SEC - 3 Numerical Aptitude	24UCAS31	1	1	2	100	-	100
7		SEC - 4 Advanced Excel Practical	24UCAS31P	2	2	2	40	60	100
8		Environmental Studies	24UGES41	1	-	-	-	-	-
Total				30	21				700

BACHELOR OF COMPUTER APPLICATIONS
SEMESTER IV

S.No.	Components	Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks			
							Int.	Ext.	Total	
1	Part I	Tamil / Hindi	24UTAG41/ 24UH DG41	6	3	3	25	75	100	
2	Part II	English	24UENG41	6	3	3	25	75	100	
3	Part III	Core Course - 7	Programming in Java	24UCAC41	5	5	3	25	75	100
4		Core Course – 8 Practical 4	Programming in Java Practical	24UCAC41P	4	3	3	40	60	100
5		Elective Course	Financial Accounting	24UCAAA41	4	4	3	25	75	100
6	Part IV	SEC - 5	Software Project Management	24UCAS41	2	2	2	25	75	100
7		SEC - 6	PHP Programming Practical	24UCAS41P	2	2	2	40	60	100
8			Environmental Studies	24UGES41	1	2	2	100	-	100
Total				30	24				800	

BACHELOR OF COMPUTER APPLICATIONS**SEMESTER V**

S. No.	Components	Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks			
							Int.	Ext.	Total	
1	Part III	Core Course - 9	Operating Systems	24UCAC51	6	5	3	25	75	100
2		Core Course - 10	ASP. Net Programming	24UCAC52	6	5	3	25	75	100
3		Core Course Practical - 5	ASP. Net Programming Practical	24UCAC51P	5	3	3	40	60	100
4		Core Course Project	Project	24UCAC54PR	1	3	-	100	-	100
5		Elective Course DSEC - 1	RDBMS with PL/SQ	24UCAE51	5	4	3	25	75	100
			Image Processing	24UCAE52						
6		Elective Course DSEC Practical - 2	PL/SQL Practical	24UCAE51P	5	3	3	40	60	100
	Image Processing Practical		24UCAE52P							
7	Part IV	Value Education	24UGVE51	2	2	2	100	-	100	
8		Self Study Course	Practice for Competitive Examinations - Online	24UGCE51	-	1	-	100	-	100
9		Internship/Field Project	24UCAI51G	-	1	-	100	-	100	
Total				30	27				900	

10	Extra Credit Course (Self Study Course)	Pointers in C and C++	24UCAO51	-	2	3	100	-	100
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BACHELOR OF COMPUTER APPLICATIONS
SEMESTER V1

S. No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	Part III	Core Course - 11	Computer Networks	24UCAC61	6	5	3	25	75	100
2		Core Course – 12	Data Analytics using R Programming	24UCAC62	6	5	3	25	75	100
3		Core Course Practical - 6	R Programming Practical	24UCAC61P	6	3	3	40	60	100
4		Elective Course DSEC – 3	Mobile Application Development	24UCAE61	5	4	3	25	75	100
			Software Testing	24UCAE62						
5		Elective Course DSEC Practical - 4	Mobile Application Development Practical	24UCAE61P	5	3	3	40	60	100
	Software Testing Lab		24UCAE62P							
6	Self Study Course	Core Courses Quiz – Online	24UCAQ61	-	1	-	100	-	100	
7	Part IV	SEC -7	Biometrics	24UCAS61	2	2	2	25	75	100
8	Part V		Extension Activities		-	1	-	100	-	100
Total					30	24				800



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B.C.A.

(for those who join in 2024-2025)

Semester I	Python Programming	Hours/Week: 5	
Core Course - 1		Credits: 5	
Course Code 24UCAC11		Internal 25	External 75

COURSE OUTCOMES

On successful completion of the course, the learners will be able to

- CO1 : outline the basics of Python, control statements, functions, strings, Python Data structures and files. [K1]
- CO2 : paraphrase about Python basics, conditional, looping statements and functions. [K2]
- CO3 : relate the concepts of strings, modules, List, tuples and dictionary, reading, writing and other file handling operations. [K2]
- CO4 : apply Python basics, selection, looping statements, functions and Modules. [K3]
- CO5 : make use of Python data structures like List, Tuple, Set, Dictionary and files concepts. [K3]

UNIT I

Basics of Python Programming: Features of Python – History of Python – The Future of Python – Literal Constants – Variables and Identifiers – Data Types – Input Operation – Comments – Reserved Words – Indentation – Operators and Expressions – Expressions in Python – Operations on Strings – Other Data Types – Type Conversion. **(15 Hours)**

UNIT II

Decision Control Statements: Introduction to Decision Control Statements – Selection/Conditional Branching statements – Basic Loop Structures/Iterative Statements – Nested Loops – The break Statement – The continue Statement – The pass Statement – The else Statement used with Loops. **(15 Hours)**

UNIT III

Functions and Modules: Introduction – Function Declaration and Definition – FunctionCall – Variable Scope and its Lifetime – The return Statement – More on Defining Functions – Lambda Functions or Anonymous Functions – Documentation Strings – Good

Programming Practices – Recursive Functions – Modules – Packages in Python – Standard Library modules – Globals(), Locals() and Reload() – Function Redefinition. **(15 Hours)**

UNIT IV

Python Strings Revisited: Concatenating, Appending and Multiplying Strings – Strings are Immutable – String Formatting Operator – Built-in String Methods and Functions – Slice Operation

– ord() and chr() Functions – in and not in operators – Comparing Strings – Iterating String – The String Module. **File Handling:** File Path – Types of files in Python - Opening and Closing files – Reading and Writing files – File Positions – Renaming and deleting files – Directory Methods.

(15 Hours)

UNIT V

Data Structures: Lists: Creating a list – Access values in List – Updating values in Lists – Nested lists – Basic list operations – List Methods. **Tuples:** Creating Tuple – Utility of Tuples – Accessing values in a Tuple – Deleting Elements in Tuple – Basic Tuple Operations – Tuple Assignment – Tuples for Returning Multiple values – Nested Tuples – Sets – **Dictionaries:** Creating a Dictionary – Accessing values – Adding and Modifying an Item in a Dictionary – Modifying an Entry – Deleting Items – Sorting Items in a Dictionary – Looping over a Dictionary – Nested Dictionaries – Built-in Dictionary Functions and Methods – Difference between a List and a Dictionary – String Formatting with Dictionaries – List vs Tuple vs Dictionary vs Set.

(15 Hours)

TEXT BOOK:

ReemaThareja.”Python Programming using problem solving approach”, First Edition 2017, Oxford University Press.

Unit	Chapter	Section
I	3	3.1 – 3.16
II	4	4.1 – 4.8
III	5	5.1 – 5.15
IV	6, 7	6.1 – 6.10, 7.1 – 7.8
V	8	8.2.1 – 8.2.6, 8.4.1 – 8.3.9, 8.5, 8.6

REFERENCE BOOKS

1. VamsiKurama, "Python Programming: A Modern Approach", Pearson Education.
2. Mark Lutz, "Learning Python", Orielly. Adam Stewarts, "Python Programming", Online.
3. Fabio Nelli, "Python Data Analytics", APress.
4. Kenneth A. Lambert, "Fundamentals of Python – First Programs", CENGAGE Publication.

WEB RESOURCES

1. <https://www.guru99.com/python-tutorials.html>
2. https://www.w3schools.com/python/python_intro.asp
3. <https://www.geeksforgeeks.org/python-programming-language/>
4. [https://en.wikipedia.org/wiki/Python_\(programming_language\)](https://en.wikipedia.org/wiki/Python_(programming_language))
5. <https://www.programiz.com/python-programming>

Course Code 24UCAC11	PO1		PO2	PO3		PO4		PO5	PO6	PO7
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4.a	PSO 4.b	PSO 5	PSO 6	PSO 7
CO1	3	3	3	2	2	-	-	1	1	-
CO2	3	3	3	3	3	1	1	2	1	-
CO3	3	3	3	2	2	2	2	2	1	-
CO4	3	3	3	3	3	2	2	2	1	1
CO5	3	3	3	3	3	2	2	3	1	1

Strong (3) Medium(2) Low(1)

Mrs. J. Porkodi
Head of the Department

Mrs. R. Nancy Beulah
Course Designer



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Semester I	Python Programming Practical	Hours/Week: 5	
Core Course – 2 Practical 1		Credits: 3	
Course Code 24UCAC11P		Internal 40	External 60

COURSE OUTCOMES

On successful completion of the course, the learners will be able to

- CO1 : outline the basic concepts of needed for the given problem. [K2]
- CO2 : write programs using selection/looping statements, functions, strings, files and Python Data Structures. [K2]
- CO3 : key-in the programs and test the programs with required input and get expected outputs with neat formatting and prepare the record work. [K3]
- CO4 : explain the programs implemented using Python and deduce the answers for any queries raised. [K3]
- CO5 : apply the necessary modifications and justify the desired result. [K3]

List of Programs

1. Program using variables, constants, I/O statements in Python.
2. Program using Operators in Python.
3. Program using Conditional Statements.
4. Program using Loops.
5. Program using Jump Statements.
6. Program using Functions.

7. Program using Recursion.
8. Program using Arrays.
9. Program using Strings.
10. Program using Modules.
11. Program using Lists.
12. Program using Tuples.
13. Program using Dictionaries.
14. Program for File Handling.

Course Code 24UCAC11P	PO1		PO2	PO3		PO4		PO5	PO6	PO7
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4.a	PSO 4.b	PSO 5	PSO 6	PSO 7
CO1	3	3	3	2	2	-	-	1	2	-
CO2	3	3	3	3	3	1	1	2	2	-
CO3	3	3	3	2	2	2	2	2	2	2
CO4	3	3	3	3	3	2	2	2	2	2
CO5	3	3	3	3	3	2	2	3	2	2

Strong (3) Medium(2) Low(1)

Mrs. J. Porkodi
Head of the Department

Mrs. R. Nancy Beulah
Course Designer



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Semester I	DISCRETE MATHEMATICS - I	Hours/Week: 4	
Elective Course		Credits: 4	
Course Code 24UCAA11		Internal 25	External 75

COURSE OUTCOMES

On completion of the course the students will be able to

CO1: define the basic concepts in propositional logic, relations, counting, graph theory and Matrices. [K1]

CO2: understand the mathematical concepts in logic, relations, permutation and combinations, graphs and matrices. [K2]

CO3: explain the concepts in predicates and quantifiers, partial orderings, recurrence relations, graphs and matrices. [K2]

CO4: solve problems in discrete mathematics. [K3]

CO5: apply the knowledge gained in discrete mathematics to other fields [K3]

UNIT 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.

(12 hours)

UNIT II

Relations: Relations and their properties – Representing relations – Partial orderings (Theorems statement only; Exclude lexicographic ordering - Exclude Lattices and Topological sorting)

(12 hours)

UNIT III

Counting: The basic of counting - The pigeonhole principle (Exclude Generalized Pigeon hole principle, some elegant applications of the pigeonhole principle) – Permutation and Combinations – Applications of recurrence relations (Exclude algorithms and recurrence relations-solving linear recurrence relations (Exclude linear non-homogeneous recurrence relation with constant coefficients) (All theorems and Results statement only) (12 hours)

UNIT IV

Graphs: Graphs and Graphs models, (Excluding Biological networks; Tournaments; all its related examples and problems) – Graph terminology and special types of graphs (Theorem statement only, exclude some applications of special types of graphs, new graphs from old) – Representing graphs and Graph isomorphism – Connectivity -Paths – connectedness in undirected graphs (Exclude how connected is a graph?, connectedness in directed graphs) – paths and isomorphism – counting paths between vertices – shortest path problems. (12 hours)

UNIT V

Matrices: Introduction – operations – inverse – Rank of a matrix, solution of simultaneous linear equations – Eigen values and Eigen Vectors. (12 hours)

TEXT BOOKS

1. Kenneth.H.Rosen (2012), *Discrete Mathematics and its applications*, Seventh Edition, McGraw-Hill Publishing Company.
2. Venkataraman.M, Sridharan.N and Chandrasekaran.N (2009) *Discrete Mathematics*, The National Publishing Company.

REFERENCE BOOKS:

1. Arumugam S & Thangapandi Isaac A. (2005). *Modern Algebra*, Scitech Publications.
2. Arumugam S & Ramchandran S. (2005). *Invitation to Graph Theory*, Scitech Publications, Chennai.
3. Trembley and Manuhar.(1997). *Discrete Mathematical Structures with Applications to Computer Science*, McGraw Hill.

WEB RESOURCES

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

Course Code 24UCAA11	PO1	PO2	PO3	PO4	PO5	PO 6	PO7
CO1	3	2	3	1	-	1	-
CO2	3	1	3	3	3	1	-
CO3	3	3	3	3	2	1	-
CO4	3	1	3	3	2	3	-
CO5	3	3	3	2	3	3	-

Strong(3) Medium(2) Low(1)

Dr.M.C. Maheswari
Head of the Department

Dr.S.Kohila
Course Designer



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VIRUDHUNAGAR

Quality Education with Wisdom and Values

B.C.A

(for those who join in 2024 - 2025)

Semester I	OFFICE AUTOMATION	Hours/Week: 2	
Elective Course NME – I		Credits: 2	
Course Code 24UCAN11		Internal 25	External 75

Course Outcomes:

On completion of the course, students will be able to

CO1: outline the working of word processing, spreadsheet and power point presentation. [K1]

CO2: recognize the creation of tables in document, creation of charts in spreadsheet and animation effects in a presentation. [K1]

CO3: describe the basics of word documentation, excel sheet, chart preparation and presentation slide designing. [K2]

CO4: illustrate the various formatting options in word document, excel chart and slide, inclusion of multimedia content in power point presentation. [K2]

CO5: experiment the usage of word processing, spreadsheet, and power point presentation in effective Office Automation. [K3]

UNIT I

Getting Started with Microsoft Word 2013: Creating a New Word Document – Saving a Word Document – Apply Basic Formatting - Applying Bulleted and Numbered List – Using Cut, Copy and Paste Commands - Using Find, Replace and GoTo Commands. (6 Hours)

UNIT II

Working with Graphics and Tables: Working with Basic Graphic Objects – Inserting a Picture – Inserting Shape – Working with Tables.

Designing and Reviewing a Word Document: Setting Paragraph Indent and Spacing – Inserting Headers and Footers – Changing page setup options. (6 Hours)

UNIT III

Getting Started with Microsoft Excel 2013: Creating a New Excel Workbook – Saving an Excel Workbook – Adding Data to Cells – Adding Data using the AutoFill Feature – Modifying Cells, Rows, Columns and Worksheet – Hiding and Unhiding Rows and Columns – Wrapping Text – Changing Number Formats – Adding Border to Cells. (6 Hours)

UNIT IV

Working with Tables and Charts: Working with Tables – Working with Charts.

Getting Started with Microsoft Powerpoint 2013: Creating a Presentation – Saving a Presentation – Adding and Removing Slides – Adding a Title and Subtitle to a Slide – Adding Text to a Slide using Textboxes. (6 Hours)

UNIT V

Enhancing PowerPoint Presentations: Changing the Layout of a Slide – Applying Background to a Slide – Applying Themes to a Presentation – Working with Basic Graphic Object – Inserting a picture.

Building Dynamic PowerPoint Presentations: Adding, Copying, and Removing Animation Effects - Adding and Removing a Built-In Animation Effect - Working with Transitions: Adding a Transition effect to a Slide – Removing a Transition effect from a Slide.

(6 Hours)

TEXT BOOK

Kogent Learning Solutions Inc. (2015). “Office 2013 in Simple Steps”, Dreamtech Press.

UNIT	CHAPTER	PAGE NO.
I	2	26 – 41, 46 – 54
II	3	61 – 64 , 85 – 95
	4	98 – 100, 104 - 106
III	5	128 -151
IV	6	163 – 169, 179 – 191
	8	217 – 227
V	9	243 – 252
	10	279 – 284, 294 – 298

REFERENCE BOOKS

1. Peter Norton, *Introduction to Computers*, Tata McGraw Hill.
2. Jennifer Ackerman Kettel, Guy Hat-Davis, Curt Simmons, *Microsoft 2003*, TataMcGraw Hill.

WEB RESOURCES

1. <https://www.udemy.com/course/office-automation-certificate-course/>
2. <https://www.javatpoint.com/automation-tools>

Course Code 24UCAN11	PO 1	PO 2	PO 3	PO4	PO 5	PO 6	PO 7
CO1	3	2	2	2	2	-	-
CO2	3	2	1	2	2	-	-
CO3	2	3	2	3	3	-	-
CO4	3	1	1	2	3	2	-
CO5	2	2	1	2	3	2	-

Strong (3) Medium (2) Low (1)

Mrs.J.Porkodi
Heads of the Department

K.S.Jeyalakshmi
Course Designer



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Semester I	Programming in C	Hours/Week: 2	
SEC-1		Credits: 2	
Course Code 24UCAF11		Internal 25	External 75

COURSE OUTCOMES

On successful completion of the course, the learners will be able to

- CO1 : remember the program structure of C with its syntax and semantics. [K1]
- CO2 : outline basics of computers, structure of C, constants, variables, data types, operators, expression, and control statement. [K1]
- CO3 : understand the concept of top-down modular programming, collection of similar data, group of logically related data, array, pointers. [K2]
- CO4 : understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, and pointers). [K2]
- CO5 : associate the theory of computer basics, elements of C, operations, flow of execution, user defined and derived data types. [K2]

UNIT I

Overview of C: Importance of C, sample C program, C program structure, executing C program. Constants, Variables, and Data Types: Character set, C tokens, keywords and identifiers, constants, variables, data types, declaration of variables, Assigning values to variables---Assignment statement, declaring a variable as constant, as volatile. Operators and Expression.

(8 Hours)

UNIT II

Decision Making and Branching: Decision making with If, simple IF, IF ELSE, nested IF ELSE , ELSE IF ladder, switch, GOTO statement. **Decision Making and Looping:** While, Do-While, For, Jumps in loops. **(6 Hours)**

UNIT III

Arrays: Declaration and accessing 1D & two-dimensional arrays, initializing two-dimensional arrays, multidimensional arrays. **(6 Hours)**

UNIT IV

Functions: The form of C functions, Return values and types, calling a function, categories of functions, Nested functions, Recursion, functions with arrays, call by value, call by reference, storage classes-character arrays and string functions. **(7 Hours)**

UNIT V

Pointers: definition, declaring and initializing pointers, accessing a variable through address and through pointer. **(3 Hours)**

TEXTBOOK:

E. Balagurusamy, *Programming in ANSI C*, Fifth Edition, Tata McGraw-Hill, 2010.

REFERENCE BOOKS:

1. Byron Gottfried, *Schaum's Outline Programming with C*, Fourth Edition, Tata McGraw-Hill, 2018.
2. Kernighan and Ritchie, *The C Programming Language*, Second Edition, Prentice Hall, 1998.
3. Yashavant Kanetkar, *Let Us C*, Eighteenth Edition, BPB Publications, 2021.

WEB RESOURCES

1. <https://codeforwin.org/>
2. <https://www.geeksforgeeks.org/c-programming-language/>
3. <http://en.cppreference.com/w/c>
4. <http://learn-c.org/>

Course Code 24UCAF11	PO1		PO2	PO3		PO4		PO5	PO6	PO7
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4.a	PSO 4.b	PSO 5	PSO 6	PSO 7
CO1	2	-	2	-	-	-	-	-	-	-
CO2	3	3	3	-	3	-	-	-	-	-
CO3	-	3	1	2	2	1	-	2	-	-
CO4	3	-	1	3	3	1	1	2	-	-
CO5	2	2	1	-	-	-	-	2	-	-

Strong (3) Medium(2) Low(1)

J.Porkodi
Head of the Department

B.Sakthi
Course Designer



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Semester II	OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++	Hours/Week: 5	
Core Course-3		Credits: 5	
Course Code 24UCAC21		Internal 25	External 75

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1 outline the procedural and object oriented paradigm with concepts of classes, token, data
: types, functions, control statements, overloading and objects. [K1]
- CO2 describe about classes and object, controls structures, functions, friend
: functions, constructor and destructor, operator overloading and inheritance. [K2]
- CO3 paraphrase about pointer, pointers to objects, this pointer, polymorphism, virtual
: functions and file stream classes.[K2]
- CO4 apply the concepts of object-oriented programming, types of inheritance, pointer
: concepts and operator overloading. [K3]
- CO5 illustrate pointers, console I/O operations, strings, string functions and their attributes.
: [K3]

UNIT I

Principles of Object-Oriented Programming: Basic Concepts of Object Oriented Programming - Benefits of OOP. Beginning with C++: What is C++ - Applications of C++ - A Simple C++ Program –More C++ statements - Structure of a C++ program. Tokens, Data types: Introduction – Tokens – Keywords – Identifiers and Constants – Basic Data Types – User-Defined Data Types – Storage Classes - Derived Data Types – Symbolic Constants. **(15 Hours)**

UNIT - II

Expressions and Control Structures: Type Compatibility – Declaration of Variables – Dynamic Initialization of Variables – Reference Variables – Operators in C++ - Scope Resolution Operator – Type Cast Operator – Expressions and their Types - Control Structures. Functions in C++: Introduction – The main function – Function Prototyping – Call by Reference - Return by Reference - Inline Functions – Default Arguments. Function Overloading - Math Library Functions. Classes and Objects: Specifyi 22 ass – Defining Member Functions– C++ Program with Class - Making an Outside Function Inline – Nesting of Member Functions – Private Member Functions – Arrays with in a Class – Memory Allocation for Objects- Arrays of Objects– Friendly Functions. **(15 Hours)**

UNIT - III

Constructors and Destructors: Introduction – Constructors - Parameterized Constructors – Constructors with Default Arguments – Copy Constructor – Dynamic Constructors - Destructors. Operator Overloading: Introduction - Defining Operator Overloading - Overloading unary operators - Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators. **(15 Hours)**

UNIT – IV

Inheritance: Extending Classes: Introduction - Defining derived classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance - Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes. Pointers, Virtual Functions and Polymorphism: Pointers – Pointer to Objects – this Pointer – Polymorphism – Virtual Functions. **(15 Hours)**

UNIT -V

Managing Console I/O Operations: Introduction – C++ Streams - C++ Stream Classes – Unformatted I/O operation – Formatted Console I/O Operations - Managing Output with Manipulators. Manipulating Strings: Introduction – Creating (string) Objects – Manipulating String Objects – Relational Operations – String Characteristics – Accessing Characters in Strings – Comparing and Swapping. **(15 Hours)**

TEXT BOOK

E.Balagurusamy, (2018). Object-Oriented Programming with C++,7th Edition, India: McGraw Hill Education Private Ltd

REFERENCE BOOKS

1. Ashok N Kamthane, “Object-Oriented Programming with ANSI and Turbo C++”, Pearson Education 2003.
2. Maria Litvin& Gray Litvin, “C++ for you”, Vikas publication 2002.

Course Code 24UCAC21	PO1		PO2	PO3		PO4		PO5	PO6	PO7
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4.a	PSO 4.b	PSO 5	PSO 6	PSO 7
CO1	3	3	3	3	1	2	-	-	1	-
CO2	2	3	2	3	2	2	1	-	-	-
CO3	3	3	2	3	1	1	-	1	-	-
CO4	2	3	2	3	1	1	2	2	1	1
CO5	2	2	2	1	1	1	2	3	2	1

Strong (3)**Medium (2)****Low (1)**

J. Porkodi
Head of the Department

B. Subashini
Course Designer



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Semester II	C++ PROGRAMMING PRACTICAL	Hours/Week: 5	
Core Course-4 Practical 2		Credits: 3	
Course Code 24UCAC21P		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1 : outline the basic concepts of classes, objects and functions. [K2]
- CO2 : write the programs in C++ using OOPs concepts, user defined functions, files and handling the exceptions. [K2]
- CO3 : key in the programs, execute the programs with required input and get expected outputs with neat formatting and prepare the record work. [K3]
- CO4 : illustrate the given program and answer questions related with the program. [K3]
- CO5 : analyze the programs written in C++. [K3]

Write a C++ program

1. To demonstrate returning objects from classes
2. To demonstrate passing objects as function arguments
3. To swap two numbers without using intermediate variable
4. To check if a number is prime or not, using objects
5. To find larger of two numbers using inline function
6. To calculate simple interest using function using rate of interest as default argument
7. To perform Area of different shape calculation using Function overloading (Minimum three functions)

8. To perform String manipulation (three different types) using function overloading
9. To find minimum of two numbers between two class objects using friend function
10. To perform Bank Transaction using Constructor and destructor
11. To overload unary minus operator to change sign of given 3 elements
12. To overload Binary plus operator to add two complex numbers
13. To create telephone directory using single inheritance
14. To prepare a student's mark sheet using multiple inheritance
15. To prepare pay slip of an employee using hierarchical inheritance
16. To create bank account using multilevel inheritance
17. To prepare EB bill for a customer using hybrid inheritance
18. To format the output using system defined manipulators
19. To sort array of generic data
20. To perform transform the matrix
21. To find the biggest number using nesting member function
22. To calculate the mean value using friend function

Course Code 24UCAC21P	PO1		PO2	PO3		PO4		PO5	PO6	PO7
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4.a	PSO 4.b	PSO 5	PSO 6	PSO 7
CO1	3	3	3	3	1	2	-	-	1	-
CO2	2	3	2	3	2	2	1	-	-	-
CO3	3	3	2	3	1	1	-	1	-	1
CO4	2	3	2	3	1	1	2	2	1	1
CO5	2	2	2	1	1	1	2	3	2	1

Strong (3)**Medium (2)****Low (1)**

J. Porkodi
Head of the Department

B. Subashi
Course Designer



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Semester II	RESOURCE MANAGEMENT TECHNIQUES	Hours/Week:4	
Generic Elective Course 2		Credits: 4	
Course Code 24UCAA21		Internal 25	External 75

Course Outcomes

On completion of the course the students will be able to

- CO1: define the basic concepts of operations research, linear programming problem, assignment problem and transportation problem.[K1]
- CO2: discuss models, phases, characteristics of operations research, and mathematical formulation in linear programming problem, dual, assignment problem and transportation problem.[K2]
- CO3: explain various methods of linear programming problem, assignment problem and transportation problem. [K2]
- CO4: solve the problems in linear programming problem, assignment problem and transportation problem. [K3]
- CO5: apply the algorithms for problems in linear programming problem, assignment problem and transportation problem. [K3]

UNIT I

Development of OR –Definition of OR – Modeling in OR – General methods for solving OR models – Main Characteristics and phases of OR study – Tools Techniques and methods– Scientific methods in OR – Scope of OR . (12Hours)

UNIT II

Linear programming problems-Mathematical formulation of L.P.P- Slack and surplus variables–Graphical solution of L.P.P, Standard form of L.P.P., Matrix form of L.P.P – Simplex Method (Without Computational Procedure) (12Hours)

UNIT III

Artificial variables techniques, Two phase method, Duality in linear programming
(Conversion only) Dual Simplex method (Theorems without proof) (12Hours)

UNIT IV

Mathematical formulation of assignment problem – Methods for solving the
assignment problem (12Hours)

UNIT V

Mathematical formulation of transportation problem – Optimal solution of T.P –Methods
for obtaining initial feasible solution–degeneracy in T.P– Unbalanced T.P (12Hours)

TEXTBOOK

Sharma, S.D.(Sixteenth Revised Edition 2009).*Operations Research*, Kedar Nath Ramnath & co.

REFERENCE BOOKS

1. P.K. Gupta, Man Mohan, Kantiswarup, *Operations Research*, Sultan Chand Publications.
2. Shankara Iyer, P.(2008).*Operations Research*,TataMc GrawHill.
3. Sharma, S.C.(2006). *Introductory Operation Research*, Discovery Publishing House

Web Resources

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

Course Code 24UCAA21	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	3	1	1	1	2
CO2	3	1	3	3	3	1	2
CO3	3	3	3	3	2	1	1
CO4	3	1	3	3	2	3	1
CO5	3	3	3	3	3	3	1

Strong (3) Medium (2) Low (1)

M.C.Maheswari
Head of the Department

K.Muthulakshmi
Course Designer



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Semester II	WEB DESIGNING	Hours/Week: 2	
Elective Course NME – 2		Credits: 2	
Course Code 24UCAN21		Internal 25	External 75

Course Outcomes:

On completion of the course, students will be able to

- CO1 : Know the basics of internet and web browsers.[K1]
 CO2 : Know the basic concept in HTML and concept of resources in HTML. [K1]
 CO3 : Recognize the concept of list and its types. .[K2]
 CO4 : Create tables and to understand the attributes of tables. .[K2]
 CO5 : Design frames and forms with its attributes. .[K3]

UNIT I

Introduction to the Internet: Computer in Business – Networking – Internet – E- Mail – Resource Sharing –World Wide Web – Internet Browsers: Internet Explorer – Netscape Navigator. **(6 Hours)**

UNIT II

Introduction to HTML: Designing a Home Page – History of HTML – HTML Generations – HTML documents – Anchor tag – HyperLinks – Sample HTML Documents – Paragraph – Tab Settings – Images and Pictures – Embedding PNG format images. **(6 Hours)**

UNIT III

Ordered and Unordered Lists: Lists – Unordered lists – Headings in a List – Ordered Lists – Nested Lists. **(6 Hours)**

UNIT IV

Table Handling: Tables – Table creation in HTML – Width of the Table and Cells – Cells Spanning and Multiple Rows/Columns – Coloring Cells – Column Specifications – Some Sample Tables. **(6 Hours)**

UNIT V

Frames: Frameset Definition – Frame Definition – Nested Framesets. Forms: Action Attribute – Method Attribute – enctype Attribute – Dropdown Lists **(6 Hours)**

TEXT BOOK

1. Xavier,C., (2009). World Wide Web Design with HTML, Tata McGraw Hill Publishing Company, 21st Reprint.

REFERENCE BOOKS:

1. “Mastering HTML5 and CSS3 Made Easy”, Teach U Comp Inc., 2014.
2. Thomas Michaud (2014), “Foundations of Web Design: Introduction to HTML & CSS”, New Riders, A division of Pearson Education..
3. Rohit Khurana. (2010). Computer Fundamentals and Internet Basics, APH Publishing Corporation.

WEB RESOURCES:

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

UNIT	CHAPTE R	SECTION
I	1	1.1 - 1.5, 1.7
	3	3.1, 3.2
II	4	4.1 - 4.6
	6	6.4 - 6.7
III	7	7.1 - 7.5
IV	8	8.1 - 8.7
V	10	10.1 - 10.3
	12	12.1-12.4

Course Code 24UCAN21	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	1	-	-	2	-	-
CO2	1	1	1	-	1	2	-
CO3	2	3	2	2	2	1	-
CO4	2	2	-	-	-	-	-
CO5	2	2	2	1	2	1	-

Strong (3) Medium (2) Low (1)

Mrs. J. Porkodi
Head of the Department

Dr. K.S.Jeyalakshmi
Course Designer



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Semester II	Office Automation Practical	Hours/Week: 2	
SEC - 2		Credits: 2	
24UCAS21P		Internal 40	External 60

COURSE OUTCOMES

On successful completion of the course, the learners will be able to

- CO1 : Outline the basic tools and features in Word Processing, Excel and MS Database.[K2]
- CO2 : Write programs using required tools and elements to create professional and academic documents/presentations.[K2]
- CO3 : key in the programs, execute the programs with required input and get expected outputs with neat formatting and prepare the record work. [K3]
- CO4 : illustrate the program by using Excel tools, formulas and functions. [K3]
- CO5 : apply the necessary modifications and justify the desired result. [K3]

MS Word

1. Create a work document consists two pages in a Book named “XX” and then do the following:
 - a. Formatting Text, Alignment and Font Style
 - b. Perform Find and Replace
 - c. Add Header and Footer option to specify name of the Book Chapter heading and Page number of total pages.
2. Create a word document having details of our College courses using bulleted and number lists. Type the title using Word Art.
3. Design a Letter to felicitate Farewell Address to our seniors with Font setting/Page Borders/Word Art/Clip Art/Symbols.
4. Create a Newsletter Article (using Columns, Drop cap) in MSword.

5. Create a time table for your Internal Exam Schedule (using Table)
6. Type Business letter and send it to more using Mailmerge.
7. Create your own Resume.

MS Excel

1. Create an Excel worksheet consists of Student details and then do the following:
 - a. Calculate student wise total and subject wise total.
 - b. Find the Maximum and Minimum marks of the subject.
 - c. Filter the records to answer the give criteria(Auto Filter/Advanced Filter)
 - d. Sort the records.
2. Create an Excel worksheet having Employee details suitably and then do following.
 - a. Format the cells.
 - b. Use functions to calculate Net Pay and Gross Pay.
 - c. Perform conditional formatting and validation.
3. Create a chart for the above exercise 2.
4. Create a macro.

MS Power Point

1. Create a Power point presentation showing your various activities of the department.
2. Create a Power point presentation showing various aspect of your college and perform custom animation and import sound.
3. Create a presentation using design templates and then perform the following one:
4. Include Table and chart from file.
5. Include Picture and run the presentation using auto play.
6. Perform Hyper link within slides and link other documents.

MS Access

1. Create a Student Database having Name, Regno, Tamil, English, Maths, Total, and
 - ii. find the Average
2. Create an Inventory database having Item Name, Item no. Quantity and Price and Perform query operation to retrieve data.
 - a. Create a form to enter the details of Book database.
 - b. Create report for the above database.

Course Code 24UCAS21P	PO1		PO2	PO3		PO4		PO5	PO6	PO7
	PSO	PSO	PSO	PSO	PSO	PSO	PSO	PSO	PSO	PSO
	1.a	1.b	2	3.a	3.b	4.a	4.b	5	6	7
CO1	3	3	2	3	2	2	2	1	-	-
CO2	3	3	-	1	1	-	-	-	2	-
CO3	3	2	2	3	3	2	2	2	-	1
CO4	2	2	-	2	2	2	2	-	1	-
CO5	1	1	2	3	3	3	3	1	1	-

Strong (3) Medium (2) Low (1)

J. Porkodi
Head of the Department

V.G. Jyothi Mani
Course Designer