

# **B.Sc. COMPUTER SCIENCE**

LOCF SYLLABUS 2023



Department of Computer Science  
School of Computing Sciences  
St. Joseph's College (Autonomous)  
Tiruchirappalli - 620 002, Tamil Nadu, India

### **Vision**

Forming globally competent, committed, compassionate and holistic persons, to be men and women for others, promoting a just society.

### **Mission**

- Fostering learning environment to students of diverse background, developing their inherent skills and competencies through reflection, creation of knowledge and service.
- Nurturing comprehensive learning and best practices through innovative and value-driven pedagogy.
- Contributing significantly to Higher Education through Teaching, Learning, Research and Extension.

### **Programme Educational Objectives (PEOs)**

- Graduates will be able to accomplish professional standards in the global environment.
- Graduates will be able to uphold integrity and human values.
- Graduates will be able to appreciate and promote pluralism and multiculturalism in working environment.

### **Programme Outcomes (POs)**

1. Graduates will be able to comprehend the concepts learnt and apply in real life situations with analytical skills.
2. Graduates with acquired skills and enhanced knowledge will be employable/ become entrepreneurs or will pursue higher Education.
3. Graduates with acquired knowledge of modern tools communicative skills and will be able to contribute effectively as team members.
4. Graduates are able to read the signs of the time analyze and provide practical solutions.
5. Graduates imbued with ethical values and social concern will be able to understand and appreciate social harmony, cultural diversity ensure sustainable environment.

### **Programme Specific Objectives (PSOs)**

After completing the BSc Computer Science Programme, the graduates will

1. acquire the required knowledge in the Hardware and Software aspects of Computer Science domain and the art of programming.
2. understand the development methodologies of software systems and the ability to analyse, design and develop computer applications for real life problems.
3. knowledge and skills to collaborate and communicate with peers for performance enhancement in IT / ITES industries.
4. ability to understand, adjust and adapt with the dynamic technical environment for the growth of IT industry.
5. capacity to transfer the skills gained, to provide innovative and novel solutions by maintaining ethical norms for the betterment of humane society.

## CONTINUOUS INTERNAL ASSESSMENT

### Categorizing Outcome Assessment Levels Using Bloom's Taxonomy

| Level | Cognitive Domain | Description  |
|-------|------------------|--|
| K1    | Remember         | It is the ability to remember the previously learned concepts or ideas.            |
| K2    | Understand       | The learner explains concepts or ideas.  |
| K3    | Apply            | The learner uses existing knowledge in new contexts.                               |
| K4    | Analyse          | The learner is expected to draw relations among ideas and to compare and contrast. |
| K5    | Evaluate         | The learner makes judgements based on sound analysis.                              |
| K6    | Create           | The learner creates something unique or original.                                  |

### Question Paper Blueprint for Mid and End Semester Tests

| Duration: 2 Hours     |  | Maximum Marks: 60 |    |    |         |         |    |                    |
|-----------------------|--|-------------------|----|----|---------|---------|----|--------------------|
| Section               |  | K level*          |    |    |         |         |    | Marks              |
|                       |  | K1                | K2 | K3 | K4      | K5      | K6 |                    |
| A (no choice)         |  | 7                 |    |    |         |         |    | $7 \times 1 = 7$   |
| B (no choice)         |  |                   | 5  |    |         |         |    | $5 \times 3 = 15$  |
| C (either... or type) |  |                   |    | 3  |         |         |    | $3 \times 6 = 18$  |
| D (2 out of 3)        | Courses with K4 as the highest cognitive level   |                   |    |    | 2       |         |    | $2 \times 10 = 20$ |
|                       | Courses with K5 as the highest cognitive level wherein one question each on K4 and K5 is compulsory.<br>(Note:K4 has two questions whereas, K5 has no choice.)   |                   |    |    | 1       | 1       |    |                    |
|                       | Courses with K6 as the highest cognitive level wherein one question each on K5 and K6 is compulsory.<br>(Note: <b>Mid Sem:</b> K4 has two questions whereas, K5 has no choice; <b>End sem:</b> K5 has two questions whereas, K6 has no choice) |                   |    |    | Mid Sem |         |    |                    |
|                       |  |                   |    |    |         | End Sem |    |                    |
|                       |  |                   |    |    | 1       | 1       | 1  |                    |
|                       | Total  |                   |    |    |         |         |    |                    |

\* K4 and K5 levels will be assessed in the Mid semester test whereas K5 and K6 levels will be assessed in the End semester test.

### Question Paper Blueprint for Mid and End Semester Tests *(For quantitative courses only)*

| <b>Duration: 2 Hours</b>     |         |    |    |    |    | <b>Maximum Marks: 60</b> |
|------------------------------|---------|----|----|----|----|--------------------------|
| Section                      | K level |    |    |    |    | Marks                    |
|                              | K1      | K2 | K3 | K4 | K5 |                          |
| A <i>(no choice)</i>         | 9       |    |    |    |    | $9 \times 1 = 9$         |
| B <i>(either... or type)</i> |         | 2  | 1  |    |    | $3 \times 5 = 15$        |
| C <i>(2 out of 3)</i>        |         |    |    | 1  | 1* | $2 \times 18 = 36$       |
| <b>Total</b>                 |         |    |    |    |    | <b>60</b>                |

\* *K5 compulsory*

## SEMESTER EXAMINATION

## Question Paper Blueprint for Semester Examination

| Duration: 3 Hours                                  |   |         |    | Maximum Marks: 100 |    |    |    |                    |
|--|---|---------|----|--------------------|----|----|----|--------------------|
| Section  |   | K level |    |                    |    |    |    | Marks              |
|  |   | K1      | K2 | K3                 | K4 | K5 | K6 |                    |
| A (no choice, two questions from each unit)        |   | 10      |    |                    |    |    |    | $10 \times 1 = 10$ |
| B (no choice, two questions from each unit)        |   |         | 10 |                    |    |    |    | $10 \times 3 = 30$ |
| C (either... or type, one question from each unit) |   |         |    | 5                  |    |    |    | $5 \times 6 = 30$  |
| D (3 out of 5, one question from each unit)        | Courses with K4 as the highest cognitive level  |         |    |                    | 3  |    |    | $3 \times 10 = 30$ |
|  | Courses with K5 as the highest cognitive level wherein two K4 questions and one K5 question are compulsory.<br>(Note: Three questions on K4 and two questions on K5)        |         |    |                    | 2  | 1  |    |                    |
|  | Courses with K6 as the highest cognitive level wherein one question each on K4, K5, and K6 is compulsory.<br>(Note: Two questions each on K4 and K5 and one question on K6) |         |    |                    | 1  | 1  | 1  |                    |
| Total  |   |         |    |                    |    |    |    | 100                |

**Question Paper Blueprint for Semester Examination** *(For quantitative courses only)*

| Section                 | Marks                                  | K level  |
|-------------------------|--|--|
| A                       | $10 \times 1 = 10$                     | K1   |
| B                       | $5 \times 6 = 30$ <i>(either...or)</i> | K2 ( <i>Q. No. 11 &amp; 12</i> )<br>K3 ( <i>Q. No. 13, 14 &amp; 15</i> ) |
| C                       | $4 \times 15 = 60$ <i>(4 out of 5)</i> | K4 ( <i>Q. No. 16, 17 &amp; 18</i> )<br>K5 ( <i>Q. No. 19 &amp; 20</i> ) |
| <b>Total Marks: 100</b> |  |  |

**Evaluation Pattern for Part IV One/Two Credit Courses**

| Title of the Course  | CIA                 | Semester Examination                               | Total Marks |
|--|---------------------|--|-------------|
| Internship   | 100                 |  | <b>100</b>  |
| <b>UG</b><br>Skill Enhancement Course (Non Major Elective)<br>Foundation Course<br><b>PG</b><br>Ability Enhancement Course | $20 + 10 + 20 = 50$ | 50<br><i>(External member from the Department)</i> | <b>100</b>  |
| Value Education  | 50                  | 50 <i>(CoE)</i>                                    | <b>100</b>  |

| B.Sc. COMPUTER SCIENCE |       |              |   |       |         |                 |     |       |
|------------------------|-------|--------------|---|-------|---------|-----------------|-----|-------|
| PROGRAMME PATTERN      |       |              |   |       |         |                 |     |       |
| Course Details         |       |              |   |       |         | Scheme of Exams |     |       |
| Sem                    | Part  | Course Code  | Title of the Course   | Hours | Credits | CIA             | SE  | Final |
| 1                      | 1     | 23UTA11GL01A | General Tamil - 1   | 5     | 3       | 100             | 100 | 100   |
|                        |       | 23UFR11GL01  | French - 1  |       |         |                 |     |       |
|                        |       | 23UHI11GL01  | Hindi - 1   |       |         |                 |     |       |
|                        |       | 23USA11GL01  | Sanskrit - 1  |       |         |                 |     |       |
|                        | 2     | 23UEN12GE01  | General English - 1   | 5     | 3       | 100             | 100 | 100   |
|                        | 3     | 23UCS13CC01  | Core Course - 1: Python Programming                                   | 4     | 3       | 100             | 100 | 100   |
|                        |       | 23UCS13CP01  | Core Practical - 1: Python Programming                                | 5     | 4       | 100             | 100 | 100   |
|                        |       | 23UCS13AC01  | Allied Course - 1: Numerical Methods                                  | 5     | 3       | 100             | 100 | 100   |
|                        | 4     | 23UCS14FC01  | Foundation Course: Problem Solving Techniques                         | 2     | 1       | 100             | -   | 100   |
|                        |       | 23UCS14SE01  | Skill Enhancement Course - 1: (Non Major Elective): Office Automation | 2     | 1       | 100             | -   | 100   |
|                        |       | 23UHE14VE01  | Value Education - 1: Essentials of Humanity*                          | 2     | 1       | 50              | 50  | 50    |
|                        |       | 23UEN14AE01  | Ability Enhancement Compulsory Course - 1: Communicative English      | (6)   | 3       | 100             | -   | 100   |
|                        | Total |              |   | 30(6) | 22      |                 |     |       |
| 2                      | 1     | 23UTA21GL02  | General Tamil - 2   | 4     | 3       | 100             | 100 | 100   |
|                        |       | 23UFR21GL02  | French - 2  |       |         |                 |     |       |
|                        |       | 23UHI21GL02  | Hindi - 2   |       |         |                 |     |       |
|                        |       | 23USA21GL02  | Sanskrit - 2  |       |         |                 |     |       |
|                        | 2     | 23UEN22GE02  | General English - 2   | 5     | 3       | 100             | 100 | 100   |
|                        | 3     | 23UCS23CC02  | Core Course - 2: Object Oriented Programming with C++                 | 4     | 3       | 100             | 100 | 100   |
|                        |       | 23UCS23CC03  | Core Course - 3: Data Structures and Algorithms                       | 4     | 3       | 100             | 100 | 100   |
|                        |       | 23UCS23CP02  | Core Practical - 2: C++ and Data Structures                           | 3     | 2       | 100             | 100 | 100   |
|                        |       | 23UCS23AC02  | Allied Course - 2: Statistical Methods                                | 6     | 4       | 100             | 100 | 100   |
|                        | 4     | 23UHE24VE02  | Value Education - 2: Fundamentals of Human Rights*                    | 2     | 1       | 50              | 50  | 50    |
|                        |       | 23UHE24AE01  | Ability Enhancement Compulsory Course - 2: Environmental studies*     | 2     | 1       | 50              | 50  | 50    |
|                        |       | -            | Extra Credit Courses (MOOC/Certificate Courses) - 1                   | -     | (3)     |                 |     |       |
|                        | Total |              |   | 30    | 20(3)   |                 |     |       |
| 3                      | 1     | 23UTA31GL03  | General Tamil - 3   | 4     | 3       | 100             | 100 | 100   |
|                        |       | 23UFR31GL03  | French - 3  |       |         |                 |     |       |
|                        |       | 23UHI31GL03  | Hindi - 3   |       |         |                 |     |       |
|                        |       | 23USA31GL03  | Sanskrit - 3  |       |         |                 |     |       |
|                        | 2     | 23UEN32GE03  | General English - 3   | 5     | 3       | 100             | 100 | 100   |
|                        | 3     | 23UCS33CC04  | Core Course - 4: Discrete Mathematics                                 | 5     | 4       | 100             | 100 | 100   |
|                        |       | 23UCS33CC05  | Core Course - 5: Database Systems                                     | 5     | 4       | 100             | 100 | 100   |
|                        |       | 23UCS33CP03  | Core Practical - 3: RDBMS   | 3     | 2       | 100             | 100 | 100   |
|                        |       | 23UCS33AO01A | Allied Optional - 1: Applied Physics - 1                              | 4     | 3       | 100             | 100 | 100   |
|                        |       | 23UCS33AO01B | Allied Optional - 1: Principles of Electronics - 1                    |       |         |                 |     |       |
|                        |       | @            | Allied Optional Practical: Applied Physics                            | 2     | -       | -               | -   | -     |
|                        |       | @            | Allied Optional Practical: Principles of Electronics                  |       |         |                 |     |       |
|                        | 4     | 23UHE34VE03A | Value Education - 3: Social Ethics - 1*                               | 2     | 1       | 50              | 50  | 50    |
|                        |       | 23UHE34VE03B | Value Education - 3: Religious Doctrine - 1*                          |       |         |                 |     |       |
|                        |       | -            | Extra Credit Courses (MOOC/Certificate Courses) -2                    |       | (3)     |                 |     |       |
|                        | Total |              |   | 30    | 20(3)   |                 |     |       |

|       |   |              |   |            |              |     |     |     |
|-------|---|--------------|---|------------|--------------|-----|-----|-----|
| 4     | 1 | 23UTA41GL04B | General Tamil - 4 அறிவியல் தமிழ் (Scientific Tamil)                                   | 4          | 3            | 100 | 100 | 100 |
|       |   | 23UFR41GL04  | French - 4  |            |              |     |     |     |
|       |   | 23UHI41GL04  | Hindi - 4   |            |              |     |     |     |
|       |   | 23USA41GL04  | Sanskrit - 4  |            |              |     |     |     |
|       | 2 | 23UEN42GE04  | General English - 4   | 5          | 3            | 100 | 100 | 100 |
|       | 3 | 23UCS43CC06  | <b>Core Course - 6:</b> Java Programming  | 5          | 4            | 100 | 100 | 100 |
|       |   | 23UCS43CC07  | <b>Core Course - 7:</b> Digital Computer Fundamentals and Microprocessor              | 5          | 4            | 100 | 100 | 100 |
|       |   | 23UCS43CP04  | <b>Core Practical - 4:</b> Java Programming   | 3          | 2            | 100 | 100 | 100 |
|       |   | 23UCS43AO02A | <b>Allied Optional - 2:</b> Applied Physics-2   | 4          | 3            | 100 | 100 | 100 |
|       |   | 23UCS43AO02B | <b>Allied Optional - 2:</b> Principles of Electronics - 2                             |            |              |     |     |     |
|       |   | 23UCS43OP01A | <b>Applied Optional Practical:</b> Applied Physics                                    | 2          | 2            | 100 | 100 | 100 |
|       |   | 23UCS43OP01B | <b>Applied Optional Practical:</b> Principles of Electronics                          |            |              |     |     |     |
|       | 4 | 23UHE44VE04A | <b>Value Education - 4:</b> Social Ethics - 2*  | 2          | 1            | 50  | 50  | 50  |
|       |   | 23UHE44VE04B | <b>Value Education - 4:</b> Religious Doctrine - 2*                                   |            |              |     |     |     |
|       |   | -            | Extra Credit Courses (MOOC/Certificate Courses) - 3                                   | -          | (3)          |     |     |     |
|       |   |              | <b>Total</b>  | <b>30</b>  | <b>22(3)</b> |     |     |     |
| 5     | 3 | 23UCS53CC08  | <b>Core Course - 8:</b> Web Application Development                                   | 4          | 3            | 100 | 100 | 100 |
|       |   | 23UCS53CC09  | <b>Core Course - 9:</b> Operations Research   | 4          | 3            | 100 | 100 | 100 |
|       |   | 23UCS53CP05  | <b>Core Practical - 5:</b> Web Application Development                                | 3          | 2            | 100 | 100 | 100 |
|       |   | 23UCS53CP06  | <b>Core Practical - 6:</b> Digital and Microprocessor                                 | 3          | 2            | 100 | 100 | 100 |
|       |   | 23UCS53ES01A | <b>Discipline Specific Elective - 1:</b> Operating Systems                            | 5          | 3            | 100 | 100 | 100 |
|       |   | 23UCS53ES01B | <b>Discipline Specific Elective - 1:</b> Digital Marketing                            |            |              |     |     |     |
|       |   | 23UCS53ES02A | <b>Discipline Specific Elective - 2:</b> Computer Networks                            | 5          | 3            | 100 | 100 | 100 |
|       |   | 23UCS53ES02B | <b>Discipline Specific Elective - 2:</b> Security in Computing                        |            |              |     |     |     |
|       |   | 23UCS53IS01  | Internship  | -          | 2            | 100 | -   | 100 |
|       |   | 23UCS53SP01  | <b>Self-paced Learning:</b> Web Ethics*   | -          | 2            | 50  | 50  | 50  |
|       | 4 | 23UCS54EG01  | <b>Generic Elective - 1:</b> Ethical Hacking  | 4          | 2            | 100 | 100 | 100 |
|       |   | 23USS54SE01  | <b>Skill Enhancement Course - 2:</b> Soft Skills                                      | 2          | 1            | 100 | -   | 100 |
|       |   | -            | Extra Credit Courses (MOOC/Certificate Courses) - 4                                   | -          | (3)          |     |     |     |
|       |   |              | <b>Total</b>  | <b>30</b>  | <b>23(3)</b> |     |     |     |
| 6     | 3 | 23UCS63CC10  | <b>Core Course - 10:</b> Software Engineering   | 4          | 4            | 100 | 100 | 100 |
|       |   | 23UCS63CC11  | <b>Core Course - 11:</b> Mobile Application Development                               | 4          | 3            | 100 | 100 | 100 |
|       |   | 23UCS63CP07  | <b>Core Practical - 7:</b> Mobile Application Development                             | 3          | 2            | 100 | 100 | 100 |
|       |   | 23UCS63ES03A | <b>Discipline Specific Elective - 3:</b> Big Data Analytics                           | 5          | 3            | 100 | 100 | 100 |
|       |   | 23UCS63ES03B | <b>Discipline Specific Elective - 3:</b> Cloud Computing                              |            |              |     |     |     |
|       |   | 23UCS63ES04A | <b>Discipline Specific Elective - 4:</b> Internet of Things                           | 5          | 3            | 100 | 100 | 100 |
|       |   | 23UCS63ES04B | <b>Discipline Specific Elective - 4:</b> Artificial Intelligence and Machine Learning |            |              |     |     |     |
|       |   | 23UCS63PW01  | Project Work and Viva Voce  | 3          | 2            | 100 | 100 | 100 |
|       |   | 23UCS63CE01  | Comprehensive Examination*  | -          | 2            | 50  | 50  | 50  |
|       | 4 | 23UCS64EG02  | <b>Generic Elective - 2:</b> 3D Printing and Design                                   | 4          | 2            | 100 | 100 | 100 |
|       |   | 23UCS64SE02  | <b>Skill Enhancement Course - 3 (WS):</b> E-Services and Applications                 | 2          | 1            | 100 | -   | 100 |
|       |   | -            | Extra Credit Courses (MOOC/Certificate Courses) - 5                                   | -          | (3)          |     |     |     |
|       |   |              | <b>Total</b>  | <b>30</b>  | <b>22(3)</b> |     |     |     |
| 2 - 6 | 5 | 23UCW65OR01  | Outreach Programme (SHEPHERD)   |            | 4            |     |     |     |
| 1 - 6 |   |              | <b>Total (3 years)</b>  | <b>180</b> | <b>133</b>   |     |     |     |

@ - year end practical

\*- for grade calculation 50 marks are converted into 100 in the mark statements

| Semester | Course Code  | Title of the Course | Hours/Week | Credits |
|----------|--------------|---------------------|------------|---------|
| 1        | 23UTA11GL01A | General Tamil – 1   | 5          | 3       |

| கற்றலின் நோக்கங்கள்   |
|---|
| தமிழ்ச் செவ்வியல் இலக்கியங்களையும் காப்பியங்களையும் மாணவர்கள் அறிந்துகொள்ளல்  |
| தமிழர் பேணி வளர்த்த அறம்சார் விழுமியங்களை மாணவர்கள் தம் வாழ்வில் பின்பற்றுதல் |
| தமிழில் பக்திஇயக்கப் பங்களிப்பையும் பகுத்தறிவுச் சிந்தனை மரபையும் உணர்தல்     |
| மாணவர்கள் தம் எழுத்தாற்றலையும் மொழிப்புலமையையும் வளர்த்தெடுத்தல்              |
| போட்டித்தேர்வுகளை எதிர்கொள்ளும் வகையில் இலக்கணம், இலக்கியம் கற்றல்            |

### அலகு I: தமிழ் இலக்கிய, இலக்கண வரலாறு அறிமுகம்

(15 மணி நேரம்)

#### 1. இலக்கணம் :

- தொல்காப்பியம், இறையனார் களவியல் உரை , நம்பியகப் பொருள், புறப்பொருள் வெண்பா மாலை, நன்னூல், தண்டியலங்காரம், யாப்பருங்கலக்காரிகை- நூல்கள்
- மொழிப் பயிற்சி- ஒற்றுப்பிழை தவிர்த்தல்
  - வல்லினம் மிகும் இடங்கள்
  - வல்லினம் மிகா இடங்கள்
  - ஈரொற்று வரும் இடங்கள்
  - ஒரு, ஓர் வரும் இடங்கள்
  - அது, அஃது வரும் இடங்கள்
  - தான், தாம் வரும் இடங்கள்

**பயிற்சி :** வல்லினம் மிகும் இடங்கள், மிகா இடங்கள் தவறாக வரும்வகையில் ஒரு பத்தி கொடுத்து ஒற்றுப் பிழை திருத்தி எழுதச் செய்தல்.

- சங்க இலக்கியம் - எட்டுத்தொகை, பத்துப்பாட்டு
- அற இலக்கியம் - பதினெண்கீழ்க்கணக்கு நூல்கள்
- காப்பிய இலக்கியம் - ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், சமயக் காப்பியங்கள்
- பக்தி இலக்கியமும் (பன்னிரு திருமுறைகள், நாலாயிர திவ்வியப் பிரபந்தம் -- பகுத்தறிவு இலக்கியமும் (சித்தர் இலக்கியங்கள், புலவர் குழந்தையின் இராவண காவியம்)

### அலகு II: சங்க இலக்கியம்

(15 மணி நேரம்)

#### எட்டுத்தொகை:

- நற்றிணை-முதல் பாடல் -நின்ற சொல்லர்
- குறுந்தொகை 3 ஆம் பாடல் -நிலத்தினும் பெரிதே
- ஐங்குறுநூறு -நெல் பல பொலிக! பொன் பெரிது சிறக்க!' (முதல் பாடல் )-வேட்கைப் பத்து
- கலித்தொகை- 51 - சுடர்த்தொடிக் கேளாய் -குறிஞ்சிக் கலி
- புறநானூறு -189 தெண்கடல் வளாகம் பொதுமையின்றி, நாடா கொன்றோ -187

#### பத்துப்பாட்டு:

- முல்லைப்பாட்டு (முழுவதும்)

### அலகு III: அற இலக்கியம்

(15 மணி நேரம்)

12. திருக்குறள் -அறன் வலியுறுத்தல் அதிகாரம்
13. நாலடியார்-பாடல்: 131 (குஞ்சியழகம்)
14. நான்மணிக்கடிகை-நிலத்துக்கு அணியென்ப
15. பழமொழி நானூறு- தம் நடை நோக்கார்
16. இனியவை நாற்பது- 37. இளமையை மூப்பு என்று

### அலகு IV: காப்பிய இலக்கியம்

(15 மணி நேரம்)

17. சிலப்பதிகாரம் – வழக்குரைகாதை
18. மணிமேகலை- பாத்திரம் பெற்ற காதை
19. பெரியபுராணம் - பூசலார் நாயனார்புராணம்
20. கம்பராமாயணம்- குகப் படலம்
21. சீறாப்புராணம் – மானுக்குப் பிணை நின்ற படலம்
22. இயேசு காவியம் -ஊதாரிப்பிள்ளை

### அலகு V: பக்தி இலக்கியமும், பகுத்தறிவு இலக்கியமும்

(15 மணி நேரம்)

#### 23. பக்தி இலக்கியம்:

- திருநாவுக்கரசர் தேவாரம் - நாமார்க்கும் குடியல்லேம் எனத் தொடங்கும் பாடல் மட்டும்
- மாணிக்கவாசகர் திருவாசகம் - நமச்சிவாய வாஅழக நாதன்தாள் வாழ்க முதல் சிரம்குவிவார் ஓங்குவிக்கும் சீரோன் கழல் வெல்க வரை
- பொய்கையாழ்வார்-வையந் தகளியா வார்கடலே
- பூதத்தாழ்வார்-அன்பே தகளியா
- பேயாழ்வார்-திருக்கண்டேன் பொன்மேனி கண்டேன்
- ஆண்டாள் – திருப்பாவை மார்கழித் திங்கள் (முதல் பாடல்)

#### 24. பகுத்தறிவு இலக்கியம் :

- திருமூலர் – திருமந்திரம் (270,271, 274, 275 285)
- பட்டினத்தார் -திருவிடை மருதூர் (காடே திரிந்து – எனத் தொடங்கும் பாடல் பா.எண்.279, 280)
- கடுவெளி சித்தர் - பாபஞ்செய் யாதிரு மனமே (பாடல் முழுவதும்)
- இராவண காவியம் – தாய்மொழிப் படலம் - 18. (ஏடுகை யில்லா ரில்லை முதல் - 22. செந்தமிழ் வளர்த்தார் வரை)

#### பாடநூல்

பொதுத்தமிழ்-1. (தமிழ் இலக்கிய வரலாறு-1), தமிழாய்வுத்துறை, தூய வளனார் தன்னாட்சிக் கல்லூரி, திருச்சிராப்பள்ளி, 2023

#### பார்வை நூல்கள்

1. வரதராசன்.மு. (2021) தமிழ் இலக்கிய வரலாறு, சாகித்ய அக்காதெமி.
2. விமலானந்தன். மது. ச. (2019). தமிழ் இலக்கிய வரலாறு, முல்லை நிலையம்.
3. தமிழண்ணல். (2022). புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, பாரி நிலையம்.
4. சிற்பி பாலசுப்பிரமணியன் & சேதுபதி.சொ. (2015). தமிழ் இலக்கிய வரலாறு, கவிதா வெளியீடு.
5. சிற்பி பாலசுப்பிரமணியம், & பத்மநாபன். நீல. (2013). புதிய தமிழ் இலக்கிய வரலாறு (3 தொகுதிகள்), சாகித்ய அக்காதெமி.
6. பெருமாள். அ.கா. (2014). தமிழ் இலக்கிய வரலாறு, சுதர்சன் பக்ஸ்.

| Relationship Matrix   |                          |     |                    |     |     |                                    |      |      |            |      |                   |
|-----------------------|--------------------------|-----|--------------------|-----|-----|------------------------------------|------|------|------------|------|-------------------|
| Semester              | Course code              |     | Title of the Paper |     |     |                                    |      |      | Hours/Week |      | Credits           |
| 1                     | 23UTA11GL01A             |     | General Tamil – 1  |     |     |                                    |      |      | 5          |      | 3                 |
| Course Outcomes (COs) | Programme Outcomes (POs) |     |                    |     |     | Programme Specific Outcomes (PSOs) |      |      |            |      | Mean Score of COs |
|                       | PO1                      | PO2 | PO3                | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4       | PSO5 |                   |
| CO-1                  | 1                        | 2   | 3                  | 2   | 2   | 3                                  | 3    | 2    | 2          | 2    | 2.2               |
| CO-2                  | 2                        | 2   | 3                  | 2   | 2   | 2                                  | 3    | 2    | 3          | 2    | 2.3               |
| CO-3                  | 1                        | 2   | 2                  | 3   | 2   | 2                                  | 2    | 3    | 3          | 3    | 2.3               |
| CO-4                  | 2                        | 2   | 3                  | 2   | 2   | 3                                  | 2    | 3    | 3          | 2    | 2.4               |
| CO-5                  | 3                        | 1   | 2                  | 2   | 2   | 2                                  | 3    | 2    | 3          | 3    | 2.3               |
| Mean overall Score    |                          |     |                    |     |     |                                    |      |      |            |      | 2.3 (High)        |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 1        | 23UFR11GL01 | French - 1          | 5          | 3       |

| Course Objectives  |
|--|
| To identify the basic sentence structure of the French language.   |
| To define and describe the various grammatical tenses and use them to communicate in French.                         |
| To examine the documents presented and discuss/reply to the questions asked.   |
| To analyze and interpret expressions used to convey the cause, the effect, the purpose and the opposition in French. |
| To evaluate the grammatical nature of a given passage.   |

#### Unit I (15 hours)

1. Salut !
2. Enchanté

#### Unit II (15 hours)

3. J'adore

#### Unit III (15 hours)

4. Tu veux bien ?

#### Unit IV (15 hours)

5. On se voit quand ?

#### Unit V (15 hours)

6. Bonne idée

|                             |   |
|-----------------------------|---|
| <b>Teaching Methodology</b> | Videos, Audios, PPT presentation, Role-play, Quiz |
|-----------------------------|---|

#### Book for Study

Mérieux, R & Loiseau, Y. (2017). *Latitudes -1- (A1 /A2)*, méthode de français, Didier, (Units 1-6 only)

#### Books for Reference

1. Dauda, P, Giachino, L and Baracco, C. (2020). *Generation AI*. Didier, Paris.
2. Girardet, J and Pecheur, J. (2017). *Echo AI* (2<sup>nd</sup> ed.). CLE International.
3. Fournier, I. (2011). *Talk French*. Goyal Publishers.

## Websites and eLearning Sources

1. <https://www.wikihow.com/Pronounce-the-Letters-of-the-French-Alphabet>
2. <https://français.lingolia.com/en/grammar/tenses/le-present>
3. <https://www.lawlessfrench.com/grammar/articles/>
4. <https://www.frenchpod101.com/french-vocabulary-lists/10-lines-you-need-for-introducing-yourself>
5. <https://www.tolearnfrench.com/exercises/exercise-french-2/exercise-french-3295.php>

| Course Outcomes |  |                                 |
|-----------------|--|---------------------------------|
| CO No.          | CO–Statements  | Cognitive Levels<br>(K –Levels) |
|                 | On successful completion of this course, students will be able to  |                                 |
| CO1             | recall the usage of grammatical tenses during conversations.   | K1                              |
| CO2             | apply the grammar rules in practice exercises  | K3                              |
| CO3             | explain the nuances in the usage of various grammatical tenses and their aspects   | K2                              |
| CO4             | demonstrate knowledge of various expressions used to express opinions, emotions, cause, effect, purpose and hypothesis in French | K4                              |
| CO5             | communicate in French and summarize a given text   | K5                              |

| Relationship Matrix |                          |     |                     |     |     |                                    |      |      |      |      |                   |         |
|---------------------|--------------------------|-----|---------------------|-----|-----|------------------------------------|------|------|------|------|-------------------|---------|
| Semester            | Course code              |     | Title of the Course |     |     |                                    |      |      |      |      | Hours             | Credits |
| 1                   | 21UFR11GL01              |     | French - 1          |     |     |                                    |      |      |      |      | 5                 | 3       |
| Course Outcomes     | Programme Outcomes (POs) |     |                     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |      | Mean Score of COs |         |
|                     | PO1                      | PO2 | PO3                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5 |                   |         |
| CO1                 | 3                        | 3   | 1                   | 3   | 1   | 3                                  | 3    | 2    | 3    | 2    | 2.4               |         |
| CO2                 | 2                        | 3   | 3                   | 2   | 1   | 3                                  | 3    | 3    | 3    | 2    | 2.5               |         |
| CO3                 | 1                        | 3   | 2                   | 1   | 2   | 2                                  | 2    | 2    | 3    | 2    | 2.0               |         |
| CO4                 | 3                        | 3   | 3                   | 3   | 3   | 3                                  | 3    | 2    | 3    | 2    | 2.8               |         |
| CO5                 | 3                        | 3   | 3                   | 3   | 2   | 3                                  | 3    | 3    | 3    | 2    | 2.8               |         |
| Mean overall Score  |                          |     |                     |     |     |                                    |      |      |      |      | 2.5 (High)        |         |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 1        | 23UHI11GL01 | Hindi - 1           | 5          | 3       |

| Course Objectives  |
|--|
| To understand the basics of the Hindi Language.                                  |
| To make the students familiar with the Hindi words.                              |
| To enable the students to develop their effective communicative skills in Hindi. |
| To introduce the socially relevant subjects in Modern Hindu Literature.          |
| To empower the students with globally employable soft skills.                    |

#### **Unit I: Buniyadi Hindi (15 Hours)**

1. Swar
2. Vyanjan
3. Barah Khadi
4. Shabd aur
5. Vakya Rachna

#### **Unit II: Hindi Shabdavali (15 Hours)**

6. Rishto ke Naam
7. Gharelu padartho ke Naam

#### **Unit III: Vyakaran (15 Hours)**

8. Sadharan Vakya aur Sangya
9. Sarvanam
10. Visheshan
11. Kriya aadi shabdo ka prayog

#### **Unit IV: Chote Gadyansh ka pattan (15 Hours)**

12. Bachom ki Kahaniyam
13. Patra-Patrikao mein Prakashit Gadyansho ka Pattan

#### **Unit V: Nibandh (15 Hours)**

14. Sant Tiruvalluvar
15. E.V.R Thandai Periyar
16. Naari Sashakthikaran
17. Paryavaran Sanrakshan
18. Vibhinna pratiyogi parikshao ke bare mein jaankari dena
19. Pratiyogi priksa par adharit nibandho dwara bhasha ki kshamta badhane vale prashikshan kary.

|                             |  |
|-----------------------------|--|
| <b>Teaching Methodology</b> | Videos, PPT, Quiz, Group Discussion, Project Work. |
|-----------------------------|--|

### Books for Study

1. *Prathamik Patya Pusthak* (2022). Dakshina Bharath Hindi Prachara Sabha, Chennai,
2. Chandran, R.M. (2017). *Concise Trilingual Dictionary*, Lotus Publications, Madurai.
3. Gupta, K.M. (2020). *Hindi Vyakaran*, Anand Prakashan, Kolkatta.
4. *Madyama Patya Pusthak* (2022). Dakshina Bharath Hindi Prachara Sabha, Chennai.

### Books for Reference

1. Abdul Kalam, A.P.J. (2020). *Mere sapnom ka Bharath*. Prabath Prakashan, Noida.
2. *Meri Pratham Hindi Sulekh Shabd Gyaan*, Wonder House Books, Noida.
3. Kumar, A. (2019). *Sampoorna Hindi Vyakaran our Rachana*. Lucent publisher.
4. *Adhunik Hindi Vyakaran our Rachana*. (2018). Bharati Bhavan Publishers & distributors.
5. Shukla, A.R. (2021). *Hindi Sahitya Ka Itihas..* Prabhat Prakashan.

### Websites and e-Learning Sources

1. <https://learningmole.com/hindi-alphabet-letters-pronunciation-guide/>
2. <https://www.careerpower.in/hindi-alphabet-varnamala.html>
3. <https://www.youtube.com/watch?v=b0UvXnIC8qc>
4. <https://www.importanceoflanguages.com/learn-hindi-language-guide/>
5. <https://parikshapoint.com/hindi-sahitya/>

| Course Outcomes |  |                                 |
|-----------------|--|---------------------------------|
| CO No.          | CO-Statements  | Cognitive Levels<br>(K - Level) |
|                 | On successful completion of this course, students will be able to  |                                 |
| CO1             | match the sounds of Hindi letters with their written counterparts. | K1                              |
| CO2             | infer the meaning of unknown words from the given context          | K2                              |
| CO3             | construct sentences in Hindi                                       | K3                              |
| CO4             | analyse stories and other passages                                 | K4                              |
| CO5             | interpret general essays given in competitive exams                | K5                              |

| Relationship Matrix |                          |     |                     |     |     |                                    |      |      |      |      |                   |         |
|---------------------|--------------------------|-----|---------------------|-----|-----|------------------------------------|------|------|------|------|-------------------|---------|
| Semester            | Course code              |     | Title of the Course |     |     |                                    |      |      |      |      | Hours             | Credits |
| 1                   | 23UHH11GL01              |     | Hindi - 1           |     |     |                                    |      |      |      |      | 5                 | 3       |
| Course Outcomes     | Programme Outcomes (POs) |     |                     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |      | Mean Score of COs |         |
|                     | PO1                      | PO2 | PO3                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5 |                   |         |
| CO1                 | 3                        | 2   | 2                   | 1   | 3   | 3                                  | 3    | 1    | 3    | 2    | 2.3               |         |
| CO2                 | 2                        | 3   | 2                   | 3   | 1   | 2                                  | 3    | 3    | 3    | 2    | 2.4               |         |
| CO3                 | 3                        | 2   | 2                   | 2   | 1   | 3                                  | 2    | 3    | 2    | 3    | 2.3               |         |
| CO4                 | 3                        | 1   | 2                   | 3   | 2   | 3                                  | 2    | 3    | 3    | 2    | 2.4               |         |
| CO5                 | 2                        | 3   | 3                   | 2   | 3   | 2                                  | 3    | 3    | 1    | 3    | 2.5               |         |
| Mean overall Score  |                          |     |                     |     |     |                                    |      |      |      |      | 2.38 (High)       |         |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 1        | 23USA11GL01 | Sanskrit- 1         | 5          | 3       |

| Course Objectives   |
|---|
| To help students learn the Sanskrit alphabet.   |
| To understand Sanskrit grammar and <i>sabdas</i> .  |
| To have an idea of the epics.   |
| To closely understand the literary works in Sanskrit with special reference to <i>Pancamahakavyas</i> . |
| To understand the <i>Raghuvasa Mahakava</i> and <i>Kalidasa</i> .                                       |

**Unit I: Introduction to Sanskrit (15 Hours)**

**(Alphabet, Two letter words and three letter words) Grammar**

*ākārāntaḥpumliṅgaḥśabda-s* - 1. बाल (*Bāla*) and

2. देव (*Deva*) *ākārāntaḥstrīliṅgaḥśabda-s* - 1. बाला (*Bālā*) and

2. लता (*Latā*) *ākārāntaḥnapuṃsakaliṅgaḥśabda-s* - 1. फल (*Phala*) and 2. वन (*Vana*)

**Unit II: Introduction to *Rāmāyana*, *Kālidāsa* and his poetic works (15 Hours)**

*Raghuvaṃśa* (Canto I) Verses 1-15

**Unit III: Introduction to the Works of *Bhāravi* (15 Hours)**

*Raghuvaṃśa* (canto I) Verses 16-30

**Unit IV: Introduction to the works of *ŚrīHarṣa* (15 Hours)**

*Raghuvaṃśa* (Canto I) Verses 31-45

**Unit V: Grammar (15 Hours)**

Conjugations -*Laṭlakāra-s* – (Present tense)

(i) गच्छत (*Gacchati*)

(ii) ततष्ठत (*Tiṣṭhati*)

(iii) पठत (*Paṭhati*)

(iv) नृत्यत (*Nṛtyati*)

(v) कुप्यत (*Kupyati*)

(vi) कथयत (*Kathayati*) गणयत (*Gaṇayati*)

(viii) अतत (*Asti*)

(ix) करोत (*Karoti*)

(x) शृणोत (*Śṛṇoti*) Indeclinables (*Avyayaani*) - अतप (*api*), कदा (*kadā*), च (*ca*), अद्य (*adya*), तवना (*vinā*), सह (*saha*), तत्र (*tatra*), ककम् (kim), यकद (*yadi*) - तर्हि (*tarhi*), यथे

(yathā) - तथैव (tathā) Prefixes (Upasargas) - आङ् (āñ), तव (vi), पर (pari), अनु (anu), अति (adhi), उत् (ut), प्रत्यत (prati), उप (upa), प्र (pra) तन्त्र (nir)

|                      |                             |
|----------------------|-----------------------------|
| Teaching Methodology | Videos, PPT, demonstration. |
|----------------------|-----------------------------|

### Book for Study

Murugan, C., et al. (eds.). (2022) *Kalasala-Sanskrita-Sukhabodhini-I* (For Undergraduate Foundation Course). University of Madras.

### Book for Reference

Vadhyar, R. S. (2017). *Sabdha Manthari*. Vadhyar & Sons.

### Websites and e-Learning Sources

1. <https://www.arlingtoncenter.org/Sanskrit%20Alphabet.pdf>
2. <https://courses.lumenlearning.com/suny-hccc-worldcivilization/chapter/sanskrit/>
3. [https://www.newworldencyclopedia.org/entry/Sanskrit\\_literature](https://www.newworldencyclopedia.org/entry/Sanskrit_literature)
4. <https://archive.org/details/AShortHistoryOfsanskritLiterature>
5. [https://archive.org/details/raghuvamsha\\_with\\_sanjivini\\_edited\\_by\\_mr\\_kale](https://archive.org/details/raghuvamsha_with_sanjivini_edited_by_mr_kale)

| Course Outcomes |   |                              |
|-----------------|---|------------------------------|
| CO No.          | CO-Statements   | Cognitive Levels (K - Level) |
|                 | On successful completion of this course, students will be able to   |                              |
| CO1             | remember the usage of grammatical tenses in constructing sentences in dialogue.                                       | K1                           |
| CO2             | apply the rules of usage in practice exercises and spot the errors  | K2                           |
| CO3             | explain the nuances in the usage of various grammatical tenses and aspects  | K3                           |
| CO4             | demonstrate knowledge of various expressions of opinion, emotions, cause, effect, purpose, and hypothesis in Sanskrit | K4                           |
| CO5             | communicate in Sanskrit and summarize a given text  | K5                           |

| Relationship Matrix |                          |     |                     |     |     |                                    |      |      |      |       |                   |
|---------------------|--------------------------|-----|---------------------|-----|-----|------------------------------------|------|------|------|-------|-------------------|
| Semester            | Course code              |     | Title of the Course |     |     |                                    |      |      |      | Hours | Credits           |
| 1                   | 23USA11GL01              |     | Sanskrit - 1        |     |     |                                    |      |      |      | 5     | 3                 |
| Course Outcomes     | Programme Outcomes (POs) |     |                     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                     | PO1                      | PO2 | PO3                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                 | 1                        | 3   | 2                   | 3   | 1   | 3                                  | 2    | 3    | 2    | 2     | 2.2               |
| CO2                 | 2                        | 3   | 2                   | 3   | 1   | 2                                  | 2    | 3    | 2    | 3     | 2.3               |
| CO3                 | 3                        | 2   | 2                   | 2   | 2   | 2                                  | 3    | 2    | 3    | 2     | 2.3               |
| CO4                 | 3                        | 2   | 3                   | 2   | 2   | 3                                  | 3    | 2    | 3    | 2     | 2.3               |
| CO5                 | 3                        | 2   | 3                   | 3   | 2   | 2                                  | 3    | 2    | 3    | 3     | 2.6               |
| Mean overall Score  |                          |     |                     |     |     |                                    |      |      |      |       | 2.38 (High)       |

| Semester   | Course Code | Title of the Course | Hours/Week | Credits |
|--|-------------|---------------------|------------|---------|
| 1  | 23UEN12GE01 | General English - 1 | 5          | 3       |
| <b>Course Objectives</b>   |             |                     |            |         |
| To enable learners to acquire self awareness and positive thinking required in various life situations |             |                     |            |         |
| To help them acquire the attribute of empathy  |             |                     |            |         |
| To assist them in acquiring creative and critical thinking abilities                                   |             |                     |            |         |
| To enable them to learn the basic grammar  |             |                     |            |         |
| To assist them in developing LSRW skills   |             |                     |            |         |

### **UNIT I: Self-awareness ELF-A (WHO) & Positive Thinking (UNICEF) (15 Hours)**

#### **Life Story**

- Chapter 1 from Malala Yousafzai, I am Malala
- An Autobiography or The Story of My Experiments with Truth (Chapters 1, 2 & 3) M.K. Gandhi

#### **Poem**

- Where the Mind is Without Fear – Gitanjali 35 – Rabindranath Tagore
- Love Cycle – Chinua Achebe

### **UNIT II: Empathy (15 Hours)**

#### **Poem**

- Nine Gold Medals – David Roth
- Alice Fell or poverty – William Wordsworth

#### **Short Story**

- The School for Sympathy – E.V. Lucas
- Barn Burning – William Faulkner

### **UNIT III: Parts of Speech (15 Hours)**

- Articles
- Noun
- Pronoun
- Verb
- Adverb
- Adjective
- Preposition

### **UNIT IV: Critical & Creative Thinking. (15 Hours)**

#### **Poem**

- The Things That Haven't Been Done Before – Edgar Guest
- Stopping by the Woods on a Snowy Evening – Robert Frost

#### **Readers Theatre**

- The Magic Brocade – A Tale of China

19. Stories on Stage – Aaron Shepard (Three Sideway Stories from Wayside School” by Louis Sachar)

### Unit V: Paragraph and Essay Writing

(15 Hours)

20. Descriptive

21. Expository

22. Persuasive

23. Narrative

24. Reading Comprehension

|                      |   |
|----------------------|---|
| Teaching Methodology | Interactive methods, and multimedia presentations |
|----------------------|---|

### Books for Study

1. Yousafzai, M. (2013). *I am Malala, Little*. Brown and Company.
2. Gandhi, M. K. (2011). *An Autobiography or The Story of My Experiments with Truth (Chapter – I)*. Rupa Publications.
3. Tagore, R. (1913). *"Gitanjali 35" from Gitanjali (Song Offerings): A Collection of Prose Translations Made by the Author from the Original Bengali*. MacMillan.
4. Shepard, A. (2017). *Stories on Stage*. Shepard Publications.

### Books for Reference

1. Krishnasamy. N. (1975). *Modern English: A Book of Grammar, Usage and Composition*. Macmillan.
2. Nesfield, J. C. (2019). *English Grammar Composition and Usage*. Macmillan.

### Web Resources

1. <https://archive.org/details/i-am-malala>
2. <https://www.indiastudychannel.com/resources/146521-Book-Review-An-Autobiography-or-The-story-of-my-experiments-with-Truth.aspx>
3. <https://www.poetryfoundation.org/poems/45668/gitanjali-35>
4. <https://amzn.eu/d/9rVzINv>
5. <https://archive.org/details/in.ernet.dli.2015.44179>

| Course Outcomes |   |                                  |
|-----------------|---|----------------------------------|
| CO No.          | CO-Statements   | Cognitive Levels<br>(K - Levels) |
|                 | On successful completion of this course, students will be able to                 |                                  |
| CO1             | discover self awareness and positive thinking required in various life situations | K1                               |
| CO2             | classify the attributes of empathy  | K2                               |
| CO3             | apply creative and critical thinking skills                                       | K3                               |
| CO4             | focus on grammar for functional purposes  | K4                               |
| CO5             | integrate the LSRW skills for effective communication                             | K5                               |

| Relationship Matrix |                          |     |                     |     |     |                                    |      |      |      |       |                   |
|---------------------|--------------------------|-----|---------------------|-----|-----|------------------------------------|------|------|------|-------|-------------------|
| Semester            | Course code              |     | Title of the Course |     |     |                                    |      |      |      | Hours | Credits           |
| 1                   | 23UEN12GE01              |     | General English - 1 |     |     |                                    |      |      |      | 5     | 3                 |
| Course Outcomes     | Programme Outcomes (POs) |     |                     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                     | PO1                      | PO2 | PO3                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                 | 3                        | 3   | 3                   | 3   | 3   | 3                                  | 3    | 3    | 3    | 3     | 3                 |
| CO2                 | 2                        | 3   | 3                   | 3   | 2   | 3                                  | 3    | 3    | 3    | 3     | 2.5               |
| CO3                 | 3                        | 3   | 3                   | 2   | 3   | 3                                  | 3    | 3    | 3    | 2     | 2.8               |
| CO4                 | 3                        | 3   | 3                   | 3   | 3   | 3                                  | 3    | 3    | 3    | 3     | 3                 |
| CO5                 | 3                        | 2   | 3                   | 3   | 3   | 3                                  | 3    | 3    | 3    | 3     | 2.8               |
| Mean overall Score  |                          |     |                     |     |     |                                    |      |      |      |       | 2.82 (High)       |

| Semester | Course Code | Title of the Course                    | Hours/Week | Credits |
|----------|-------------|--|------------|---------|
| 1        | 23UCS13CC01 | Core Course - 1:<br>Python Programming | 4          | 4       |

| Course Objectives   |
|---|
| To make students understand the concepts of Python programming                  |
| To provide solutions using control structures in Python programming             |
| To apply the knowledge functions, strings and modules in Python based solutions |
| To learn the various element-based data types in Python programming             |
| To work with file-based operations with Python                                  |

### UNIT I: Fundamentals of Python (12 Hours)

**Basics of Python Programming:** History of Python-Features of Python-Literal-Constants-Variables – Identifiers – Keywords-Built-in Data Types – Output Statements – Input Statements – Comments – Indentation – Operators-Expressions-Type conversions. **Python Arrays:** Defining and Processing Arrays – Array methods.

### UNIT II: Control Statements (12 Hours)

**Control Statements:** Selection/Conditional Branching statements: if, if-else, nested if and if-elif-else statements. **Iterative Statements:** While loop, For loop, Else suite in loop and Nested loops. **Jump Statements:** Break, Continue and Pass statements.

### UNIT III: Functions in Python (12 Hours)

**Functions:** Function Definition – Function Call – Variable Scope and its Lifetime-Return Statement. **Function Arguments:** Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments – Recursion. **Python Strings:** String operations- Immutable Strings – Built-in String Methods and Functions - String Comparison. **Modules:** import statement- The Python module – dir() function – Modules and Namespace – Defining our own modules.

### UNIT IV: Lists and Dictionaries (12 Hours)

**Lists:** Creating a list -Access values in List-Updating values in Lists-Nested lists -Basic list operations-List Methods. **Tuples:** Creating, Accessing, Updating and Deleting Elements in a tuple – Nested tuples– Difference between lists and tuples. **Dictionaries:** Creating, Accessing, Updating and Deleting Elements in a Dictionary – Dictionary Functions and Methods - Difference between Lists and Dictionaries.

### UNIT V: File Handling (12 Hours)

Types of files in Python - Opening and Closing files-Reading and Writing files: write() and writelines() methods- append() method – read() and readlines() methods – with keyword – Splitting words – File methods - File Positions- Renaming and deleting files.

|                             |   |
|-----------------------------|---|
| <b>Teaching Methodology</b> | Videos, PPT, Demonstration, Hands on Session and Lecture Methods. |
|-----------------------------|---|

## Books for Study

1. Thareja, R. (2017). *Python programming using problem solving approach* (1<sup>st</sup> ed.). Oxford University Press.
2. Rao, N. R. (2017). *Core Python programming* (1<sup>st</sup> ed.). Dream tech Publishers.

## Books for Reference

1. Kurama, V. (2018). *Python programming: A modern approach*. Pearson Education.
2. Lambert, K. A. (2017). *Fundamentals of Python – First programs*. CENGAGE Publication.

## Web Sources

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

| Course Outcomes |  |                                 |
|-----------------|--|---------------------------------|
| CO No.          | CO-Statements  | Cognitive Levels<br>(K - Level) |
|                 | On successful completion of this course, students will be able to              |                                 |
| CO1             | recall simple Python programs that solve basic problems                        | K1                              |
| CO2             | explain the basic concepts of Python programming                               | K2                              |
| CO3             | use Python to interact with the operating system and other external resources. | K3                              |
| CO4             | analyse and apply solutions to problems by using various Python techniques.    | K4                              |
| CO5             | develop reusable and maintainable Python software.                             | K5                              |

| Relationship Matrix |                          |     |                                     |     |     |                                    |      |      |      |       |                   |
|---------------------|--------------------------|-----|-------------------------------------|-----|-----|------------------------------------|------|------|------|-------|-------------------|
| Semester            | Course code              |     | Title of the Course                 |     |     |                                    |      |      |      | Hours | Credits           |
| 1                   | 23UCS13CC01              |     | Core Course - 1: Python Programming |     |     |                                    |      |      |      | 4     | 4                 |
| Course Outcomes     | Programme Outcomes (POs) |     |                                     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                     | PO1                      | PO2 | PO3                                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                 | 3                        | 2   | 1                                   | 1   | 3   | 3                                  | 2    | 3    | 2    | 2     | 2.2               |
| CO2                 | 3                        | 2   | 3                                   | 3   | 2   | 1                                  | 3    | 2    | 2    | 2     | 2.3               |
| CO3                 | 3                        | 3   | 2                                   | 3   | 1   | 3                                  | 2    | 3    | 2    | 3     | 2.5               |
| CO4                 | 2                        | 2   | 3                                   | 1   | 3   | 2                                  | 3    | 2    | 3    | 3     | 2.4               |
| CO5                 | 2                        | 3   | 2                                   | 2   | 2   | 2                                  | 3    | 2    | 2    | 2     | 2.2               |
| Mean overall Score  |                          |     |                                     |     |     |                                    |      |      |      |       | 2.32 (High)       |

| <b>Semester</b> | <b>Course Code</b> | <b>Title of the Course</b>                       | <b>Hours/<br/>Week</b> | <b>Credits</b> |
|-----------------|--------------------|--|------------------------|----------------|
| <b>1</b>        | <b>23UCS13CP01</b> | <b>Core Practical - 1:</b><br>Python Programming | <b>5</b>               | <b>5</b>       |

**List of Exercises:**

1. Variables, constants, I/O statements
2. Operators
3. Conditional Statements, Loops and Jump Statements
4. Functions and Recursion
5. Arrays
6. Strings
7. Modules
8. Lists and Tuples
9. Dictionaries
10. File Handling

| Semester   | Course code  | Title of the Course                   | Hours/Week | Credits |
|--|--------------|---------------------------------------|------------|---------|
| 1  | 23UMA13AC01C | Allied Course 1:<br>Numerical Methods | 5          | 4       |
| <b>Course Objectives</b>   |              |                                       |            |         |
| To introduce the various topics in Numerical methods.                          |              |                                       |            |         |
| To make understand the fundamentals of algebraic equations                     |              |                                       |            |         |
| To apply interpolation and approximation on examples                           |              |                                       |            |         |
| To solve problems using numerical differentiation and integration              |              |                                       |            |         |
| To solve linear systems, numerical solution of ordinary differential equations |              |                                       |            |         |

#### **UNIT I: Fundamentals of Algebraic Equation (15 Hours)**

Solution of algebraic and transcendental equations-Bisection method – Method of successive Approximations or iteration method – Newton Raphson

#### **UNIT II: Simultaneous Linear Algebraic Equations (15 Hours)**

Simultaneous linear algebraic equations – Gauss elimination method – Gauss Jordan method  
Iterative methods - Gauss Jacobi method - Gauss Seidel method

#### **UNIT III: Interpolation with Equal And Unequal Interval (15 Hours)**

Interpolation with equal intervals – Newton's forward and backward difference formulae-  
Approximation of derivatives using interpolation polynomials- Interpolation with unequal intervals– Newton's divided difference interpolation Lagrange's interpolation.

#### **UNIT IV: Numerical Integration (15 Hours)**

Numerical integration – Trapezoidal rule – Romberg's Method - Simpson's 1/3

#### **UNIT V: Initial Value Problems For Ordinary Differential Equations (15 Hours)**

Single step methods – Taylor's series method – Euler's method – Modified Euler's method -  
RungeKutta method for solving equations

|                             |                     |
|-----------------------------|---------------------|
| <b>Teaching Methodology</b> | Chalk and Talk, PPT |
|-----------------------------|---------------------|

#### **Book for Study**

1. Venkataraman, M. K.(2000). *Numerical methods in science and engineering* (5<sup>th</sup> ed.). National Publishing Company, Madras.

**Unit I:** Chapter 3 (Sec: 2, 3, 5)

**Unit II:** Chapter 4 (Sec: 2, 6)

**Unit III:** Chapter 6 (Sec: 3, 4), Chapter 8 (Sec : 4)

**Unit IV:** Chapter 9 (Sec: 7, 8, 9, 10)

**Unit V:** Chapter 11 (Sec 6, 10, 12, 13)

#### **Books for Reference**

1. Singaravelu, A. (1992). *Numerical methods*. Meenakshi Publications

2. Kandasamy, P., Thilagavathy, K. & Gunavathi, K. (2008). *Numerical methods*. S. Chand & Company Ltd.
3. Jain, M. K., Iyengar, S. R. K. & Jain, R. K. (2007). *Numerical methods for scientific and engineering computation*. New Age Pvt. Publishers, New Delhi.

| Semester | Course Code | Title of the Course                              | Hours/<br>Week | Credits |
|----------|-------------|--|----------------|---------|
| 1        | 23UCS14FC01 | Foundation Course:<br>Problem Solving Techniques | 2              | 2       |

| Course Objectives  |
|--|
| To study the basics of computers   |
| To study the data types and arithmetic operations, know about the algorithms and develop program using flow chart and pseudocode |
| To understand and apply the basic concepts of operators, structures, and loops   |
| To learn about numeric data and character-based data and analyze about arrays  |
| To understand and illustrate DFD based on program modules  |

### UNIT I: An Introduction to Computers and Programming (6 Hours)

**Introduction:** History, characteristics and limitations of Computer. **Hardware/Anatomy of Computer:** CPU, Memory, Secondary storage devices, Input Devices and Output devices. **Types of Computers:** PC, Workstation, Minicomputer, Main frame and Supercomputer. **Software:** System software and Application software. **Programming Languages:** Machine language, Assembly language, High-level language, 4 GL and 5GL- Features of good programming language. **Translators:** Interpreters and Compilers.

### UNIT II: Developing a Program (6 Hours)

**Data:** Data types, Input, Processing of data, Arithmetic Operators, Hierarchy of operations and Output. Different phases in Program Development Cycle (PDC). **Structured Programming:** **Algorithm:** Features of good algorithm, Benefits and drawbacks of algorithm. **Flowcharts:** Advantages and limitations of flowcharts, when to use flowcharts, flowchart symbols and types of flowcharts. **Pseudocode:** Writing a pseudocode. **Coding, documenting and testing a program:** Comment lines and types of errors. Program design: Modular Programming.

### UNIT III: Selection and Repetition Structures (6 Hours)

**Selection Structures:** Relational and Logical Operators -Selecting from Several Alternatives – Applications of Selection Structures. **Repetition Structures:** Counter Controlled Loops –Nested Loops– Applications of Repetition Structures.

### UNIT IV: Data Types and Arrays (6 Hours)

**Data:** Numeric Data and Character Based Data. **Arrays:** One Dimensional Array - Two Dimensional Arrays – Strings as Arrays of Characters.

### UNIT V: Program Modules and Data Files (6 Hours)

**Data Flow Diagrams:** Definition, DFD symbols and types of DFDs. **Program Modules:** Subprograms-Value and Reference parameters- Scope of a variable - Functions – Recursion. **Files:** File Basics-Creating and reading a sequential file- Modifying Sequential Files.

|                      |   |
|----------------------|---|
| Teaching Methodology | Videos, PPT, Demonstration, Hands on Session and Lecture Methods. |
|----------------------|---|

## Book for Study

1. Venit, S. (2010). *Introduction to programming: Concepts and design* (4<sup>th</sup> ed.). Dream Tech Publishers.

### Books for Reference

1. Venit, S. & Drake, E. (2013). *Prelude to programming: Concepts and design* (5<sup>th</sup> ed.). Pearson Education.
2. Venit, S. & Drake, E. (2015). *Prelude to programming: Concepts and design* (6<sup>th</sup> ed.). Pearson Education.
3. Leon, A. & Leon, M. (1999). *Fundamentals of information technology*. Vikas.
4. Jaiswal, S. (2009). *Information technology today* (4<sup>th</sup> ed.). Galgotia Publications.

## Web Sources

1. <https://www.geeksforgeeks.org/computer-fundamentals-tutorial>
2. [https://www.tutorialspoint.com/computer\\_programming/computer\\_programming\\_basics.htm](https://www.tutorialspoint.com/computer_programming/computer_programming_basics.htm)

| Course Outcomes |  |                                 |
|-----------------|--|---------------------------------|
| CO No.          | CO-Statements  | Cognitive Levels<br>(K - Level) |
|                 | On successful completion of this course, students will be able to  |                                 |
| CO1             | recall the basics of computers   | K1                              |
| CO2             | demonstrate Structured Programming and its representation through using selection and repetition procedures. | K2                              |
| CO3             | understand and apply modularization on data and represent it through DFD based on program modules.           | K3                              |

|                    |                          |   |     |     |     |                                    |      |      |      |       |                   |
|--------------------|--------------------------|---|-----|-----|-----|------------------------------------|------|------|------|-------|-------------------|
|                    |                          | Relationship Matrix                           |     |     |     |                                    |      |      |      |       |                   |
| Semester           | Course code              | Title of the Course                           |     |     |     |                                    |      |      |      | Hours | Credits           |
| 1                  | 23UCS14FC01              | Foundation Course: Problem Solving Techniques |     |     |     |                                    |      |      |      | 2     | 2                 |
| Course Outcomes    | Programme Outcomes (POs) |   |     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                    | PO1                      | PO2   | PO3 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                | 2                        | 3   | 2   | 2   | 2   | 3                                  | 2    | 2    | 2    | 2     | 2.2               |
| CO2                | 3                        | 2   | 3   | 2   | 2   | 2                                  | 3    | 2    | 3    | 2     | 2.4               |
| CO3                | 2                        | 3   | 2   | 2   | 2   | 2                                  | 2    | 3    | 2    | 3     | 2.3               |
| Mean overall Score |                          |   |     |     |     |                                    |      |      |      |       | 2.3 (High)        |

| Semester | Course Code | Title of the Course  | Hours/<br>Week | Credits |
|----------|-------------|--|----------------|---------|
| 1        | 23UCS14SE01 | Skill Enhancement Course – 1<br>(Non Major Elective):<br>Office Automation | 2              | 2       |

| Course Objectives   |
|---|
| To understand the basics of computer systems and its components |
| To summarize the basic concepts of a word processing package    |
| To gain the knowledge on electronic spreadsheet software        |
| To attain exposure on database management system                |
| To create presentations using presentation tool                 |

#### **UNIT I: Introductory Concepts (6 Hours)**

Memory unit – CPU-Input Devices: Keyboard, Mouse and Scanner. Output devices: Monitor, Printer. Introduction to Operating systems & its features: DOS – UNIX– Windows. Introduction to Programming Languages.

#### **UNIT II: Word Processing (6 Hours)**

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.

#### **UNIT III: Spreadsheets (6 Hours)**

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.

#### **UNIT IV: Database Concepts (6 Hours)**

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.

#### **UNIT V: Presentation Software (6 Hours)**

Features – Understanding slide typecasting & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition – Animation effects, audio inclusion, timers.

|                             |   |
|-----------------------------|---|
| <b>Teaching Methodology</b> | Videos, PPT, Demonstration, Hands on Session and Lecture Methods. |
|-----------------------------|---|

#### **Books for Study**

1. Norton, P. (2005). *Introduction to computers*. Tata McGraw-Hill.
2. Kettel, J. A., Davis, G. H. & Simmons, C. (2003). *Microsoft 2003*. Tata McGraw- Hill.

#### **Books for Reference**

1. Wang, W. (2015). *Microsoft Office 2016 for dummies* (1<sup>st</sup> ed.). Wiley publication.
2. Withee, R., Withee, K. & Reed, J. (2016). *Microsoft Office 365 for dummies* (2<sup>nd</sup> ed.). Wiley Publication.

## Web Sources

1. <https://www.w3schools.blog/ms-word-tutorial>
2. <https://www.w3schools.com/EXCEL/index.php>
3. <https://www.javatpoint.com/powerpoint-tutorial>

| Course Outcomes |   |                                 |
|-----------------|---|---------------------------------|
| CO No.          | CO-Statements   | Cognitive Levels<br>(K - Level) |
|                 | On successful completion of this course, students will be able to   |                                 |
| CO1             | demonstrate the skill based on computer and its components and various OS, Word Processing Package, Electronic Spread Sheet, Database Management System, Power Point. | K3                              |
| CO2             | solve the problems on computer and its components and various OS, Word Processing Package, Electronic Spread Sheet, Database Management System, Power Point.          | K4                              |
| CO3             | recall basic concepts of computer and its components and various OS, Word Processing Package, Electronic Spread Sheet, Database Management System, Power Point.       | K5                              |

|                    |                          |   |     |     |     |                                    |      |      |      |       |                   |
|--------------------|--------------------------|---|-----|-----|-----|------------------------------------|------|------|------|-------|-------------------|
|                    |                          | Relationship Matrix   |     |     |     |                                    |      |      |      |       |                   |
| Semester           | Course code              | Title of the Course   |     |     |     |                                    |      |      |      | Hours | Credits           |
| 1                  | 23UCS14SE01              | Skill Enhancement Course – 1 (Non Major Elective):<br>Office Automation |     |     |     |                                    |      |      |      | 2     | 2                 |
| Course Outcomes    | Programme Outcomes (POs) |   |     |     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                    | PO1                      | PO2   | PO3 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                | 3                        | 3   | 2   | 2   | 2   | 3                                  | 2    | 3    | 2    | 3     | 2.2               |
| CO2                | 3                        | 3   | 3   | 2   | 1   | 3                                  | 3    | 3    | 2    | 2     | 2.5               |
| CO3                | 2                        | 3   | 3   | 2   | 1   | 2                                  | 3    | 3    | 2    | 2     | 2.3               |
| Mean overall Score |                          |   |     |     |     |                                    |      |      |      |       | 2.34 (High)       |

| Semester | Course Code | Title of the Course                            | Hours/Week | Credits |
|----------|-------------|--|------------|---------|
| 1        | 23UHE14VE01 | Value Education - 1:<br>Essentials of Humanity | 2          | 1       |

| Course Objectives   |
|---|
| To identify one's own potentials, strengths and weaknesses                      |
| To identify various challenges (physical, emotional, and social) in adolescence |
| To consciously overcome one's challenges and move towards self-esteem           |
| To maximize one's own potential in enabling a holistic development              |
| To assimilate human values comprehensively                                      |

### UNIT I: Principles of Value Education

Introduction to values - Characteristics and Roots of Values - Value Education & Value Clarification  
- Moral Characters - Kinds of Values - Objectives of Values

### UNIT II: Development of Human Personality

Personality: Introduction, Theories, Integration & Factors influencing the development of personality - SEL Series - Discovering self - Defence Mechanism Power of positive thinking - Why worry?

### UNIT III: The Dimensions of Human Development

Areas of Development: Physical, Intellectual, Emotional, Social Development, Moral & Spiritual development

### UNIT IV: Responsible Parenthood

Human Sexuality - Marriage and Family - Sex and Love - Characteristics of Responsible parent - Causes of Marriage disharmony - Art of wise parenting

### UNIT V: Gender Equality and Empowerment

Historical perspective - Women in Independence struggle - Women in Independent India - Education & Economic development - Crimes against Women - Women rights - Time-line of Women achievements in India

|                      |  |
|----------------------|--|
| Teaching Methodology |  |
|----------------------|--|

## Book for Study

Department of Human Excellence. (2021). *Essentials of Humanity*. St. Joseph's College.

### Books for Reference

1. Xavier, A. (2012). *You Shall Overcome*, (6th ed.). ICRDE Publication.
2. Alex, K. (2009). *Soft Skills*. S. Chand.
3. Kalam, A.A. P. J. (2012). *You Are Unique*. Punya Publishing.

## Websites and eLearning Sources

1. <http://livingvalues.net>. Accessed 05 March 2021.
2. <http://www.apa.org/topics/personality#>. Accessed 05 March 2021.
3. <http://www.peacecorps.gov/educators/resources/global-issues-gender-equaligy-and-womens-empowerment/>. Accessed 05 March 2021.

| Course Outcomes |   |                                 |
|-----------------|---|---------------------------------|
| CO No.          | CO-Statements   | Cognitive Levels<br>(K - Level) |
|                 | On completion of this course, students will be able to  |                                 |
| CO1             | recall the prescribed values and their dimensions.  | K1                              |
| CO2             | examine themselves by learning the developmental changes happening in the course of their lifetime. | K2                              |
| CO3             | Apply the trained values in the day-to-day life.  | K3                              |

| Relationship Matrix |                         |     |   |     |     |                                    |      |      |      |       |                   |
|---------------------|-------------------------|-----|---|-----|-----|------------------------------------|------|------|------|-------|-------------------|
| Semester            | Course code             |     | Title of the Course                         |     |     |                                    |      |      |      | Hours | Credits           |
| 1                   | 23UHE14VE01             |     | Value Education - 1: Essentials of Humanity |     |     |                                    |      |      |      | 2     | 1                 |
| Course Outcomes     | Programme Outcomes(POs) |     |   |     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                     | PO1                     | PO2 | PO3   | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                 | 3                       | 3   | 3   | 3   | 2   | 3                                  | 3    | 2    | 3    | 3     |                   |
| CO2                 | 3                       | 2   | 2   | 3   | 3   | 2                                  | 3    | 3    | 2    | 2     |                   |
| CO3                 | 2                       | 3   | 3   | 3   | 2   | 3                                  | 3    | 3    | 3    | 3     |                   |
| Mean overalls core  |                         |     |   |     |     |                                    |      |      |      |       |                   |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 2        | 23UTA21GL02 | General Tamil - 2   | 4          | 3       |

| கற்றலின் நோக்கங்கள்   |  |  |  |  |
|---|--|--|--|--|
| தமிழ் இலக்கிய வரலாற்றை அறிதல்.  |  |  |  |  |
| எழுத்து, சொல் இலக்கணங்களின் அடிப்படைகளைக் கண்டறிதல்.                      |  |  |  |  |
| அயலகக் கவிதை வடிவங்களை விளங்கிக் கொள்ளுதல்.                               |  |  |  |  |
| மொழிபெயர்ப்புக் கவிதைகளின் வாயிலாக மொழிபெயர்ப்புத் திறனை வளர்த்தெடுத்தல். |  |  |  |  |
| போட்டித் தேர்வுகளை எதிர்கொள்வதற்கான இலக்கண அறிவு பெறுதல்.                 |  |  |  |  |

#### அலகு - 1

(12 மணிநேரம்)

பாரதியார் கவிதைகள் – குயில்பாட்டு ( குயில் தன் பூர்வ ஜென்மக் கதை உரைத்தல் )  
பாரதிதாசன் கவிதைகள் – சஞ்சீவி பர்வதத்தின் சாரல்  
நற்றமிழ்க்கோவை – முதல் மூன்று கட்டுரைகள்

#### அலகு - 2

(12 மணிநேரம்)

வெ. இராமலிங்கனார் – சொல், தமிழன் இதயம்  
முடியரசனார் – உயிர் வெல்லமோ, மனத்தூய்மை  
பெருஞ்சித்திரனார் – அஞ்சாதீர், மொழி, இனம், நாடு  
பட்டுக்கோட்டை கலியாண சுந்தரனார் – வருங்காலம் உண்டு, உழைக்காமல் சேர்க்கும் பணம்  
இலக்கணம் – எழுத்து  
இலக்கிய வரலாறு – புதுக்கவிதை, தமிழில் புதிய கவிதை வடிவங்கள்

#### அலகு-3

(12மணி நேரம்)

சுரதா - நல்ல தீர்ப்பு  
கண்ணதாசன் - ஒரு பானையின் கதை  
அப்துல் ரகுமான்- வீடு  
மேத்தா - ஒரேகுரல்  
இலக்கிய வரலாறு – தமிழ்ச்சிறுகதைகள், இருபதாம் நூற்றாண்டு உரைநடை வளர்ச்சி  
சிறுகதை – முதல் மூன்று சிறுகதைகள்

#### அலகு - 4

(12 மணிநேரம்)

அரசியல் கவிதைகள்  
ஈரோடு தமிழன்பன்- அகல் விளக்காக இரு  
ஆதவன் தீட்சண்யா- இன்னும் இருக்கும் சுவர்களின் பொருட்டு  
சுகிர்தராணி- என் கண்மணியே இசைப்பிரியா  
சக்தி ஜோதி – யுகாந்திர உறக்கம்  
பழநி பாரதி- வெள்ளைக்காகிதம்  
லிவிங்ஸ்மைல் வித்யா – நினைவில் பால்யம் அழுத்தம்  
இலக்கணம் - சொல்

#### அலகு - 5

(12 மணிநேரம்)

அயலகக் கவிதைகள்  
ஓசேரிசால் (தமிழில் நெய்தல்) - விடைகொடு எந்தாய் மண்ணே  
ஹைபுன் கவிதைகள்  
சிறுகதை – நான்கு முதல் ஆறு சிறுகதைகள்  
நற்றமிழ்க் கோவை – நான்கு முதல்ஆறு கட்டுரைகள்

|  |  |
|--|--|
| கற்பித்தல் முறை (Teaching Methodology) | விரிவுரை (Lecture), காணொளிக் காட்சி (Videos), விளக்கக் காட்சி (PPT presentation) |
|--|--|

**பாடநூல்கள்**

1. தமிழாய்வுத்துறை (2023). பொதுத்தமிழ் -2, தூய வளனார் தன்னாட்சிக் கல்லூரி.
2. தமிழாய்வுத்துறை (2021). நற்றமிழ்க் கோவை, தூய வளனார் தன்னாட்சிக் கல்லூரி.

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1. <https://www.chennaiilibrary.com/bharathiyar/kuyilpattu.html>
2. [www.tamildigitallibrary.in](http://www.tamildigitallibrary.in)
3. <https://eluthu.com/kavithai>
4. [https://podhutamizh.blogspot.com/2017/09/blog-post\\_42.html](https://podhutamizh.blogspot.com/2017/09/blog-post_42.html)
5. <https://thamizhsudar.com>
6. <https://ta.wikipedia.org/wiki>

| Course Outcomes |  |                                  |
|-----------------|--|----------------------------------|
| CO No.          | CO-Statements  | Cognitive Levels<br>( K - Level) |
|                 | இப்பாடத்தின் நிறைவில் மாணவர்கள்  |                                  |
| CO1             | தமிழ் இலக்கிய நூல்கள் பற்றிய அறிவைப் பெறுவர்.                          | K1                               |
| CO2             | தமிழ் இலக்கண வளர்ச்சியைப் புரிந்து கொள்வர்.                            | K2                               |
| CO3             | பிழையின்றி எழுதும் திறன் பெறுவதோடு கற்றல் திறனையும் வளர்த்துக்கொள்வர். | K3                               |
| CO4             | பிற கவிதை வடிவங்களைக் கையாளும் திறன் பெறுவர்.                          | K4                               |
| CO5             | போட்டித் தேர்வுகளை எதிர்கொள்ளும் திறனைப் பெறுவர்.                      | K5                               |

| Relationship Matrix |                          |     |     |                     |     |                                    |      |      |      |       |                   |
|---------------------|--------------------------|-----|-----|---------------------|-----|------------------------------------|------|------|------|-------|-------------------|
| Semester            | Course Code              |     |     | Title of the Course |     |                                    |      |      |      | Hours | Credits           |
| 2                   | 23UTA21GL02              |     |     | General Tamil - 2   |     |                                    |      |      |      | 4     | 3                 |
| Course Outcomes     | Programme Outcomes (POs) |     |     |                     |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Score of COs |
|                     | PO1                      | PO2 | PO3 | PO4                 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                   |
| CO1                 | 2                        | 1   | 2   | 2                   | 3   | 3                                  | 3    | 2    | 3    | 2     | 2.3               |
| CO2                 | 2                        | 1   | 2   | 2                   | 2   | 3                                  | 2    | 2    | 2    | 2     | 2.0               |
| CO3                 | 2                        | 1   | 2   | 2                   | 3   | 3                                  | 3    | 2    | 3    | 2     | 2.3               |
| CO4                 | 1                        | 2   | 1   | 2                   | 2   | 3                                  | 2    | 2    | 3    | 2     | 2.0               |
| CO5                 | 1                        | 1   | 2   | 2                   | 3   | 3                                  | 3    | 2    | 3    | 2     | 2.2               |
| Mean Overall Score  |                          |     |     |                     |     |                                    |      |      |      |       | 2.16 (High)       |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 2        | 23UFR21GL02 | French - 2          | 4          | 3       |

| Course Objectives  |
|--|
| To construct simple phrases with pronominal verbs              |
| To apply the different types of articles                       |
| To understand the usage of pronouns                            |
| To analyse the French culture through French culinary art      |
| To evaluate and compare the French fashion in current scenario |

#### UNIT I: (12 Hours)

- TITRE: Les Loisirs
- GRAMMAIRE : les adjectifs interrogatifs, les nombres ordinaux, les verbes pronominaux
- LEXIQUE : les différentes activités quotidiennes, les loisirs, les activités quotidiennes, les matières
- PRODUCTION ORALE : parler sur votre passe-temps
- PRODUCTION ECRITE : décrire sa journée

#### UNIT II: (12 Hours)

- TITRE: La routine
- GRAMMAIRE : les pronoms personnels COD, les verbes du premier groupe en e/er/eler/eter, le verbe prendre
- LEXIQUE : exprimer ses goûts et ses préférences, le temps, l'heure, la fréquence
- PRODUCTION ORALE : savoir comment dire l'heure
- PRODUCTION ECRITE : écrire vos préférences en quelques lignes

#### UNIT III: (12 Hours)

- TITRE: Où Faire Ses Courses?
- GRAMMAIRE : les articles partitifs, le pronom en (la quantité), très ou beaucoup
- LEXIQUE : inviter et répondre à une invitation, les commerces et les commerçants, demander et dire le prix, les quantités
- PRODUCTION ORALE : faire des courses pour une soirée
- PRODUCTION ECRITE : écrire un message en acceptant l'invitation

#### UNIT IV: (12 Hours)

- TITRE: Découvrez et Dégustez
- GRAMMAIRE : l'impératif, il faut, les verbes devoir, pouvoir, savoir, vouloir
- LEXIQUE : Commander et commenter sur un plat de la carte, les aliments, les services, les moyens de paiement
- PRODUCTION ORALE : Jeu de rôle – au restaurant (entre vous et le garçon)
- PRODUCTION ECRITE : faire une comparaison avec la carte française et indienne

#### UNIT V: (12 Hours)

- TITRE: Tout le monde s'amuse/ les ados au quotidien
- GRAMMAIRE : les adjectifs démonstratifs, le pronom indéfini on, le futur proche, le passé composé, les verbes en -yer, voir et sortir
- LEXIQUE : connaître les marques connues sur les vêtements, les sorties, situer dans le temps, les vêtements et les accessoires

- PRODUCTION ORALE : décrire une tenue
- PRODUCTION ECRITE : écrire une lettre amicale, une carte postale

|                             |  |
|-----------------------------|--|
| <b>Teaching Methodology</b> | Chalk and talk, visual cues like flashcards, one to one conversation |
|-----------------------------|--|

## Book for Study

1. Dauda, P., Giachino, L. & Baracco, C. (2016). *Generation AI*. Didier.

## Books for Reference

1. Girardet, J. & Pecheur, J. (2017). *Echo AI*. CLE International, (2nd Ed.).
2. Mérieux, R. & Loiseau, Y. (2012). *Latitudes AI*. Didier.
3. Fournier, I. (2011). *Talk French*. Goyal Publishers.

## Websites and eLearning Sources

1. <https://www.frenchtoday.com/blog/french-verb-conjugation/french-reflexive-verbs-list-exercises/>
2. <https://www.fluentu.com/blog/french/french-subject-pronouns/>
3. <https://grammarist.com/french/french-partitive-article/>
4. <https://www.talkinfrench.com/guide-french-food-habits/>
5. <https://www.fluentu.com/blog/french/talking-about-clothes-in-french/>

| Course Outcomes |  |                                   |
|-----------------|--|-----------------------------------|
| CO No.          | CO-Statements  | Cognitive Levels<br>( K - Levels) |
|                 | On successful completion of this course, students will be able to        |                                   |
| CO1             | Relate pronominal verbs in expressing one's day today activity           | K1                                |
| CO2             | compare the different types of articles – article partitif and contracte | K2                                |
| CO3             | construct texts using pronouns – passages and dialogues                  | K3                                |
| CO4             | discover the food habits of the French culture                           | K4                                |
| CO5             | appraise the French fashion  | K5                                |

| Relationship Matrix |                          |     |                     |     |     |                                    |      |      |       |         |                   |
|---------------------|--------------------------|-----|---------------------|-----|-----|------------------------------------|------|------|-------|---------|-------------------|
| Semester            | Course Code              |     | Title of the Course |     |     |                                    |      |      | Hours | Credits |                   |
| 2                   | 23UFR21GL02              |     | French - 2          |     |     |                                    |      |      | 4     | 3       |                   |
| Course Outcomes     | Programme Outcomes (POs) |     |                     |     |     | Programme Specific Outcomes (PSOs) |      |      |       |         | Mean Score of COs |
|                     | PO1                      | PO2 | PO3                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4  | PSO5    |                   |
| CO1                 | 3                        | 3   | 3                   | 3   | 1   | 3                                  | 1    | 2    | 2     | 2       | 2.2               |
| CO2                 | 2                        | 1   | 2                   | 3   | 2   | 3                                  | 1    | 2    | 2     | 2       | 2.0               |
| CO3                 | 3                        | 2   | 3                   | 2   | 2   | 3                                  | 3    | 1    | 3     | 2       | 2.4               |
| CO4                 | 3                        | 2   | 2                   | 1   | 3   | 3                                  | 3    | 1    | 1     | 3       | 2.2               |
| CO5                 | 2                        | 1   | 2                   | 2   | 3   | 3                                  | 3    | 2    | 2     | 2       | 2.2               |
| Mean Overall Score  |                          |     |                     |     |     |                                    |      |      |       |         | 2.2 (High)        |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 2        | 23UHI21GL02 | HINDI - 2           | 4          | 3       |

| Course Objectives   |
|---|
| To understand the basics of Hindi Language                                      |
| To make the students to be familiar with the Hindi words                        |
| To enable the students to develop their effective communicative skills in Hindi |
| To introduce the socially relevant subjects in Modern Hindi Literature          |
| To empower the students with globally employable soft skills                    |

**UNIT I: (12 Hours)**

- Kafan
- Letter Writing - Chutti Patra
- Bakthikal - Namakarn
- Sarkari Kariyalayom Ka Naam

**UNIT II: (12 Hours)**

- Baathcheeth - Dookan Mein
- Kriya
- Letter Writing - Rishthedarom Ko Patra
- Bakthikal - Samajik Paristhithiyam

**UNIT III: (12 Hours)**

- Vah Thodthi Patthar
- Adverb
- Letter Writing - Naukari Keliye Avedan Patra
- Bakthikal - Sahithyik Paristhithiyam

**UNIT IV: (12 Hours)**

- Mukthi
- Samas
- Letter Writing - Kitab Maangne Keliye Patra
- Bakthikal - Salient Features, Main Divisions

**UNIT V: (12 Hours)**

- Anuvad
- Sandhi
- Letter Writing - Nagarpalika Ko Patra
- Bakthikal - Visheshathayem

|                             |  |
|-----------------------------|--|
| <b>Teaching Methodology</b> | Peer Instruction Exercise, Videos, PPT, Quiz, Group Discussion |
|-----------------------------|--|

**Books for Study**

1. Viswanath Tripathy. (2018). *Kuchh Kahaniyan*, Rajkamal Prakashan Pvt. Ltd.
2. Kamathaprasad Gupth, M. (2020). *Hindi Vyakaran*. Anand Prakashan.

3. Sadananth Bosalae. (2020). *kavya sarang*, Rajkamal Prakashan.

## Books for Reference

1. Acharya Ramchandra Shukla. (2021). *Hindi Sahitya Ka Itihas*. Prabhat Prakashan.
2. Krishnakumar, G. (2016). *Anuvad vigyan ki Bhumika*. Rajkamal Prakashan.
3. Aravind Kumar. (2019). *Sampoorna Hindi Vyakaran our Rachana*, Lucent publisher.
4. Lakshman Prasad Singh. (2017). *Kavya ke sopan*. Bharathy Bhavan Prakashan.

## Websites and e-Learning Sources

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2. <https://www.successcds.net/class10/hindi/samas-in-hindi>
3. <https://mycoaching.in/kriya-ke-bhed-verb-in-hindi>
4. <https://namastesensei.in/adverb-in-hindi-examples/>
5. <https://viahindi.in/hindi-vyakaran/sandhi-paribhasha-prakar-or-udaharan>

| Course Outcomes |  |                                 |
|-----------------|--|---------------------------------|
| CO No.          | CO-Statements  | Cognitive Levels<br>(K - Level) |
|                 | On successful completion of the course, the student will be able to                                |                                 |
| CO1             | Find out the Terms & Expressions related to letter writing.  | K1                              |
| CO2             | Explain the works of Hindi writers.  | K2                              |
| CO3             | Complete the sentences in Hindi using basic grammar.   | K3                              |
| CO4             | Analyze the social & political conditions of Devotional period in Hindi Literature.                | K4                              |
| CO5             | Justify the human values stressed on the works of the following authors “Premchand, Nirala, etc.”. | K5                              |

| Relationship Matrix |                          |     |                     |     |     |                                    |      |      |       |         |                   |
|---------------------|--------------------------|-----|---------------------|-----|-----|------------------------------------|------|------|-------|---------|-------------------|
| Semester            | Course Code              |     | Title of the Course |     |     |                                    |      |      | Hours | Credits |                   |
| 2                   | 23UHI21GL02              |     | HINDI - 2           |     |     |                                    |      |      | 4     | 3       |                   |
| Course Outcomes     | Programme Outcomes (POs) |     |                     |     |     | Programme Specific Outcomes (PSOs) |      |      |       |         | Mean Score of COs |
|                     | PO1                      | PO2 | PO3                 | PO4 | PO5 | PSO1                               | PSO2 | PSO3 | PSO4  | PSO5    |                   |
| CO1                 | 2                        | 3   | 3                   | 2   | 2   | 3                                  | 3    | 3    | 2     | 2       | 2.5               |
| CO2                 | 1                        | 3   | 1                   | 2   | 2   | 3                                  | 3    | 3    | 2     | 3       | 2.3               |
| CO3                 | 3                        | 2   | 3                   | 2   | 2   | 3                                  | 2    | 3    | 2     | 2       | 2.4               |
| CO4                 | 2                        | 3   | 3                   | 1   | 3   | 2                                  | 3    | 2    | 1     | 2       | 2.2               |
| CO5                 | 3                        | 2   | 2                   | 2   | 3   | 2                                  | 3    | 2    | 3     | 2       | 2.4               |
| Mean Overall Score  |                          |     |                     |     |     |                                    |      |      |       |         | 2.36 (High)       |

| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 2        | 23USA21GL02 | Sanskrit - 2        | 4          | 3       |

| Course Objectives   |
|---|
| To bring out the salient aspects of classical Sanskrit poetry                 |
| To introduce court epics in Sanskrit  |
| To train students in declensions of pronouns in Sanskrit                      |
| To coach the students in the conjugation patterns of verbs in Sanskrit        |
| To offer coaching in morpho-phonemic rules and their applications in Sanskrit |

#### UNIT I (12 Hours)

Asmathi usmath tat kim (MFN) sarvanaam asabdaha

#### UNIT II (12 Hours)

Sandhi Niyamaah Abhyaash (Guna , Visarga , Dirgha , Vrddhi)

#### UNIT III (12 Hours)

Lang lakaarah Kriyapadaani Prayoga Vivaranam

#### UNIT IV (12 Hours)

Raguvamsaha Pratama sargaha (1 –15 slokas)

#### UNIT V (12 Hours)

Suvacanani Vakya Prayoga Vivaranam

|                      |   |
|----------------------|---|
| Teaching Methodology | Videos, PPT, Blackboard, Demonstration, Exercises |
|----------------------|---|

#### Books for Study

1. Saralasamkritham Skisha. (2021).
2. Dhaatu Manjari. (2021).

#### Books for Reference

1. Paindrapuram Ashram, Srirangam. (2019).
2. Vadhyar, R. S., & Sons, Book – Seller and Publishers. (2021).
3. Kulapthy, K. M. (2018). *Saral Sanskrit Balabodh*. Bharathiys Vidya Bhavan.

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1. <https://www.meritnation.com>
2. <https://www.aplustopper.com>
3. <https://mycoaching.in/lang-lakar>
4. [https://sanskritdocuments.org/sites/giirvaani/giirvaani/rv/sargas/01\\_rv.htm](https://sanskritdocuments.org/sites/giirvaani/giirvaani/rv/sargas/01_rv.htm)
5. <https://resanskrit.com/blogs/blog-post/sanskrit-shlok-popular-quotes-meaning-hindi-english>



| Semester | Course Code | Title of the Course | Hours/Week | Credits |
|----------|-------------|---------------------|------------|---------|
| 2        | 23UEN22GE02 | General English - 2 | 5          | 3       |

| Course Objectives   |
|---|
| To develop an expanded and specialised vocabulary related to diverse themes such as education, entertainment, career, and society through activities like word grids, reading, and discussions. |
| To enhance problem-solving abilities through activities like debates, role-playing, and scenario analysis.  |
| To enable students to express ideas with precision and clarity by practising different forms of expressing quality, comparison, and actions in various contexts.                                |
| To equip students with language skills relevant to professional settings.   |
| To encourage students to explore language as a tool for creative expression and communication.  |

## UNIT I (15 Hours)

01. Education Word Grid
02. Reading Problems and Solutions
03. Syllabification
04. Forms for Expressing Quality
05. Expressing Comparison
06. Monosyllabic Comparison
07. Di/polysyllabic Comparison
08. The Best Monosyllabic Comparison
09. The Best Di/Polysyllabic Comparison
10. Practising Quality Words

## UNIT II (15 Hours)

11. Wh Words
12. Yes/No Recollection
13. Unscramble Wh Questions
14. Wh Practice
15. Education and the Poor
16. Controlled Role Play
17. Debate on Education
18. Education in the Future
19. Entertainment Word Grid
20. Classify Entertainment Wordlist
21. Guess the Missing Letter
22. Proverb-Visual Description
23. Supply Wh Words
24. Rearrange Questions
25. Information Gap Questions

## UNIT III (15 Hours)

26. Asking Questions
27. More about Actions
28. More about Actions and Uses
29. Crime Puzzle
30. Possessive Quiz
31. Humorous News Report

32. Debate on Media and Politics
33. Best Entertainment Source

#### UNIT IV

(15 Hours)

34. Career Word Grid
35. Job-Related Wordlist
36. Who's Who?
37. People at Work
38. Humour at Workplace
39. Profession in Context
40. Functions and Expressions
41. Transition Fill-in
42. Transition Word Selection
43. Professional Qualities
44. Job Procedures
45. Preparing a Resume
46. Interview Questions
47. Job Cover Letter Format
49. Emailing an Application
50. Mock Interview

#### UNIT V

(15 Hours)

51. Society Word Grid
52. Classify Society Wordlist
53. Rearrange the Story
54. Storytelling
55. Story Cluster
56. Words Denoting Time
57. Expressing Time
58. What Can You Buy?
59. Noise Pollution
60. Positive News Headlines
61. Negative News Headlines
62. Matching Conditions
63. What Would You Do?
64. If I were the Prime Minister
65. My Dream Country

|                             |   |
|-----------------------------|---|
| <b>Teaching Methodology</b> | Lecture Method, Use of ICT Tools and Interactive method |
|-----------------------------|---|

#### Book for Study

1. Joy, J.L. & Peter, F.M. (2014). *Let's Communicate 2*, Trinity Press.

#### Books for Reference

1. Ahrens, Sönke. (2017). *How to Take Smart Notes: One Simple Technique to Boost Writing, Learning and Thinking*. Create Space.
2. Aspinall, Tricia. (2002). *Test Your Listening*. Pearson.
3. Bailey, Stephen. (2004). *Academic Writing: A Practical Guide for Students*. Routledge.
4. Fitikides, T.J. (2002). *Common Mistakes in English*, (6th Ed.). Longman
5. Wainwright, Gordon. (2007). *How to Read Faster and Recall More: Learn the Art of Speed Reading with Maximum Recall*, (3rd Ed.). How to Books.

#### Websites and eLearning Sources

1. <https://learnenglish.britishcouncil.org/>
2. <https://oneminuteenglish.org/en/best-websites-learn-english/>



| Semester | Course Code | Title of the Course                                      | Hours/Week | Credits |
|----------|-------------|--|------------|---------|
| 2        | 23UCS23CC02 | Core Course - 2:<br>Object Oriented Programming with C++ | 4          | 3       |

| Course Objectives   |
|---|
| To make students understand the basic programming constructs of C++ |
| To make the students know the concepts of class and objects         |
| To solve the given application problems using constructor concepts  |
| To learn and apply various forms of inheritance                     |
| To understand the file management, templates and exception handling |

### UNIT I: Object Oriented Programming (12 Hours)

Introduction- Concepts – Benefits – Applications of OOP. Structure-Compiling and linking of C++ program. Functions: Function prototyping – Inline functions - Default arguments - Const Argument - Function Overloading

### UNIT II: Classes and Objects (12 Hours)

Specifying a class-Member functions- Private Member functions –Arrays within a class - Static Data Members – Static Member Functions – Array of objects –Object as function arguments – Friendly Functions-Returning objects.

### UNIT III: Constructors and Destructors (12 Hours)

Constructors - Parameterized Constructors –Multiple Constructors in a class - Constructors with default arguments – Dynamic Initialization of Object - Copy Constructor - Dynamic Constructors- Destructors - Operator Overloading: Defining Operator Overloading - Overloading unary and binary Operator - Overloading binary operators using friend functions.

### UNIT IV: Inheritance (12 Hours)

Introduction – Defining Derived Classes – single Inheritance - Multilevel Inheritance – Multiple Inheritance – Hybrid Inheritance – Virtual base classes – abstract classes

### UNIT V: Files and Exception Handling (12 Hours)

C++ stream classes – Unformatted I/O Operations – Formatted Console I/O operations- Files: Introduction- Classes for file Streams- Opening and Closing a File – File Modes - File Pointers and their Manipulations - Sequential Input and Output Operations - Command Line Arguments -Templates: Class Templates – Function Templates-Exception Handling

| Teaching Methodology | Videos, PPT, Demonstration, and Hands on sessions |
|----------------------|---|
|----------------------|---|

### Book for Study

- Balagurusamy, E. (2016). *Object Oriented Programming with C++* (6th Ed.). Tata McGraw-Hill.  
**Unit-I** Chapter 1: 1.5, 1.6, 1.8, Chapter 2: 2.6, 2.8, Chapter 4: 4.3, 4.6, 4.7, 4.8, 4.10  
**Unit-II** Chapter 5: 5.3, 5.4, 5.8, 5.9, 5.11 – 5.16  
**Unit-III** Chapter 6: 6.2 – 6.8, 6.11, Chapter 7: 7.2 – 7.5  
**Unit-IV** Chapter 8: 8.1 – 8.3, 8.5, 8.6, 8.9, 8.10  
**Unit-V** Chapter 10: 10.3 – 10.5, Chapter 11: 11.1 – 11.3, 11.5 – 11.7, 11.10, Chapter 12: 12.2, 12.4, Chapter 13.

### Books for Reference

- Lafore, R. (2012). *Object-Oriented Programming in C++*. (4th Ed.). Pearson Education, Ninth Impression.
- Stroustrup, B. (2012). *The C++ Programming Language*. (3rd Ed.). Pearson Education and Dorling Kindersley, Tenth Impression.



| Semester | Course Code | Title of the Course                                | Hours/Week | Credits |
|----------|-------------|--|------------|---------|
| 2        | 23UCS23CC03 | Core Course - 3:<br>Data Structures and Algorithms | 4          | 3       |

| Course Objectives   |
|---|
| To comprehend the fundamental concepts of data structures, including arrays, linked lists, stacks, and queues |
| To apply stack operations for the evaluation of arithmetic expressions  |
| To implement binary tree traversal algorithms   |
| To use the various sorting and searching algorithms   |
| To learn the basic steps of algorithm design and various algorithm design methods                             |

#### UNIT I: Arrays and Linked Lists (12 Hours)

Arrays: Definition - Terminology - One dimensional array - multi dimensional arrays. Linked lists: Definition - Circular linked lists - Double linked lists - Circular double linked lists

#### UNIT II: Stacks and Queues (12 Hours)

Stacks: Definition - Representation of a Stack - operations on Stacks - Evaluation of Arithmetic expressions. Queues: Definition – Representation of Queues - Various Queue structures.

#### UNIT III: Tree Traversals (12 Hours)

Trees: Basic terminologies - Definition and concepts - Representation of Binary tree - Binary tree traversals.

#### UNIT IV: Searching and Sorting (12 Hours)

Computer Sorting: Terminologies – Techniques – Bubble sort – Insertion sort – Quick sort – Radix sort – Searching – Terminologies - Linear search with arrays – Binary Search.

#### UNIT V: Hill Climbing and Backtracking (12 Hours)

Algorithms - Basic Steps. Algorithm Design Methods: Sub goals - Hill Climbing - Working Backward - Heuristics - Backtrack Programming – Recursion.

|                      |   |
|----------------------|---|
| Teaching Methodology | Videos, PPT, Demonstration, and Hands on sessions |
|----------------------|---|

#### Books for Study

1. Samanta, D. (2009). *Classic Data Structures*. (2nd Ed.). PHI Learning Pvt. Ltd.
2. Goodman, S.E, & Hedetniemi, S.T. (1988). *Introduction to the Design and Analysis of Algorithms*. McGraw-Hill, International edition.

#### Books for Reference

1. Horowitz, E. & Sahni, S. (1985). *Fundamentals of Data Structures*. Galgotia Publications.
2. Tanenbaum, A.M. & Augustein, M.J. (1985). *Data structures with Pascal*. Prentice Hall of India Ltd.

#### Websites and eLearning Sources

1. <https://www.geeksforgeeks.org/data-structures/>
2. <https://www.codechef.com/certification/data-structures-and-algorithms/prepare>
3. <https://www.coursera.org/learn/database-structures-and-management-with-mysql>
4. <https://www.shiksha.com/online-courses/database-structures-and-management-with-mysql-course-courl5214>



| <b>Semester</b> | <b>Course Code</b> | <b>Title of the Course</b>                             | <b>Hours/Week</b> | <b>Credits</b> |
|-----------------|--------------------|--|-------------------|----------------|
| <b>2</b>        | <b>23UCS23CP02</b> | <b>Core Practical - 2:<br/>C++ and Data Structures</b> | <b>3</b>          | <b>2</b>       |

### **List of Exercises**

1. Classes and Objects
2. Constructors
3. Inheritance
4. Function Overriding and Overloading
5. Operations on array
6. Operations on stack
7. Convert Infix to Postfix and evaluate Postfix using Stack class
8. Operations on Queue
9. Operations on Singly linked list
10. Binary Tree Creation and Traversals
11. Analyze Bubble Sort with number of passes, comparisons and data moves
12. Linear and Binary Search

| Semester | Course Code | Title of the Course                    | Hours/Week | Credits |
|----------|-------------|--|------------|---------|
| 2        | 23UCS23AC02 | Allied Course - 2: Statistical Methods | 6          | 4       |

| Course Objectives  |
|--|
| To make students understand the concepts of probability, statistical measures and theoretical Distributions. |
| To apply probability and statistical measures concepts in real life problems.                                |
| To impart knowledge on coefficient of skewness and coefficient of correlation.                               |
| To interpret the relationship between variables.   |
| To apply the theoretical distributions and discuss the expected results in real life problems.               |

#### **UNIT I: Measures of Central Tendency (average) (18 Hours)**

Arithmetic mean: Discrete series, Continuous series - Open end classes - Median: Discrete series, Continuous series - Quartiles - Mode: Discrete series, Continuous series

#### **UNIT II: Dispersion and skewness (18 Hours)**

Concept of Variation - Methods of Measuring Dispersion: Range, Inter quartile range, Mean deviation, Standard deviation - Mean deviation: Individual series, Discrete series, Continuous series - Standard deviation: Individual series, Discrete series, Continuous series - Coefficient of variation - Skewness - Relative measure of skewness: Karl Pearson's coefficient of skewness

#### **UNIT III: Correlation and regression (18 Hours)**

Correlation - Properties of coefficient of correlation - Karl Pearson's coefficient of correlation - Rank correlation coefficient - Regression: Regression of Y on X - Deviation taken from arithmetic mean of X on Y - Deviation Taken from assumed mean.

#### **UNIT IV: Probability (18 Hours)**

Mathematical Preliminaries - Permutation and Combination - Measurement of Probability - Bayes Theorem.

#### **UNIT V: Theoretical distribution (18 Hours)**

Binominal distribution: Properties of Binominal distribution - Fitting a Binominal distribution - Poisson distribution: Fitting a Poisson distribution - Normal distribution.

**Note:** No derivations problems only.

|                             |  |
|-----------------------------|--|
| <b>Teaching Methodology</b> | Chalk and Talk method, Problem solving |
|-----------------------------|--|

#### **Book for Study**

- Pillai, R. S. N. & Bagavathi. (2009). *Statistics Theory and Practice*. (7th Ed.). S. Chand and Company Ltd.

**Unit I:** Chapter 9 (Pages 125-134, 136-139, 145-154, 156-159, 166-172).

**Unit II:** Chapter 10 (Pages 241-268, 278-290), Chapter 11 (Pages 338-347)

**Unit III:** Chapter 12 (Pages 396-410, 415-420), Chapter 13 (Pages 465-480)

**Unit IV:** Chapter 18 (Pages 726-759)

**Unit V:** Chapter 19 (Pages 769-800)

#### **Books for Reference**

- Gupta, S. C. & Kapoor, V. K. (2002). *Fundamentals of Mathematical Statistics*. (11th Ed.). Sultan Chand & Sons.
- Gupta, S. P. (2005). *Statistical method*. (33rd Ed.). Sultan Chand & Sons.
- Vittal, P. R. (2004). *Mathematical Statistics*. Margham Publications.

4. Kapur, J. N. & Saxena, H. C. (2010). *Mathematical Statistics.*, (20th Ed.). S. Chand & Co Ltd.

| Course Outcomes |   |                                 |
|-----------------|---|---------------------------------|
| CO No.          | CO-Statements   | Cognitive Levels<br>(K - Level) |
|                 | On successful completion of this course, students will be able to   |                                 |
| CO1             | acquire knowledge of probability and statistical methods, theoretical distributions.  | K1                              |
| CO2             | understand the fundamental concepts of measures of central tendency, dispersion, correlation and theoretical distributions                  | K2                              |
| CO3             | construct appropriate mathematical model to solve a variety of practical problems.  | K3                              |
| CO4             | accurate and efficient use of different methods such as measures of central tendency, dispersion, correlation and theoretical distributions | K4                              |
| CO5             | demonstrate the competency in solving problems related to probability and statistics.   | K5                              |

| Relationship Matrix |                          |     |     |  |     |                                    |      |      |      |       |                    |
|---------------------|--------------------------|-----|-----|--|-----|------------------------------------|------|------|------|-------|--------------------|
| Semester            | Course Code              |     |     | Title of the Course                    |     |                                    |      |      |      | Hours | Credits            |
| 2                   | 23UCS23AC02              |     |     | Allied Course - 2: Statistical Methods |     |                                    |      |      |      | 6     | 4                  |
| Course Outcomes     | Programme Outcomes (POs) |     |     |  |     | Programme Specific Outcomes (PSOs) |      |      |      |       | Mean Scores of COs |
|                     | PO1                      | PO2 | PO3 | PO4                                    | PO5 | PSO1                               | PSO2 | PSO3 | PSO4 | PSO5  |                    |
| CO1                 | 3                        | 2   | 2   | 2                                      | 1   | 3                                  | 3    | 2    | 2    | 3     | 2.2                |
| CO2                 | 2                        | 3   | 2   | 1                                      | 2   | 3                                  | 3    | 2    | 2    | 3     | 2.3                |
| CO3                 | 1                        | 2   | 3   | 2                                      | 3   | 2                                  | 3    | 2    | 3    | 2     | 2.3                |
| CO4                 | 1                        | 2   | 2   | 3                                      | 1   | 2                                  | 3    | 2    | 2    | 3     | 2.1                |
| CO5                 | 1                        | 2   | 2   | 2                                      | 3   | 1                                  | 3    | 2    | 2    | 3     | 2.1                |
| Mean Overall Score  |                          |     |     |  |     |                                    |      |      |      |       | 2.2 (High)         |

| Semester | Course Code | Title of the Course                                  | Hours/Week | Credits |
|----------|-------------|--|------------|---------|
| 2        | 23UHE24VE02 | Value Education - 2:<br>Fundamentals of Human Rights | 2          | 1       |

| Course Objectives   |
|---|
| To sensitize students about various human rights and their importance                           |
| To empower them with the right understanding of human rights                                    |
| To enable them to understand the Fundamental rights and the duties in the constitution of India |
| To help them comprehend the background, principles and the articles of UDHR                     |
| To make them involved in activities to defend human rights                                      |

#### **UNIT I: Human Rights - An Introduction (6 Hours)**

Introduction- Classification of Human Rights- Scope of Human Rights-Characteristics of Human Rights - Challenges for Human Rights in the 21<sup>st</sup> Century.

#### **UNIT II: Historical Development of Human Rights (6 Hours)**

Human Rights in Pre-World War Era- Human Rights in Post-World War Era- Evolution of International Human Rights Law - the General Assembly Proclamation- Institution Building, Implementation and the Post- Cold War Period. The ICC.

#### **UNIT III: India and Human Rights (6 Hours)**

Introduction- Preamble to Indian Constitution - Classification of Fundamental Rights-Salient Features of Fundamental Rights-and Fundamental Duties.

#### **UNIT IV: Human Rights of Women and Children (6 Hours)**

Women's Human Rights- Issues related to women's rights - and Rights of Women's and Children

#### **UNIT V: Human Rights Violations and Organizations (6 Hours)**

Human Rights Violations - Human Rights Violations in India - the Human Rights Watch Report, January 2012- Human Rights Organizations – NHRC – SHRC.

|                             |  |
|-----------------------------|--|
| <b>Teaching Methodology</b> | Chalk and Talk, Power point, Handouts and Group discussion |
|-----------------------------|--|

#### **Book for Study**

1. Department of Human Excellence, (2021). *Techniques of Social Analysis: Fundamentals of Human Rights*.

#### **Books for Reference**

1. Venkatachalem. (2005). *The Constitution of India*, Giri Law House.
2. Naik, V. & Shany, M. (2011). *Human rights education and training*, Crescent Publishing Corporation.
3. Neera, B. (2011). *Human Rights Content and Extent*. Swastika Publications.

#### **Websites and eLearning Sources**

1. <https://www.un.org/en/universal-declaration-human-rights/>
2. <https://www.ilo.org/global/lang--en/>
3. <https://www.amnesty.org/en/>



| Semester | Course Code | Title of the Course   | Hours/Week | Credits |
|----------|-------------|---|------------|---------|
| 2        | 23UHE24AE01 | Ability Enhancement Compulsory Course - 2:<br>Environmental Studies | 2          | 1       |

| Course Objectives   |
|---|
| To enable students connect themselves with nature   |
| To Impart knowledge of the concept of Biodiversity  |
| To create awareness of the causes and consequences of various pollution   |
| To help them recognize the available natural resources and the need to sustain them   |
| To enable them to Identify the environmental problems and offer alternatives by making interventions both individually and collectively |

#### **UNIT I: Introduction to Environmental Studies (6 Hours)**

Introduction – Scope and Importance – Subsystems of Earth – Various recycling Methods – Environmental Movements in India – Eco- Feminism – Public awareness – Suggestions to conserve environment

#### **UNIT II: Natural Resources (6 Hours)**

Food Resources – Land Resources – Forest resources – Mineral Resources – Water Resources – Energy Resources

#### **UNIT III: Ecosystems, Biodiversity and Conservation (6 Hours)**

General structure of ecosystem - Functions of Ecosystem - Energy flow and Ecological pyramids – Levels of Biodiversity - Hot spots of Biodiversity - Endangered and Endemic Species - Value of Biodiversity - Threats to Biodiversity - Conservation of Biodiversity

#### **UNIT IV: Environmental Pollution (6 Hours)**

Air Pollution – Water Pollution – Oil Pollution – Soil Pollution – Marine Pollution – Noise Pollution - Thermal Pollution – Radiation Pollution

#### **UNIT V: Environmental Organizations and Treatise (6 Hours)**

United Nations Environment Program (UNEP) - International treaties on Environmental protection - Ministry of Environment, Forest and Climate Change - Important National Environmental Acts and rules– Environmental Impact assessment - Issues deals with Population growth.

|                             |   |
|-----------------------------|---|
| <b>Teaching Methodology</b> | Chalk and Talk, Power point and Field visit |
|-----------------------------|---|

#### **Book for Study**

1. Department of Human Excellence, (2021). *Environmental Studies*.

#### **Books for Reference**

1. Rathor, V.S. & Rathor B. S. (2013). *Management of Natural Resources for Sustainable Development*. Daya Publishing House.
2. Sharma P.D. (2010). *Ecology and Environment*, (8th Ed.). Rastogi Publications.
3. Agrawal, A & Gibson, C.C. (2001). *Introduction: The Role of Community in Natural Resource Conservation*. Rutgers University Press.

#### **Websites and eLearning Sources**

1. <https://www.unep.org/>
2. <http://moef.gov.in/en/>
3. <https://www.ipcc.ch/reports/>

