# Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
Approved by Government of Tamil Nadu & Accredited by NAAC with 'A$^{++}$' Grade (3rd Cycle - 3.64 CGPA)
Dr. N.G.P.-Kalapatti Road, Coimbatore-641 048, Tamil Nadu, India.
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## REGULATIONS 2023-24 for Under Graduate Programme

## (Outcome Based Education model with Choice Based Credit System)

## B.Sc. FOOD SCIENCE AND NUTRITION

(For the students admitted during the academic year 2023-24 and onwards)

**Eligibility:**

A candidate who has passed in Higher Secondary Examination with any Academic stream or Vocational stream as one of the subject under Higher Secondary Board of Examination and as per the norms set by the Government of Tamil Nadu or an Examination accepted as equivalent thereto by the Academic Council, subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the **Bachelor of Science in Food Science and Nutrition Degree Examination** of this College after a course of study of three academic years.

**Programme Educational Objectives:**

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. To enable the students to implement the basic food science in operation.
2. To provide basic knowledge and practice to enhance the quality of life though the improvement of human health and nutritional status.
3. To develop skill and techniques in food preparation with conservation of nutrients and palatability using cooking methods generally employed.
4. To help the students to contribute proper utilization of foods and prevent food ravages.
5. To understand the prevalence of malnutrition in Indian scenario and gain knowledge on effective methods to combat malnutrition

## PROGRAMME OUTCOMES

On the successful completion of the programme, the following are the expectedoutcomes.

| PO Number | PO Statement |
|---|---|
| PO1 | Acquire knowledge and develop aptitude in Food Science and Nutrition intended for potential career opportunities. |
| PO2 | Build self-empowerment in food Science and Nutrition and develop effective communication skills sufficient for entry in preprofessional practice. |
| PO3 | Apply skills by planning, implementing and evaluating diets to the community in the current scenario. |
| PO4 | Interpret and utilize nutrition techniques in developing novel products to improve the health status of society and promote entrepreneurism. |
| PO5 | Develop professional attributes and portfolio in Food Science and Nutrition that are adopted to serve in diverse professional and community organizations. |

***Guidelines for Programmes offering Part I & Part II for Four Semesters:***

| Part | Subjects | No. of Papers | Credit | Semester No. |
|---|---|---|---|---|
| **I** (12 Credits) | Tamil / Hindi / French/Malayalam | 4 | 4 x 3 = 12 | I & IV |
| **II** (12 Credits) | English | 4 | 4 x 3 = 12 | I & IV |
| **III** (108 Credits) | Core (Credits 2,3,4,5 ) | 16-19 | 70 | I to VI |
| | Inter Departmental Course (IDC) | 4 | 16 | I to IV |
| | Discipline Specific Elective (DSE) | 3 | 3 x 4 =12 | V & VI |
| | Skill Enhancement Course(SEC) | 4 | 8 | III ,IV,V& VI |
| | Industrial Training | 1 | 2 | V |
| **IV** (8 Credits) | Environmental Studies(AECC) | 1 | 2 | I |
| | Basic Tamil/ Advance Tamil /Human Rights &Women's Rights(AECC) | 1 | 2 | II |
| | Innovation & IPR/Innovation, IPR &Entrepreneurship (AECC) | 1 | 2 | VI |
| | Generic Elective(GE) (AEEC) | 1 | 2 | V |
| **V** (2 Credits) | NSS/NCC/YRC/RRC/Yoga/Sports/Clubs | - | 2 | I -II |
| **TOTAL CREDITS** | | | **142** | |

**CURRICULUM**

**B.Sc. Food Science and Nutrition**
**A.Y**
**23-24**

| Course Code | Course Category | Course Name | L | T | P | Exam (h) | Max Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CIA | ESE | Total | |
| **First Semester** | | | | | | | | | | |
| **Part-I** | | | | | | | | | | |
| 231TL1A1TA | Language-I | Tamil-I | 4 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| 231TL1A1HA | | Hindi-I | | | | | | | | |
| 231TL1A1MA | | Malayalam – I | | | | | | | | |
| 231TL1A1FA | | French-I | | | | | | | | |
| **Part-II** | | | | | | | | | | |
| 231EL1A1EA | Language-II | English–I | 4 | - | 1 | 3 | 25 | 75 | 100 | 3 |
| **Part-III** | | | | | | | | | | |
| 233FN1A1CA | Core-I | Fundamentals of Food Science | 4 | 1 | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A1CB | Core-II | Chemistry of Foods | 4 | 1 | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A1CP | Core practical-I | Food Science | - | - | 5 | 3 | 40 | 60 | 100 | 2 |
| 232CE1A1IA | IDC-I | Chemistry | 3 | - | - | 3 | 25 | 75 | 100 | 3 |
| **Part-IV** | | | | | | | | | | |
| 233MB1A1AA | AECC-I | Environmental studies | 2 | - | - | - | 50 | - | 50 | 2 |
| **Part - V** | | | | | | | | | | |
| 233FN1A1XA | Extension Activity | NSS/NCC/YRC/ RRC/Yoga/Sports/ Club | - | - | - | - | 50 | | 50 | 1 |
| **Total** | | | **21** | **3** | **6** | - | - | - | **700** | **22** |

| Course Code | Course Category | Course Name | L | T | P | Exam (h) | Max Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CIA | ESE | Total | |
| **Second Semester** | | | | | | | | | | |
| **Part-I** | | | | | | | | | | |
| 231TL1A2TA | Language-I | Tamil-II | 4 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| 231TL1A2HA | | Hindi-II | | | | | | | | |
| 231TL1A2MA | | Malayalam – II | | | | | | | | |
| 231TL1A2FA | | French-II | | | | | | | | |
| **Part- II** | | | | | | | | | | |
| 231EL1A2EA | Language- II | English– II | 4 | - | 1 | 3 | 25 | 75 | 100 | 3 |
| **Part-III** | | | | | | | | | | |
| 233FN1A2CA | Core-III | Principles of Nutrition | 4 | 1 | 1 | 3 | 25 | 75 | 100 | 4 |
| 233FN1A2CP | Core Practical-II | Nutrition Practical | - | - | 5 | 3 | 40 | 60 | 100 | 2 |
| 232CE1A2IP | IDC Practical-I | Applied Chemistry | 3 | - | 4 | 3 | 40 | 60 | 100 | 5 |
| **Part-IV** | | | | | | | | | | |
| 231TL1A2AA/ 231TL1A2AB/ 235CR1A2AA | AECC-II | Basic Tamil/ Advance Tamil /Human Rights and Women's Rights | 2 | - | - | - | 50 | - | 50 | 2 |
| **Part-V** | | | | | | | | | | |
| 233FN1A2XA | Extension Activity | NSS/NCC/YRC/RRC/Yoga/Sports | | | | | 50 | - | 50 | 1 |
| **Total** | | | **17** | **2** | **11** | | | | **600** | **20** |

| Course Code | Course Category | Course Name | L | T | P | Exam (h) | Max Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CIA | ESE | Total | |
| **Third Semester** | | | | | | | | | | |
| **Part-I** | | | | | | | | | | |
| 231TL1A3TA | Language-I | Tamil-III | 3 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| 231TL1A3HA | | Hindi-III | | | | | | | | |
| 231TL1A3MA | | Malayalam – III | | | | | | | | |
| 231TL1A3FA | | French-III | | | | | | | | |
| **Part- II** | | | | | | | | | | |
| 231EL1A3EA | Language-II | English–III | 3 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| **Part-III** | | | | | | | | | | |
| 233FN1A3CA | Core -IV | Nutrition Through Life Span | 4 | 1 | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A3CB | Core -V | Human Physiology | 3 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| 233FN1A3CC | Core -VI | Institutional Management | 3 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| 233FN1A3CP | Core Practical-III | Nutrition Through Life Span | - | - | 4 | 3 | 40 | 60 | 100 | 2 |
| 233BC1A3IA | IDC-III | Biochemistry | 3 | - | - | 3 | 25 | 75 | 100 | 3 |
| 233FN1A3SA | SEC- I | Basics of Research Techniques-Computer Application | 2 | - | - | 3 | 25 | 75 | 100 | 2 |
| **Total** | | | **21** | **5** | **4** | | | | **800** | **23** |

| Course Code | Course Category | Course Name | L | T | P | Exam (h) | Max Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CIA | ESE | Total | |
| **Fourth Semester** | | | | | | | | | | |
| **Part-I** | | | | | | | | | | |
| 231TL1A4TA | Language-I | Tamil-IV | 3 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| 231TL1A4HA | | Hindi-IV | | | | | | | | |
| 231TL1A4MA | | Malayalam – IV | | | | | | | | |
| 231TL1A4FA | | French-IV | | | | | | | | |
| **Part- II** | | | | | | | | | | |
| 231EL1A4EA | Language-II | English–IV | 3 | 1 | - | 3 | 25 | 75 | 100 | 3 |
| **Part-III** | | | | | | | | | | |
| 233FN1A4CA | Core-VII | Dietetics | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A4CP | Core Practical-IV | Dietetics | - | - | 4 | 3 | 40 | 60 | 100 | 2 |
| 233FN1A4CB | Core - VIII | Perspective Psychology | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233BC1A4IA | IDC-IV | Biochemistry -II | 3 | - | - | 3 | 25 | 75 | 100 | 3 |
| 233BC1A4IP | IDC Practical-II | Biochemistry Practical | - | - | 4 | 3 | 40 | 60 | 100 | 2 |
| 233FN1A4SA | SEC-II | Functional Foods | 2 | 1 | - | 3 | 25 | 75 | 100 | 2 |
| **Total** | | | **19** | **3** | **8** | | | | **800** | **23** |

| Course Code | Course Category | Course Name | L | T | P | Exam (h) | Max Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CIA | ESE | Total | |
| **Fifth Semester** | | | | | | | | | | |
| **Part-III** | | | | | | | | | | |
| 233FN1A5CA | Core-IX | Food Preservation | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A5CB | Core-X | Fundamentals of Food Microbiology | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A5CC | Core- XI | Food Processing | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A5CD | Core - XII | Food Safety and Quality Control | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A5CV | Core-XIII | Project work and viva voce | - | - | - | 3 | 40 | 60 | 100 | 2 |
| 233FN1A5CP | Core Practical-V | Food Preservation | - | - | 4 | 3 | 40 | 60 | 100 | 2 |
| 233FN1A5SP | SEC-III | Food Processing and Quality Control | - | - | 4 | 3 | 40 | 60 | 100 | 2 |
| 233FN1A5DA | DSE-I | Post-Harvest Technology | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A5DB | | Clinical Nutrition | | | | | | | | |
| 233FN1A5DC | | Food Commodities | | | | | | | | |
| 233FN1A5TA | IT | IndustrialTraining | - | - | - | 3 | 40 | 60 | 100 | 2 |
| **Part - IV** | | | | | | | | | | |
| | GE | | 2 | - | - | 3 | 50 | - | 50 | 2 |
| **Total** | | | **22** | **-** | **8** | | | | **950** | **30** |

| CourseCode | Course Category | Course Name | L | T | P | Exam (h) | Max Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CIA | ESE | Total | |
| **Sixth Semester** | | | | | | | | | | |
| **Part-III** | | | | | | | | | | |
| 233FN1A6CA | Core-XIV | Community Nutrition | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A6CB | Core-XV | Food Product Development & Marketing | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A6CP | Core Practical VI | Community Nutrition | - | - | 3 | 3 | 40 | 60 | 100 | 2 |
| 233FN1A6CQ | Core Practical -VII | Food Product Development | - | - | 3 | 3 | 40 | 60 | 100 | 2 |
| 233FN1A6SA | SEC-IV | Indigenous Foods | 2 | - | - | 3 | 25 | 75 | 100 | 2 |
| 233FN1A6DA | DSE-II | Food Handling and storage | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A6DB | | Nutrition Care Process | | | | | | | | |
| 233FN1A6DC | | Unit operation in Food Industry | | | | | | | | |
| 233FN1A6DD | DSE-III | Basics of Food Packaging | 4 | - | - | 3 | 25 | 75 | 100 | 4 |
| 233FN1A6DE | | Diet Counseling | | | | | | | | |
| 233FN1A6DF | | Entrepreneurship In Food Industry | | | | | | | | |
| **Part-IV** | | | | | | | | | | |
| 235BI1A6AA | AECC-III | Innovation and IPR | 2 | - | - | - | 50 | - | 50 | 2 |
| **Total** | | | **24** | **-** | 6 | | | | **750** | **24** |
| **Grand Total** | | | | | | | | | **4600** | **142** |

## DISCIPLINE SPECIFIC ELECTIVE

Students shall select the desired course of their choice in the listed elective course during Semesters V & VI

### Semester V (Elective I)

### List of Elective Courses

| S. No. | Course Code | Name of the Course |
|---|---|---|
| 1 | 233FN1A5DA | Post-Harvest Technology |
| 2 | 233FN1A5DB | Clinical Nutrition |
| 3 | 233FN1A5DC | Food Commodities |

### Semester VI (Elective II)

### List of Elective Courses

| S. No. | Course Code | Name of the Course |
|---|---|---|
| 1 | 233FN1A6DA | Food Handling andstorage |
| 2 | 233FN1A6DB | Nutrition CareProcess |
| 3 | 233FN1A6DC | Unit Operation in Food Industry |

### Semester VI (Elective III)

### List of Elective Courses

| S. No. | Course Code | Name of the Course |
|---|---|---|
| 1 | 233FN1A6DD | Basics of FoodPackaging |
| 2 | 233FN1A6DE | Diet Counseling |
| 3 | 233FN1A6DF | Entrepreneurship In Food Industry |

## GENERIC ELECTIVE COURSE (GE)

**The following are the course offered under Generic Elective Course**

**Semester V**

| S. No. | Course Code | Course Name |
|---|---|---|
| 1 | 233FN1A5GA | Food Preservation |

## EXTRA CREDIT COURSES

**The following are the courses offered under self-study to earn extra credits:**

**Semester III**

| S. No. | Course Code | Course Name |
|---|---|---|
| 1 | 233FN1ASSA | Food Fortification |
| 2 | 233FN1ASSB | Nutrition Education |

# UG - REGULATION (R5)

**(2023-24 and onwards)**

**(OUTCOME BASED EDUCATION WITH CBCS)**

## 1.NOMENCLATURE

**1.1 Faculty**: Refers to a group of programmes concerned with a major division of knowledge Eg. Faculty of Computer Science consists of disciplines like Departments of Computer Science, Information Technology, Computer Technology, Computer Applications, Data Analytics, Cognitive Systems, Artificial Intelligence and Machine Learning and Cyber Security

**1.2 Programme**: Refers to the Bachelor of Science / Commerce /Arts stream that a student has chosen for study.

**1.3 Batch**: Refers to the starting and completion year of a programme of study. Eg. Batch of 2023–26 refers to students belonging to a 3 year Degree programme admitted in 2023 and completing in 2026.

**1.4 Course**: Refers to component of a programme. A course may be designed to involve lectures / tutorials / laboratory work / seminar / project work/ practical training / report writing / Viva- voce, etc., or a combination of these, to meet effectively the teaching learning needs.

a) **Core Course:**A course, which should compulsorily be studied by a candidate as a core requirement

b) **Inter Disciplinary Course (IDC):** A course chosen generally from a related discipline/subject with an intention to seek exposure in the discipline relating to the core domain of the student

c) **Discipline Specific Elective (DSE) Course**: Elective courses offered under main discipline/ subject of study.

d) **Skill Enhancement Courses (SEC):** Value-based and/or skill-based courses which are aimed at providing hands-on-training, competencies, skills, etc.

e) **Ability Enhancement Compulsory Courses (AECC):**Mandatory courses that lead to Knowledge enhancement. Environmental Science, Human Rights and Women's Rights, Basic Tamil/ Advanced Tamil, Innovation and IPR, Innovation, IPR and Entrepreneurship.

f) **Ability Enhancement Elective Course (AEEC)/Generic Elective (GE)** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is Generic Elective.

### 1.5 Project Work:

Course involving application of knowledge in problem solving / analyzing /exploring a real life situation / difficult problem. The Project work will be given in lieu of a Core paper.

**Internship/Industrial Training**

Students must undertake industrial / institutional training for a minimum of 15 days during the IV semester summer vacation. The students will submit the report for evaluation during V semester.

### 1.6 Extra Credits:

Extra credits shall be awarded for achievements in identified curricular/co-curricular/Extracurricular activities executed outside the regular class hours. Extra credits are not mandatory for completing the programme.

## 2. STRUCTURE OF PROGRAMME

### 2.1 PART- I: LANGUAGE- I

Tamil or any one of the languages namely Malayalam, Hindi and French will be offered under Part – I in the first four semesters.

### 2.2 PART- II: LANGUAGE- II

English will be offered during the first four semesters.

### 2.3 PART- III:

- Core Course
- Inter Departmental Course (IDC)
- Discipline Specific Elective (DSE)
- Skill Enhancement Course (SEC)
- Industrial Training (IT)

### 2.4 PART- IV:

#### 2.4.1 Ability Enhancement Compulsory Course (AECC):

The Ability Enhancement Compulsory Courses such as i)Environmental Studies, ii) Human Rights and Womens' Rights, iii) Innovation and IPR/ Innovation, IPR and Entrepreneurship are offered during I,II and VI Semester.

Basic Tamil

a) Those who have not studied Tamil up to XII Std and taken a non-Tamil language under Part-I shall take oneBasic Tamil coursein the second semester.

(OR)

Advanced Tamil

b) Those who have studied Tamil up to XII Std and taken a non-Tamil language under Part-I shall take one Advanced Tamil course in the second semester.

**Note:** Students who come under the above a+b categories are exempted from Human Rights and Women's Rights in the second semester.

**Ability Enhancement Elective Course (AEEC)/Generic Elective (GE)** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is Generic Elective offered in V semester. (Theory/Practical/Non-Lab Practical)

## 2.5 PART- V: EXTENSION ACTIVITIES

The following extracurricular activities like NSS/YRC/NCC/RRC/Yoga/Sports/Clubs are offered under extension activities during semester I & II. Students will be evaluated based on their active participation in any one of the above activities. 75% Attendance is compulsory for extension activity.

## 3. CREDIT ALLOTTMENT

The following is the credit allotment:

- Lecture Hours (Theory) : 1 credit per lecture hour per week
- Laboratory Hours : 1 credit for 2 Practical hours per week
- Project Work : 1 credit for 2 hours of project work per week

## 4. DURATION OF THE PROGRAMME

The B.A. /B.Com./B. Sc. Programme must be completed within 3 years (6 semesters) and a maximum of 6 years (12 semesters) from the date of acceptance to the programme. If not, the candidate must enroll in the course determined to be an equivalent by BoS in the most recent curriculum recommended for the Programme.

## 5.REQUIREMENTS FOR COMPLETION OF A SEMESTER

Every student shall ordinarily be allowed to keep terms for the given semester in a program of his/ her enrolment, only if he/ she fulfills at least seventy five percent (75%) of the attendance taken as an average of the total number of lectures, practicals, tutorials, etc. wherein short and/or long excursions/field visits/study tours organised by the college and supervised by the faculty as envisaged in the syllabus shall be credited to his/her attendance. Every student shall have a minimum of 75% as an overall attendance.

## 6. EXAMINATIONS

The end semester examinations shall normally be conducted after completing 90 working days for each semester. The maximum marks for each theory and practical course shall be 100 with the following breakup:

**a) Mark distribution for Theory Courses**

| | |
|---|---|
| Continuous Internal Assessment (CIA) | : 25 Marks |
| End Semester Exams (ESE) | : 75 Marks |
| Total | : 100 Marks |

**i) Distribution of Internal Marks**

| S.No. | Particulars | Distribution of Marks |
|---|---|---|
| 1 | CIA I (2.5 Units) (On completion of 45th working day) | 5 |
| 2 | Model ( All 5 Units) (On completion of 85th working day) | 5 |
| 3 | Attendance | 5 |
| 4 | Library Usage | 5 |
| 5 | Skill Enhancement * | 5 |
| | **Total** | **25** |

**Breakup for Attendance Marks:**

| S.No | Attendance Range | Marks Awarded |
|---|---|---|
| 1 | 95% and Above | 5 |
| 2 | 90% - 94% | 4 |
| 3 | 85% - 89% | 3 |
| 4 | 80% - 84% | 2 |
| 5 | 75% - 79% | 1 |

**Note:**
Special Cases such as NCC, NSS, Sports, Advanced Learner Course, Summer Fellowship and Medical Conditions etc. the attendance exemption may be given by principal and Mark may be awarded.

**Break up for Library Marks:**

| S.No | Attendance Range | Marks Awarded |
|---|---|---|
| 1 | 10h and above | 5 |
| 2 | 9h- less than 10h | 4 |
| 3 | 8h - less than 9h | 3 |
| 4 | 7h - less than 8h | 2 |
| 5 | 6h - less than 7h | 1 |

**Note:**
In exception, the utilization of e-resources of library will be considered.

***Components for "Skill Enhancement" may include the following:**

Class Participation, Case Studies Presentation/term paper, Field Study, Field Survey, Group Discussion, Term Paper, Presentation of Papers in Conferences, Industry Visit, Book Review, Journal Review, e-content Creation, Model Preparation, Seminar and assignment.

**Components for Skill Enhancement**

Any one of the following should be selected by the course coordinator

| S.No. | Skill Enhancement | Description |
|---|---|---|
| 1 | Class Participation | • Engagement in class<br>• Listening Skills<br>• Behaviour |
| 2 | Case Study Presentation/ Term Paper | • Identification of the problem<br>• Case Analysis<br>• Effective Solution using creativity/imagination |
| 3 | Field Study | • Selection of Topic<br>• Demonstration of Topic<br>• Analysis & Conclusion |
| 4 | Field Survey | • Chosen Problem<br>• Design and quality of survey<br>• Analysis of survey |
| 5 | Group Discussion | • Communication skills<br>• Subject knowledge<br>• Attitude and way of presentation<br>• Confidence<br>• Listening Skill |
| 6 | Presentation of Papers in Conferences | • Sponsored<br>• International/National<br>• Presentation<br>• Report Submission |
| 7 | Industry Visit | • Chosen Domain<br>• Quality of the work |

| | | |
|---|---|---|
| | | • Analysis of the Report<br>• Presentation |
| 8 | Book Review | • Content<br>• Interpretation and Inferences of the text<br>• Supporting Details<br>• Presentation |
| 9 | Journal Review | • Analytical Thinking<br>• Interpretation and Inferences<br>• Exploring the perception if chosen genre<br>• Presentation |
| 10 | e-content Creation | • Logo/ Tagline<br>• Purpose<br>• Content (Writing, designing and posting in Social Media)<br>• Presentation |
| 11 | Model Preparation | • Theme/ Topic<br>• Depth of background Knowledge<br>• Creativity<br>• Presentation |
| 12 | Seminar | • Knowledge and Content<br>• Organization<br>• Understanding<br>• Presentation |
| 13 | Assignment | • Content and Style<br>• Spelling and Grammar<br>• References |

**ii) Distribution of External Marks (ESE)**

**Total : 75**
**Written Exam : 75**

**Marks Distribution for Practical course**

**Total : 100**
**Internal : 40**
**External : 60**

**i) Distribution of Internals Marks**

| S.No. | Particulars | Distribution of Marks |
|---|---|---|
| 1 | Experiments/Exercises | 15 |
| 2 | Test 1 | 10 |
| 3 | Test 2 | 10 |
| 4 | Observation Notebook | 05 |
| | **Total** | **40** |

**ii) Distribution of Externals Marks**

| S.No. | Particulars | External Marks |
|---|---|---|
| 1 | Practical | 40 |
| 2 | Record | 10 |
| 3 | Viva- voce | 10 |
| | Total | **60** |

Practical examination shall be evaluated jointly by Internal and External Examiners

**Mark Distribution for Project/ Internship/ Industrial Training**

**Total : 100**
**Internal : 40**
**External : 60**

**i) Distribution of Internal Marks**

| S.No. | Particulars | Internal Marks |
|---|---|---|
| 1 | Review I | 15 |
| 2 | Review II | 20 |
| 3 | Attendance | 5 |
| | **Total** | **40** |

**ii) Distribution of External Marks**

| S.No | Particulars | External Marks |
|---|---|---|
| 1 | Project Work /Internship /Industrial training Presentation | 40 |
| 2 | Viva –voce | 20 |
| | **Total** | **60** |

Evaluation of Project Work/Internship/ Industrial training shall be shall be done jointly by Internal and External Examiners.

**7. Credit Transfer**

**a.** Upon successful completion of **1 NPTEL** Course **(4 Credit Course)** recommended by the department, during Semester I to IV, a student shall be eligible to get exemption of one **4 credit course** during the V or VI semester. The proposed NPTEL course should cover content/syllabus of exempted core paper in V orVI semester.

| S. No. | Course Code | Course Name | Proposed NPTEL Course | Credit |
|---|---|---|---|---|
| 1 | | | Option – 1 Paper title | 4 |
| | | | Option – 2 Paper title | |
| | | | Option – 3 Paper title | |

**b.** Upon successful completion of **2 NPTEL Courses** (2 Credit each) recommended by the department, during Semester I to IV, a student shall be eligible to get exemption of **one 4 credit course** during the V or VI semester. Out of 2 NPTEL proposed courses, **atleast 1 course** should cover content/syllabus of exempted core paper in V orVI semester.

**Mandatory**

**The exempted core paper in the V or VI semester should be submitted by the students for approval before the end of 4th semester**

**Credit transfer will be decided by equivalence committee**

| S. No. | Course Code | Course Name | Proposed NPTEL Course | Credit |
|---|---|---|---|---|
| 1 | | | Option – 1 Paper title | 2 |
| | | | Option – 2 Paper title | |
| | | | Option – 3 Paper title | |
| 2 | | | Option – 1 Paper title | 2 |
| | | | Option – 2 Paper title | |
| | | | Option – 3 Paper title | |

| NPTEL Courses to be carried out during semester I – IV. | | | | | |
|---|---|---|---|---|---|
| **S.No.** | **Student Name** | **Class** | **Proposed NPTEL Course** | | **Proposed Course for Exemption** |
| | | | Course I | Option 1- Paper Title<br>Option 2- Paper Title<br>Option 3- Paper Title | Any one Core Paper in **V or VI semester** |
| | | | Course II | Option 1- Paper Title<br>Option 2- Paper Title<br>Option 3- Paper Title | |
| **Class Advisor** | | | **HoD** | | **Dean** |

**8. Innovations**

Upon Successful outcome of Design Thinking / Copy right/Product/ Patent by the end of the V Semester, student shall be eligible to get exemption in AECC: Innovation, IPR & Entrepreneurship / Innovation & IPR offered during VI Semester.

**9.Internship/Industrial Training**

Students must undertake industrial / institutional training for a minimum of 15 days during the IV semester summer vacation. The students shall submit the report for evaluation during V semester.

**10. Extra Credits: 10**

Earning extra credit is not essential for programme completion. Student is entitled to earn extra credit for achievement in Curricular /Co-Curricular/ Extracurricular activities carried out other than the regular class hours.

A student is permitted to earn a maximum of Ten extra Credits during the programme period.

**A maximum of 1 credit under each category is permissible.**

| Category | Credit |
|---|---|
| Proficiency in foreign language | 1 |
| Proficiency in Hindi | 1 |
| Self study Course | 1 |
| Typewriting/Short hand | 1 |
| CA/ICSI/CMA (Foundations) | 1 |
| CA/ICSI/CMA(Inter) | 1 |
| Sports and Games | 1 |
| Publications / Conference Presentations (Oral/Poster) | 1 |
| Lab on Project | 1 |
| Innovation / Incubation / Patent / Sponsored Projects / Consultancy | 1 |
| Representation in State / National level celebrations | 1 |
| Awards/Recognitions/Fellowships | 1 |

Credit shall be awarded for achievements of the student during **the period of study only**.

**GUIDELINES**

**Proficiency in foreign language**

A pass in any foreign language in the examination conducted by an authorized agency.

**Proficiency in Hindi**

A pass in the Hindi examination conducted by Dakshin Bharat Hindi Prachar Sabha.

Examination passed during the programme period only will be considered for extra credit.

**Self study Course**

A pass in the self study courses offered by the department.

The candidate should register the self study course offered by the department only in the III semester.

**Typewriting/Short hand**

A Pass in short hand /typewriting examination conducted by Tamil Nadu Department of Technical Education (TNDTE) and the credit will be awarded.

**CA/ICSI/CMA(Foundations)**

Qualifying foundation in CA/ICSI/CMA / etc.

**CA/ICSI/CMA(Inter)**

Qualifying Inter in CA/ICSI/CMA / etc.

**Sports and Games**

Students can earn extra credit based on their achievements in sports in University/ State / National/ International levels.

**Publications / Conference Presentations (Oral/Poster)**

Research Publications in Journals
oral/poster presentation in Conference

**Lab on Project (LoP)**

To promote the undergraduate research among all the students, the LoP is introduced beyond their regular class hours. LoP is introduced as group project consisting of not more than five members. It consist of four stages namely Literature collection, Identification of Research area, Execution of research and Reporting / Publication of research reports/ product developments. These four stages spread over from III to IV semester.

**(Evaluation will be done internally)**

**Innovation / Incubation / Patent / Sponsored Projects / Consultancy**

Development of model/ Products /Prototype /Process/App/Registration of Patents/ Copyrights/Trademarks/Sponsored Projects /Consultancy

**Representation in State/ National level celebrations**

State / National level celebrations such as Independence day, Republic day Parade, National Integration camp.

**Awards/Recognitions/Fellowships**

Regional/ State / National level awards/ Recognitions/Fellowships

## GUIDELINES

**100 % CIA Courses:**

- **AECC**
- **AEEC**

| S.No | Type of Course |
|---|---|
| 1 | Environmental Studies (AECC) |
| 2 | Human Rights and Women's Rights, Basic Tamil / Advanced Tamil (AECC) |
| 3 | Innovation &IPR/ Innovation, IPR and Entrepreneurship(AECC) |
| 4 | Generic Elective (AEEC) |

**Modalities for Implementing Internal Assessment Marks:**

- Student pertaining to 2023 Batch (2023-26) UG programme for the above mentioned courses shall secure a minimum of 40% out of the maximum marks in the continuous internal assessment (CIA) i.e., 20 marks out of 50 marks.
- Students who have not acquired the minimum marks shall be allowed to reappear to improve their marks in the exam components only within the time duration of the programme, in the forthcoming semesters.

**Distribution of Internal Marks for AECC & AEEC**

| **Theory** | | | **Practical** | |
|---|---|---|---|---|
| **S. No.** | **Particulars** | **Distributionof Marks** | **Particulars** | **Distributionof Marks** |
| 1 | CIAI(2.5Units) (On completionof45$^{th}$workingday) | 15 | CIA I (Exercise 1-5) | 5 |
| 2 | Model(5Units)(On completionof85$^{th}$workingday) | 15 | CIA II (Exercise 6 - 10) | 5 |
| 3 | Assignment | 05 | Class Participation | 10 |
| 4 | Attendance | 05 | Practical Record | 10 |
| 5 | LibraryUsage | 05 | Test -III & Viva-Voce (10+10) | 20 |
| 6 | SkillEnhancement* | 05 | --- | --- |
| | **Total** | **50** | | 50 |

## Question paper pattern AECC & AEEC

| Test | MARKS | DESCRIPTION | TOTAL | Remarks |
|---|---|---|---|---|
| CIA Test I<br>**1 Hour**<br>**First 2.5 Units** | 50 x 1 = 50 Marks | MCQ | 50 Marks | Marks secured will be Converted to 15 marks |
| CIA test II/ Model test<br>**1 Hour**<br>**All five Units** | 50 x 1 = 50 Marks | MCQ | 50 Marks | Marks secured will be Converted to 15 marks |

| Question paper pattern | Total Marks -50 |
|---|---|
| **Basic Tamil** | **Advanced Tamil** |
| **Section -A** | **Section -A** |
| **Choose the correct answer** 10x2=20 | **Choose the correct answer 10** x1=10 |
| **Section -B** | **Section -B** |
| **True or false** 10x2=20 | **Fill in the blanks** 10x2=20 |
| **Section -C** | **Section -C** |
| **Answer in one page** 1x10=10 | **Write an essay in two pages** 2x10=20 |

## Question paper pattern for all other courses falling under Part I to Part III

**CIA I : [1 ½ Hours-2.5 Units] - 25 Marks**

| SECTION | MARKS | DESCRIPTION | TOTAL | Remarks |
|---|---|---|---|---|
| Section – A | 8 x 0.5 = 04 Mark | MCQ | 25 Mark | Marks secured will be converted To 5 mark |
| Section - B | 3 x 3 = 09 Mark | Answer ALL Questions Either or Type ALL Questions Carry Equal Marks | | |
| Section - C | 2 x 6 = 12 Mark | | | |

**CIA II /Model: [3 Hours-5 Units] - 75 Mark**

| SECTION | MARKS | DESCRIPTION | TOTAL | Remarks |
|---|---|---|---|---|
| Section – A | 10 x 1 = 10 Mark | MCQ | 75 Mark | Marks secured will be converted To 5 mark |
| Section - B | 5 x 5 = 25 Mark | Answer ALL Questions (Either or Type Questions) Each Questions Carry Equal Mark | | |
| Section - C | 5 x 8 = 40 Mark | | | |

**End Semester Examination: [3 Hours-5 Units] - 75 Mark**

| SECTION | MARKS | DESCRIPTION | TOTAL |
|---|---|---|---|
| Section – A | 10 x 1 = 10 Mark | MCQ | 75 Mark |
| Section - B | 5 x 5 = 25 Mark | Answer ALL Questions (Either or Type Questions) Each Questions Carry Equal Mark | |
| Section - C | 5 x 8 = 40 Mark | | |

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 231TL1A1TA | TAMIL - I | LANGUAGE- I | 4 | 1 | - | 03 |

**PREAMBLE**

This course has been designed for students to learn and understand

- மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடு நாகரீகம், பகுத்தறிவு ஆகியவற்றை அறியச் செய்தல்
- கலை மற்றும் மரபுகளை அறியச் செய்தல்
- மாணவர்களின் படைப்பாக்கத்திறன்களை ஊக்குவித்தல்

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | வாழ்க்கைத் திறன்கள் (Life Skills)- மாணவர்களின் செயலாக்கத் திறனை ஊக்குவித்தல் | K3 |
| CO2 | மதிப்புக்கல்வி (Attitude and Value education) | K4 |
| CO3 | பாட இணைச்செயல்பாடுகள் (Co-curricular activities) | K4 |
| CO4 | சூழலியல் ஆக்கம் (Ecology) | K4 |
| CO5 | மொழி அறிவு (Tamil knowledge) | K5 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | | ✓ | ✓ | | ✓ |
| CO2 | ✓ | | | ✓ | |
| CO3 | | ✓ | | | ✓ |
| CO4 | | | ✓ | | |
| CO5 | ✓ | | | ✓ | ✓ |

**COURSE FOCUSES ON**

| | | | |
|---|---|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | ✓ | Innovations |
| ✓ | Intellectual Property Rights | ✓ | Gender Sensitization |
| ✓ | Social Awareness/ Environment | ✓ | Constitutional Rights/ Human Values/ Ethics |

| 231TL1A1TA | TAMIL - I | SEMESTER I |
|---|---|---|

**Total Credits:** 3

**Total Instruction Hours:** 60 h

## Syllabus

**Unit I** **மறுமலர்ச்சிக் கவிதைகள்** 13 h

1. இலக்கிய வரலாறு - மறுமலர்ச்சிக் கவிஞர்களின் தமிழ்ப்பணிகள்
2. பாரததேசம் - பாரதியார்
3. படி - பாரதிதாசன்
4. தமிழரின் பெருமை - நாமக்கல் கவிஞர்
5. தமிழ்க் கொலை புரியாதீர் - புலவர் குழந்தை
6. திரைத்தமிழ்

அ) 'விஞ்ஞானத்த வளர்க்கப் போறண்டி' எனத் தொடங்கும் பாடல் - உடுமலை நாராயண கவி

ஆ) 'சும்மா கிடந்த நிலத்தை' எனத் தொடங்கும் பாடல் - பட்டுக்கோட்டை கல்யாண சுந்தரனார்

இ) 'சமரசம் உலாவும் இடமே' எனத் தொடங்கும் பாடல் - மருதகாசி

ஈ) 'உன்னை அறிந்தால்' எனத் தொடங்கும் பாடல் - கண்ணதாசன்

**Unit II** **புதுக்கவிதைகள்** 13 h

1. இலக்கிய வரலாறு - புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. கடமையைச் செய் - மீரா
3. மலையாளக் காற்று - சிற்பி
4. ஒப்பிலாத சமுதாயம் - அப்துல் ரகுமான்
5. கன்னிமாடம் - மு.மேத்தா
6. கரிக்கிறது தாய்ப்பால் - ஆரூர் தமிழ்நாடன்
7. ஐந்தாம் வகுப்பு 'அ' பிரிவு - நா. முத்துக்குமார்
8. ஹைகூ கவிதைகள் - 10 கவிதைகள்

**Unit III** **பெண்ணியம்** 09 h

1. தொலைந்து போனேன் - தாமரை
2. நீரில் அலையும் முகம் - அ. வெண்ணிலா
3. தற்காத்தல் - பொன்மணி வைரமுத்து
4. ஏனிந்த வித்தியாசங்கள் ? - மல்லிகா
5. புதையுண்ட வாழ்க்கை - சுகந்தி சுப்ரமணியன்

**Unit IV** **சிறுகதைகள்** 15 h

1. இலக்கிய வரலாறு - சிறுகதையின் தோற்றமும் வளர்ச்சியும்
2. கனகாம்பரம் - கு.ப.ராஜகோபாலன்
3. ஆற்றங்கரைப் பிள்ளையார் - புதுமைப்பித்தன்
4. பொம்மை - ஜெயகாந்தன்
5. காய்ச்சமரம் - கி. ராஜநாராயணன்
6. காட்டில் ஒருமான் - அம்பை
7. வேட்கை - சூர்யகாந்தன்

**Unit V** **பயிற்சிப் பகுதி** 10 h

**அ. இலக்கணம்**

1. வல்லின ஒற்று மிகும், மிகா இடங்கள் - ஒற்றுப்பிழை நீக்கி எழுதுதல்
2. ர,ற-ல,ழ,ள - ண,ந,ன வேறுபாடு - ஒலிப்பு நெறி, சொற்பொருள் வேறுபாடு அறிதல்)

**ஆ. படைப்பாக்கம்**

1. கவிதை - எழுதுதல் (15 வரிகள் முதல் 30 வரிகள் வரை)
2. சிறுகதை - எழுதுதல் (குறைந்தது 3 பக்கங்கள்)

## Text Book

1 தமிழ் மொழிப்பாடம் - 2022-2023, தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல் கல்லூரி, கோயம்புத்தூர் – 641048, வெளியீடு: நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை – 600 098.

## References

1 பேராசிரியர் புலவர் சோம. இளவரசு , எட்டாம் பதிப்பு - 2014, தமிழ் இலக்கிய வரலாறு – மணிவாசகர் பதிப்பகம், சென்னை – 600 108.

2 பேராசிரியர் முனைவர் பாக்கியமேரி , முதற் பதிப்பு - 2013 , இலக்கணம் - இலக்கிய வரலாறு - மொழித்திறன் - பூவேந்தன் பதிப்பகம், சென்னை-600 004.

3 இணையதள முகவரி: https://www.tamilvu.org

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 231TL1A1HA | HINDI–I | LANGUAGE-1 | 4 | 1 | - | 3 |

**PREAMBLE**

This course has been designed for students to learn and understand

- The writing ability and develop reading skill
- The various concepts and techniques for criticizing literature
- The techniques for expansion of ideas and translation process

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Learn the fundamentals of novels and stories | K1 |
| CO2 | Understand the principles of translation work | K2 |
| CO3 | Expose the knowledge writing critical views on fiction | K2 |
| CO4 | Build creative ability | K3 |
| CO5 | Apply the power of creative reading | K3 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | ✓ | | | ✓ | ✓ |
| CO2 | | ✓ | | | ✓ |
| CO3 | | | | ✓ | |
| CO4 | ✓ | | ✓ | | |
| CO5 | | ✓ | ✓ | | ✓ |

**COURSE FOCUSES ON**

| | | | |
|---|---|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | ✓ | Innovations |
| ✓ | Intellectual Property Rights | ✓ | Gender Sensitization |
| ✓ | Social Awareness/ Environment | ✓ | Constitutional Rights/ Human Values/ Ethics |

| 231TL1A1HA | HINDI–I | SEMESTER I |
|---|---|---|

**Total Credits:** 3

**Total Instruction Hours:** 60 h

## Syllabus

**Unit I** 13 h

गद्य - नूतनगद्यसंग्रह(जयप्रकाश)पाठ 1- रजियापाठ 2- मक्रीलपाठ 3- बहतापानीनिर्मला
पाठ 4- राष्ट्रपितामहात्मागाँधी

**Unit II** 13 h

कहानीकुंज- डॉवी.पी. 'अमिताभ'(पाठ 1-4)

**Unit III** 12 h

व्याकरण : शब्दविचार ( संज्ञा, सर्वनाम,विशेषण)

**Unit IV** 12 h

अनुच्छेद लेखन

**Unit V** 10 h

अनुवाद अभ्यास-III (केवल अंग्रेजी से हिन्दी में) (पाठ 1 to 10)

**Text Books**

1 प्रकाशक: सुमित्रप्रकाशन 204 लीलाअपार्ट्मेंट्स, 15 हेस्टिंग्सरोड'अशोकनगरइलाहाबाद-211001

2 प्रकाशक: गोविन्दप्रकाशनसदरबाजार, मथुराउत्तरप्रदेश-281001

3 पुस्तक: व्याकरण प्रदिप – रामदेवप्रकाशक: हिन्दी भवन 36 टेगोर नगर इलाहाबाद-211024

4 पुस्तक: व्याकरण प्रदिप – रामदेवप्रकाशक: हिन्दी भवन 36 इलाहाबाद-211024

5 प्रकाशक: दक्षिण भारत प्रचार सभा चेनैई -17

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 231TL1A1MA | MALAYALAM- I | LANGUAGE - I | 4 | 1 | - | 3 |

**PREAMBLE**

This course has been designed for students to learn and understand

- The writing ability and develop reading skill
- The various concepts and techniques for criticizing literature, to learn the techniques for expansion of ideas and translation process
- The competency in translating simple Malayalam sentences into English and vice versa

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Learn the fundamentals of novels and stories | K1 |
| CO2 | Understand the principles of translation work | K2 |
| CO3 | Expose the knowledge writing critical views on fiction | K2 |
| CO4 | Apply creative ability | K3 |
| CO5 | Build the power of creative reading | K3 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | ✓ | | | ✓ | ✓ |
| CO2 | | | | | ✓ |
| CO3 | | ✓ | ✓ | | |
| CO4 | ✓ | | | ✓ | |
| CO5 | | ✓ | | | ✓ |

**COURSE FOCUSES ON**

| | | | |
|---|---|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | ✓ | Innovations |
| ✓ | Intellectual Property Rights | ✓ | Gender Sensitization |
| ✓ | Social Awareness/ Environment | ✓ | Constitutional Rights/ Human Values/ Ethics |

| 231TL1A1MA | MALAYALAM - I | SEMESTER I |
|---|---|---|

**Total Credits:** 3

**Total Instruction Hours:** 60 h

## Syllabus

**Unit I** **Novel** 14 h

Pathummayude Adu

**Unit II** **Novel** 10 h

Pathummayude Adu

**Unit III** **Short Story** 14 h

Nalinakanthi

**Unit IV** **Short Story** 10 h

Nalinakanthi

**Unit V** **Practical Application** 12 h

Expansion of ideas, General Essay and Translation

## Text Books

1 Vaikkam Muhammed Basheer, "Pathummayude Adu" (NOVEL), DC Books & Kottayam

2 T.Padmanabhan, "Nalinakanthi" (Short Story), DC Books & Kottayam.

## References

1 Malayala Novel Sahithyam.

2 Malayala Cherukatha Innale Innu.

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 231TL1A1FA | FRENCH - I | LANGUAGE - I | 4 | 1 | - | 3 |

**PREAMBLE**

This course has been designed for students to learn and understand

- The competence in general communication skills with oral, written and comprehension & expression
- The culture, life style and the civilization aspects of the French people as well as of France
- The students to acquire competency in translating simple French sentences into English and vice versa

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Learn the Basic verbs, numbers and accents | K1 |
| CO2 | Apply the adjectives and the classroom environment in France | K2 |
| CO3 | Select the Plural, Articles and the Hobbies | K2 |
| CO4 | Measure the Cultural Activity in France | K3 |
| CO5 | Evaluate the sentiments, life style of the French people and the usage of the conditional tense | K3 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | ✓ | | | | ✓ |
| CO2 | | | | | ✓ |
| CO3 | | | | | |
| CO4 | ✓ | | ✓ | | ✓ |
| CO5 | ✓ | | ✓ | | |

**COURSE FOCUSES ON**

| | | | |
|---|---|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | ✓ | Innovations |
| ✓ | Intellectual Property Rights | ✓ | Gender Sensitization |
| ✓ | Social Awareness/ Environment | ✓ | Constitutional Rights/Human Values/ Ethics |

| 231TL1A1FA | FRENCH - I | SEMESTER I |
|---|---|---|

**Total Credits:** 3

**Total Instruction Hours:** 60 h

## Syllabus

**Unit I** **Salut I Page 10** 12 h

| Objectifs de Communication | Tâche | Activités de réception et de production orale |
|---|---|---|
| • Saluer<br>• Enter en contact<br>• avec quelqu'un.<br>• Se presenter.<br>• S'excuser | En cours<br>de cuisine,<br>premiers contacts<br>avec les members<br>d'un groupe | • Comprendre des personnes qui se saluent.<br>• Ēchanger pour entrer en contact, se présenter, saluer, s'excuser.<br>• Communiquer avec *tu* ou *vous*.<br>• Comprendre les consignes de classe<br>• Ēpeler son nom et son prénom.<br>Computer jusqu'à 10. |

**Unit II** **Enchanté I Page 20** 12 h

| Objectifs de Communication | Tâche | Activités de réception et de production orale |
|---|---|---|
| • Demander de se presenter.<br>• Présenter quelqu'un. | Dans la classe de français, se presenter et remplir<br>une fiche pour le professeur. | • Comprendre les informations essentielles dans un échange en milieu professionnel.<br>• Ēchanger pour se presenter et présenter quelqu'un. |

**Unit III** **J'adore I Page 30** 12 h

| Objectifs de Communication | Tâche | Activités de réception et de production orale |
|---|---|---|
| • Exprimer ses gouts. | Dans un café,<br>participer<br>à une soirée<br>de rencontres<br>rapides et remplir<br>de taches<br>d'appréciation. | • Dans une soirée de recontres rapid comprendre des personnes qui échangent sur elles et sur leurs goût<br>• Comprendre une personne qui parler des goûts de quelqu'un d'autre |

**Unit IV J'adore I Page 30** 14 h

| Objectifs de Communication | Tâche | Activités de réception et de production orale |
|---|---|---|
| • Présenter quelqu'un | Dans un café, participer à une soirée de rencontres rapides et remplir de taches d'appréciation | • Exprimer ses goûts<br>• Comprendre une demande laissée sur un répondeur téléphonique.<br>• Parler de ses projets de week-end |
| Autoévaluation du module I Page 40 – Préparation au DELF A1 page 42 | | |
| Demander à quelqu'un de faire quelque chose.<br>Demander poliment.<br>Parler d'actions passes.<br>Tu veux bien? | Organiser un programme d'activités pour accueillir une personne importante | Comprendre une personne demande un service à quelqu'un.<br>Demander à quelqu'un de faire quelque chose.<br>Imaginer et raconter au passé à partir de situations dessinées. |

**Unit V Practical Application** 10 h

Make in Own Sentences

**Text Book**

1 Regine Merieux, Yves Loiseau. 2012. LATITUDES – 1: Méthode de français (Page No: 9-55) Les Editions Dider, Paris, Imprime en Roumanie par Canale en Janvier

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 231EL1A1EA | ENGLISH - I | LANGUAGE- II | 4 | - | 1 | 3 |

**PREAMBLE**

This course has been designed for students to learn and understand

- the effect of dialogue, imagery and varied genres
- any spontaneous spoken discourse and respond to them with proper sentence structure
- the transactional concept of English language

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Identify the various aspects in poetry | K2 |
| CO2 | Infer linguistic and non-linguistic features of the context for understanding and interpreting | K3 |
| CO3 | Construct sentences and convey messages effectively in real life situations | K3 |
| CO4 | Apply different reading strategies with varying speed | K3 |
| CO5 | Prepare modules with their own ideas and present them coherently in a grammatically correct form | K3 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | ✓ | | ✓ | ✓ | ✓ |
| CO2 | | ✓ | | | ✓ |
| CO3 | ✓ | ✓ | | ✓ | |
| CO4 | | | ✓ | | |
| CO5 | ✓ | ✓ | | | ✓ |

| | | | |
|---|---|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | ✓ | Innovations |
| ✓ | Intellectual Property Rights | ✓ | Gender Sensitization |
| ✓ | Social Awareness/ Environment | ✓ | Constitutional Rights/ Human Values/ Ethics |

| 231EL1A1EA | ENGLISH- I | SEMESTER I |
|---|---|---|

**Total Credits:** 3

**Total Instruction Hours:** 60 h

**Syllabus**

**Unit I** Genre Studies 12 h

Nissim Ezekiel: The Worm- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques– Annotations

Niyi Osundare: Our Earth Will Not Die- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques– Annotations

A. G. Gardiner: On Superstitions- Author's biography- Narrative structure- Exploration of the text- passage analysis- insight of ideas- cohesion and context- style- language techniques- Annotation

Nancy Bella: Clever Thief- Author's Biography- Plot Summary- Detailed summary and Analysis- Themes- Important Quotations- Characters- Description - analysis- Terms- Symbols- Critical analysis

H. G. Wells: The Truth about Pyecraft- Author's Biography-narrative structure- passage analysis- insight of ideas- cohesion and context- style- language techniques

**Unit II** Listening Skills 12 h

Listening vs. hearing- Types of listening, Tips to enhance Listening Skills, Non-verbal and Verbal signs of active listening - Comprehensive Listening - Listening to pre-recorded audios on speeches, interviews and conversations - Listening Activities- Listening and responding to complaints (formal situation), Listening to problems and offering solutions (informal)

**Unit III** Speaking Skills 14 h

Formal occasions- Introducing oneself, Introducing others, Enquiries and Seeking permission, Making short presentations- Informal occasions- Requests, Offering help, Congratulating, Farewell party, graduation speech- Giving instructions to do a task and to use a device, Giving and asking directions

**Unit IV** Reading Skills 10 h

Study Skills: Skimming and Scanning- Reading different kinds of texts- Types of reading-Developing a good reading speed, reading aloud, Referencing skill - Word

Power (Denotation and Connotation) - Reading comprehension, Data interpretation –Charts, Graphs, Advertisements

**Unit V** Writing Skills 12 h

Sentence patterns, Note- making and note taking-Strategies - Paragraph writing: Structure and Principles - Academic Writing - Formal and Informal Letters, Report, Book /Movie Review

**Text Books**


1. Gardiner, A. G. 1926. Alpha of the Plough: Second series, J.M. Dent & Sons Ltd., London, United Kingdom. pg.no-151-156. (Unit I)
2. Ezekiel, Nissim. "The Worm," Crazy Romantic Love, www. mianmawaisarain.live/2020/05/poem-worm-nissim-ezekiel.html. Accessed 3 Aug. 2022. (Unit I)
3. < http://livros01.livrosgratis.com.br/ln000835.pdf /> (Unit I)
4. Mithra, S. M. 1919. Hindu Tales from the Sanskrit, Macmillan & Co Ltd., London, United Kingdom. pg.no-127-142. (Unit I)
5. Nation, I. S. P and Jonathan Newton. 2009. Teaching ESL/EFL Listening and Speaking. Routledge, New York, United States. (Unit II)
6. Prabha, Dr. R. Vithya & S. Nithya Devi. 2019. Sparkle. (1st Edn.) McGraw - Hill Education, Chennai, India. (Unit III– V)


**References**


1. Our Earth Will Not Die By Niyi Osundare." Studocu.Com, studocu.com /in/document/bangalore-university/bachelor-of-computer-applications /1586771577-our-earth-will-not-die/27675462. Accessed 3 Aug. 2022.
2. OnSuperstitions."THEHISTORIAN,thehistorian1947.wordpress.com/2019/0 3/08/on-superstitions-by-a-g-gardiner. Accessed 3 Aug. 2022.
3. Swales, John M. & Feak, Christine B. 2012. Academic Writing for Graduate Students: Essential Tasks and Skills, University of Michigan Press, Michigan, United States.
4. Rudzka, Brygida -Ostyn, 2003. Word Power: Phrasal Verbs and Compounds: A Cognitive Approach, Mouton de Gruyter, New York, United States.

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 233FN1A1CA | FUNDAMENTALS OF FOOD SCIENCE | CORE | 4 | 1 | - | 4 |

**PREAMBLE**

This course has been designed for students to learn and understand

- Principles and various methods of cooking foods
- composition of various foodstuffs
- apply food science knowledge to describe functions of ingredients in food

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Describe the various sustainable food practices like energy and nutrient conservation methods | K3 |
| CO2 | Interpret the physical , chemical changes occurring in the nutritive constituents of different foods during various cooking processes | K2 |
| CO3 | Demonstrate the methods of beverage preparation. Outline medicinal uses of Spices and Condiments | K3 |
| CO4 | Illustrate milk processing Identify uses, methods and experiment with effects of cooking egg | K3 |
| CO5 | Analyze and understand the principles in cooking and its effect on sensory attributes and nutrients | K4 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO2 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO3 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO4 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO5 | ✓ | ✓ | ✓ | ✓ | ✓ |

| | | | |
|---|---|---|---|
| ✓ | Skill Development | | Entrepreneurial Development |
| ✓ | Employability | | Innovations |
| | Intellectual Property Rights | | Gender Sensitization |
| | Social Awareness/ Environment | | Constitutional Rights/ Human Values/ Ethics |

| 233FN1A1CA | FUNDAMENTALS OF FOOD SCIENCE | SEMESTER I |
|---|---|---|

**Total Credits: 4**

**Total Instruction Hours: 60 h**

**Syllabus**

**Unit I** Food Groups &Cereal 12 h

Introduction to Food Science: Food groups- 4 (ICMR), 5 and 7, functional food groups-energy yielding, body building and protective foods (only sources), food pyramid.

Methods of cooking: Objectives of cooking. Cooking methods – Dry heat and moist heat methods, microwave and solar cooking

Cereals: Structure and composition of rice and wheat, parboiled rice, Fermentation of Cereal, role of cereals in cookery

Millets: Nutritive value of Ragi, Jowar and Maize.

**Unit II** Pulses, Fruits and Vegetables 12 h

Pulses and legumes: Varieties of pulses, legumes, composition, nutritive value, anti-nutritional factors, cooking quality of pulses.

Fruits: Classification, composition and nutritive value, changes during ripening, enzymatic browning and its prevention methods.

Vegetables: Classification, composition and nutritive value, selection and preparation for cooking, changes and loss of nutrients during cooking

**Unit III** Beverages, Fats and Spices 12 h

Beverages - Classification, nutritive value malted beverages and carbonated non-alcoholic beverages.

Fats and Oils: Types of oils, function of fats and oils, fat substitutes

Spices and Condiments: Functions of spices, medicinal values of Cumin, Pepper, Fenugreek, Cinnamon, Cloves, Cardamom, Onion, Turmeric, Ginger and Garlic.

Herbs – Basil, Wheat grass, Aloe Vera, Oregano – An overview

Difference test-paired comparison and duo –trio test, Rating test –ranking, hedonic, composite scoring test.

**Unit IV** Milk and Egg 12 h

Milk – Composition and nutritive value, kinds of milk, physical properties of milk,

pasteurization and homogenization of milk, changes in milk during heat processing, preparation of fermented (cheese) and non-fermented (milk powder), role of milk and milk products

Egg - Structure, composition, selection, nutritive value, Evaluation of egg quality uses of egg in cookery, foam formation and factors affecting foam formation

**Unit V** Non Vegetarian Foods 12 h

Meat -Structure, composition, nutritive value, selection of meat, post mortem changes in meat, aging, tenderness and curing. Methods of cooking meat and their effects.

Poultry: Classification, composition, nutritive value, selection, methods of cooking. Fish - Structure, composition, nutritive value, selection of fish, methods of cooking and effects

**Text Books**

1 Srilakshmi B, 2015, "Food Science", 3rd Edition, New Age International, New Delhi

2 ShakunthalaManay and Shadakhraswamy M., 2008, "FoodFacts and Principles ", Third Edition, New Age International Publishers, New Delhi

**References**

1 Mudambi .R. SumathiandRajagopal M.V, 2008, "Food Science, New Age International Publishers, New Delhi

2 Thangam E. Philip, 1998, "Modern Cookery", Volume II, Orient Longman, II Edition, Hyderabad

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 233FN1A1CB | CHEMISTRY OF FOODS | CORE | 4 | 1 | - | 4 |

**PREAMBLE**

This course has been designed for students to learn and understand

- The physio-chemical properties of foods
- The scientific principles involved in food preparation.
- The properties with advanced techniques protocols and instrumentation to explore its applications in the field of food science and nutrition

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Illustrate the physio-chemical properties of foods. Moisture in Foods, Hydrogen Bonding, Bound Water, Water Activity. | K2 |
| CO2 | List out the Components of Starch and treatment effects on starch. Explain the Stages of Sugar Cookery, Crystal Formation. | K2 |
| CO3 | Explain Structure of wheat proteins, pulse proteins, egg proteins, and vegetable proteins. | K3 |
| CO4 | Identify the Physical and Chemical Properties of fats and oils. Summarize the factors affecting Fat Absorption in Foods | K3 |
| CO5 | Identify the properties, importance of enzymes, enzymes involved in food reactions Choose the plant pigments and its abundant sources | K4 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | | | | ✓ | ✓ |
| CO2 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO3 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO4 | ✓ | ✓ | ✓ | ✓ | ✓ |
| CO5 | ✓ | ✓ | ✓ | ✓ | ✓ |

| | | | |
|---|---|---|---|
| ✓ | Skill Development | | Entrepreneurial Development |
| ✓ | Employability | | Innovations |
| | Intellectual Property Rights | | Gender Sensitization |
| | Social Awareness/ Environment | | Constitutional Rights/ Human Values/ Ethics |

| 233FN1A1CB | CHEMISTRY OF FOODS | SEMESTER I |
|---|---|---|

**Total Credits: 4**

**Total Instruction Hours: 60 h**

## Syllabus

**Unit I** Physio-Chemical Properties of Foods 10 h

Moisture in Foods, Hydrogen Bonding, Bound Water, Water Activity in Foods, Determination of Moisture Content in Foods, True Solutions, Dispersions, Sols, Gels, Foams, Colloids and Emulsions,Sorption Phenomena.

**Unit II** Chemistry of Starch and Sugars 13 h

Components of Starch, Swelling of Starch Granules, Gel Formation, Factors affecting gel formation ,properties Retrogradation ,Syneresis .Effect of Sugar, Acid, Alkali, Fat and Surface Active Agents on Starch.

Sugar: Types of Candies, Action of Acid, Alkali and Enzymes. Chemistry of Milk Sugar, Non Enzymatic Browning, Crystallization and factors affecting Crystallization of sugar, sugar related products and stages of sugar cookery

**Unit III** Chemistry of Proteins 13 h

Components of Wheat Proteins, Structure, Gluten Formation , Factors affecting gluten formation, Effect of Soaking, Fermentation and Germination on Pulse Proteins, Malting of Pulse Proteins, Properties of Egg Protein, Chemistry of Milk Protein Changes in Milk, Egg and Meat Proteins during heat, action of heat, Acid, Alkalis on Vegetables Proteins and Animal Proteins

**Unit IV** Chemistry of Fats and Oils 13 h

Physical and Chemical Properties of Fats and Oils Rancidity, Hydrogenation, Winterization, Decomposition of Triglycerides, Shortening Power of Fats, Changes in Fats and Oils during Heating , smoking point of oil, Factors Affecting Fat Absorption in Food, Fat Deterioration.

**Unit V** Chemistry of Pectic Substances, Plant Pigments 11 h

Enzymes – definition, chemical classification, properties of enzymes, importance of enzymes, enzymes involved in food reactions – beneficial and deterioration and its prevention, Pigments – classification, properties and food sources

**Text Books**

1 Srilakshmi, B., 2003, "Food Science", III Edition, New Age International, New Delhi

2 Potter, N. N., & Hotchkiss, J. H., 2012, "Food science", Springer Science & Business Media.

**References**

1 Mudambi .R. Sumathi and Rajagopal M.V, 2008, "Food Science",New Age International Publishers, New Delhi.

2 Shakunthalamanay and Shadakhraswamy, 2008, "Food Facts and Principles", Third Edition, New Age International Publishers, New Delhi.

3 SunetraRoday, 2000, "Food Science and Nutrition", Edition I, Mangal Deep Publications, New Delhi.

4 Swaminathan, M, 1974, "Essentials of food and nutrition", Vol. II, Applied aspects.

| 233FN1A1CP | FOOD SCIENCE | SEMESTER I |
|---|---|---|

**Total Credits: 2**
**Total Instructions Hours: 48 h**

| S.No | Contents |
|---|---|
| 1 | Food group- Grouping of foods, discussion on nutritive value<br>Cereals -Methods of cooking fine and coarse cereals. Examination of starch |
| 2 | Measuring ingredients - Methods of measuring different types of foods – grains, flours and liquids, Edible portion Determination of edible portion percentage |
| 3 | Moist heat methods- Boiling, Simmering, Steaming and Pressure cooking |
| 4 | Dry heat methods-baking, Fat as a medium for cooking- shallow and deep fat frying. |
| 5 | Cereals -Methods of cooking fine and coarse cereals. Examination of starch |
| 6 | Pulses - Cooking of soaked, unsoaked, germination and fermentation of pulses. Common preparation with pulses |
| 7 | Vegetables Experimental cookery using vegetables of different colors and textures. |
| 8 | Preparation of beverages soups and salads, Common preparation with vegetables |
| 9 | Fruits - Prevention of darkening in fruits and vegetables. Fruit salad |
| 10 | Experimental cookery – cream of tomato soup, cheese curry and cooking vegetables in milk,Coagulation of milk proteins, preparation of paneer, curd common preparation with milk |
| 11 | Fleshy foods Fish, meat and poultry- preparations |
| 12 | Experimental cookery of Egg - boiled egg, poached egg. Common preparations with egg. |
| | DBT |
| 1 | Estimation of gluten content in different types of four |
| 2 | Efficiency of Papain Enzyme in Meat Tenderization |

- 10 Mandatory

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 232CE1A1IA | CHEMISTRY | IDC | 3 | - | - | 3 |

**PREAMBLE**

This course has been designed for students to learn and understand

- The concept of expressing concentration of solutions.
- The concepts of Chemical kinetics and catalysis.
- About the bonding and basic organic chemistry.

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Understand the concept of concentration of the solutions | K2 |
| CO2 | Infer the acid and basic properties of solutions | K2 |
| CO3 | Interpret the concept of the bonding in molecules | K2 |
| CO4 | Summarize the basic concepts of the stereo chemistry | K2 |
| CO5 | Explain the Chemical kinetics and catalysis | K2 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | ✓ | ✓ | ✓ | | ✓ |
| CO2 | ✓ | | ✓ | ✓ | |
| CO3 | | ✓ | | ✓ | ✓ |
| CO4 | | | ✓ | | |
| CO5 | ✓ | ✓ | | ✓ | ✓ |

| | | | |
|---|---|---|---|
| ✓ | Skill Development | | Entrepreneurial Development |
| ✓ | Employability | | Innovations |
| | Intellectual Property Rights | | Gender Sensitization |
| | Social Awareness/ Environment | | Constitutional Rights/ Human Values/ Ethics |

| 232CE1A11A | CHEMISTRY | SEMESTER I |
|---|---|---|

**Total Credits:** 3

**Total Instruction Hours:** 36 h

## Syllabus

**Unit I** Solutions 8 h

Normality, molarity, molality, mole fraction, mole concept. Primary and secondary standards – preparation of standard solutions. Principle of Volumetric analysis (with simple problems). Indicators – Theory of indicators- Oswald and quinonoid theory.

**Unit II** Acids and Bases 7 h

Acid base theories – Strength of acids and bases – Equilibrium constant and Ionic constant of water- pH, pKa, pKb, Buffer solution, pH and pOH simple calculations.

**Unit III** Chemical bonding 7 h

Types of bonding - Ionic Bond: Nature of ionic bond, factors influencing the formation of ionic bond, Covalent and coordinate bond- Molecular Orbital Theory- MO- configuration of H2, N2, O2 - bond order– diamagnetism and paramagnetism.

**Unit IV** Stereo Chemistry 7 h

Isomerism, Structural isomerism- Symmetry of elements (Plane, Centre and Axis of symmetry), Optical isomerism of lactic acid and tartaric acid, Enantiomers, Diastereomers – Separation of racemic mixture, Geometrical isomerism (maleic and fumaric acid). R/S and E/Z configuration assignments for simple molecules.

**Unit V** Chemical kinetics and catalysis 7 h

Rate of reaction, rate law, order, molecularity, first order rate law, half life period of first order equation, pseudo first order reaction, zero and second order reactions. Catalysis – homogenous, heterogeneous and enzyme catalysis, Industrial applications of enzyme catalysis.

**Text Books**


1 Puri. B.R, Sharma. L.R and Pathania. M.S, 2017, "Principles of Physical Chemistry", 47th Edition, John Wiley and Sons & USA

2 Madhan. R.D, 2016, "Modern Inorganic Chemistry", 10th Edition, Mc Graw Hill Company & USA.


**References**


1 Lee. J.D, 2002, "A New Concise Inorganic Chemistry", 5th Edition, ELBS & UK.

2 Jain. M.K and Sharma. S.C, 2012, "Modern Organic Chemistry", Vishal publishing Co & New Delhi

3 Puri. B.R, Sharma. L.R and Kalia. K.C, 2016, "Principles of Inorganic Chemistry", Vishal Publishing & Co & New Delhi.

4 Glasstone. S and Lewis. D, 2014, "Elements of Physical Chemistry", 2nd Edition, Macmillan Ltd, London

| Course Code | Course Name | Category | L | T | P | Credit |
|---|---|---|---|---|---|---|
| 233MB1A1AA | ENVIRONMENTAL STUDIES | AECC | 2 | - | - | 2 |

**PREAMBLE**

This course has been designed for students to learn and understand

- Multi disciplinary aspects of Environmental studies
- Importance to conserve the Biodiversity
- Causes of Pollution and its control

**COURSE OUTCOMES**

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

| CO Number | CO Statement | Knowledge Level |
|---|---|---|
| CO1 | Understand the importance of natural resources in order to conserve for the future. | K2 |
| CO2 | Infer on Natural resources and its conservation | K2 |
| CO3 | Apply the knowledge on Biodiversity and its conservation | K3 |
| CO4 | Relate effects, causes and control of air, water, soil and noise pollution etc., | K2 |
| CO5 | Build awareness about sustainable development and Environmental protection | K2 |

**MAPPING WITH PROGRAMME OUTCOMES**

| COs/POs | PO1 | PO2 | PO3 | PO4 | PO5 |
|---|---|---|---|---|---|
| CO1 | | ✓ | | | |
| CO2 | | ✓ | | | |
| CO3 | | ✓ | | | |
| CO4 | | ✓ | | | |
| CO5 | | ✓ | | | |

| | | | |
|---|---|---|---|
| | Skill Development | | Entrepreneurial Development |
| | Employability | | Innovations |
| | Intellectual Property Rights | | Gender Sensitization |
| ✓ | Social Awareness/ Environment | | Constitutional Rights/ Human Values/ Ethics |

| 233MB1A1AA | ENVIRONMENTAL STUDIES | SEMESTER I |
|---|---|---|

**Total Credits:** 2

**Total Instruction Hours:** 24 h

## Syllabus

**Unit I** Introduction to Environmental studies & Ecosystems 5 h

Introduction to Environmental studies& Ecosystems: Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development. Ecosystem- Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession.

**Unit II** Natural Resources: Renewable and Non-renewable Resources 5 h

Natural Resources: Renewable and Non-renewable Resources: Land Resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and overexploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs.

**Unit III** Biodiversity and Conservation 5 h

Biodiversity and Conservation: Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

**Unit IV** Environmental Pollution, Environmental Policies & Practices 5 h

Environmental Pollution, Environmental Policies & Practices: Environmental pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Nuclear hazards and human health risks. Solid waste management: Control measures of urban and industrial waste. Pollution case studies. Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment Laws: Environment Protection Act; Prevention & Control of Pollution Act – Air & Water. Wildlife Protection Act; Forest Conservation Act;

**Unit V** Human Communities and the Environment& Field Work 4 h

Human Communities and the Environment& Field Work: Human population and growth: Impacts on environment, human health and welfares. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness. Visit to an area to document environmental assets; river/forest/flora/fauna, etc. Population explosion – Family Welfare Programmes. Role of Information Technology in Environment and human health. Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.

**Text Books**


1 Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt.

2 Gadgil, M., &Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press.


**References**


1 Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge

2 Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press

3 Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006

4 Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.

5 McCully, P.1996. Rivers no more: the environmental effects of dams(pp. 29-64). Zed Books

6 McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century

7 Odum, E.P., Odum, h.T. & Andrews, J.1971. Fundamentals of Ecology. Philadelphia: Saunders.


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Academic Council
Dr.N.G.P. Arts and Science College
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