

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.
Website: www.dnrgpasc.ac.in | Email: info@dnrgpasc.ac.in | Phone: +91-422-2369100

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 through 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 expected outcomes.

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 entrepreneurship.
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

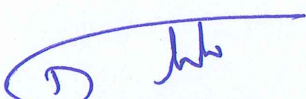
B.Sc. Food Science and Nutrition

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	Nutrient Analysis	-	-	5	3	40	60	100	2
232CE1A2EP	IDC Practical-I	Applied Chemistry	3	-	4	3	40	60	100	5
Part-IV										
231TL1A2AA/ 231TL1A2AB/ 235CR1A2AA	AECC-II	Basic Tamil/ Advanced Tamil /Human Rights and Women’s Rights	2	-	-	-	50	-	50	2
Part-V										
233FN1A2XA	Extension Activity	NSS/NCC/YRC/R RC/Yoga/Sports					50	-	50	1
Total			17	2	11				600	20


 BoS Chairman/HoD
 Department of Food Science & Nutrition
 Dr. N. G. P. Arts and Science College
 Coimbatore - 641 048



Dr. NGPASC

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16.10.23	13.12.23	05.01.24




B.Sc Food Science and Nutrition (Students admitted during the AY 2023-24)

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 - I	3	-	-	3	25	75	100	3
233FN1A3SA	SEC- I	Basics of Research Techniques-Computer Applications	2	-	-	3	25	75	100	2
Total			21	5	4				800	23

D. Jh.

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05-04-24	17-04-24	




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B.Sc. Food Science and Nutrition (Students admitted during the AY 2023-24)

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	-	-	4	3	40	60	100	2
233FN1A4SA	SEC-II	Functional Foods	2	1	-	3	25	75	100	2
Total			19	3	8				800	23


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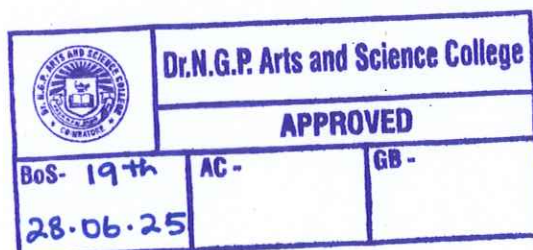
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B.Sc. Food Science and Nutrition (Students admitted during the AY 2023-24)

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	-	-	-	-	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	Industrial Training	-	-	-	3	40	60	100	2
Part - IV										
	GE		2	-	-	3	50	-	50	2
Total			22	-	8				950	30



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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 and storage
2	233FN1A6DB	Nutrition Care Process
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 Food Packaging
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 one Basic Tamil course in 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 45 th working day)	5
2	Model (All 5 Units) (On completion of 85 th 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	<ul style="list-style-type: none"> Engagement in class Listening Skills Behaviour
2	Case Study Presentation/ Term Paper	<ul style="list-style-type: none"> Identification of the problem Case Analysis Effective Solution using creativity/imagination
3	Field Study	<ul style="list-style-type: none"> Selection of Topic Demonstration of Topic Analysis & Conclusion
4	Field Survey	<ul style="list-style-type: none"> Chosen Problem Design and quality of survey Analysis of survey
5	Group Discussion	<ul style="list-style-type: none"> Communication skills Subject knowledge Attitude and way of presentation Confidence Listening Skill
6	Presentation of Papers in Conferences	<ul style="list-style-type: none"> Sponsored International/National Presentation Report Submission
7	Industry Visit	<ul style="list-style-type: none"> Chosen Domain Quality of the work



		<ul style="list-style-type: none"> • Analysis of the Report • Presentation
8	Book Review	<ul style="list-style-type: none"> • Content • Interpretation and Inferences of the text • Supporting Details • Presentation
9	Journal Review	<ul style="list-style-type: none"> • Analytical Thinking • Interpretation and Inferences • Exploring the perception if chosen genre • Presentation
10	e-content Creation	<ul style="list-style-type: none"> • Logo/ Tagline • Purpose • Content (Writing, designing and posting in Social Media) • Presentation
11	Model Preparation	<ul style="list-style-type: none"> • Theme/ Topic • Depth of background Knowledge • Creativity • Presentation
12	Seminar	<ul style="list-style-type: none"> • Knowledge and Content • Organization • Understanding • Presentation
13	Assignment	<ul style="list-style-type: none"> • Content and Style • Spelling and Grammar • 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 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 or VI 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 or VI 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 Option 2- Paper Title Option 3- Paper Title	Any one Core Paper in V or VI semester
			Course II	Option 1- Paper Title Option 2- Paper Title 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
- AECC

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 (AECC)

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 & AECC

Theory			Practical	
S. No.	Particulars	Distribution of Marks	Particulars	Distribution of Marks
1	CIA I (2.5 Units) (On completion of 45 th working day)	15	CIA I (Exercise 1-5)	5
2	Model (5 Units) (On completion of 85 th working day)	15	CIA II (Exercise 6 - 10)	5
3	Assignment	05	Class Participation	10
4	Attendance	05	Practical Record	10
5	Library Usage	05	Test -III & Viva-Voce (10+10)	20
6	Skill Enhancement*	05	---	---
Total		50	50	



Question paper pattern AECC & AECC

Test	MARKS	DESCRIPTION	TOTAL	Remarks
CIA Test I 1 Hour 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 1 Hour 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	
<u>Basic Tamil</u>		<u>Advanced Tamil</u>	
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 1/2 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)	
Section - C	5 x 8 = 40 Mark	Each Questions Carry Equal 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
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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

தமிழ் மொழிப்பாடம் - 2022-2023, தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி.

- 1 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

<input checked="" type="checkbox"/> Skill Development	<input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input checked="" type="checkbox"/> Intellectual Property Rights	<input checked="" type="checkbox"/> Gender Sensitization
<input checked="" type="checkbox"/> Social Awareness/ Environment	<input checked="" type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



231TL1A1HA	HINDI-I	SEMESTER I
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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- डॉ.वी.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 लीलाअपाटर्मेंट्स, 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 चेन्नई -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
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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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input checked="" type="checkbox"/>	Intellectual Property Rights	<input checked="" type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input checked="" type="checkbox"/>	Constitutional Rights/Human Values/Ethics



231TL1A1FA	FRENCH - I	SEMESTER I
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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
<ul style="list-style-type: none"> • Saluer • Enter en contact avec quelqu'un. • Se présenter. • S'excuser 	En cours de cuisine, premiers contacts avec les membres d'un groupe	<ul style="list-style-type: none"> • Comprendre des personnes qui se saluent. • Échanger pour entrer en contact, se présenter, saluer, s'excuser. • Communiquer avec <i>tu</i> ou <i>vous</i>. • Comprendre les consignes de classe • Épeler son nom et son prénom. <p>Computer jusqu'à 10.</p>

Unit II Enchanté I Page 20 12 h

Objectifs de Communication	Tâche	Activités de réception et de production orale
<ul style="list-style-type: none"> • Demander de se présenter. • Présenter quelqu'un. 	Dans la classe de français, se présenter et remplir une fiche pour le professeur.	<ul style="list-style-type: none"> • Comprendre les informations essentielles dans un échange en milieu professionnel. • Échanger pour se présenter et présenter quelqu'un.

Unit III J'adore I Page 30 12 h

Objectifs de Communication	Tâche	Activités de réception et de production orale
<ul style="list-style-type: none"> • Exprimer ses goûts. 	Dans un café, participer à une soirée de rencontres rapides et remplir de tâches	<ul style="list-style-type: none"> • Dans une soirée de rencontres rapides comprendre des personnes qui échangent sur elles et sur leurs goûts • Comprendre une personne qui parle des goûts de quelqu'un d'autre



Dr.NGPASC

COIMBATORE | INDIA

B.Sc. Food Processing and Nutrition (Students admitted during the AY 2023-24)

Unit IV J'adore I Page 30

14 h

Objectifs de Communication	Tâche	Activités de réception et de production orale
<ul style="list-style-type: none"> Présenter quelqu'un 	<p>Dans un café, participer à une soirée de rencontres rapides et remplir de taches d'appréciation</p>	<ul style="list-style-type: none"> Exprimer ses goûts Comprendre une demande laissée sur un répondeur téléphonique. Parler de ses projets de week-end
Autoévaluation du module I Page 40 – Préparation au DELF A1 page 42		
<p>Demander à quelqu'un de faire quelque chose. Demander poliment. Parler d'actions passées. Tu veux bien?</p>	<p>Organiser un programme d'activités pour accueillir une personne importante</p>	<p>Comprendre une personne demande un service à quelqu'un. Demander à quelqu'un de faire quelque chose. Imaginer et raconter au passé à partir de situations dessinées.</p>

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
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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/2019/03/08/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	✓	✓	✓	✓	✓

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



233FN1A1CA	FUNDAMENTALS OF FOOD SCIENCE	SEMESTER I
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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 Shakunthala Manay and Shadakhraswamy M., 2008, "Food Facts and Principles ", Third Edition, New Age International Publishers, New Delhi

References

- 1 Mudambi .R. Sumathi and Rajagopal 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	✓	✓	✓	✓	✓

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



233FN1A1CB	CHEMISTRY OF FOODS	SEMESTER I
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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
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Total Credits: 2
Total Instructions Hours: 48 h

S.No	Contents
1	Food group- Grouping of foods, discussion on nutritive value 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



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	✓	✓		✓	✓

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



232CE1A11A	CHEMISTRY	SEMESTER I
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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		✓			

<input type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233MB1A1AA	ENVIRONMENTAL STUDIES	SEMESTER I
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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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COIMBATORE | INDIA

 Dr.N.G.P Arts and Science College		
APPROVED		
BoS-15 th 12/06/23	AC - 15 th 14/07/23	GB - 15 th 05/08/23



B.Sc. Food Science and Nutrition (Students admitted during the AY 2023-24)

Course Code	Course Name	Category	L	T	P	Credit
231TL1A2TA	TAMIL- II	LANGUAGE- I	4	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடுநாகரீகம்,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	வாழ்க்கைத்திறன்கள் (Life Skills) மாணவர்களின் செயலாக்கத்திறனை ஊக்குவித்தல்	K1
CO2	மதிப்புக்கல்வி (Attitude and Value education)	K2
CO3	பாடஇணைச்செயல்பாடுகள் (Co-curricular activities)	K2
CO4	சூழலியல் ஆக்கம் (Ecology)	K3
CO5	மொழி அறிவு (Tamil knowledge)	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



231TL1A2TA	TAMIL- II	SEMESTER II
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Total Credits: 3

Total Instruction Hours: 60 h

Syllabus

Unit I அற இலக்கியம் 13 h

1. இலக்கிய வரலாறு- பதினெண்கீழ்க்கணக்குநூல்கள்

2. திருக்குறள்

அ. அறன்வலியுறுத்தல்- அ. எண் 04

ஆ. நட்பாராய்தல் - அ. எண் 80

இ. நாடு- அ. எண் 74

ஈ. குறிப்பறிதல்- அ. எண் 110

Unit II அற இலக்கியம் 13 h

1. நாலடியார் - அறிவுடைமை

2. மூதுரை - ஓளவையார் - 10 பாடல்கள் 6, 7, 9, 10, 14, 16, 17, 23, 26, 30

3. இனியவைநாற்பது- பூதஞ்சேந்தனார் - முதல் 10 பாடல்கள்

Unit III அறநெறிக் கட்டுரைகள் 09 h

1. இலக்கியவரலாறு - தமிழ் உரைநடையின் தோற்றமும் வளர்ச்சியும்

2. கலைகள்-உ.வே.சா

3. சங்க நெறிகள்- வ.சுப.மாணிக்கம்

Unit IV அறநெறிக் கட்டுரைகள் 15 h

1. வீர வணக்கம் - க.கைலாசபதி

2. தமிழர் பண்பாடு - டாக்டர் சோ.நா.கந்தசாமி

3. இணையத் தமிழ் வளர்ச்சி - முனைவர் ப.அர.நக்கீரன்

Unit V பயிற்சிப் பகுதி 10 h

1. இலக்கணம்-வழு, வழுவமைதி, வழாநிலை

2. அலுவலகம் சார்ந்த கடிதம் -விண்ணப்பங்கள், வேண்டுகோள், முறையீடு

3. படைப்பாக்கம்-பொதுத்தலைப்பில் கட்டுரைகள் எழுதுதல்



Text Book

- 1 தமிழ் மொழிப்பாடம்-2023-2024,தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல் கல்லூரி,கோயம்புத்தூர். வெளியீடு: நியூ செஞ்சுரி புக் ஹவுஸ்,சென்னை. (Unit I to V)

References

- 1 பேராசிரியர் புலவர் சோம. இளவரசு,எட்டாம் பதிப்பு. 2014. தமிழ் இலக்கிய வரலாறு-மணிவாசகர் பதிப்பகம்,சென்னை.
- 2 பேராசிரியர் முனைவர் பாக்கியமேரி,முதற் பதிப்பு. 2013. இலக்கணம்-இலக்கிய வரலாறு- மொழித்திறன்- பூவேந்தன் பதிப்பகம்,சென்னை. .
- 3 தமிழ் இணையக் கல்விக்கழகம் - TAMIL VIRTUAL ACADEMY. வலைதள முகவரி: <https://www.tamilvu.org>



Course Code	Course Name	Category	L	T	P	Credit
231TL1A2HA	HINDI - II	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
- 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

<input checked="" type="checkbox"/> Skill Development	<input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input checked="" type="checkbox"/> Intellectual Property Rights	<input checked="" type="checkbox"/> Gender Sensitization
<input checked="" type="checkbox"/> Social Awareness/ Environment	<input checked="" type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



231TL1A2HA	HINDI - II	SEMESTER II
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Total Credits: 3

Total Instruction Hours: 60 h

Syllabus

Unit I 13 h

आधुनिकपद्य – शबरी(श्रीनरेशमेहता)

Unit II 13 h

उपन्यास: सेवासदन-प्रेमचन्द

Unit III 12 h

कहानी-किरीट- डा उषा पाठक / डा अचला पाण्डेय

पाठ 1.कफ़न, 3. चीफ़ की दावत

Unit IV 12 h

पत्र लेखन: (औपचारिक या अनौपचारिक)

Unit V 10 h

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

Text Books

- 1 प्रकाशक: लोकभारती प्रकाशन पहली मंजिल, दरबारी बिल्डिंग, महात्मा गाँधी मार्ग, इलाहाबाद. (Unit I)
- 2 प्रकाशक: सुमित्र प्रकाशन 204 लीला अपार्टमेंट्स, 15 हेस्टिंग्स रोड अशोक नगर इलाहाबाद. (Unit II)
- 3 प्रकाशक: राधाकृष्ण प्रकाशन दिल्ली. (Unit III)
- 4 पुस्तक: व्याकरण प्रदिप – रामदेवप्रकाशक: हिन्दी भवन 36 इलाहाबाद. (Unit IV)
- 5 प्रकाशक: दक्षिण भारत प्रचार सभा चेन्नई. (Unit V)



Course Code	Course Name	Category	L	T	P	Credit
231TL1A2MA	MALAYALAM- II	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	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



231TL1A2MA	MALAYALAM- II	SEMESTER II
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Total Credits: 3

Total Instruction Hours: 60 h

Syllabus

Unit I Novel 12 h

Enmakaje: Chapter1- Chapter5

Unit II Novel 10 h

Enmakaje: Chapter 6- Chapter 10

Unit III Novel 12 h

Enmakaje: Chapter 11- Chapter 15

Unit IV Autobiography 14 h

NeermathalamPoothaKalam: Chapter 1- Chapter 10

Unit V Autobiography 12 h

NeermathalamPootha Kalam: Chapter 11- Chapter 20

Text Books

- 1 Ambika SuthanMangad, Enmakaje (Novel), DC Books Kottayam, Kerala, India. (Unit I to III)
- 2 Madhavikkutty, NeermathalamPootha Kalam (Autobiography), DC Books Kottayam, Kerala, India. (Unit IV & V)

References

- 1 MalayalaNovelSahithyam, DC Books Kottayam, Kerala, India.
- 2 MalayalaSahithyaCharithram, National Books Kottayam, Kerala, India.



Course Code	Course Name	Category	L	T	P	Credit
231TL1A2FA	FRENCH- II	LANGUAGE - I	4	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- the Competence in General Communication Skills – Oral + Written- 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



231TL1A2FA	FRENCH- II	SEMESTER II
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Total Credits: 3

Total Instruction Hours: 60 h

Syllabus

Unit I

12 h

Proposer, accepter, refuser une invitation. Indiquer la date.	Organiser une soirée au cinéma avec des amis, par téléphone et par courriel.	Comprendre un message d'invitation sur un répondeur téléphonique. Inviter quelqu'un à accepter ou refuser l'invitation.
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Unit II

12 h

Prendre et fixer un rendez-vous. Demander et indiquer l'heure.	Organiser une soirée au cinéma avec des amis, par téléphone et par courriel.	Comprendre des personnes qui fixent un rendez-vous par téléphone. Prendre un rendez-vous par téléphone
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Unit III

12 h

Exprimer son point de vue positif et négatif. S'informer sur le prix. S'informer sur la quantité. Exprimer la quantité.	En groupes, choisir un cadeau pour un ami.	Exprimer son point de vue sur des idées de cadeau. Faire des achats dans un magasin
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Unit IV

14 h

Demander et indiquer une direction. Localiser (près de, en face de). Exprimer l'obligation l'interdit. Conseiller.	Suivre un itinéraire à l'aide d'indications par téléphone et d'un plan. Par courrier électronique, donner des informations et des conseils à un ami qui veut voyager.	Comprendre des indications de direction. Comprendre des indications de lieu. Comprendre une chanson. Comprendre de courts messages qui expriment l'obligation ou l'interdiction
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B.Sc Food Science and Nutrition (Students admitted during the AY 2023-24)



		Donner des conseils à des personnes dans des situations données.
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Unit V

10 h

Make in Own Sentences

Text Book

- 1 Regine Merieux, Yves Loiseau, "LATITUDES - 1" (Page No: 56-101) (Methode de Français), Goyal Publisher & Distributors Pvt.Ltd., 86 UB Jawahar Nagar (Kamala Nagar), New Delhi-7 Les Editions Dider, Paris, 2008- Imprime en Roumanie par Canale en Janvier 2012. (Unit I to IV)



Course Code	Course Name	Category	L	T	P	Credit
231EL1A2EA	ENGLISH- II	LANGUAGE- II	4	-	1	3

PREAMBLE

This course has been designed for students to learn and understand

- the language for specific purposes through various literary manuscripts
- the process of communicative competencies in academics through authentic contexts
- the different formats of business correspondence with lucidity and accuracy via various media

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify and appreciate the eminent writers' works of various genres	K1
CO2	Infer and comprehend complex situational talks	K2
CO3	Relate formal and informal communicative contexts to speak fluently	K2
CO4	Construct the denotative and connotative meanings while reading specialized texts	K3
CO5	Develop the skill of writing through descriptions, narrations and essays	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



231EL1A2EA	ENGLISH- II	SEMESTER II
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Total Credits: 3

Total Instruction Hours: 60 h

Syllabus

Unit I Genre Studies 15 h

John Keats: To a Friend Who Sent Me Some Roses - Author's Note - title indications- outline-paraphrasing the poem- context of poem- form- poetic devices- techniques- Style

A. G. Gardiner: On Habits - Author's Note- Title indications- Outline -Passage Analysis - context of the Prose - Narrative techniques- Style

Sudha Murthy: The Enchanted Scorpions- Author's Note - title indications-Plot summary- Outline of the story -devices- Narrative techniques- Style

David Pinski: A Dollar- Author's Note- Title indications -Plot Summary- Critical Analysis-Themes- Character analysis - Terms- Symbols

Unit II Listening Skills 10 h

Listening to Talks/Lectures by Specialists on selected subject-specific topics-Listening to Public Announcements- Listening to Instructions and Directions-Listening to Speeches- Listening to process/event descriptions to identify causes & effects

Unit III Speaking Skills 11 h

Small Talk- Mini Presentations and Making Recommendations- Group Discussions, Debates, and Expressing opinions through Role play- Picture Description-Giving Instruction to Use a Product- Presenting a Product- Summarizing a Lecture-Narrating Personal Experiences/ Events- Interviewing a Celebrity- Scientific Lectures- Educational Videos- Debates- Different Viewpoints on an Issue

Unit IV Reading Skills 12 h

Reading Biographies, Newspaper Reports, Technical Blogs- Reading Advertisements - Gadget Reviews- Newspaper Articles - Journal Reports - Reading Editorials & Blogs- Case Studies- Excerpts from Literary Texts

Unit V Writing Skills 12 h

Inferring & Interpreting- Predicting Reorganizing Material- Summary Writing Based on the Reading Passages- Writing - Emails & Essay Writing (Descriptive or Narrative)- Grammar - Tenses- Question Types: Wh/ Yes or No/ and Tags



Text Books

- 1 Keats, John. To a Friend Who Sent Me Some Roses. <<https://www.Poets.org>, 1820, poets.org/poem/ friend-who-sent-me-some-roses.html/> (Unit I)
- 2 Gardiner, Alfred George. On Habits (n.d.). <<https://www.Gutenberg.Org/Files/47429/47429-H/47429-H.html/>> (Unit I)
- 3 Murthy, Sudha. The Enchanted Scorpions. (n.d.). <<https://www.ssgopalganj.in/online/EBooks/CLASS%20VI/Grandma's%20Bag%20of%20Stories%20by%20Sudha%20Murthy.pdf/>> pp-34-39. (Unit I)
- 4 Pinski, David. A Dollar - a One-act Play.<www.one-act-plays.com/comedies/dollar.html> (Unit I)
- 5 Hart, Steve, Aravind R. Nair, Veena Bhambhani. 2016. Embark: English for Undergraduates. Cambridge University Press, New Delhi, India. (Unit II)
- 6 Lakshminarayan. 2012. A Course Book On Technical English. Scitech Publications Pvt. Ltd., New Delhi, India. (Unit III)
- 7 Raman, Meenakshi & Sangeeta Sharma. 2016. Technical Communication- Principles And Practice, Oxford University Press, New Delhi, India. (Unit IV)
- 8 Viswamohan, Aysha. 2017. English For Technical Communication (With CD), McGraw Hill (India) Private Limited, New Delhi, India. (Unit V)

References

- 1 Bajwa and Kaushik. 2010. Springboard to Success- Workbook for Developing English and Employability Skills. Orient Black Swan, Chennai, India.
- 2 Chellammal, V. 2003. Learning to Communicate. Allied Publishing House, New Delhi, India
- 3 Krishnaswamy. N, LalithaKrishnaswamy& B.S. Valke. 2015. Eco English, Learning English through Environment Issues. An Integrated, Interactive Anthology. Bloomsbury Publications, New Delhi, India.
- 4 Syamala. V. 2002. Effective English Communication for You. Emerald Publishers, Chennai, Tamil Nadu, India.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A2CA	PRINCIPLES OF NUTRITION	CORE	4	1	1	4

PREAMBLE

This course has been designed for students to learn and understand

- the vital link between nutrition and health
- the functions, metabolism of macro and micro nutrients
- the effects of deficiency and toxicity of macro and micro nutrients

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the introduction and basic values to determine energy	K2
CO2	Illustrate the role of carbohydrate, dietary fiber and the significance of fats in human nutrition	K4
CO3	Construct the supplementation of dietary proteins in human nutrition and vital role of amino acids and mutual	K4
CO4	Speculate the role of vitamins and its implication in human nutrition	K5
CO5	Infer the general functions of minerals along with its role and implication in human nutrition	K4

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A2CA	PRINCIPLES OF NUTRITION	SEMESTER II
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Total Credits: 4

Total Instruction Hours: 72 h

Syllabus

Unit I Energy 15 h

History of nutrition, Nutrition research in India

Definition of Energy and its unit (Calorie and Joule). Energy Metabolism- Direct and Indirect calorimetry, Determination of energy value of food- Bomb calorimeter, Thermic effect of food- definition & factors affecting, Physiological fuel value of food.

Basal Metabolic rate- Definition, measurement- direct and indirect method and determinants of BMR. Recommended Dietary Allowances for energy.

Unit II Carbohydrate, Fat and Lipid 14 h

Carbohydrates - Classification, functions, digestion, absorption, metabolism, utilization, deficiency, sources and requirements.

Dietary fiber – Definition, Types and sources, Role of fiber in human health.

Fats and Lipids - Classification, functions, digestion, absorption, metabolism, sources and requirements, types and sources of fatty acids.

Unit III Protein and Amino acids 14 h

Proteins - Classification, functions, digestion, absorption, metabolism, utilization, deficiency, sources and requirements.

Evaluation of protein quality-PER, BV and NPU, Digestibility Coefficient, Reference protein.

Amino acids - Essential amino acids and non-Essential amino acids.

Unit IV Vitamins 14 h

Vitamins – Classification and functions of vitamins in the body.

Fat soluble vitamins - Functions, absorption, metabolism, sources, requirements, deficiency and toxicity of Vitamin A, D, E and K.

Water Soluble Vitamins - Functions, sources, absorption, metabolism, requirements, deficiency and toxicity of B Complex Vitamins (Thiamine, Riboflavin, Niacin, Pyridoxine, Folic Acid, Pantothenic acid) and Vitamin C. Amygdalin (Vitamin B17)- Sources and significance.



Unit V Minerals and Water

15 h

Minerals – Classification and Functions

Micro minerals (Iron and Iodine – absorption and metabolism, Zinc, Copper, Fluorine) -Functions, sources, requirements, deficiency and toxicity.

Macro minerals (Calcium, Phosphorus and Magnesium)-Functions, absorption, metabolism, sources, requirements, deficiency and toxicity.

Water – Distribution, functions, requirements and sources of water, water depletion and intoxication, maintenance of water and electrolyte balance.

Electrolytes (Sodium, Potassium and Chloride) - Functions and sources.

Text Books

- 1 Srilakshmi B., 2021, "Nutrition Science", 7th Edition, New Age International Publishers, New Delhi.
- 2 Shubhangini A Joshi, 2021, "Nutrition and Dietetics", 5th edition, Mc Graw Hill Publishing Company Ltd, New York.

References

- 1 Bamji M S., 2019, "Textbook of Human Nutrition", 4th Edition, Oxford & IBH Publishing Company, United Kingdom
- 2 Gajalakshmi R, 2015, "Nutrition Science", 1st Edition, CBS publishers and Distributors, New Delhi.
- 3 Swami Nathan M., 2014, "Handbook of Food and Nutrition", 1st Edition, Bappco Printing Publishing Company, Mysore.



233FN1A2CP	NUTRIENT ANALYSIS	SEMESTER II
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Total Credits: 2

Total Instructions Hours: 60 h

S.No	Contents
1	Determination of moisture content and mode of operation technique of Hot air oven and microwave oven
2	Determination of gluten content in wheat
3	Estimation of yield, cooking volume and time, water holding capacity in food products
4	Determination of physical properties, true density, bulk density and porosity
5	Estimation of pH in fruit juices
6	Estimation of titrable acidity
7	Determination of ash content in food
8	Estimation of iron and phosphorous content in food
9	Estimation of ascorbic acid in citrus fruits
10	Qualitative test for Vitamin A
11	Determination of smoking point of fat
12	Determination of oil absorption capacity of baked foods
13	Demonstration on estimation of fiber

EXPERIMENTS UNDER DBT

14	Estimation of protein by Lowry's method
15	Estimation of calcium in milk

Note: Out of 13 – 11 Mandatory



Course Code	Course Name	Category	L	T	P	Credit
232CE1A2EP	APPLIED CHEMISTRY	IDC	3	-	4	5

PREAMBLE

This course has been designed for students to learn and understand

- The concept of expressing water and water quality parameters
- The preparation and structure of organic compounds and protein
- The chemistry of milk products and carbohydrates

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 water quality parameters	K2
CO2	Infer the amino acids, proteins and peptides	K2
CO3	Interpret the preparation and applications of organic molecules	K3
CO4	Summarize the basic concepts and processing of milk	K2
CO5	Explain the structural elucidation of monosaccharide	K2

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



232CE1A2EP	APPLIED CHEMISTRY	SEMESTER II
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Total Credits: 5

Total Instruction Hours: 72 h

Syllabus

Unit I Water 16 h

Sources and impurities, water quality parameters: Definition and significance of color, odour, turbidity, pH, hardness, alkalinity, TDS (Total Dissolved Solids), COD (Chemical Oxygen Demand) and BOD (Biological Oxygen Demand), fluoride and chloride. Municipal water treatment: Primary treatment and disinfection (UV, Ozonation, break-point chlorination). Desalination of brackish water: Reverse Osmosis

Practical

- 1 Determination of total hardness of water by EDTA method
- 2 Determination of permanent hardness of water by EDTA method
- 3 Estimation of HCl using Na_2CO_3 as primary standard and determination of alkalinity in water sample

Unit II Amino acids, Proteins and Peptides 16 h

Amino acids -Classification, zwitter ions - Peptides - Structure of proteins - Primary, secondary, tertiary and quaternary structure- Colour test for proteins. Denaturation of proteins

Practical

- 4 Identification of amino acids by paper chromatography
- 5 Colour test for proteins- Biuret test and Xanthoproteic test

Unit III Organic Compounds 16 h

Preparation, properties and applications of Benzoic acid, Salicylic acid, Benzaldehyde, benzophenone and Aniline



Practical

- 6 Preparation of Methyl salicylate from Salicylic acid (Esterification)
- 7 Preparation of Aspirin from Salicylic acid (Acetylation)

Unit IV Processing of Milk

17 h

Milk: General composition of milk - Physical properties of milk - Recknagel effect viscosity and conductivity-Processing of milk-Boiling -Pasteurization - Sterilization and homogenization -Adulterants - Detection of preservatives and neutralizers - Estimation of calcium and fat

Practical

- 8 Estimation of calcium in milk powder
- 9 Estimation of iodine in common salt

Unit V Monosaccharide

17 h

Classification - Occurrence - Preparation - Structural elucidation - Properties of Glucose and Fructose

Practical

- 10 Estimation of glucose
- 11 Analysis of simple mono saccharides



Text Books

- 1 Bahl Arun and Bahl B.S, 2016, "Organic Chemistry", 22nd Edition, S. Chand & Company & New Delhi
- 2 Jain M. K and Sharma S. C, 2023, 2024th Edition, "Modern Organic Chemistry", Vishal Publishing Company & Punjab

References

- 1 Venkateswaran V, Veeraswamy R and Kulandaivelu A.R, 2017, "Principles of Practical Chemistry", 1st Edition, Sultan Chand & Sons & New Delhi
- 2 Morrison R.T, 2016, "Organic Chemistry", 7th Edition, Prentice Hall of India Pvt. Ltd., & New Delhi
- 3 Rangappa K. S, Achaya K.T, 2018, "Indian Dairy Products", Reprint, Goel Publishing House & Meerut
- 4 Jayashree Ghosh, 2016, "Fundamental Concepts of Applied Chemistry", 1st Edition, S. Chand & Company Pvt Ltd & New Delhi
- 5 https://veterinary.assam.gov.in/sites/default/files/swf_utility_folder/departments/ahvetdir_webcomindia_org_oid_4/portlet/level_1/files/Dairy%20Chapter%202%20%28Overview%20of%20Dairy%20Processing%29.pdf
- 6 [https://www.stannescet.ac.in/cms/staff/qbank/CSE/Notes/CY8151-Engineering%20Chemistry-1098045625-unit_1%20\(1\).pdf](https://www.stannescet.ac.in/cms/staff/qbank/CSE/Notes/CY8151-Engineering%20Chemistry-1098045625-unit_1%20(1).pdf)



231TL1A2AA	BASIC TAMIL	SEMESTER II
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Total Credits: 2

Total Instruction Hours: 24 h

இளங்கலை 2023-24ஆம் கல்வியாண்டு முதல் சேர்வோர்க்குரியது
(10 மற்றும் 12 - ஆம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)

(பருவத் தேர்வு இல்லை)
Syllabus

Unit I தமிழ் மொழியின் அடிப்படைக் கூறுகள் 05 h

எழுத்துகள் அறிமுகம்

1. உயிர் எழுத்துக்கள் - குறில் , நெடில் எழுத்துகள்
2. மெய் எழுத்துக்கள் - வல்லினம், மெல்லினம், இடையினம்
3. உயிர்மெய் எழுத்துக்கள்
4. பயிற்சி

Unit II சொற்களின் அறிமுகம் 05 h

- 1.பெயர்ச்சொல்
- 2.வினைச்சொல் - விளக்கம் (எ.கா.)
- 3.பயிற்சி

Unit III குறிப்பு எழுதுதல் 05 h

1. பெயர், முகவரி, பாடப்பிரிவு , கல்லூரியின் முகவரி
2. தமிழ் மாதங்கள்(12), வாரநாட்கள்(7)
3. எண்கள் (ஒன்று முதல் பத்து வரை), வடிவங்கள், வண்ணங்கள்

Unit IV குறிப்பு எழுதுதல் 05 h

1. ஊர்வன, பறப்பன, விலங்குகள்
- 2.மனிதர்களின் உறவுப்பெயர்கள்
3. ஊர்களின்பெயர்கள் (எண்ணிக்கை 10)

Unit V பயிற்சிப் பகுதி 04 h

பயிற்சிப் பகுதி (உரையாடும் இடங்கள்)

வகுப்பறை, பேருந்து நிலையம், சந்தை- பேசுதல்,எழுதுதல்.



Notes:

அகமதிப்பீட்டுத்தேர்வு – வினாத்தாள் அமைப்புமுறை- மொத்த மதிப்பெண்கள் - 50

	பகுதி -அ
சரியான விடையைத் தேர்வு செய்தல்	10x2=20
	பகுதி -ஆ
சரியா? தவறா?	10x2=20
	பகுதி - இ
ஒரு பக்க அளவில் விடையளிக்க	1x10=10

குறிப்பு:

- அனைத்து அலகுகளில் இருந்தும் வினாக்கள் அமைதல் வேண்டும்
- பகுதி இ-க்கான வினாக்கள் இதுஅல்லது அதுஎன்ற அடிப்படையில் அமைதல் வேண்டும்

Text Book

- 1 அடிப்படைத் தமிழ் - 2023-2024,தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல் கல்லூரி,கோயம்புத்தூர்.வெளியீடு: நியூ செஞ்சுரி புக் ஹவுஸ்,சென்னை. (Unit I to IV)

References

- 1 ஒன்றாம் வகுப்பு பாடநூல் - தமிழ்நாடு அரசு பாடநூல் கழகம், சென்னை.
- 2 தமிழ் இணையக் கல்விக்கழகம் - TAMIL VIRTUAL ACADEMY வலைதள முகவரி:
<<https://www.tamilvu.org/>>



231TL1A2AB	ADVANCED TAMIL	SEMESTER II
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Total Credits: 2

Total Instruction Hours: 24 h

இளங்கலை 2023– 2024 ஆம் கல்வியாண்டு முதல் சேர்வோர்க்குரியது
(10 மற்றும் 12 – ஆம் வகுப்புகளில் தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு உரியது)
(பருவத் தேர்வு இல்லை)
Syllabus

Unit I கவிதைகள் 06 h

1. தமிழ்நாடு - பாரதியார்
2. மனதில் உறுதி வேண்டும் - பாரதியார்
3. இன்பத்தமிழ் - பாரதிதாசன்
4. வேலைகளல்லவேள்விகள் - தாராபாரதி
5. தமிழா! நீ பேசுவது தமிழா! - காசியானந்தன்
6. நட்புக் காலம்(10 கவிதைகள்)- அறிவுமதி கவிதைகள்

Unit II கட்டுரை 05 h

கட்டுரைத் தொகுப்பு -நல்வாழ்வு - டாக்டர் மு.வரதராசன்

1. நம்பிக்கை
2. புலனடக்கம்
3. பண்பாடு

Unit III இலக்கணம் 04 h

1. வல்லினம் மிகும் மற்றும் மிகா இடங்கள்
2. ர, ற, ல, ழ, ள, ந, ண, ன – வேறுபாடு அறிதல்

Unit IV கடிதங்கள் 05 h

1. பாராட்டுக் கடிதம்
2. நன்றிக் கடிதம்
3. அழைப்புக் கடிதம்
4. அலுவலக விண்ணப்பங்கள்

Unit V பயிற்சிப் பகுதி 04 h

படைப்பாக்கப் பகுதி

பொதுத் தலைப்புகளில் கவிதை, கட்டுரை எழுதச்செய்தல்



Notes

அக மதிப்பீட்டுத் தேர்வு - வினாத்தாள் அமைப்பு முறை- மொத்த மதிப்பெண்கள் - 50

	பகுதி -அ
சரியான விடையைத் தேர்வு செய்தல்	10x1=10
	பகுதி -ஆ
கோடிட்ட இடங்களை நிரப்புக.	10x2=20
	பகுதி -இ
இரண்டு பக்க அளவில் விடையளிக்க	2x10=20

குறிப்பு:

- அனைத்து அலகுகளில் இருந்தும் வினாக்கள் அமைதல் வேண்டும்
- பகுதி இ-க்கான வினாக்கள் இதுஅல்லது அதுஎன்ற அடிப்படையில் அமைதல் வேண்டும்

Text Book

- 1 சிறப்புத் தமிழ் - 2023-2024, தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல் கல்லூரி, கோயம்புத்தூர். வெளியீடு: நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை. (Unit- I to IV)

References

- 1 பேராசிரியர் புலவர் சோம. இளவரசு,எட்டாம் பதிப்பு. 2014. தமிழ் இலக்கிய வரலாறு - மணிவாசகர் பதிப்பகம்,சென்னை.
- 2 டாக்டர் மு.வரதராசன். 2010. நல்வாழ்வு, பாரி நிலையம், சென்னை.
- 3 பேராசிரியர் முனைவர் பாக்கியமேரி,முதற் பதிப்பு.2013. இலக்கணம் - இலக்கிய வரலாறு - மொழித்திறன்- பூவேந்தன் பதிப்பகம், சென்னை..
- 4 தமிழ் இணையக் கல்விக்கழகம் - TAMIL VIRTUAL ACADEMY. வலைதள முகவரி : <https://www.tamilvu.org/>



Course Code	Course Name	Category	L	T	P	Credit
235CR1A2AA	HUMAN RIGHTS AND WOMEN'S RIGHTS	AECC	2	-	-	2

PREAMBLE

This course has been designed for students to learn and understand

- concepts of Human Rights.
- human Right Violations and Redressal Mechanism.
- rights to Women and Child.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the Basic concepts of Human Rights	K1
CO2	Describe the Fundamental Rights	K2
CO3	Relate Human Right Violations and Redressal Mechanism.	K3
CO4	State the Rights to Women and Child	K2
CO5	Apply Civil and Political Rights of Women	K3

MAPPING WITH PROGRAMME OUTCOMES

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

COURSE FOCUSES ON:

<input type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input checked="" type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



235CR1A2AA	HUMAN RIGHTS AND WOMEN'S RIGHTS	SEMESTER II
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77

Total Credits: 2

Total Instruction Hours: 24 h

Syllabus

Unit I Introduction to Human Rights 04 h

Meaning - Definition - Nature - Content - Legitimacy of Human Rights - Origin and Development of Human Rights - Theories – Principles of Magna Carta – Modern Movements of Human Rights – The Future of Human Rights.

Unit II Human Rights in India 05 h

The Constitution of India – Fundamental Rights – Right to Life and Liberty – Directive Principles of State Policy – Fundamental Duties – Individual and Group Rights – Other facets of Human Rights – Measures for Protection of Human Rights in India.

Unit III Human Right Violations and Redressal Mechanism 05 h

Human Rights – Infringement of Human Right by State Machinery and by Individual – Remedies for State action and inaction – Constitutional Remedies – Public Interest Litigation (PIL) - Protection of Human Rights Act, 1993 – National Human Rights Commission – State Human Rights Commissions – Constitution of Human Right Courts.

Unit IV Rights to Women and Child 05 h

Matrimonial protection - Protection against dowry - Protection to pregnancy - Sexual offences - Law relating to work Place - Directive principles of Constitution (Article 39 a, d, e & Article 42, 43 & 46) - Trafficking of women - Constitutional Rights – Personal Laws - Protection of children against Sexual Offences Act 2012 (POCSO).

Unit V Civil and Political Rights of Women 05 h

Right of Inheritance - Right to live with decency and dignity - The Married women's Property Act 1874 - Women's right to property - Women Reservation Bill - National Commission for Women - Political participation - Pre independent political participation of women - Participation of Women in post independent period.

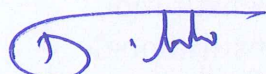


Text Books


- 1 Lalit Parmar, 1998, "Human Rights", Anmol Publications Pvt. Limited, New Delhi.
- 2 Krishna Pal Malik, 2009, "Women & Law ", Allahabad Law University, New Delhi.

References

- 1 Mandagadde Rama Jois, 2015, "Human Rights", Bharatiya Values, Bharatiya Vidya Bhavan Publications, Mumbai.
- 2 Paras Diwan and Piyush Diwan, 1994, "Women and Legal Protection", South Asia Books, Andhra Pradesh.
- 3 Venkataram and Sandhiya. N, 2001, "Research in Value Education", APH Publishing Corporation, New Delhi.
- 4 Anand A S, 2008, "Justice for Women: Concerns and Expressions", Universal Law Publishing Co., New Delhi.



BoS Chairman/HoD
Department of Food Science & Nutrition
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

 Dr.N.G.P. Arts and Science College		
APPROVED		
BoS- 16 th	AC- 16 th	GB- 21 st
16.10.23	13.12.23	05.01.24



Dr.NGPASC

COIMBATORE | INDIA

B.Sc Food Science and Nutrition (Students admitted during the AY 2023-24)

Course Code	Course Name	Category	L	T	P	Credit
231TL1A3TA	TAMIL- III	LANGUAGE- I	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடுநாகரீகம்,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	வாழ்க்கைத்திறன்கள் (Life Skills)- மாணவர்களின் செயலாக்கத்திறனை ஊக்குவித்தல்	K1
CO2	மதிப்புக்கல்வி (Attitude and Value education)	K2
CO3	பாடஇணைச்செயல்பாடுகள் (Co-curricular activities)	K2
CO4	சூழலியல் ஆக்கம் (Ecology)	K3
CO5	மொழி அறிவு(Tamil knowledge)	K3

MAPPING WITH PROGRAMME OUTCOMES

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

COURSE FOCUSES ON

<input checked="" type="checkbox"/> Skill Development	<input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input checked="" type="checkbox"/> Intellectual Property Rights	<input checked="" type="checkbox"/> Gender Sensitization
<input checked="" type="checkbox"/> Social Awareness/ Environment	<input checked="" type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



231TL1A3TA	TAMIL- III	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I காப்பியங்கள் 10 h

1. சிலப்பதிகாரம் -வழக்குரை காதை
2. மணிமேகலை-ஆதிரை பிச்சையிட்ட காதை

Unit II காப்பியங்கள் 10 h

1. கம்பராமாயணம் -கும்பகர்ணன் வதைப்படலம்: பா. எண் : 60 முதல் - 100 வரை
2. பெரிய புராணம் - அதிபத்த நாயனார்புராணம்

Unit III சிற்றிலக்கியங்கள் 10 h

1. திருக்குற்றாலக்குறவஞ்சி - வசந்தவல்லி பந்தாடிய சிறப்பு (6: 4கண்ணிகள்)
2. கலிங்கத்துப்பரணி-களம்பாடியது: போர்க்களக் காட்சி- பா.எண்: 472 முதல்- 502 வரை

Unit IV இலக்கிய வரலாறு 10 h

1. காப்பியம் - வரையறை, ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள்
2. கம்பராமாயணம், பெரிய புராணம் - குறிப்பு
3. சிற்றிலக்கியங்களின் தோற்றமும் வளர்ச்சியும்

Unit V இலக்கணம் & பயிற்சிப் பகுதி 08 h

அ. இலக்கணம்

1. 'பா' வகைகள் : வெண்பா, ஆசிரியப்பா, கலிப்பா, வஞ்சிப்பா - பொது இலக்கணம் மட்டும்.
2. அணி: உவமையணி, உருவக அணி, இல்பொருள் உவமையணி விளக்கம், உதாரணம்.

ஆ. பயிற்சிப் பகுதி



- 1.வாசகர் கடிதம்: நாளிதழ், வானொலி, செய்தி ஊடகங்களுக்கு விமர்சனம் எழுதுதல்
- 2.திரைக்கதை விமர்சனம்: மத்திய மற்றும் மாநில அரசு விருது பெற்ற தமிழ்த் திரைப்படங்கள் மட்டும்

Text Book

- 1 தமிழ் மொழிப்பாடம்-2023 -2024 ,தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல் கல்லூரி,கோயம்புத்தூர். வெளியீடு: நியூ செஞ்சுரி புக் ஹவுஸ்,சென்னை. (Unit I to V)

References

- 1 பேராசிரியர் புலவர் சோம. இளவரசு,எட்டாம் பதிப்பு-2014,தமிழ் இலக்கிய வரலாறு- மணிவாசகர் பதிப்பகம்,சென்னை.
- 2 பேராசிரியர் முனைவர் பாக்கியமேரி,முதற் பதிப்பு- 2013,இலக்கணம்- இலக்கிய வரலாறு- மொழித்திறன்- பூவேந்தன் பதிப்பகம்,சென்னை..
- 3 தமிழ் இணையக் கல்விக்கழகம் - TAMIL VIRTUAL ACADEMY. வலைதள முகவரி: <https://www.tamilvu.org>



Course Code	Course Name	Category	L	T	P	Credit
231TL1A3HA	HINDI- III	LANGUAGE- I	3	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

<input checked="" type="checkbox"/> Skill Development	<input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input checked="" type="checkbox"/> Intellectual Property Rights	<input checked="" type="checkbox"/> Gender Sensitization
<input checked="" type="checkbox"/> Social Awareness/ Environment	<input checked="" type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



231TL1A3HA	HINDI- III	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I 10 h

पद्य – काव्य पराशर (भोलानाथ)

(प्राचीन- कबीर, तुलसी, सुर, मीरा, आधुनिक- मैथिलीशरण गुप्त, अरुण कमल)

Unit II 10 h

हिन्दी साहित्य का इतिहास: (साधारण ज्ञान)

Unit III 10 h

अलंकार: अनुप्रास, यमक, श्लेष, वक्रोक्ति, उपमा, रूपक

Unit IV 10 h

संवादलेखन

Unit V 08 h

अनुवाद अभ्यास-III (केवल हिन्दी से अंग्रेजी में)

(पाठ 10 to 20)

Text Books

- 1 प्रकाशक: जवाहर पुस्तकालय सदर बाजार, मथुरा उत्तर प्रदेश-281001 (Unit I)
- 2 आचार्य रामचन्द्र शुक्ल लोकभारती प्रकाशन इलाहाबाद. (Unit II)
- 3 प्रकाशक: विनोद पुस्तक मंदिर आगरा-282002 (Unit III)
- 4 पुस्तक: व्याकरण प्रदीप-रामदेव प्रकाशक: हिन्दी भवन 36 इलाहाबाद-211024 (Unit IV)
- 5 प्रकाशक: दक्षिण भारत प्रचार सभा चेन्नई -17 (Unit V)



Course Code	Course Name	Category	L	T	P	Credit
231TL1A3MA	MALAYALAM- III	LANGUAGE-I	3	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	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 FOCUS ON

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



231TL1A3MA	MALAYALAM- III	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I	Poetry	10 h
	Kumaranasan	
Unit II	Poetry	10 h
	Kumaranasan	
Unit III	Poetry	10 h
	Kumaranasan	
Unit IV	Poetry	10 h
	VayalarRamavarma	
Unit V	Poetry	08 h
	VayalarRamavarma	

Text Books

- 1 Kumaranasan. 1998. Chinthavishtayaya Sitha. DC Books Kottayam, Kerala, India.(Unit I to III)
- 2 Ayisha (Poem), National Book Stall Kottayam, Kerala, India. (Unit IV & V)

Reference

- 1 Dr.M.Leelavathy.Kavitha Sahithya Charithram. Sahithya Academy Thrissur, Kerala, India.



Course Code	Course Name	Category	L	T	P	Credit
231TL1A3FA	FRENCH- III	LANGUAGE- I	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- the Competence in General Communication Skills – Oral + Written- 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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input checked="" type="checkbox"/>	Intellectual Property Rights	<input checked="" type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input checked="" type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



231TL1A3FA	FRENCH- III	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I

10 h

<ul style="list-style-type: none"> ° Décrire un lieu. ° Situer 	A partir d'une recherche de documents, composer une présentation touristique pour un magazine ou un site internet.	Comprendre la description d'un lieu. Décrire une ville ou une région qu'on aime. Interroger sur la situation d'un lieu. Comprendre des indications sur la fréquence d'actions.	Comprendre une présentation de catalogue touristique. Comprendre des pictogrammes. Comprendre la description d'un lieu et d'une situation précise dans un message électronique.
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Unit II

10 h

Se situer dans le temps.	A partir d'une recherche de documents, composer une présentation touristique pour un magazine ou un site internet.	Comprendre la description d'un lieu. Décrire une ville ou une région qu'on aime. Interroger sur la situation d'un lieu. Comprendre des indications sur la fréquence d'actions.	Comprendre une présentation de catalogue touristique. Comprendre des pictogrammes. Comprendre la description d'un lieu et d'une situation précise dans un message électronique.
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Unit III

10 h

Raconter. <ul style="list-style-type: none"> ° Décrire les étapes d'une action. 	Raconter une scène insolite à l'oral et à l'écrit.	Comprendre le récit d'un voyage. Raconter ses actions quotidiennes.	Ecrire une biographie à partir d'éléments écrits.
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Unit IV

10 h

Exprimer l'intensité et la quantité. <ul style="list-style-type: none"> ° Interroger. 	Raconter une scène insolite à l'oral et à l'écrit.	Comprendre le récit d'un voyage. Raconter ses actions quotidiennes.	Ecrire une biographie à partir d'éléments écrits.
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Unit V

08 h

Make in Own Sentences based on the above Lessons
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Text Book

- 1 LATITUDES 1 (Méthode de français) Pages from 102-127, Author : Regine Mérieux, Yves Loiseau (Unit I to IV)



Course Code	Course Name	Category	L	T	P	Credit
231EL1A3EA	ENGLISH - III	LANGUAGE- II	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- the basics of English grammar and specific usage
- the importance of the vocabulary and its use in different contexts
- the necessity of communication and composition writing skills

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Infer the specific usage of while-listening process	K2
CO2	Organize the various abilities and sub-skills involved in reading	K3
CO3	Utilize the importance of speaking skills and developing it through various practices	K3
CO4	Master diverse business communication formats and skills	K4
CO5	Acquire all-round mature outlook to function effectively in different context	K4

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



231EL1A3EA	ENGLISH - III	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I Listening and Reading 09 h

Listening in casual conversation, Small group and Conference setting - Listening for Factual Information- Barriers of Listening- Developing Listening skills- Poor listening vs Effective Listening - Basics of Reading- Efficient and Inefficient Readers- Advantages of Reading- Four Basic steps of Effective Reading- Stumbling blocks in becoming an effective Reader- Strategies for Comprehending and Retaining content- Effective Note Taking while Reading

Unit II Speaking 09 h

Purpose of General Conversations- Advantages, Features of a good conversation- Tips for improving Conversation- Public Speaking- Importance of Public Speaking- Benefits, Tips, Overcoming fear of Public Speaking- Preparatory steps - Structuring the contents- Audience Awareness- Mode of Delivery

Unit III Writing Skills 10 h

Preparing an Effective CV or a Resume with Job Applications- Employers expectation - Organize the material- Useful suggestions- Cover Letter- Content to be included- Tone of the letter- Report Writing- importance- features- Types - main parts- Feasibility report- Accident report- Scientific report- Memos - Introduction- Structure- Proposal Writing

Unit IV English for Communication & Skill for Employment 12 h

Notices, Agendas and Minutes- Business correspondence- Speeches- Meetings, Vocabulary Development- Editing Skills, and Reference Skills- Reading and Replying to E-Mails- Making Presentations- Interview Techniques- Group Discussion, and Oral Presentation Skills- Interacting with Superiors, and Listening to Reports and Customer Complaints- Preparing the minutes of a meeting- Presenting Data in Verbal and Non-verbal modes- The Correct Attitude of Employment

Unit V Soft Skills 08 h

Importance of soft skills- Attributes- Social Skills- Thinking- Negotiating- Exhibiting- Identifying - Soft Skills training -Train Yourself- Practicing soft skills- Measuring attitude - Self-Discovery: Importance of knowing yourself- Process - SWOT analysis - Benefits - Usage - SWOT Analysis grid- Art of Negotiation



Text Books

- 1 Camp and Satterwhite. 1998. College English and Communication. 7th Edition Glencoe Mchrawtill Publishers, New York, Unites States of America. (Unit I, II, III)
- 2 Kumar, Sanjay and Lata Pushp. 2018. Language and Communication Skills for Engineers. First Edition, Oxford University Press, India. (Unit I, II, III)
- 3 Mohan, Krishna and Banerji, Meera. 2009. Developing Communication skills. 2nd Edition, Macmillcan, India. (Unit I, II, III, IV)
- 4 Alex. Soft Skills. 2009. S. Chand Publishing, New Delhi, India. (Unit V)

References

- 1 Ghosh, B.N. Editor. 2017. Managing Soft Skills for Personality Development. McGraw- Hill Education, Chennai, India.
- 2 Miles Craven. 2008. Cambridge English Skills Real Listening and Speaking. First Edition, Cambridge University Press, United Kingdom.
- 3 Mishra, Gauri and Ranjana Kaul. 2016. Language Through Literature. Primus Books, India.
- 4 Pillai G, Radhakrishna. 2000. English for Success. Emerald Publishers, Chennai, India.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A3CA	NUTRITION THROUGH LIFE SPAN	CORE	4	1	-	4

PREAMBLE

This course has been designed for students to learn and understand

- The nutritional demands in various stages of life cycle
- The process of growth and development from birth until old age
- Acquire skills in planning adequate meals in different stages of life cycle

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Determine nutrient requirements/needs of individuals at different stages of life.	K4
CO2	Explain the nutritional needs during pregnancy and lactation for support of fetal and infant growth	K3
CO3	Assess the growth and development of infants and plan a diet to meet the nutrient requirements	K3
CO4	Infer the nutritional requirement of preschool and school going children	K4
CO5	Illustrate the nutritional problem and requirement for adolescent and senior citizen	K4

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input checked="" type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A3CA	NUTRITION THROUGH LIFE SPAN	SEMESTER III
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Total Credits: 4

Total Instruction Hours: 60 h

Syllabus

Unit I Introduction to RDA and Balanced Diet 10 h

Basics for Recommending the Dietary Allowances-Introduction, Purpose of RDA, Factors Affecting RDA, Recommended Dietary Allowances for Indians, Dietary Goals and 15 dietary guidelines steps, Concept of balanced diet, Principles and factors affecting of Meal Planning.

Nutritional needs of adults (men and women) -Nutritional requirement of the adult in relation to occupation (Consumption Units) and Reference Man and Woman

Unit II Nutritional Needs during Pregnancy and Lactation 12 h

Pregnancy-Stages, Physiological changes, Problems Nutritional requirements and dietary changes during pregnancy

Lactation- Physiological changes during lactation, hormonal control and relaxation, nutritional components of colostrum. Nutritional requirements and diet for lactating women

Unit III Nutrition during Infancy 13 h

Infancy- Growth and development (growth chart), Breast feeding and bottle feeding. Nutritional requirements of infants' up to one year in normal and premature infants. Problems of feeding.

Weaning Foods - Types of supplementary food, ARF, Point to be considered in introducing weaning foods, problems in weaning and Low cost supplementary foods in India.

Unit IV Nutritional needs of Pre-school & School children 12 h

Pre-school -Growth and development, and feeding problem, developing healthy eating habits Nutritional requirements and dietary guidelines for preschool children.

School children - Growth pattern, Nutritional requirement, feeding problem for schoolchildren, Importance of Packed lunch , Nutritional concerns.



Unit V Nutrition during adolescence and Old age

13 h

Adolescence- Physical and Psychological Growth and development, changes in food habits, Nutritional problems, Eating disorder- anorexia nervosa and bulimia nervosa, Adolescent Pregnancy-Dual burden, Nutritional requirement.

Old Age - Physiological changes in ageing, Psychological and Nutritional problems of elderly and their management. Nutritional requirement.

Text Books

- 1 Srilakshmi, B., 2013, "Dietetics", New Age International (P) Ltd., New Delhi.
- 2 Mahtab, S, Bamji, Kamala Krishnasamy, G.N.V. Brahman, 2012, "Text Book of Human Nutrition", Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.

References

- 1 Gopalan, C. Rama Sastri B.V. and Balasubramanian, 2014, "Nutritive Value of Indian Foods ", NIN, ICMR, Hyderabad.
- 2 Simon Langley-Evans, 2015, "Nutrition, Health and Disease: A Lifespan Approach", wiley publications, England.
- 3 Swaminathan, M, 2012, "Advanced Textbook on Food and Nutrition", Second Edition, Bangalore Printing and Publishing Co. Ltd., Bangalore.
- 4 T. Longvah R. Ananthan K. Bhaskarachary and K. Venkaiah, 2017" Indian Food Composition Tables", National Institute of Nutrition, Hyderabad.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A3CB	HUMAN PHYSIOLOGY	CORE	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- Structure of various organs and integrate the function with human nutrition
- Identify the structure of the cell & tissue
- Basic knowledge of human anatomy and physiology

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Apply the concept and knowledge of general terminology. Relates structure, functions of cell and digestive system	K2
CO2	Demonstrate understanding of the circulatory system. Describe the heartbeat, and relate it to the cardiac cycle	K2
CO3	Explain the reflexes associated with the senses. Discuss the process of gas exchange and transport in lungs	K2
CO4	Identify the major organs and functions of important reproductive systems.	K3
CO5	Explain the mechanism of nephron. Examine how the nervous system controls the body mechanism	K3

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A3CB	HUMAN PHYSIOLOGY	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I Cell & Gastrointestinal tract 08 h

Cell: Structure and functions, Tissues: Structure and functions of epithelial, connective, muscular and nervous tissue.

Digestive system: structure and functions, digestion, absorption of food. Associated organs of digestion- salivary gland, liver, gall bladder, pancreas and spleen

Unit II Circulatory system 10 h

Blood: Composition and functions, Red Blood cells: Formation and functions, White Blood cells: Types and functions, Platelets-function. Blood groups, blood coagulation and Rhesus factor, Disorders – Anemia, Leukemia, hemophilia.

Heart - Structure and functions, cardiac cycle, ECG and its significance. Blood pressure-factors affecting the blood pressure

Unit III Sense Organs and Associated diseases 10 h

Sense Organs -Eye, Ear, Tongue and Skin – Structure and functions. Diseases- vision – Conjunctivitis, trachoma, glaucoma, cataract, Tongue- Papilla and taste buds, Ear – Deafness, vertigo Lungs – Structure and functions, Exchange and Transportation of gases in the body. Disturbances in respiration – Apnea, Dyspnea, Hypoxia and Asphyxia.

Unit IV Reproductive system & Endocrinology 10 h

Male reproductive system – Structure and functions. Spermatogenesis and Structure of Sperm cell. Female reproductive system – Structure and functions, Oogenesis, Menstrual cycle, Puberty and Menarche.

Endocrine glands- Pituitary, Thyroid, Parathyroid, Pancreas (endocrine function), Adrenal –functions, Gonads, hypo and hyper activity of enzymes secreted.



Unit V Excretory, Muscular and Central nervous system

10 h

Excretory system – Structure and functions of kidney and Nephron, Mechanism of urine formation, composition of urine, Micturition.

Muscular system – Structure and Functions of the muscles & muscular action.

Central nervous system - Brain, spinal cord and Peripheral Nervous system – structure, function & action.

Text Books

- 1 Guyton and Hall, 2011, "Text Book of Medical Physiology", 12th Edition, Elsevier Inc., Netherlands.
- 2 K Sembulingam, Prema Sembulingam, 2019, "Essentials of Medical Physiology", 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd., Hyderabad.

References

- 1 Pal G. K, 2021, "Textbook of Medical Physiology", 4th Edition, Ahuja Publishing House, Delhi.
- 2 Chatterjee C. C, 2017, "Human Physiology - Vol I and II", 11th Edition, CBS Publishers, Bengaluru.
- 3 Dee Unglaub Silverthorn, 2016, "Human Physiology: An Integrated Approach", 7th Edition, Pearson Publishers, London.
- 4 Eric Widmaier, Hershel Raff, Kevin Strang, 2010, "Vander's Human Physiology: The Mechanisms of Body Function", 12th Edition, McGraw-Hill Education, New York.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A3CC	INSTITUTIONAL MANAGEMENT	CORE	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- The principles of planning, organizing and controlling in food service institutions
- The Sanitation and hygiene practices in meal planning and catering institutions
- Illustrate the activities on personnel management of employees and employers

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Gain knowledge about various types of food services	K2
CO2	Gain knowledge about the principles and functions of Management	K3
CO3	To understand about personnel Management, financial management	K3
CO4	To understand concepts of resource management and legal aspects	K4
CO5	To realize the importance of sanitation and hygiene in food service institutions	K4

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/> Skill Development	<input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



233FN1A3CC	INSTITUTIONAL MANAGEMENT	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I Food Service 8 h

Review of different types of institutional food service in operation- classification based on functional – i.e., profit oriented, service oriented and public health facility oriented, with their objective feeding's programmes in the country.

Unit II Management and Organization 10 h

Definition, Principles and techniques of management, tools of management; leadership- qualities of good leader styles of leadership; art of delegation; Organization – Organizing- present and future trends. Process of organization. Principles of organization, types of organization, tools of management. Definition, theories and types.

Unit III Personnel Management 10 h

Definition, Sources of personnel, Criteria for selection of personnel orientation, training, motivation, supervision, importance of good human relations, employee facilities fringe benefits: Labor policies and legislation – labor laws governing food service establishments; Performance appraisal of employees.

Financial management: Definition, application of Management Accounts of catering operators, cost concepts, book keeping and accounting – systems of book keeping, book of account maintenance of account books, balance sheets and inventor budgetary control

Unit IV Fuels and Safety 10 h

Fuels: Types of fuel, advantages of fuel in relation to economy in quantity cookery, fuel saving economy in food service institutions.

Safety: Accidents in food service establishments, safety procedure, training, Education, legal responsibilities of food service manager

Unit V Hygiene, and Sanitation in Food Service Institutions 10 h

Definition, importance, environmental hygiene and sanitation; hygiene in food handling; personnel hygiene of personnel; importance of pest and rodent control in



food services. Safety in food procurement, storage, handling and preparation, control of spoilage, safety of leftover foods, disposal of food waste

Text Books

- 1 Mohini Sethi and Surjeet Malham, 2014, "Catering Management - an integrated approach", Wiley Eastern limited, New Delhi.
- 2 West, B.B., Wood, L., Hager, V.F., and Shugart, G., 2007, "Food Services in institutions", John Wiley and Sons, New York.

References

- 1 Bhushan, V.K., 2003, "Business Organization and Management", Sultan Chand & Co, New Delhi.
- 2 Longree, K. and Balaker, B.C., 1979, "Sanitary Techniques in Food Service", John Wiley and Sons, New York.



233FN1A3CP	NUTRITION THROUGH LIFE SPAN	SEMESTER III
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Total Credits: 2

Total Instructions Hours: 48 h

S.No	Contents
	Standardization of portions for cooked food.
1	Planning, preparation and nutritional evaluation of diets in relation to activity levels).
2	Planning and Preparation of a balanced diet for
3	Pregnant woman in first second and third trimesters
4	lactating woman (0-6 months and 6-12 months)
5	Infancy & toddlers
6	pre-school child
7	school going child
8	Adolescence boys and girls
9	Adult men and women belonging to different income group
10	Senior citizen
11	Preparation of ARF, complementary and low-cost weaning foods
12	Preparation of packed lunch

List of DBT Experiments

- 1 Planning and preparing recipes for a child: Nutritious Snacks
- 2 Planning and preparing recipes for a senior citizen: Break Fast/Dinner

Note: Out of 12 - 10 Mandatory



References

- 1 Mahan and Escott ,K & S, 2000, "Food Nutrition and Diet Therapy", 11th Edn. , W.S. Saunder's Company, USA.
- 2 Srilakshmi, B, 2010 "Dietetics", 8thEdn., New Age International Pvt. Ltd, New Delhi.
- 3 Brown, J.E, 2002, "Nutrition Through The Lifecycle", Wadsworth Thomson Learning, USA.
- 4 Recommended Dietary Allowances, 2017, ICMR, National Institute of Nutrition, Hyderabad.



Course Code	Course Name	Category	L	T	P	Credit
233BC1A3IA	BIOCHEMISTRY - I	IDC	3	-	-	3

PREAMBLE

This course has been designed for students to learn and understand

- The nature of biological macromolecules namely Carbohydrate, Lipids, Proteins and Nucleic acid
- The role of Vitamins, Minerals and Hormones in the functioning of cell.
- The properties of nucleotides, how they contribute to secondary and tertiary structures of nucleic acids at the molecular level.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Outline the properties, types and importance of carbohydrates.	K1
CO2	Compare and contrast the different types of lipids.	K2
CO3	Describe the classification, properties and organization of protein structure	K2
CO4	Determine the structures of purines, pyrimidines, nucleoside and nucleotides, DNA and RNA	K3
CO5	Demonstrate the functions of vitamins and minerals in biological system.	K3

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233BC1A3IA	BIOCHEMISTRY - I	SEMESTER III
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Total Credits: 3

Total Instruction Hours: 36 h

Syllabus

Unit I Carbohydrates 8 h

Carbohydrates – Classification, structure, properties and chemical reactions of monosaccharide - Glucose, Fructose, Galactose, Mannose, Arabinose.

Disaccharides- Maltose, Lactose and sucrose.

Polysaccharides – Homo polysaccharides – Starch, Glycogen and Cellulose and Hetero polysaccharides – Hyaluronic acid, Heparin, Chondroitin sulphate. Biological importance of sugar derivatives - glycosaminoglycans, proteoglycan and glycoprotein – blood group antigens and Bacterial cell wall polysaccharides

Unit II Lipids 7 h

Lipids: Definition, classification of lipids, physiochemical properties. Storage lipids- fatty acids- types. Structural lipids – phospholipids, glycolipids and sphingolipids. Structure and Biological role of cholesterol.

Unit III Aminoacids and Proteins 7 h

Classification of amino acids, general properties, Non protein amino acids. Peptide bond - Structure and conformation, Protein classification, Physiochemical properties of proteins. Organization of protein Structure – primary, secondary (keratin, collagen), Tertiary (Myoglobin), Quaternary structure (Hemoglobin).

Unit IV Nucleic acids 7 h

Structure of Purines, pyrimidines, Nucleosides and Nucleotides. Properties of nucleic acids. DNA Double helical structure – isoform. RNA – Types – mRNA, tRNA, rRNA – structure and function.

Unit V Vitamins and Minerals 7 h

Minerals in biological system and their importance - Iron, Calcium, Phosphorus, Iodine, Copper, Zinc. Vitamins – Definition, Classification: Fat soluble Vitamins (Vitamin A, D, E, K) and Water soluble Vitamins (Vitamin B and C) – Sources, Functions and deficiencies. Role of Vitamins as antioxidants and cofactors.



Text Books

- 1 Jain J L, 2016, " Fundamentals of Biochemistry", 7th edition, S. Chand and company Ltd, New Delhi.
- 2 Sathyanarayan U, 2017, "Biochemistry", 5th edition, Books and Allied (P) Ltd, West Bengal.

References

- 1 Stryer L, 2011, "Biochemistry", 7th Edition, W. H. Freeman and Company, New York.
- 2 Nelson D L, Cox M M, 2008, "Lehninger Principles of Biochemistry", 5th edition, W.H. Freeman and Company, New York.
- 3 Zubay, 1999, "Biochemistry", 4th Edition, William .C. Brain publishers, UK.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A3SA	BASICS OF RESEARCH TECHNIQUES - COMPUTER APPLICATIONS	SEC	2	-	-	2

PREAMBLE

This course has been designed for students to learn and understand

- Understand the application of computer in various disciplines of Research
- To design and use computer-based projects and programs
- To use existing health and nutrition-based software

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Gain knowledge on computer operations and applications	K2
CO2	Understand the basics of MS Word	K2
CO3	Explore the uses of MS Excel and PowerPoint	K3
CO4	Apply the MS office for research techniques	K4
CO5	Emphasize the importance of computer application in nutrition	K3

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input checked="" type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A3SA	BASICS OF RESEARCH TECHNIQUES - COMPUTER APPLICATIONS	SEMESTER III
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Total Credits: 2

Total Instruction Hours: 24 h

Syllabus

Unit I Introduction to the world of computers 05 h

Basic concepts on computer - history, types of computers, input and output devices, peripheral devices, meaning of software and hardware. MS Windows – Introduction, basic concepts on a window, windows explorer, control panel, configuration, editor. Accessories – Paint brush.

Unit II MS Word 04 h

MS Word – concepts of document and template, creating documents and saving, concepts of editing, formatting, working with tables and tabs, tools, spell check, grammar check, file printing, mail merge, word art. Plagiarism check.

Unit III MS Excel & MS PowerPoint 05 h

Concepts of spread sheet, creating, work sheet, work space, formatting a work sheet, basic operations on data, sorting, total and subtotal, creating link between documents, programming in macros, working with charts, printing worksheets.

Concepts of PowerPoint, creating, opening, saving presentations, working with different views, working with slides – make a new slide, move, copy, go to a specific slide, layout, adding and formatting text, adding clipart and other pictures, designing slide show, tools – meeting minds, presentation conference.

Unit IV Computer Application in Research 05 h

Data collection – creating online form using Google forms, Data entry in MS Excel and data analysis using SPSS – Frequency analysis, Cross Tabulation, Chi-Square, T – test, ANOVA and Correlation Co-efficient. Export and saving results in Word document. Creating Tables.

Unit V Computer Application in Nutrition 05 h

Software package in nutrition education and diet counselling - Patient's health record, Nutritive value of food items, Nutritional analysis, Meal planning and recipes, Types of nutrition Softwares – Nutrium, Nutrition maker, Nutritionist pro, Nutritics, Core plus. Benefits of Nutrition Software's to Nutritionists and Clients.



Text Books

- 1 Microsoft Office 365 for Beginners, 2022: "The Most Updated All-in-One Guide from Beginner to Advanced", Microsoft office, United States.
- 2 Jesus Salcedo, 2017, "SPSS Statistics for Data Analysis and Visualization", Wiley Publishers, New Jersey.

References

- 1 Wallace Wang, 2016, "Absolute Beginners guide to computing", Apress Publishers, New York.



233FN1ASSA	SELF STUDY: FOOD FORTIFICATION	SEMESTER III
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Total Credits: 1

Syllabus

Unit I Food Fortification

Needs, objectives, principles and rationale, selection and basis of fortificants.

Unit II Technology of fortifying cereal products

Characteristics of nutrients used in cereal fortification; Types and levels of micronutrients to be added; Fortification methods; Fortification premixes, Design and composition of premixes and quality control; Fortification of bread, pasta, noodles, biscuits, and breakfast cereals.

Unit III Technology of fortifying beverages, candies, snack products

a) Technology of fortifying beverages - Importance of beverage fortification, Health benefits of fortification, Selection of nutrients for fortification, Levels to be added, Characteristics of fortificants and method of fortification, Bioavailability, Organic Vs inorganic salts.

b) Technology of fortifying candies - Product formulation, Factors to be considered in selecting fortificants, Nutrient bioavailability and its interactions, Packaging, storage, shelf life and cos.

c) Snack products - Rationale for micronutrient fortification of snack products, Merits and demerits of fortification, Choice of products and selection of micronutrients, Setting level of fortification, Safety limits, Technological and cost limits, Challenges in fortifying snack products, Nutrient interaction and bioavailability.

Unit IV Other special fortified products

Salt, sugars, oils, Nutri-bars, Granola bars.

a) Salt -Technology of fortifying salt with iron and iodine, Iodine stability and quality of double fortified salt, Safety issues, Levels to be added.

b) Sugars - Fortification with iron and vitamin A, Premix formulation, Fortification level, Packaging.

c) Oils- Fortification with vitamin A, Rationale of vitamin A fortification, Stability of vitamin A in oil during storage and cooking, Effects of frying on Vitamin A content, Efficacy and safety of vitamin A added to oil, Technology of fortifying, Packaging.



- d) Nutri bars - Selection of nutrient, Advantages and disadvantages of fortification, Technology of fortification, Packaging.
- e) Granola bars- Production of the product, Physical parameters of bars, Incorporation of fortificants, Technology of fortification, Packaging.

Unit V Health Foods

Selection of nutrients, Technology of incorporation, Bioavailability, Packaging.

Text Books

1. Subbulakshmi and Udipi.S., 2001, "Food processing and Preservation Technology", New Age Publications, New Delhi.
2. Khader, 2001., "A Textbook of Food Processing Technology", ICAR, New Delhi.

References

1. Shivashankar. B., 2002, "Food Processing and Preservation", PHI, New Delhi.
2. NIIR Board, 2002, "Modern Technology of Food Processing and Agro Based Industry", 2nd Edition, Asia Pacific Business Press, New Delhi.



233FN1ASSB	SELF STUDY: NUTRITION EDUCATION	SEMESTER III
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Total Credits: 1

Syllabus

Unit I Nutrition Education

Nutrition education: definition, rational, history, need and effectiveness. Role of nutrition educators.

Unit II Assessment

Needs assessment -educational assessment Assessing patients and family needs, coping techniques

Unit III Human behavior

Theories of human behavior and health choices. Health belief model, Theory of planned behavior and motivation. Stages of change. Social Cognitive Theory, Tran theoretical model and stages of change, Diffusion of Innovations Theory

Unit IV Health promotion

Public health nutrition and Health promotion. Planning nutrition education. Competencies and skills of nutrition education and nutrition education specialists.

Unit V Health communication, Communication skills


Information Education Communication approaches to improve health and nutrition: Concepts - Scope- Elements- Models of communication - Communication Process - Approaches and Barriers to communication, Communication for Extension Education and Development

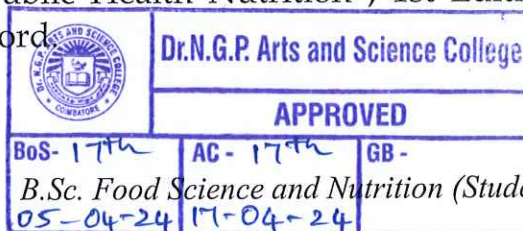
Text Books

1. Reddy.V., Rao.P, Sastry.G. J and Kashinath K.C, 1995, "Nutrition Trends in India", N1N, Hyderabad, India.
2. Park and Park, 1993, "Text Book of Preventive and Social Medicine", Banarsidas Publication, JaBapur.

References

1. Gibney, 2004, "Public Health Nutrition", 1st Edition, Black Well Scientific Publications, Oxford


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(Students admitted during the AY 2023-24)

Course Code	Course Name	Category	L	T	P	Credit
231TL1A4TA	TAMIL - IV	LANGUAGE-I	3	1	-	3

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics

231TL1A4TA	TAMIL - IV	SEMESTER IV
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I எட்டுத்தொகை

10 h

1. நற்றிணை – குறிஞ்சித் திணை

I.பா.எண் : 01 – கபிலர்

II.பா.எண் : 88 – நல்லந்துவனார்

III.பா.எண் : 102 – செம்பியனார்

2. குறுந்தொகை – முல்லைத்திணை

I.பா.எண் : 65 – கோலூர்கிழார்

II. பா.எண் : 167 – கூடலூர்கிழார்

மருதத்திணை

I.பா.எண் : 08 – ஆலங்குடி வங்கனார்

II.பா.எண் : 61 – தும்பிசேர்கீரனார்

III.பா.எண் : 196 – மிளைக் கந்தன்

நெய்தல் திணை

I.பா.எண் : 57 – சிறைக்குடி ஆந்தையார்

Unit II எட்டுத்தொகை

08 h

1. கலித்தொகை – பாலைக்கலி

I.பா.எண் : 09 – பெருங்கடுங்கோ

2. அகநானூறு – மருதத்திணை

I.பா.எண் : 86 – நல்லாலூர்கிழார்

3. புறநானூறு –

I.பா.எண் : 188 – பாண்டியன் அறிவுடை நம்பி

II.பா.எண் : 192 – கணியன் பூங்குன்றனார்

III.பா.எண் : 279 – ஓக்கூர் மாசாத்தியார்

IV.பா.எண் : 312 – பொன்முடியார்

Unit III பத்துப்பாட்டு

10 h

1. பட்டினப் பாலை – கடியலூர் உருத்திரங் கண்ணனார் -1முதல் 218 வரிகள் வரை மட்டும்.



Unit IV இலக்கிய வரலாறு

10 h

1. எட்டுத் தொகை நூல்கள்
2. பத்துப்பாட்டு நூல்கள்

Unit V இலக்கணம் மற்றும் திறனாய்வுப் பகுதி

10 h

I. இலக்கணம்

1. அகத்திணை - அன்பின் ஐந்திணை - விளக்கம்
2. புறத்திணை - 12 திணைகள் - விளக்கம்

II. பயிற்சிப் பகுதி

சங்கப் பாடல்கள் குறித்து திறனாய்வு செய்தல்.

Note: பயிற்சிப் பகுதியில் வினாக்கள் அமைத்தல் கூடாது.

Text Book

செய்யுள் திரட்டு - மொழிப் பாடம் - 2023- 24

- 1 தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல் கல்லூரி,(Unit I - V)

References

- 1 பேராசிரியர் புலவர் சோம. இளவரசு, எட்டாம் பதிப்பு -2014, தமிழ் இலக்கிய வரலாறு - மணிவாசகர் பதிப்பகம், சென்னை.
- 2 பேராசிரியர் முனைவர் பாக்கியமேரி, முதற் பதிப்பு- 2013, இலக்கணம் -இலக்கிய வரலாறு - மொழித்திறன் -பூவேந்தன் பதிப்பகம், சென்னை.
- 3 தமிழ் இணையக் கல்விக்கழகம்.<<http://www.tamilvu.org/>>



Course Code	Course Name	Category	L	T	P	Credit
231TL1A4HA	HINDI - IV	LANGUAGE-I	3	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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics

231TL1A4HA	HINDI- IV	SEMESTER IV
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I	10 h
नाटक	
Unit II	10 h
एकांकी	
Unit III	10 h
काव्य मंजरी	
Unit IV	10 h
सूचना लेखन	
Unit V	08 h
अनुवाद अभ्यास- III	

Text Books

- 1 लडाई – सर्वेश्वरदयाल सक्सेना प्रकाशक: वाणी प्रकाशन 21-A, दरियागंज नई दिल्ली-110002. (Unit I)
- 2 एकांकी पंचामृत – डॉ राम कुमार (भोर और तारा छोडकर) प्रकाशक: जवाहर पुस्तकालय सदर बाजार, मथुरा उत्तर प्रदेश-281001. (Unit II)
- 3 काव्य मंजरी- (डा मुन्ना तिवारी) मैथिलीशरण गुप्त- मनुष्यता, जयशंकर प्रसाद- बीती विभावरी जागरी सूर्यकान्त त्रिपाठी निराला- तोडती पत्थर और भिक्षुक. (Unit III)
- 4 सूचना लेखन पुस्तक: व्याकरण प्रदिप – रामदेव प्रकाशक: हिन्दी भवन 36 इलाहाबाद -211024. (Unit IV)
- 5 अनुवाद अभ्यास (केवल अंग्रेजी से हिन्दी में) (पाठ 10 to 20) प्रकाशक: दक्षिण भारत प्रचार सभा चेन्नई -17 (पाठ10 to 20). (Unit V)



Course Code	Course Name	Category	L	T	P	Credit
231TL1A4MA	MALAYALAM- IV	LANGUAGE - I	3	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	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 FOCUS ON

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics

231TL1A4MA	MALAYALAM- IV	SEMESTER IV
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I Drama 10 h

Saketham- Sreekandan Nair

Unit II Drama 10 h

Saketham- Sreekandan Nair

Unit III Drama 10 h

Saketham- Sreekandan Nair

Unit IV Screen Play 10 h

Perumthachan- Vasudevan Nair

Unit V Screen Play 08 h

Perumthachan- Vasudevan Nair

Text Books

- 1 Nair, Sreekandan C.N. 2023. Saketham, Drama. DC Books Kottayam, Kerala, India. (Unit I to III)
- 2 Nair, Vasudevan M.T. 1994. Perumthachan- Screenplay. DC Books Kottayam, Kerala, India. (Unit IV & V)

Reference

- 1 Sankarapillai. 2005. Malayala Nataka Sahithya Charithram, Kerala Sahithya Akademi Publishers, Kerala, India.



Course Code	Course Name	Category	L	T	P	Credit
231TL1A4FA	FRENCH - IV	LANGUAGE-I	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- the Competence in General Communication Skills – Oral + Written- 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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



231TL1A4FA	FRENCH - IV	SEMESTER IV
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I

10 h

° Décrire quelqu'un. ° Comparer	En milieu professionnel, recruter quelqu'un et justifier son choix.	S'exprimer sur les styles de vêtements. Reconnaître des personnes à partir de descriptions.	Comprendre la description de personnes dans un extrait de roman.
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Unit II

10 h

Exprimer l'accord ou le désaccord. ° Se situer dans le temps.	En milieu professionnel, recruter quelqu'un et justifier son choix.	Décrire des personnes. Comprendre des personnes qui expriment leur accord ou leur désaccord.	Comprendre des différences de points de vue exprimés dans un message électronique. Raconter un souvenir.
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Unit III

10 h

° Parler de l'avenir.	Discuter de l'organisation d'un voyage de groupe puis préparer une fiche projet et la remplir.	Comprendre une chanson. Echanger sur ses projets de vacances.	Comprendre le message d'une carte d'anniversaire.
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Unit IV

10 h

° Exprimer des souhaits. ° Décrire quelqu'un.	Discuter de l'organisation d'un voyage de groupe puis préparer une fiche projet et la remplir.	Discuter du programme de la soirée à venir. Addresser des souhaits à quelqu'un.	Comprendre le message d'une carte d'anniversaire.
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Unit V

08 h

Make in Own Sentences based on the above Lessons

Text Book

- 1 LATITUDES 1 (Méthode de français) Pages from 128-151, Author : Regine Mérieux, Yves Loiseau (Unit I to IV)



Course Code	Course Name	Category	L	T	P	Credit
231EL1A4EA	ENGLISH - IV	LANGUAGE II	3	1	-	3

PREAMBLE

This course has been designed for students to learn and understand

- how language shapes society, enhancing critical reading, writing, and thinking skills through various literary forms
- the fundamentals of writing, including essay composition, persuasive communication, and creative expression
- the process of critical thinking through the analysis of literature

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Summarize main points and supporting details from listening to public addresses and demonstrate poem comprehension.	K2
CO2	Demonstrate clear and expressive speech while engaging in role-play and dramatization activities.	K3
CO3	Interpret textual elements such as themes, tone, and authorial intent in various reading materials.	K3
CO4	Produce clear summaries and paraphrases, maintaining the essence of the original text.	K3
CO5	Prepare for job interviews by employing appropriate interview techniques, confidence, and professionalism.	K3

MAPPING WITH PROGRAMME OUTCOMES

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

COURSE FOCUSES ON

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



231EL1A4EA	ENGLISH - IV	SEMESTER IV
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Total Credits: 3

Total Instruction Hours: 48 h

Syllabus

Unit I Listening 10 h

Nissim Ezekeil - Goodbye Party for Miss Pushpa T.S.**D.H. Lawrence - Last Lessons of the Afternoon****Dr. APJ Abdul Kalam's speech at European Union**

Listening for subtext – Tone and Emotion – Vivid Language and Pacing – Listening for Vision and Hope – Use of Storytelling

Punctuations: Periods, Commas, Semicolons, Colons, Apostrophes, Ellipses, Exclamation Points

Unit II Speaking 10 h

Oscar Wilde - The Importance of Being Earnest

Direct Speech and Indirect Speech - Commands and Requests, Exclamations and Wishes, Conversion of Indirect to Direct

Rules for changing direct speech into indirect speech

Unit III Reading 09 h

Gita Hariharan - The Remains of the Feast -**Langston Hughes - Thank You M'am**

Making Inferences and Predictions - Identifying Author's Purpose and Tone- Contextual Vocabulary Building

Tenses: The Uses of Present, Past and Future Tenses

Unit IV Writing Skills 10 h

George Orwell - Why I Write

Summarizing vs. Paraphrasing - Expressing Purpose and Intent in Writing- Constructing Strong Arguments and Opinions

Grammar - Paraphrasing - Use of Paraphrasing, Characteristics of a good paraphrase, The Paraphrase of Poetry, Special Hints, Method of Procedure

Unit V Soft Skills 09 h

Steve Jobs - 2005 Stanford Commencement Address - Effective Communication - Presentation Skills

Business Corporate Soft Skills - Six common corporate conversation faux pas, Decision making Techniques, Negotiation Styles Job Interviews - Preparatory Steps for Job Interviews - Interview Skill Tips



Text Books

- 1 Straus, Jane, Lester Kaufman, and Tom Stern, editors. *The Blue Book of Grammar and Punctuation: An Easy-to-Use Guide with Clear Rules, Real-World Examples, and Reproducible Quizzes*. 12th ed., Jossey-Bass, 2021. (Unit I)
- 2 Wilde, Oscar. *The Importance of Being Earnest*. Edited by Norman Page, 2nd ed., Penguin Classics, 2000. (Unit II)
- 3 Hariharan, Gita. *The Remains of the Feast*. 1st ed., Penguin Books India, 1992. (Unit III)
- 4 Orwell, George. "Why I Write." *George Orwell: An Anthology of His Prose*, edited by John Carey, Harcourt, 2000. pp. 232-237. (Unit IV)
- 5 Meyer, John. *The Soft Skills Handbook for Corporate Success: Essential Strategies for Business Professionals*. 2nd ed., Business Insights, 2020. (Unit V)

References

- 1 Lawrence, D.H. *The Complete Poems of D.H. Lawrence*. Edited by V.J. Harding, 1st ed., Heinemann, 1992.
- 2 Buczynski, Mark. *Soft Skills for the Workplace: How to Build Successful Relationships and Advance Your Career*. 2nd ed., Wiley, 2018.
- 3 Hughes, Langston. "Thank You, M'am." *The Penguin Anthology of American Poetry*, edited by Rita Dove, Penguin Books, 2006, pp. 530-533.
- 4 Nelson, Brian. *The Soft Skills Handbook: Essential Skills for the Workplace*. 3rd ed., Business Publishing, 2019.



Course code	Course Name	Category	L	T	P	Credit
233FN1A4CA	DIETETICS	CORE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- Foundational knowledge in dietetics
- Knowledge on the principles of diet therapy in various diseases
- Skills to plan and prepare diets to treat various diseases

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic principles of Dietetics.	K1
CO2	Gain knowledge to develop dietary management strategies for gastrointestinal and febrile conditions.	K2
CO3	Gain insights in key concepts of glycemic index and load, and dietary interventions for diabetes and renal diseases.	K3
CO4	Apply diet planning principles to manage health conditions related cardiovascular diseases.	K4
CO5	Analyze nutritional problems related to diet therapy for cancer and food intolerance.	K1

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A4CA	CORE: DIETETICS	SEMESTER IV
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Introduction to Dietetics 10 h

Definition of Nutrition and Dietetics; Dietitian roles and responsibilities, ethics in dietary practice. Exchange list system - menu plan using exchange list. Hospital diets - Liquid diet, soft diet, bland diet, pureed diet, enteral nutrition and parenteral nutrition. Energy imbalance - High and low-calorie diets.

Unit II Gastrointestinal, liver and Febrile conditions 8 h

Gastrointestinal diseases - Introduction, causes, symptoms, dietary management of diarrhea, constipation, peptic ulcer.

Liver diseases - Introduction, causes, symptoms, dietary management of viral hepatitis, cirrhosis.

Febrile conditions - Introduction, causes, symptoms, dietary management of typhoid, tuberculosis, and dengue.

Unit III Diabetes and Renal diseases 12 h

Diabetes mellitus - classification, causes, symptoms, diagnosis (FBS, RBS, PPBS, HbA1C), dietary management of Type 1, Type 2 and Gestational diabetes mellitus. Basics of glycemic index, glycemic load and carbohydrate counting.

Renal diseases - Introduction, causes, symptoms, dietary management of nephritis, nephrotic syndrome, renal calculi, and chronic kidney disease. Dialysis - types, nutritional considerations in hemodialysis and peritoneal dialysis.

Unit IV Cardiovascular diseases 9 h

Cardiovascular diseases - Risk factors, role of fat and cholesterol. Introduction, causes, symptoms, dietary management of hypertension, atherosclerosis. Hyperlipidemia - definition, lipid parameters, causes, symptoms, dietary management.

Unit V Cancer and Food Intolerance 9 h

Cancer - common sites of cancer, development of cancer. Breast cancer, Colon Cancer, Oral cancer, Hepatocellular carcinoma - causes, symptoms, and dietary



management of cancer. Role of diet in prevention of cancer. Feeding problems related to cancer therapy.

Case studies practical application: Underweight, Obesity, Diarrhea, Constipation, Peptic ulcer, Hepatitis, Cirrhosis, Typhoid, Tuberculosis, Type 1, Type 2 and Gestational diabetes mellitus, Nephritis, Renal calculi, and Chronic Kidney Disease, Hypertension, Atherosclerosis, Hyperlipidemia, Breast cancer, Colon Cancer, Oral cancer, Hepatocellular carcinoma. (For Internal only)

Text Books

- 1 Kane K. and Prelack K., 2019, "Advanced Medical Nutrition Therapy", 1st ed., Jones and Bartlett Learning.
- 2 Srilakshmi B., 2023, "Dietetics", 9th ed., New Age International Publishers.

References

- 1 Shubhangini, A Joshi, 2021, "Nutrition and Dietetics", 5th ed., Mc Graw Hill.
- 2 Nix S. Williams S. R. and Mowry L., 2022, "Williams' Basic Nutrition and Diet Therapy", 16th ed., Elsevier.
- 3 Mahan L. K. and Escott-Stump S., 2021, "Krause's Food and Nutrition Therapy", 15th ed., Elsevier.
- 4 Escott-Stump S., 2015, "Nutrition and Diagnosis-Related Care", 8th ed., Wolters Kluwer.



233FN1A4CP	CORE PRACTICAL: DIETETICS	SEMESTER IV
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Total Credits: 2
Total Instructions Hours: 48 h

S.No	Contents
1	Planning and preparation of consistency modified diet - normal diet, soft diet, bland diet, pureed diet, liquid diet
2	Planning and preparation of diet for underweight
3	Planning and preparation of diet for overweight and obesity
4	Planning and preparation of diet for diarrhea, constipation, peptic ulcer
5	Febrile conditions - preparation of diet for typhoid, tuberculosis
6	Planning and preparation of diet for type 1 diabetes mellitus
7	Planning and preparation of diet for type 2 diabetes mellitus
8	Planning and preparation of diet for gestational diabetes mellitus
9	Planning and preparation of diet for nephritis
10	Planning and preparation of diet for chronic kidney disease
11	Planning and preparation of diet for hypertension
12	Planning and preparation of diet for atherosclerosis
13	Planning and preparation of diet for cancer
14	Planning and preparation of diet for lactose intolerance
15	Planning and preparation of diet for celiac disease

Experiments under DBT

- 1 Preparation of low-cost product for PEM
- 2 Preparation of low-cost product for Iron Deficiency Anemia

Note: Out of 15 - 13 Mandatory



Course Code	Course Name	Category	L	T	P	Credit
233FN1A4CB	PERSPECTIVE PSYCHOLOGY	CORE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- the basic concepts in Psychology and their applications
- to develop psychological aspects in dealing with every day issues
- socio-cultural influences on human development and behavior

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Interpret the methods and disciplines of psychology and to learn the modern perspective in psychology	K3
CO2	Classify the types of attitudes and various communication styles including the types and barriers	K2
CO3	Appraise the self-management, self-esteem and stress management techniques	K4
CO4	Examine the nature, character, types, aspects and the importance of personality	K4
CO5	Analyze the relationship between body and mind and to evaluate the barriers to modify poor health behaviours	K4

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization

233FN1A4CB	CORE: PERSPECTIVE PSYCHOLOGY	SEMESTER IV
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Introduction to psychology 10 h

Psychology as a Science, Methods in Psychology- Experimental Methods, Systematic Observation, clinical method. Disciplines of Psychology. Early Schools of Psychology- Structuralism, Gestalt Psychology, Functionalism, Behaviorism, Psychoanalysis. Modern Perspectives - Behavioral, Biological, Cognitive, Social, Developmental, Humanistic, Psychoanalytic.

Unit II Attitudes 8 h

Attitude -Meaning, Types of Attitudes, How Attitude Develop, Importance of Attitudes, Improving Attitude, Developing Positive Attitudes, attitude and behavior.

Communication Channels - Communication Barriers, Communication Openers, Communication Styles.

Unit III Self-Motivation 10 h

Importance of Self-Motivation Activities and projects - Case study for Critical Thinking. Self-Management - Efficient Work Habits, Stress Management. Self Esteem Knowing Oneself and Accepting Oneself. Self Enhancement- Plan to Improve- Actively Working to Improve Oneself.

Unit IV Personality 10 h

Definition, Nature of Personality, Characteristics of Personality, elements of Personality, Types of Personality, Aspects of Personality, methods of measuring personality, Basic Theories of Personality-Albert Bandura, Sigmund Freud's Psychoanalytic Theory, Charles Horton Cooley Laws and George Herbert Mead Theory, Importance of Personality, Techniques to Improve Personality.

Unit V Health psychology 10 h

Definition, Mind-Body Relationship, Biopsychosocial Model, Health Behavior Meaning, Barriers to Modify Poor Health Behaviors. Intervening with Children, Adolescents and at-risk people, Cognitive Behavioral Therapy (CBT) in Nutrition.



Text Books

- 1 Clifford.T.Morgan ,Richard A.King ,John R.Weisz & John Scholper,2012, "Introduction to Psychology" ,Seventh edition ,Tata McGraw Hill Publishing Company Limited, New Delhi.
- 2 Hans Raj Bhatia,2017, "General Psychology", CBS Publishers & Distributors pvt ltd.

References

- 1 Taylor S.E., 2003, "Health Psychology", Fifth Edition, McGraw Hill Inc. New York.
- 2 David G.Myers, 2010 "Social Psychology", Eighth Edition, Tata McGraw Hill Publishing Company Limited



Course Code	Course Name	Category	L	T	P	Credit
233BC1A4IA	BIOCHEMISTRY - II	IDC	3	-	-	3

PREAMBLE

This course has been designed for students to learn and understand

- The overview of information related to carbohydrate, fat and protein metabolism that takes place in our body
- The interrelationship between carbohydrate, fat and protein metabolism
- The basic principles underlying chromatography and electrophoresis methods

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Tell the basic concepts of pH and Buffers and their role of buffers system in our body fluids	K1
CO2	Outline the various electrophoretic techniques. Compare colorimetry and spectrophotometry.	K2
CO3	Understand the concepts involved in thermodynamics. Recall respiratory chain and oxidative phosphorylation.	K2
CO4	Understand the chemical logic of metabolic pathways.	K3
CO5	Outline how amino acids are synthesized and degraded. Interrelations of CHO, lipid and protein metabolism.	K3

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



233BC1A4IA	IDC: BIOCHEMISTRY - II	SEMESTER IV
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Total Credits: 3

Total Instruction Hours: 36 h

Syllabus

Unit I Buffers and Chromatography 8 h

Buffers: Concept of acid base indicators, buffer systems of blood and body fluids, Components of the pH meter and the concept of pH Chromatography: Paper, TLC, molecular sieve and affinity chromatography - their applications

Unit II Electrophoresis: Paper and Gel electrophoresis 7 h

Principles and applications of colorimetry and spectrophotometry. Isotopes: Definition and units of radioactivity: examples of natural and heavy isotopes in biological investigations.

Unit III Bioenergetics 7 h

Basic principles of thermodynamics - entropy, enthalpy and free energy; high energy phosphates, oxidation-reduction reactions. Mitochondria: - Respiratory chain and oxidative phosphorylation.

Unit IV Metabolic pathways 7 h

Carbohydrate metabolism: Glycolysis, TCA cycle, HMP shunt, Glycogenesis and glycogenolysis. Lipid metabolism: Beta-oxidation, biosynthesis of saturated fatty acids - Palmitic acid.

Unit V Protein metabolism 7 h

General pathway of amino acid metabolism - deamination, transamination and decarboxylation. Urea cycle. Glycine and phenylalanine metabolism (structures not required). Inter-relationship of carbohydrate, fat and protein metabolism (Flow chart only).



Text Books

- 1 Deb A.C, 2001, "Fundamentals of Biochemistry", 9th edition, New Central Book Agency, Kolkatta.
- 2 Chatterjea M. N, 2012, "Textbook of Medical Biochemistry", 8th edition, Jaypee Brothers, New Delhi.

References

- 1 Nelson, D.L., Cox, M.M, 2008, "Lehninger Principles of Biochemistry", 5th edition, W.H. Freeman and Company, New York.
- 2 Murray R.K., Granner D.K, Mayes P.A and Rodwell U. W., 2015, "Harper's Biochemistry", 30th edition, Lange Medical Publications, UK.
- 3 D.T. Plummer, 2006, "An Introduction to Practical Biochemistry", 3rd edition, TMH, New Delhi.



233BC1A4IP	IDC PRACTICAL: BIOCHEMISTRY	SEMESTER-IV
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Total Credits: 2

Total Instructions Hours: 48 h

S.No**List of Experiments**

- Analysis of Carbohydrates
- 1 Monosaccharide - Pentose- Arabinose
 - 2 Hexoses- Glucose and Fructose
 - 3 Disaccharides - Sucrose, Maltose and Lactose
 - 4 Polysaccharide - Starch
 - 5 Analysis of Amino acids: Histidine
 - 6 Tyrosine
 - 7 Tryptophan.
 - 8 Arginine
 - 9 Characterization of lipids: Determination of acid number
 - 10 Determination of iodine number
 - Quantification technique:
 - 11 Quantification of Protein by Lowry et al method
 - 12 Quantification of Carbohydrate by DNSA method

References

- 1 D.T. Plummer, 2006, An Introduction to Practical Biochemistry, 3rd edition, TMH, New Delhi.
- 2 Pattabiraman T. N and Sitarama Acharya U, 2015, Laboratory Manual in biochemistry, 4th Edition, All India Traveller Book Seller, New Delhi.
- 3 J Jayaraman, 2015, Laboratory manual in Biochemistry, 5th Edition, New Age International (P) Ltd, UK.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A4SA	FUNCTIONAL FOODS	SEC	2	1	-	2

PREAMBLE

This course has been designed for students to learn and understand

- the concepts of different functional foods
- natural occurrence and classification of functional foods
- the potential of various functional foods in promoting human health

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Develop comprehensive understanding of different functional foods	K1
CO2	Understand the types and market scenario of functional ingredients	K1
CO3	Summarize the various sources of functional foods	K2
CO4	Highlight the importance of safety and efficacy of functional food ingredients	K2
CO5	Emphasize the importance of nutraceuticals and their potential health benefits	K2

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/> Skill Development	<input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input checked="" type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input checked="" type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics



233FN1A4SA	SEC: FUNCTIONAL FOODS	SEMESTER IV
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Total Credits: 2

Total Instruction Hours: 36 h

Syllabus

Unit I Functional foods 08 h

Definitions, sources, health benefits, bioactive components of functional foods. Development of functional foods, challenges and safety considerations. Future trends of functional foods. Dietary supplements and fortified foods- need, health benefits adverse effects.

Unit II Types of functional foods 07 h

Whole foods, enriched foods, enhanced foods, fortified foods, modified foods. Market of functional foods, Challenges for Functional food delivery, Factors affecting consumer interest.

Unit III Functional foods of plant & animal origin 07 h

Functional components and its therapeutic benefits of foods from plant & animal origin: fruits, vegetables, nuts, spices, cereals, beverages, dairy products, sea foods, egg. Probiotics, prebiotics and symbiotics as functional foods.

Unit IV Legal aspects 07 h

Nutrition and health claims, food component - approved health claims, labeling considerations for functional ingredients, permissible and impermissible functional claims. FSSAI regulations for functional foods. Consumer acceptance and assessment of health claims.

Unit V Nutraceuticals 07 h

Definition, background, status of nutraceutical market, definition, difference between nutraceuticals and functional foods, types of nutraceutical compounds and their health benefits, current scenario.



Text Books


- 1 Wildman, 2007, "Handbook of Nutraceuticals and Functional Foods", CRC Press, USA.
- 2 Schmidl MK and Labuza TP., 2000, "Essentials of Functional Foods", Aspen Publication, Maryland, USA.

References

- 1 N. Shakuntalamanay and M. Shadaksharaswam, 2008, "Food Facts and Principles", New Age International Publications, New Delhi.
- 2 Gibson RG and Williams MC, 2000, "Functional Foods Concept to Product", Woodhead Publishing Ltd., England and CRC Press, USA.



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APPROVED		
BoS- 18 th 8/11/24	AC- 18 th 26/11/24	GB -



Dr.NGPASC

COIMBATORE | INDIA

B.Sc. Food Science and Nutrition (Students admitted during the AY 2023-24)

Course Code	Course Name	Category	L	T	P	Credit
233FN1A5CA	FOOD PRESERVATION	CORE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- the principle and method of preservation
- the preservation techniques by thermal and non-thermal processing
- the effects of preservation methods on the food composition

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Define the principles and explain the concepts of post-harvest technology	K1
CO2	Elaborate on the types of additives and their applications in food preservation	K2
CO3	Apply the fact on significance of moisture content in food and their effect on shelf life	K3
CO4	Analyze the use of heat and energy as a tool for processing and preservation	K4
CO5	Comprehend on the concepts of enhancing food preservation by the indirect approach	K4

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Constitutional Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A5CA	FOOD PRESERVATION	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Preservation of fresh food produce 08 h

Food preservation - definition, principles and methods. Postharvest physiology of fruit and vegetables, postharvest handling and minimal processing of fruits and vegetables, grains and pulses, fresh fish and seafood, meat and meat products, milk, spices and condiments.

Unit II Preservation using preservatives and microbes 08 h

Food preservation using preservatives - natural antimicrobials, antioxidants, additives and preservatives, biopreservatives, mold inhibitors and fermentation.

Unit III Preservation by controlling water, structure and atmosphere 12 h

Role of water activity in preservation. Drying and dehydration of foods - principles, advantages, limitations and applications. Glass transition and state diagram of foods. Food preservation using membranes, Encapsulation and stabilization. Modified and controlled, atmosphere packaging of produce.

Unit IV Preservation using heat and energy 12 h

Thermal Processing - sterilization, pasteurization, blanching, canning and bottling, microwave and retort process - principles, advantages, limitations and applications.

Freezing - Principles of freezing, fast and slow freezing. Freeze drying and refrigeration - working, advantages and disadvantages, thawing, and cold storage.

Novel processing technologies - irradiation, ohmic heating, pulsed electric field, ultrasound processing, high pressure processing, hurdle technology and cold plasma processing.

Unit V Enhancing food preservation by indirect approach 08 h

Food Packaging - packaging as a preservation technique, types of packaging materials used for foods, food packaging interaction. Food manufacturing control - hygienic design and sanitation, Commercial considerations - managing profit and quality.



Text Books

- 1 Subulakshmi.G and Shoba A Udipi V.K, 2017, "Food Processing and Preservation", New Age International Publishers, New Delhi.
- 2 M. Shafiur Rahman, 2007, "Handbook of Food Preservation", 2nd Edn., CRC Press, London.

References

- 1 Manoranjan Kalia and Sangita Sood, 2012, "Food Preservation and Processing", 2nd Edn., Kalyani Publishers, Ludhiana, India.
- 2 Srivastava.R.P and Sanjeev Kumar, 2002, "Fruit and Vegetable Preservation Principle and Practices", 3rd Edn., CBS publishers, New Delhi.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A5CB	FUNDAMENTALS OF FOOD MICROBIOLOGY	CORE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- The nature of foods and causes of deterioration in food products
- The principles underlying food processing and the improvement of foods for public consumption
- The effect of food poisoning and food borne intoxication on human health

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the general characters and the factors affecting the growth of microorganisms in food.	K2
CO2	Analyze spoilage mechanisms in plant, animal, and miscellaneous food products.	K4
CO3	Explain the role of microorganisms in food fermentation and health promotion.	K2
CO4	Evaluate the impact of major foodborne pathogens and toxins on food safety.	K5
CO5	Evaluate suitable media, growth methods, and isolation techniques for microbiological applications.	K5

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
	wareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A5CB	FUNDAMENTALS OF FOOD MICROBIOLOGY	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Importance of Microorganisms in Food Microbiology 8 h

Bacteria, Mold, Yeast, Algae-Classification, Growth curve of bacteria, Signification of microorganism in food industries.

Micro Organisms and Food Spoilage-General principles underlying spoilage, Classification of foods by ease of spoilage, Factors affecting the growth of microorganisms-Intrinsic and Extrinsic factors

Unit II Spoilage of Different Origin of Foods] 10 h

[Spoilage of Plant Origin - Cereals and cereal products, Cereal grains and flours, Baked products, Spoilage of fruits and vegetables.

Spoilage of Miscellaneous and Animal Origin Foods - Fats and oils, Bottled beverages and spices, Spoilage of meat and meat products, milk and milk products and canned foods.]

Unit III Role of Micro Organisms in Food and Health 10 h

Role of Microorganism in Food-Lactic Acid Fermentation-Yoghurt, Sauerkraut, Kimchi, Cheese, Idli, Fermented meat (Sausages). Yeast Fermentation-Bread, Wine. Mold Fermentation-Tempeh, Soy sauce production, Acetic acid Fermentation-Kombucha

Role of Microorganism in Health- Significance of prebiotic foods, Probiotic and symbiotic organisms and its significance in maintaining health.

Unit IV Food Poisoning 10 h

Food borne intoxication - Staphylococcus, clostridium, Bacillus cereus, Vibrio parahaemolyticus and Campylobacter jejuni.

Food borne Infections - E.Coli, Salmonella, Shingella, and Listeria monocytogenes.

Algal toxins and Mycotoxins.



Unit V Microbial Analysis of Foods

10 h

Types of media (Selective, enrichment, differential media)- Preparation of media (Steps in preparation)-Measurement of microbial growth (Direct and Indirect methods)- Methods of isolating pure culture (Pour plate, spread plate and streak plate techniques)

Text Books

- 1 William C. Frazier and Dennis C. Westhoff, 2021, "Food Microbiology", 5th Edition, Mc Graw Hill Publishers, New Delhi.
- 2 Adams M.R. and Moss M.O, 2008, " Food Microbiology", 3rd Edition, New Age International (P) Limited, Publishers, New Delhi.

References

- 1 Roger.Y.Stainer, 2004, " Basic Food Microbiology", 3rd Edition, CBS Publishers, New Delhi.
- 2 Foster VM, 2016, "Food Microbiology, 1st Edition, CBS Publishers, New Delhi.
- 3 Prasad and Vijaya Raghava D, 2015, " Essentials of Food Microbiology", 2nd Edition, SBW Publishers, New Delhi
- 4 Anjena, 2018, "Modern Food Microbiology", 1st Edition, Medtech Science Press, New Delhi.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A5CC	FOOD PROCESSING	CORE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- The basic processing methods of foods
- Equipment used in food processing
- Significance of non - thermal food processing techniques

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify and apply the suitable processing methodology for cereals and pulses.	K5
CO2	Suggest the processing technique of dairy products and outline the processing steps of edible oil production	K5
CO3	Apply the suitable process technique to meat, poultry, fish and egg products.	K4
CO4	Justify the best method to process fruit and vegetable and mushroom process.	K5
CO5	Process beverages and spices with effective technology.	K5

MAPPING WITH PROGRAMME OUTCOMES

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

<input type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A5CC	FOOD PROCESSING	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Cereals and Pulses Processing 10 h

Paddy Processing - Milling of rice, parboiling, by products of rice and their utilization. Wheat processing - Milling of wheat, by products of wheat, extrusion techniques. Millet processing - Types of millet and its processing. Pulse processing - Wet and dry processing, protein concentrates and protein isolates.

Unit II Milk and Edible Oils Processing 10 h

Processing of Milk and milk products - Kinds of milk, Cheese and its types, butter, ice cream. Probiotic milk products - Yoghurt, Kefir, Indigenous Milk products - Paneer, khoa, curd, ghee. Technology of oil seeds - Processing of edible oils, by products of edible oil processing.

Unit III Vegetables and Fruit Processing 10 h

Vegetable and fruit processing - Minimal processing, osmotic dehydration.

High temperature processing - Sun drying, mechanical drying - drum drying, vacuum drying, infra-red drying, oven drying, foam mat drying, kiln drying and tunnel drying.

Low temperature processing - freezing, refrigeration, cold storage, thawing, freeze drying.

Unit IV Processing of Meat, Poultry, Egg and Fish 08 h

Meat and poultry processing - Curing, smoking, freezing and cryogenic and vacuum packaging, Egg - Whole egg powder, egg yolk powder, Fish - Fish protein concentrate, fish protein isolate, fish meal and fish oil.

Unit V Processing of beverages and spices 10 h

Non - alcoholic beverages - Manufacturing process of tea and coffee, Processing of cocoa bean into cocoa powder, cocoa butter and chocolate. Alcoholic beverages - Manufacturing process of Beer and wine. Spices - processing, manufacturing process of spice oil and oleoresin.



Text Books

- 1 Fellows P.J, 2016, "Food Processing Technology" - Principles and Practices, Third Edition, CRC Press, Woodland Publishers, England.
- 2 Shakuntala Manay, N. and Shadaksharaswamy, M., 2008, "Foods - Facts and Principles", Third Edition, New Age International Publishers, Newdelhi.

References

- 1 Subbulakshmi and Shobha Udipi 2020, "Food Processing and Preservation Technology", First Edition, New Age Publishers, New Delhi.
- 2 Sivasankar.B, 2002, " Food Processing and Preservation," First edition, PHI Pvt. Ltd, New Delhi
- 3 Srilakshmi. B, "Food Science", 8th Edition, New Age International Publishers, New Delhi.
- 4 Bawa AS, Raju PS, Chauhan OP, 2013, "Food Science", New India Publishing Agency, New Delhi.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A5CD	FOOD SAFETY AND QUALITY CONTROL	CORE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- Food safety and food laws followed in food industries
- Quality control measures and common food standards
- HACCP principles and Food quality assessment

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Define food safety and principles of quality control in food industry.	K1
CO2	Interpret the role of Indian and international standards in regulating and promoting food safety.	K2
CO3	Illustrate the pre-requisite programs followed by the food industry.	K3
CO4	Apply the principles of HACCP to identify food safety hazards.	K3
CO5	Explain the methods for determining the quality and sensory attributes of foods.	K4

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A5CD	FOOD SAFETY AND QUALITY CONTROL	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Food safety and Quality control 8 h

Food Safety - definition of food safety and food spoilage, factors affecting food Safety and food spoilage. Quality control- definition of quality control, Principles of Quality control of food, Quality Assurance-Raw material control, process control and finished product inspection.

Unit II National and International Quality Standards 10 h

Indian Standards - FAO/WHO, FSSAI, AGMARK, BIS, ISI, CPA, PFA, FPO, MPO.

International Standards - Codex Alimentarius, ISO - 9001:2000, 22000:2005 Standards, WTO, FAO, APEDA, JECFA, EPA.

Unit III Pre-requisite Programs 10 h

GHP - Personal hygiene - occupational health and safety specification, Food Plant Sanitation Management - Plant facilities construction and maintenance - exterior of the building- interior of the building- equipment's. GHP in Processing, Storage, transportation, traceability, recalling procedures, training and Documentation.

GMP - Risk Analysis, Risk Management, Risk Assessment, Risk Communication - Traceability and authentication.

Unit IV HACCP 10 h

HACCP principles- Types of Hazards, HACCP team, conduct a hazard analysis, CCP identification, establish critical limits for each CCP, establish CCP monitoring procedures, establish corrective actions procedures, establish procedures for HACCP verification and validation, documenting the HACCP Program.

Unit V Quality evaluation of foods 10 h

Determination and Compliance of finished product quality with FSSAI Standards, assessment of food quality, Panel selection, sensory Laboratories, Subjective and Objective method of evaluation.



Text Books

- 1 Pulkit Mathur, 2008, "Food Safety and Quality Control", Orient Black Swan publication.
- 2 Norman G. Marriott, 2006, "Principles of Food Sanitation", 5th Edition, Springer publication, USA.

References

- 1 Naomi Rees. David Watson, 2000, "International standards for food safety", An Aspen Publication.
- 2 Mortimore, S., and Wallace.C, 2005, "HACCP: A practical approach", 2nd Edition, Aspen Publication.
- 3 Victoria.B.C, 2015, "Food Safety, Sanitation, and Personal Hygiene", The BC Cook Articulation Committee.
- 4 Mahindru.S.N, 2000, "Food Additives", 1st Edition, TMH, New Delhi.



233FN1A5CP	FOOD PRESERVATION	SEMESTER V
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Total Credits: 2
Total Instructions Hours: 48 h

S.No	Contents
1	Methods of food preservation by minimal processing
2	Methods of food preservation by sugaring
3	Methods of food preservation by salting
4	Methods of food preservation by pickling
5	Methods of food preservation by drying
6	Methods of food preservation by freezing and refrigeration
7	Methods of food preservation by fermentation
8	Methods of food preservation by smoking
9	Methods of food preservation by sterilization and pasteurization
10	Methods of food preservation by canning and bottling
11	Prepare a preserved product and evaluate its sensory attributes
12	Conduct a consumer acceptability trial for a preserved product

Experiments under DBT

- 1 Preservation of foods by fats – confit & sous vide method
- 2 Preservation of foods using protein based edible coatings

Note: Out of 12 – 10 Mandatory

References

- 1 M. Shafiur Rahman, 2007, "Handbook of Food Preservation", 2nd Edn., CRC Press, London.



233FN1A5SP	FOOD PROCESSING AND QUALITY CONTROL	SEMESTER V
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Total Credits: 2
Total Instructions Hours: 48 h

S.No	Contents
1	To determine the moisture content of a food sample using a moisture analyzer
2	To estimate the moisture content in food products using the hot air oven method
3	To determine the ash content in a food sample through preparation of ash solution
4	To estimate the total ash content of food products by dry ashing method
5	To determine the water absorption capacity of flour or other powdered food materials
6	To measure the pH and total soluble solids (TSS) of prepared jam or jelly samples
7	To assess the viscosity of liquid food samples using a viscometer
8	To determine the salt content in food samples using a digital salt meter
9	To estimate the titratable acidity in fermented food products like curd or idli batter
10	To evaluate the smoking point, acid number, saponification value, and rancidity of various edible oils
11	To determine the moisture content, rehydration ratio, and cooking volume of sun-dried or dehydrated fruits and vegetables
12	To perform density analysis of dough to assess quality parameters

Experiments under DBT

- 1 Analyzing the texture of processed foods using TPA & Viscometer
- 2 Detection of non-permitted food additives in market food samples

Note: Out of 12 – 10 Mandatory

References

- 1 Vedpal Yadav, 2014, "Food Analysis and Quality Control - A Practical Manual", Government Polytechnic, Haryana, India.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A5DA	POST-HARVEST TECHNOLOGY	DSE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- the concept of post-harvest process and managements
- causes of post-harvest losses and its control measures
- government initiatives and role in controlling food losses.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the importance of post-harvest technology.	K1
CO2	Categorize the handling techniques of produce at farm level.	K2
CO3	Prioritize the importance of packing house operations and food storage structures.	K3
CO4	Categorize the food loss and its control measures.	K4
CO5	Understand the role of government in food distribution and improve entrepreneurial skills.	K1

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input checked="" type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A5DA	POST-HARVEST TECHNOLOGY	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Introduction to Post-Harvest Technology 8 h

Introduction to Post Harvest Technology - Definition, importance. Elements of post-harvest system. Scenario of Food Processing in india. and Post-Harvest Management-Agro Processing Centers, Cold Storages, Food Parks, Agri Export Zones, Agri Logistics-Long & Short Holding Produce, Record Keeping System on food supply chain

Unit II Harvesting and Field Handling 10 h

Maturity Indices, Harvesting Techniques and Operations-Hand Harvesting, Machine Harvesting, Transport - Modes of transport (road, rail, cold chain vehicles), and distribution of agricultural produce, challenges in logistics. Grading and its Equipment's

Unit III Packinghouse and storage 10 h

Packing house- Need, Packhouse Operations, Storage- Principles, Types of Storage operations, Factors affecting storage, Storage structures and Temperature for fruits, vegetables and root crops, milk, and meat products. Use of IoT, sensors, AI for storage monitoring.

Unit IV Post-Harvest Loss and its Control 10 h

Food loss -Types, Agents- Physical agents (moisture, temperature), Chemical losses, biological losses- insect infestation, rats and rodents, birds, animals, and Control of Spoilage Agents- Methods to prevent the entry of rats and rodents, Fumigation, Controlling the inhouse conditions.

Unit V Post-Harvest Distributions 10 h

MOFPI-Integrated Cold Chain and Value Addition Infrastructure Scheme-Objectives and Components, Grains- Underground & Above ground storage, Food Corporation of India-Godown, Functions of Central Warehouse Corporation, State Warehouse Corporation, PDS

Text Books

- Florkowski, W. J., Banks, N. H., Shewfelt, R. L., and Prussia, S. E., 2021,
1 "Postharvest handling: a systems approach", 3rd Edition, Academic Press, Amsterdam.



- 2 Chakravarty, A., 1995, "Post harvest technology of cereals, pulses and oilseeds", 3rd Edition, Oxford and IBH, New Delhi.

References

- 1 Sudheer, K. P., and Indira, V. 2007, "Post harvest technology of horticultural crops" , Vol. 7. New India Publishing, New Delhi
- 2 Boumans, G., 2012, Grain handling and storage. 4th Edition, Elsevier, Netherland
- 3 Mor, R. S., Kumar, D., and Singh, A., 2022, "Agri-Food 4.0: Innovations, Challenges and Strategies". Emerald Publishing Limited, Bingley.
- 4 Kader, A. A. (2002). *Postharvest Technology of Horticultural Crops* (3rd Ed.). University of California, Agriculture and Natural Resources.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A5DB	CLINICAL NUTRITION	DSE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- Understand the scope and ethical role of clinical nutritionists in healthcare.
- Explore emerging trends like nutrigenomics, gut health, and nutrition technology
- Plan diets for metabolic disorders, food allergies, and critical care

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the Nutritional Care Process (NCP) model including assessment, diagnosis, intervention, and documentation in clinical case simulations.	K3
CO2	Evaluate current trends in personalized nutrition, gut health, and culinary interventions in disease prevention.	K5
CO3	Elaborate the dietary management and nutritional interventions in inborn errors of metabolism, food allergies, and critical care nutrition intervention	K4
CO4	Apply medical nutrition therapy for endocrine disorders, electrolyte imbalances and musculoskeletal conditions through appropriate dietary planning and case-based analysis	K3
CO5	Develop and formulate effective nutrition counseling sessions using behavioral models and educational tools for chronic health conditions	K5

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization
<input checked="" type="checkbox"/>	Social Awareness/ Environment	<input type="checkbox"/>	Constitutional Rights/ Human Values/ Ethics



233FN1A5DB	CLINICAL NUTRITION	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Introduction to Clinical Nutrition and Nutritional Care Process 8 h

Scope of clinical nutrition. Role and ethics of a clinical nutritionist in healthcare settings. The Nutritional Care Process (NCP): Nutritional Assessment (ABCD method), Nutrition Diagnosis (PES format), Intervention, Monitoring, and Evaluation, Documentation practices in clinical dietetics. Team approach in clinical settings – Interdisciplinary collaboration. Practical considerations in clinical counseling and nutrition education. Case Study on NCP Case Simulation Activity

Unit II Emerging Trends in Clinical Nutrition 10 h

Personalized Nutrition and Nutrigenomics: Basic concepts of gene-nutrient interactions and tailored diets for disease prevention. Artificial Intelligence in clinical dietetics (e.g., AI-driven nutrition planning or risk prediction tools). Gut Health and Microbiome: Role of gut bacteria in digestion and immunity, Dietary sources of prebiotics and probiotics. Culinary Nutrition – Food as Medicine: Healthy cooking for lifestyle disease prevention. Nutrition Technology: Use of mobile apps, software, and tele-nutrition in diet planning and monitoring. Practical Application: Case-based diet planning for common conditions using digital tools. Sample menu plan using herbs, prebiotics and probiotics

Unit III Inborn Errors of Metabolism, Food Allergies, and Critical Care Nutrition Intervention 10 h

Medical Nutrition Therapy in Metabolic Disorders: Phenylketonuria (PKU), Maple Syrup Urine Disease (MSUD), Galactosemia, Tyrosinemia. Food Allergies and Intolerances: Overview of food allergies and intolerances, Symptoms and diagnostic approaches. Elimination diet – principles, procedure, and application in diagnosis and management. Basics of Critical Care Nutrition: Nutritional needs of critically ill patients. Nutritional support in ICU (enteral/parenteral feeding).

Role Play: Basic Counseling and Elimination Diet Plan for food allergies.

Unit IV Medical Nutrition Therapy for Endocrine, Electrolyte, and Musculoskeletal Disorders 10 h

Nutritional management of common endocrine conditions such as hypothyroidism, hyperthyroidism, Addison's disease, Cushing's syndrome, and PCOS. Dietary care in fluid and electrolyte imbalances such as hypocalcemia, hypercalcemia,



hypokalemia, hyperkalemia, hyponatremia, and hypernatremia. Role of diet in the prevention and management of musculoskeletal disorders including osteomalacia, osteoporosis, and rheumatoid arthritis with emphasis on anti-inflammatory diets, calcium, and vitamin D.

Case study on individualized diet planning for endocrine and bone-related conditions.

Unit V Nutrition Counselling and Patient Education 10 h

Basics of nutrition counselling – goals and process. Communication and behavioural change strategies: Health Belief Model, Transtheoretical Model (Stages of Change). Counselling techniques for chronic conditions (e.g., diabetes, hypertension, obesity). Preparation and use of patient teaching aids: Leaflets, charts, models, and interactive materials role play for counselling practices.

Motivational Counselling and Teaching Aid Presentation

Text Books

- 1 Mahan, L. K and Raymond, J. L. 2016, "Krause's Food and the Nutrition Care Process", 14th Edn., Elsevier, St. Louis, Missouri, USA.
- 2 Escott-Stump, S. 2008, "Nutrition and diagnosis-related care", 7th Edn., Lippincott Williams and Wilkins, Philadelphia, Pennsylvania.

References

- 1 Rosenthal, M. M., and Burchum, J. R. 2020, "Lehne's Pharmacology for Nursing Care", 10th Edn., Elsevier, St. Louis, Missouri, USA.
- 2 Holli, B. B., and Beto, J. A. 2018, "Nutrition Counseling and Education Skills for Dietetics Professionals", 7th Edn., Lippincott Williams and Wilkins, Philadelphia, Pennsylvania.
- 3 Contento, I. R. 2015, "Nutrition Education: Linking Research, Theory, and Practice", 3rd Edn., Jones and Bartlett Learning, Burlington, Massachusetts.
- 4 Ferguson, L. R. 2013, "Nutrigenomics and Nutrigenetics in Functional Foods and Personalized Nutrition", 1st Edn., CRC Press, Boca Raton, Florida.



Course Code	Course Name	Category	L	T	P	Credit
233FN1A5DC	FOOD COMMODITIES	DSE	4	-	-	4

PREAMBLE

This course has been designed for students to learn and understand

- The principles and various methods of cooking foods
- The knowledge on composition of various foodstuffs
- The 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	Discuss the methods of handling and transport of commodities. Explain nutrient losses in the food grains.	K1
CO2	Paraphrase the positions of kitchen production. Illustrate the equipment operations & common culinary tools.	K2
CO3	Analyze various cooking techniques and safety hazards, employ preventative safety measures.	K3
CO4	Illustrate the processing of foods and utilization of stock exchange.	K4
CO5	Describe the portion control and personal hygiene to be maintained in the kitchen.	K1

MAPPING WITH PROGRAMME OUTCOMES

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

<input checked="" type="checkbox"/>	Skill Development	<input type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input type="checkbox"/>	Innovations
<input type="checkbox"/>	Intellectual Property Rights	<input type="checkbox"/>	Gender Sensitization



233FN1A5DC	FOOD COMMODITIES	SEMESTER V
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Total Credits: 4

Total Instruction Hours: 48 h

Syllabus

Unit I Introduction to Food Commodities 10 h

Introduction to Food Commodities – Definition, and Classification of Commodities food commodification in the early markets, raise of commodity exchanges and their impact, Food commodities - cereals, pulses dairy, meat, fruits and vegetables, Potatoes, Poultry, eggs and sugar. Handling and Transport of Food Commodities - Traditional and improved methods, Nutrient losses in spoiled grains and National program to save grains.

Unit II Kitchen and kitchen equipments 10 h

Kitchen – Definition, parts, Different Positions, Designing a kitchen, Functions of kitchen. Kitchen equipments – Traditional and Modernized kitchen equipments, Culinary hand tools – Importance, Functions and safety measure.

Unit III Cooking Skills, Techniques and Safety 8 h

Cooking Skills – Equipment operating knowledge and handling skills. Cooking Techniques – Classification of Cooking techniques, Importance of cooking techniques. Safety – Safety hazards, employ preventive safety measures, safe work habits.

Unit IV Preparation and processing of foods 10 h

Preparation of foods – selection of raw ingredients. Employment of preliminary methods - cleaning, grading, sorting, Processing of foods, utilization of basic stocks and storage. Maintenance of records.

Unit V Portion control and personal hygiene 10 h

Portion control – workflow, plating and garnishing principles. Personal hygiene – principles, Importance of personal hygiene, points to be noted while entering the kitchen.

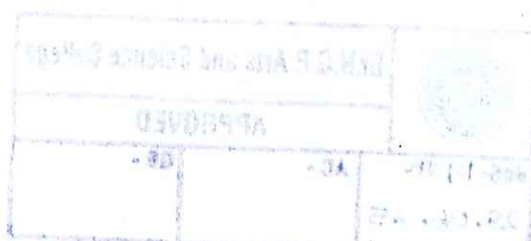


Text Books

- 1 Sethi M. and Malhan S.M, 2015, "Catering Management an Integrated Approach", 3rd edition, New Age International Private Limited, India.
- 2 Thangam Philip, 2005, "Modern Cookery", 3rd edition Orient Longman Limited, India.

References

- 1 Cessarani, V. Kinton, R, 2002, "Practical Cookery", seventh Edition, Hodder and Stoughton publishers.
- 2 Khan, M.A, 2003, "Food Service Operations", AVI Publications Co., Connecticut.
- 3 John Cousins, Dennis, Lillicrap and Suzanne Weekes, 2014 "Food and Beverage Service", 9th Edition, Published by Hachette, UK.
- 4 Parvinder S. Bali, 2011, "Quantity Food Production Operations and Indian Cuisine", Published by Oxford University Press, India.



233FN1A5GA	FOOD PRESERVATION	SEMESTER V
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Total Credits: 2

Total Instruction Hours: 24 h

Syllabus

Unit I Food Preservation 4 h

Food Preservation- Definition, importance of food preservation, principles and methods of preservation.

Unit II Preservation by Sugar 5 h

Preservation by addition of Sugar- General principles, Preparation of Jam, Jelly, Marmalade, Squash, Syrups.

Unit III Preservation by Salt 5 h

Preservation by addition of Salt- General principles, Preparation of Pickles, Sauerkraut, Dill pickles.

Unit IV Preservation by High temperature 6 h

Preservation by High temperature - Principles, Pasteurization, Sterilization, Blanching, Canning, Drying and Dehydration.

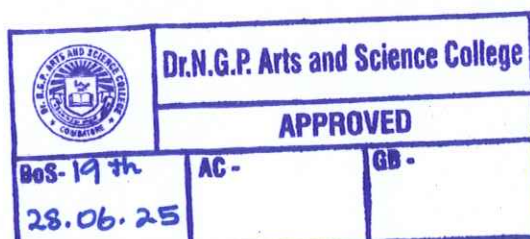
Unit V Preservation by Low temperature 4 h

Preservation by Low temperature - Principles, Refrigeration, Freezing, Freeze drying.

Text Books

- 1 Manoranjan Kalia, Sangita Sood, 2012 "Food Preservation and Processing", Kalyani Publishers, New Delhi.
- 2 B.Srilakshmi, 2018, "Food science", New Age International Publishers, New Delhi.


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