



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 2025-26 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 2025-26 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.

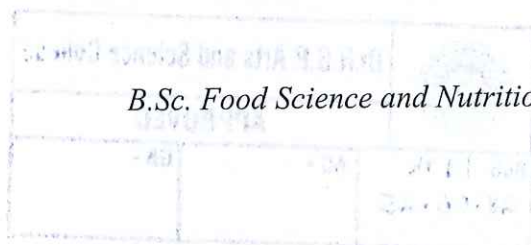


Guidelines for Programmes offering Part I & Part II for Four Semesters:

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	



Dr. NGPASC
COIMBATORE | INDIA



B.Sc. Food Science and Nutrition (Students admitted during the AY 2025-26)


Dr. NGPASC, Coimbatore, India
2025

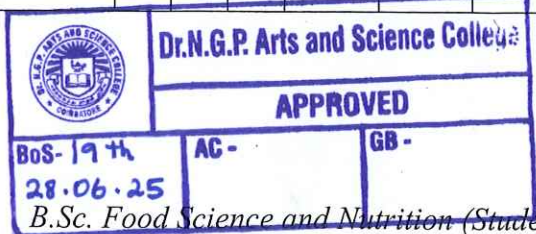
CURRICULUM

B.Sc. Food Science and Nutrition

A.Y
25-26

Course Code	Course Category	Course Name	L	T	P	Duration		Exam (h)	Max Marks			Credits	
						Week	Total		CIA	ESE	Total		
First Semester													
Part-I													
25TLU1TA	Language-I	Tamil-I	4	1	-	5	60	3	25	75	100	3	
25TLU1HA		Hindi-I											
25TLU1MA		Malayalam – I											
25TLU1FA		French-I											
Part-II													
25ELU1EA	Language-II	English-I	4	-	1	5	60	3	25	75	100	3	
Part-III													
25FNU1CA	Core-I	Fundamentals of Food Science	4	1	-	5	60	3	25	75	100	4	
25FNU1CB	Core-II	Chemistry of Foods	4	1	-	5	60	3	25	75	100	4	
25FNU1CP	Core practical-I	Food Science	-	-	5	5	60	3	40	60	100	2	
25CEU1IA	IDC-I	Chemistry	3	-	-	3	36	3	25	75	100	3	
Part-IV													
25MBU1AA	AECC-I	Environmental Studies	2	-	-	2	24	-	50	-	50	2	
Part – V													
25FNU1XA	Extension Activity	NSS/NCC/YRC /RRC/Yoga/ Sports/Club / Health and Wellness	-	-	-			-	50		50	1	
Total			21	3	6	30	360	-	-	-	700	22	


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



B.Sc. Food Science and Nutrition (Students admitted during the AY 2025-26)

Course Code	Course Category	Course Name	L	T	P	Duration		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Second Semester												
Part-I												
25TLU2TA	Language-I	Tamil-II	4	1	-	5	60	3	25	75	100	3
25TLU2HA		Hindi-II										
25TLU2MA		Malayalam – II										
25TLU2FA		French-II										
Part- II												
25ELU2EA	Language-II	English– II	4	-	1	5	60	3	25	75	100	3
Part-III												
25FNU2CA	Core-III	Principles of Nutrition	4	1	1	6	72	3	25	75	100	4
25FNU2CP	Core Practical-II	Quantitative Nutrient Analysis	-	-	5	5	60	3	40	60	100	2
25CEU2IM	IDC Practical-I	Applied Chemistry	3	-	4	7	84	3	40	60	100	5
Part-IV												
25TLU2AA/ 25TLU2AB/ 25CRU2AA	AECC-II	Basic Tamil/ Advanced Tamil /Human Rights and Women’s Rights	2	-	-	2	24	-	50	-	50	2
Part-V												
25FNU2XA	Extension Activity	NSS/NCC/YRC/ RRC/Yoga/Sports / Health and Wellness	-	-	-	-	-	-	50	-	50	1
Total			17	02	11	30	360				600	20



Course Code	Course Category	Course Name	L	T	P	Duration		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Third Semester												
Part-I												
25TLU3TA	Language-I	Tamil-III	3	1	-	4	48	3	25	75	100	3
25TLU3HA		Hindi-III										
25TLU3MA		Malayalam – III										
25TLU3FA		French-III										
Part- II												
25ELU3EA	Language-II	English–III	3	1	-	4	48	3	25	75	100	3
Part-III												
25FNU3CA	Core - IV	Nutrition Through Life Span	4	-	-	4	48	3	25	75	100	4
25FNU3CB	Core -V	Human Physiology	4	-	-	4	48	3	25	75	100	4
25FNU3CC	Core -VI	Sports Nutrition	3	-	-	3	36	3	25	75	100	3
25FNU3CP	Core Practical- III	Nutrition Through Life Span	-	-	4	4	48	3	40	60	100	2
25BCU3IA	IDC-II	Basics of Biochemistry	3	-	-	3	36	3	25	75	100	3
25FNU3SP	SEC- I	Basics of Research Techniques – Computer Applications	-	-	4	4	48	3	40	60	100	2
Total			20	2	08	30	360				800	24



Course Code	Course Category	Course Name	L	T	P	Duration		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fourth Semester												
Part-I												
25TLU4TA	Language-I	Tamil-IV	3	1	-	4	48	3	25	75	100	3
25TLU4HA		Hindi-IV										
25TLU4MA		Malayalam – IV										
25TLU4FA		French-IV										
Part- II												
25ELU4EA	Language-II	English-IV	3	1	-	4	48	3	25	75	100	3
Part-III												
25FNU4CA	Core-VII	Dietetics - I	4	-	-	4	48	3	25	75	100	4
25FNU4CB	Core - VIII	Perspective Psychology	3	-	-	4	48	3	25	75	100	3
25FNU4CP	Core Practical-IV	Dietetics - I	-	-	4	4	48	3	40	60	100	2
25BCU4IA	IDC-III	Essentials of Biochemistry	3	-	-	3	36	3	25	75	100	3
25BCU4IP	IDC Practical-II	Biochemistry	-	-	4	4	48	3	40	60	100	2
25FNU4SP	SEC-II	Bakery and Confectionery	-	-	4	4	48	3	40	60	100	2
Total			16	2	12	30	360				800	22



Course Code	Course Category	Course Name	L	T	P	Duration		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fifth Semester												
Part-III												
25FNU5CA	Core-IX	Food Preservation	4	-	-	4	48	3	25	75	100	4
25FNU5CB	Core-X	Applied Diet Therapy	4	-	-	4	48	3	25	75	100	4
25FNU5CC	Core- XI	Food Processing	4	-	-	4	48	3	25	75	100	4
25FNU5CD	Core - XII	Food Safety and Quality Control	4	-	-	4	48	3	25	75	100	4
25FNU5CV	Core-XIII	Project work and viva voce	-	-	-	-	-	3	40	60	100	2
25FNU5CP	Core Practical-V	Food Preservation	-	-	4	4	48	3	40	60	100	2
25FNU5SP	SEC-III	Applied Diet Therapy	-	-	4	4	48	3	40	60	100	2
25FNU5DA	DSE-I	Food Microbiology	4	-	-	4	48	3	25	75	100	4
25FNU5DB		Basics of Diet Counseling										
25FNU5DC		Food Commodities										
25FNU5TA	IT	Industrial Training	-	-	-			3	40	60	100	2
Part - IV												
	GE		2	-	-	2	24	3	50	-	50	2
Total			22	-	8	30	360				950	30



CourseCode	Course Category	Course Name	L	T	P	Duration		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	


Sixth Semester


Part-III

25FNU6CA	Core-XIV	Community Nutrition	4	-	-	4	48	3	25	75	100	4
25FNU6CB	Core-XV	Food Product Development & Marketing	4	-	-	4	48	3	25	75	100	4
25FNU6CP	Core Practica -VI	Food Product Development	-	-	4	4	48	3	40	60	100	2
25FNU6CV	Core - XVI	Community Project & Viva Voce	-	-	4	4	48	3	40	60	100	2
25FNU6SP	SEC-IV	Nutrient Analysis	-	-	4	4	48	3	40	60	100	2
25FNU6DA	DSE-II	Instrumentation Techniques	4	-	-	4	48	3	25	75	100	4
25FNU6DB		Health and Fitness										
25FNU6DC		Unit operation in Food Industry										
25FNU6DD	DSE-III	Food Labelling and Packaging	4	-	-	4	48	3	25	75	100	4
25FNU6DE		Applied Diet Counseling										
25FNU6DF		Entrepreneurship In Food Industry										

Part-IV

25BIU6AA	AECC-III	Innovation and IPR	2	-	-	2	24	-	50	-	50	2
Total			18	-	12	30	360				750	24
Grand Total											4600	142


 PoS Chairman/HoD
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 Dr.N.G.P. Arts and Science College		
APPROVED		
BoS-19th	AC-	GB-
28.06.25		



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	25FNU5DA	Food Microbiology
2	25FNU5DB	Basics of Diet Counseling
3	25FNU5DC	Food Commodities

Semester VI (Elective II)

List of Elective Courses

S. No.	Course Code	Name of the Course
1	25FNU6DA	Instrumentation Techniques
2	25FNU6DB	Health and Fitness
3	25FNU6DC	Unit operation in Food Industry

Semester VI (Elective III)

List of Elective Courses

S. No.	Course Code	Name of the Course
1	25FNU6DD	Food Labelling and Packaging
2	25FNU6DE	Applied Diet Counseling
3	25FNU6DF	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	25FNU5GA	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	25FNUSSA	Food Fortification
2	25FNUSSB	Nutrition Education



Semester – I							
LANGUAGE – I: TAMIL - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25TLU1TA	TAMIL - I	LANGUAGE- I	48	12	-	3

Preamble	மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடுநாகரீகம், பகுத்தறிவு ஆகியவற்றை அறியச் செய்தல்
	கலை மற்றும் மரபுகளை அறியச் செய்தல்
	மாணவர்களின் படைப்பாக்கத்திறன்களை ஊக்குவித்தல்
Prerequisite	தமிழ் மொழி எழுதி, படிக்கும் திறன்

Course Outcomes (Cos)		
CO. No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	வாழ்க்கைத்திறன்கள் (Life Skills)- மாணவர்களின் செயலாக்கத்திறனை ஊக்குவித்தல்	K2
CO2	மதிப்புக்கல்வி (Attitude and Value education)	K3
CO3	பாடஇணைச்செயல்பாடுகள் (Co-curricular activities)	K3
CO4	சூழலியல் ஆக்கம் (Ecology)	K4
CO5	மொழி அறிவு (Tamil knowledge)	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



25TLU1TA TAMIL - I

Syllabus

Unit	Content	Hrs	Resources
1	<p>மறுமலர்ச்சிக் கவிதைகள்</p> <ol style="list-style-type: none"> இலக்கிய வரலாறு - மறுமலர்ச்சிக் கவிஞர்களின் தமிழ்ப்பணிகள் பாரததேசம்- பாரதியார் படி - பாரதிதாசன் தமிழரின் பெருமை- நாமக்கல் கவிஞர் தமிழ்க் கொலை புரியாதீர் - புலவர் குழந்தை திரைத்தமிழ் <p>அ) 'விஞ்ஞானத்த வளர்க்கப் போறண்டி' எனத் தொடங்கும் பாடல் - உடுமை நாராயண கவி</p> <p>ஆ) 'சும்மா கிடந்த நிலத்தை' எனத் தொடங்கும் பாடல் - பட்டுக்கோட்டை கல்யாண சுந்தரனார்</p> <p>இ) 'சமரசம் உலாவும் இடமே' எனத் தொடங்கும் பாடல் - மருதகாசி</p> <p>ஈ) 'உன்னை அறிந்தால்' எனத் தொடங்கும் பாடல் - கண்ணதாசன்</p>	13	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026</p> <p>https://www.youtube.com/watch?v=Up55uhkk9zI</p>
2	<p>புதுக்கவிதைகள்</p> <ol style="list-style-type: none"> இலக்கிய வரலாறு - புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் கடமையைச் செய் - மீரா ஓடு ஓடு சங்கிலி - சிற்பி பாலசுப்பிரமணியம் ஒப்பிலாத சமுதாயம் - அப்துல் ரகுமான் மரங்கள் - மு.மேத்தா கறிக்கிறது தாய்ப்பால் - ஆரூர் தமிழ்நாடன் ஐந்தாம் வகுப்பு 'அ' பிரிவு - நா. முத்துக்குமார் ஹைகூ கவிதைகள் - 10 கவிதைகள் 	13	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026</p> <p>https://www.youtube.com/watch?v=dX9ZaNJMaCo</p>
3	<p>பெண்ணியம்</p> <ol style="list-style-type: none"> தொலைந்து போனேன் - தாமரை நீரில் அலையும் முகம் - அ. வெண்ணிலா தற்காத்தல் - பொன்மணி வைரமுத்து ஏனென்ற வித்தியாசங்கள்? - மல்லிகா புதையுண்ட வாழ்க்கை - சுகந்தி சுப்ரமணியன் 	10	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026</p> <p>https://www.youtube.com/watch?v=DLabokqWE dg</p>
4	<p>சிறுகதைகள்</p> <ol style="list-style-type: none"> இலக்கிய வரலாறு - சிறுகதையின் தோற்றமும் வளர்ச்சியும் கனகாம்பரம் - கு.ப.ராஜகோபாலன் கடிதம்- புதுமைப்பித்தன் பொம்மை - ஜெயகாந்தன் காய்ச்சமரம் - கி. ராஜநாராயணன் காட்டில் ஒருமான் - அம்பை வேட்கை - சூர்யகாந்தன் 	14	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026</p> <p>https://www.youtube.com/watch?v=78u7iTN3OU8</p>



5	<p>பயிற்சிப் பகுதி</p> <p>அ. இலக்கணம்</p> <p>1. வல்லின ஒற்று மிகும், மிகா இடங்கள் - ஒற்றுப்பிழை நீக்கிஎழுதுதல்</p> <p>2. ர,ற-ல,ழ,ள - ண,ந,ன வேறுபாடு - ஒலிப்பு நெறி, சொற்பொருள் வேறுபாடு அறிதல்</p> <p>ஆ. படைப்பாக்கம்</p> <p>1. கவிதை- எழுதுதல் (15 வரிகள் முதல் 30 வரிகள் வரை)</p> <p>2. சிறுகதை - எழுதுதல் (குறைந்தது 3 பக்கங்கள்)</p>	10	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026</p> <p>https://www.youtube.com/watch?v=B3wfM0QL6</p> <p><u>N8</u></p> <p>https://www.youtube.com/watch?v=FchTlqAtwB</p> <p><u>U</u></p> <p>https://www.youtube.com/watch?v=gCP3gC-JQU4</p> <p>https://www.youtube.com/watch?v=p9QOHD12</p> <p><u>Yeo</u></p>
	Total	60	

Text book	1.	தமிழ் மொழிப்பாடம் - 2025-2026 தொகுப்பு: தமிழ்த்துறை, டாக்டர் என். ஜி. பி. கலை அறிவியல் கல்லூரி, கோயம்புத்தூர் - 641048.
Reference Books	1.	பேராசிரியர் புலவர் சோம. இளவரசு, தமிழ் இலக்கிய வரலாறு, எட்டாம் பதிப்பு - 2024, மணிவாசகர் பதிப்பகம், சென்னை - 600 108.
	2.	பேராசிரியர் முனைவர் பாக்கியமேரி, முதற் பதிப்பு - 2023, இலக்கணம், இலக்கியவரலாறு, மொழித்திறன் - பூவேந்தன் பதிப்பகம், சென்னை - 600 004.

Journal and Magazines	இலக்கிய இதழ்கள்
E-Resources and Website	https://www.tamilvu.org

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment
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Focus of the Course	Skill Development / Employability
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Semester – I							
LANGUAGE –I: HINDI – I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25TLU1HA	HINDI – I	LANGUAGE- I	48	12	-	3

Preamble	The writing ability and develop reading skill
	The various concepts and techniques for criticizing literature
	The techniques for expansion of ideas and translation process
Prerequisite	To understand the language Hindi for communication

Course Outcomes (Cos)		
CO.No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Learn the fundamentals of novels and stories	K2
CO2	Understand the principles of translation work	K3
CO3	Expose the knowledge writing critical views on fiction	K3
CO4	Build creative ability	K3
CO5	Apply the power of creative reading	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



25TLU1HA

HINDI – I

Syllabus

Unit	Content	Hrs	Resources
1	गद्य – नूतन गद्य संग्रह (जयप्रकाश) पाठ1- रजिया पाठ, 2- मक्रील पाठ 3- बहता पानी निर्मला पाठ4- राष्ट्रपिता महात्मा गाँधी	13	Text Book
2	कहानी कुंज- डॉ वी.पी. 'अमिताभ'(पाठ 1-4)	13	Text Book
3	व्याकरण : शब्दविचार (संज्ञा, सर्वनाम,विशेषण)	12	Text Book
4	अनुच्छेद लेखन	12	Text Book
5	अनुवाद अभ्यास-III (केवल अंग्रेजी से हिन्दी में) (पाठ1 to 10)	10	Text Book
	Total	60	

Text books	1.	प्रकाशक: सुमित्र प्रकाशन 204 लीला अपार्टमेंट्स, 15 हेस्टिंग्स रोड' अशोक नगर इलाहाबाद-211001
	2.	प्रकाशक: गोविन्द प्रकाशन सदर बाजार, मथुरा उत्तरप्रदेश-281001
	3.	पुस्तक: व्याकरण प्रदिप – रामदेव प्रकाशक: हिन्दी भवन 36 टेगोर नगर इलाहाबाद-211024
	4.	पुस्तक: व्याकरण प्रदिप – रामदेव प्रकाशक: हिन्दी भवन 36 इलाहाबाद-211024
	5.	प्रकाशक: दक्षिण भारत प्रचार सभा चेन्नई -17
Reference Books		-

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment
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Focus of the Course	Skill Development / Employability
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Semester – I MALAYALAM- I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25TLU1MA	MALAYALAM- I	LANGUAGE- I	48	12	-	3

Preamble	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
Prerequisite	To understand the language Malayalam for communication

Course Outcomes (Cos)		
CO. No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Learn the fundamentals of novels and stories	K2
CO2	Understand the principles of translation work	K3
CO3	Expose the knowledge writing critical views on fiction	K3
CO4	Apply creative ability	K3
CO5	Build the power of creative reading	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



25TLU1MA

MALAYALAM- I

Syllabus

Unit	Content	Hrs	Resources
1	Novel PathummayudeAdu	14	Text book
2	Novel PathummayudeAdu	10	Text book
3	Short Story Nalinakanthi	14	Text book
4	Short Story Nalinakanthi	10	Text book
5	Practical Application Expansion of ideas, General Essay and Translation	12	Text book
	Total	60	

Text books	1.	Vaikkam Muhammed Basheer, "PathummayudeAdu" (NOVEL), DC Books & Kottayam
	2.	T.Padmanabhan, "Nalinakanthi" (Short Story), DC Books & Kottayam.
Reference Books	1.	MalayalaNovel Sahithyam.
	2.	MalayalaCherukathaInnale Innu.

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment
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Focus of the Course	Skill Development / Employability
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Semester – I							
FRENCH - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25TLU1FA	FRENCH - I	LANGUAGE- I	48	12	-	3

Preamble	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
Prerequisite	To understand the language French for communication

Course Outcomes (Cos)		
CO. No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Learn the Basic verbs, numbers and accents	K2
CO2	Apply the adjectives and the classroom environment in France	K3
CO3	Select the Plural, Articles and the Hobbies	K3
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	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



25TLU1FA

FRENCH - I

Syllabus

Unit	Content			Hrs	Resources
1	Objectifs de Communication <ul style="list-style-type: none"> • Saluer • Entrer en contact • avec quelqu'un. • Se présenter. • S'excuser 	Tâche En cours de cuisine, premiers contacts avec les membres d'un groupe	Activités de réception et de production orale <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. Computer jusqu'à 10.	14	Text book Salut I Page 10
2	<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.	12	Text book Enchanté I Page 20
3	<ul style="list-style-type: none"> • Exprimer ses goûts. 	Dans un café, participer à une soirée de rencontres rapides et remplir de tâches d'appréciation	<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 	14	Text book J'adore I Page 30
4	Demander à quelqu'un de faire quelque chose. Demander poliment. Parler d'actions passées. Tu veux bien?	Organiser un programme d'activités pour accueillir une personne importante	Comprendre une personne demande un service à quelqu'un. Demander à quelqu'un de faire quelque chose. <ul style="list-style-type: none"> • Imaginer et raconter au passé à partir de situations dessinées. 	10	Text book Autoévaluation du module I Page 40 – Préparation au DELF A1 page 42 Tu veux bien page 46
5	Practical Application Make in Own Sentences			10	-
	Total			60	

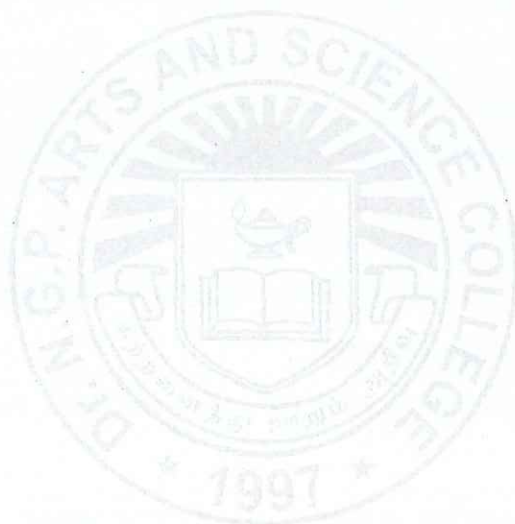


Text book	1.	Regine Merieux, Yves Loiseau. 2012. LATITUDES – 1: Méthode de français (Page No: 9-55) Les Editions Dider, Paris, Imprimee en Roumanie par Canale en Janvier
Reference Book	1.	-

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment
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Focus of the Course	Skill Development / Employability
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SEMESTER - I							
LANGUAGE - II: ENGLISH - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25ELU1EA	ENGLISH - I	LANGUAGE -II	48	-	12	3

Preamble	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> 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.
Prerequisite	Basic comprehension of Language Skills

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy 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 Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓		
CO2		✓	✓		
CO3	✓		✓	✓	✓
CO4		✓		✓	
CO5	✓		✓		✓



Syllabus

Unit	Content	Hrs	Resources
I	<p>Genre Studies</p> <p>Mathew Arnold: Dover Beach- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques- Annotations</p> <p>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</p> <p>Charles Lamb: Christ's Hospital Five and Thirty Years Ago- Author's biography- Narrative structure- Exploration of the text- passage analysis- insight of ideas- cohesion and context- style- language techniques- Annotation</p> <p>James Hanson: A Famed Life - Ten Minute Comedy for Two Women - Author's Biography- Plot Summary- Detailed summary and Analysis- Themes- Important Quotations- Characters- Description - analysis- Terms- Symbols- Critical analysis</p> <p>Sheila Nayampalli Baruna: Alone - Author's Biography- narrative structure- passage analysis- insight of ideas- cohesion and context- style- language techniques.</p>	12	Text Book
II	<p>Listening Skills</p> <p>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)</p>	13	britishcouncil.org cambridgeenglish.org
III	<p>Speaking Skills</p> <p>Formal occasions- Introducing oneself, Introducing others, Enquiries and Seeking permission, neural speaking -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</p>	11	britishcouncil.org cambridgeenglish.org
IV	<p>Reading Skills</p> <p>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,</p>	12	britishcouncil.org cambridgeenglish.org



	Advertisements - Cognitive Skills- Inference Making - Interpretation		
V	Writing Skills Sentence patterns, Note- making and note taking- Strategies - Paragraph writing: Structure and Principles - Academic Writing - Formal and Informal Letters, Report, Book / Movie Review - Infographics Writing	12	britishcouncil.org cambridgeenglish.org
	Total	60	

	Note: Case studies related to the above topics to be discussed (Examined Internal only)
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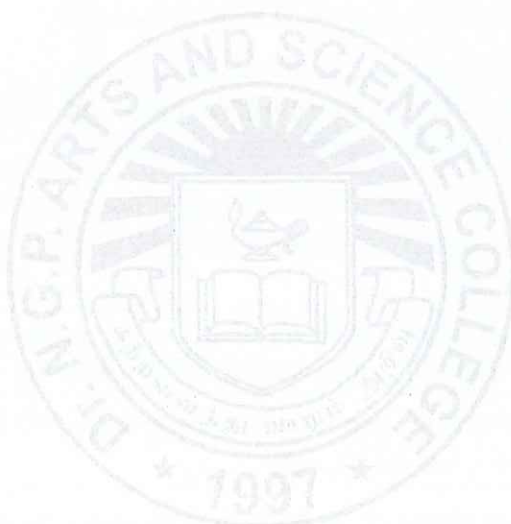
Text book	1.	https://www.poetryfoundation.org/poems/43588/doverbeach
	2.	https://portal.abuad.edu.ng/lecturer/documents/1586771577our_earth_will_not_die.doc
	3.	http://l-adam-mekler.com/chucktwo.pdf
	4.	https://offthewallplays.com/wpcontent/uploads/2017/04/1_pdfsam_A-famed-life-full-with-title-page.pdf
	5.	Nation, I. S. P and Jonathan Newton. 2009. <i>Teaching ESL/EFL Listening and Speaking</i> . Routledge, New York, United States of America.
	6.	Prabha, Dr. R. Vithya & S. Nithya Devi. 2019. <i>Sparkle</i> . (1 st Edn.) McGraw - Hill Education, Chennai, India.
Reference Books	1.	Rudzka, Brygida -Ostyn, 2003. <i>Word Power: Phrasal Verbs and Compounds: A Cognitive Approach</i> , Mouton de Gruyter, New York, United States of America.
	2.	Swales, John M. & Feak, Christine B. 2012. <i>Academic Writing for Graduate Students: Essential Tasks and Skills</i> , University of Michigan Press, Michigan, United States of America.
	3.	Sen, Leena. 2007. <i>Communication Skills</i> , Second Edition, Prentice Hall India Learning Private Limited, New Delhi, India.
	4.	O. Greene, John. 2021. <i>Essentials of Communication Skill and Skill Enhancement: A Primer for Students and Professionals</i> , Routledge publishers, United Kingdom.

Journal and Magazines	https://academic.oup.com/journals
E-Resources and Website	https://learnenglish.britishcouncil.org/ https://www.cambridgeenglish.org/learning-english/activities-for-learners/



Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion/Case Study
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Focus of the Course	Skill Development/ Employability
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Semester – I							
CORE - I: FUNDAMENTALS OF FOOD SCIENCE							
Semester	Corse Code	Course Name	Category	L	T	P	Credits
I	25FNU1CA	FUNDAMENTALS OF FOOD SCIENCE	CORE	48	12	-	4

Preamble	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> • Principles and various methods of cooking foods • composition of various foodstuffs • apply food science knowledge to describe functions of ingredients in food
Prerequisite	Basic knowledge on food science

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Sensitized on various sustainable food practices like energy and nutrient conservation methods.	K2
CO2	Learn the physical, chemical changes occurring in the nutritive constituents of different foods during various cooking processes	K2
CO3	Classify the different methods of beverage preparation. Outline medicinal uses of Spices and Condiments	K4
CO4	Explain different milk processing technology and its uses learn the effects of cooking egg.	K4
CO5	Analyze the principles of cooking and its effect on sensory attributes and nutrients.	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓	✓	✓
CO2	✓	✓	✓	✓	✓
CO3	✓	✓	✓	✓	✓
CO4	✓	✓	✓	✓	✓
CO5	✓	✓	✓	✓	✓



Syllabus

Unit	Content	Hrs	Resources
I	<p>Food Groups & Cereal</p> <p>Introduction to Food Science: Food groups- 4 (ICMR) and 5, Functional food groups-energy yielding, body building, protective and regulatory foods (only sources), food pyramid and my plate.</p> <p>Improving Nutritional Quality: - Definition-fermentation, germination(process), malting, Supplementation, Fortification and Enrichment</p> <p>Conservation of nutrients-Guidelines to minimize nutrient losses during preparation</p> <p>Methods of cooking: Objectives of cooking. Cooking methods – Dry heat and moist heat methods, solar cooking and ohmic cooking.</p> <p>Cereals: Structure and composition of rice and wheat, parboiled rice, role of cereals in cookery. Millet: classification of millets</p>	12	Text Book
II	<p>Pulses, Fruits and Vegetables</p> <p>Pulses and legumes: Varieties of pulses, legumes and grams, composition, anti-nutritional factors, cooking quality of pulses.</p> <p>Fruits: Classification and composition, changes during ripening, enzymatic browning and its prevention methods.</p> <p>Vegetables: Classification and composition, selection and preparation for cooking, changes and loss of nutrients during cooking</p>	12	Text Book
III	<p>Sugar, Beverages, Fats and Spices</p> <p>Sugars - Properties, Sugar Related Products, Stages of sugar cookery, and artificial Sweetener (aspartame, saccharin, sucralose, and stevia).</p> <p>Beverages - Classification, milk-based beverages-methods of preparing tea and coffee, fruit based, malted beverages and Aerated beverages.</p> <p>Fats and Oils: Types of oils, function of fats and oils, fat substitutes</p> <p>Spices and Condiments: Functions and medicinal values of Cumin, Pepper, Fenugreek, Cinnamon, Cloves, Cardamom, Onion, Turmeric, Ginger and Garlic spices.</p>	12	Text Book
IV	<p>Milk and Egg</p> <p>Milk – Composition types of milk, milk substitute, physical properties of milk, pasteurization and homogenization of milk, changes in milk during heat processing, preparation of</p>	12	Text Book



	fermented (cheese) and non-fermented (milk powder), role of milk and milk products Egg - Structure, composition, selection, Effect of cooking on eggs. Green ring formation in boiled egg, Evaluation of egg quality uses of egg in cookery, foam formation and factors affecting foam formation		
V	Non-Vegetarian Foods & Subjective Evaluation Meat -Structure and composition, selection of meat, post mortem changes in meat, aging, tenderness and curing and their effects on cooking. Poultry: Classification and composition, selection. Fish - Structure, composition, selection of fish, spoilage of fish and their effect on cooking. Subjective Evaluation- Difference test-paired comparison and duo -trio test, Rating test -ranking, hedonic, composite scoring test.	12	Text Book
Total		60	

Note: Activity Group discussion, album models, Flash card, cross word and puzzle Product development (Examined Internal only)
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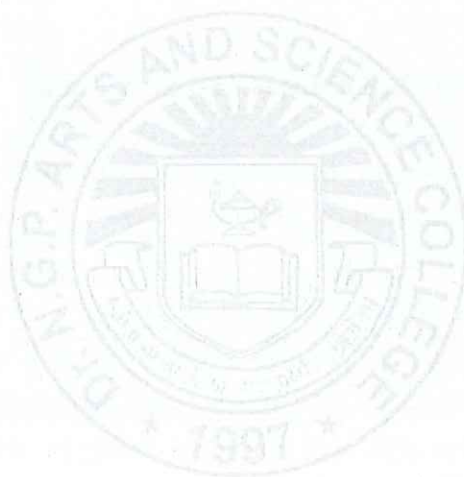
Text book	1	Srilakshmi B, 2025, "Food Science", 9th Edition, New Age International, New Delhi
	2	ShakunthalaManay and ShadakhraSwamy M., 2008, "Food Facts and Principles ", Third Edition, New Age International Publishers, New Delhi
Reference Books	1	Mudambi.R. Sumathiand Rajagopal M.V, 2008, "Food Science, New Age International Publishers, New Delhi.
	2	Thangam E. Philip, 1998, "Modern Cookery", Volume II, Orient Longman, II Edition, Hyderabad
	3	https://agritech.tnau.ac.in/nutrition/nutri_cookingtips_conservation.html .

Journal and Magazines	<u>Journal</u> International Journal of Food Science/ <u>journal of food science technology</u>)
E-Resources and Website	Food Science: What It Is and Why It Matters <u>Coursera</u>



Learning Method	Chalk and Talk/ Assignment/ Seminar/ Group Discussion/ Activity/ Practical
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Focus of the Course	Skill Development/ Development/ Innovations	Employability/	Entrepreneurial
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Semester – I CORE - II: CHEMISTRY OF FOODS							
Semester	Corse Code	Course Name	Category	L	T	P	Credits
I	25FNU1CB	CHEMISTRY OF FOODS	CORE	48	12	-	4

Preamble	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> • Physicochemical properties of food, nutrients and non-nutrient components. • Explore the functional changes during cooking and processing. • Understand the effect of pigments, enzymes, spices, and flavoring agents on food products.
Prerequisite	Basic knowledge of general chemistry and basic nutrition concepts.

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Recall the composition and physical properties of food and water and their role in food spoilage.	K1
CO2	Explain the classification and functional properties of carbohydrates in various food applications.	K2
CO3	Apply knowledge of protein chemistry and colloidal systems to understand food texture and processing.	K3
CO4	Analyze the properties and chemical changes of fats and oils during cooking and storage	K4
CO5	Evaluate the effects of pigments, browning reactions, and flavor components on food quality and acceptability.	K5

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓			
CO2	✓	✓	✓		
CO3	✓	✓	✓	✓	
CO4	✓	✓	✓	✓	✓
CO5	✓	✓	✓	✓	✓



Syllabus

Unit	Content	Hrs	Resources
I	Introduction to Chemistry of foods and Water Introduction and scope of chemistry of foods. Food composition: nutrients and non-nutrients components. Factors affecting food composition: acid, alkali, enzymes, heat, moisture. pH in foods – acids, bases and ionisation of water. Water: Physical properties, hydrogen bonding, types (free, bound, capillary), water activity and role of water in food spoilage. Activity on Spoilage of Packed Chappati in a Lunch Box	8	Text Book
II	Chemistry of Carbohydrates Classification (mono, di, oligo and poly saccharides). Plant and Animal sources. Starch chemistry – Components of Starch, Swelling of Starch Granules, gel formation, factors affecting gel formation, syneresis, dextrinization and hydrolysis of starch. Other polysaccharides – cellulose, hemicellulose, plant gums. Pectic substances – types, properties, processing effects Activity on Gummy Jelly vs Perfect Jelly	10	Text Book
III	Colloidal Systems and Chemistry of Proteins Definitions of colloids, sol, gel, emulsion and foam. Classification and properties of colloids – lyophilic and lyophobic. Factors affecting gel and emulsion formation. Chemistry of Proteins: Classification – Simple, conjugated, derived; complete and incomplete proteins. Sources – Plant, egg, milk, meat proteins. Functional properties – amphoteric nature, isoelectric point, solubility. Denaturation – by heat, acid and alkali. Activity on Boiled Milk Forms a Skin	10	Text Book
IV	Chemistry of Fats and Oils Classification – Fatty acids and lipids (simple, compound, derived). Sources – Visible, invisible, animal and plant fats. Physical properties – Melting point, smoking point, plasticity. Chemical changes – Rancidity (types), hydrogenation, polymerization, fat deterioration, decomposition of triglycerides during heating. Fat replacers – Brief introduction to types and uses in low-fat foods. Factors affecting fat absorption in cooking. Activity on Repeated Frying Oil in Street Food Vendor	10	Text Book
V	Food Pigments, Browning Reactions & Flavour Components Browning reactions – enzymatic and non-enzymatic (Maillard, caramelization). Pigments in foods – Plant Pigments-Fat soluble pigments (chlorophyll and carotenoids).	10	Text Book



	Water soluble pigments (anthocyanins, anthoxanthins, glycosides, flavonoids and tannins). Animal pigments (hemoglobin and myoglobin). Effect of cooking conditions and pH (media) on pigment stability and colour. Natural and synthetic colors – GRAS, usage limits. Flavour compounds – Spices, condiments, synthetic flavouring agents Activity on Discoloration of Cut Apples in Fruit Salad		
	Total	60	

	Note: Case studies related to the above topics to be discussed (Examined Internal only)
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Text book	1.	Swaminathan, M. 2024, Food Science, Chemistry and Experimental Foods, 2 nd Edn., Bangalore Printing and Publishing Co., Bangalore, India.
	2.	Srilakshmi, B. 2021, Food Science, 8 th Edn., New Age International Publishers, New Delhi, India
Reference Books	1.	Fennema, O. R. 2017, Fennema's Food Chemistry, 5 th Edn., CRC Press, Boca Raton, USA.
	2.	Shakuntala Manay, N. and Shadaksharaswamy, M. 2022, Food Facts and Principles, 8 th Edn., New Age International Publishers, New Delhi, India
	3.	Belitz, H.D., Grosch, W. and Schieberle, P. 2009, Food Chemistry, 4 th Edn., Springer, Berlin, Germany.
	4.	Potter, N. N. and Hotchkiss, J. H. 2012, Food Science, 5 th Edn., Springer, New York, USA.

Journal and Magazines	Journal of Food Science and Technology (JFST) – Springer
E-Resources and Website	www.fssai.gov.in – Food Safety and Standards Authority of India https://www.sciencedirect.com – For scholarly food chemistry articles

Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion/Case Study
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Focus of the Course	Skill Development/ Employability/Innovations
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Semester – I CORE PRACTICAL - I: FOOD SCIENCE							
Semester	Corse Code	Course Name	Category	L	T	P	Credits
I	25FNU1CP	FOOD SCIENCE	CORE	-	-	60	2

Preamble	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> • Introduces foundational principles of food science and preparation techniques. • Provides hands-on experience in basic cooking methods and food handling. • Develops scientific reasoning behind cooking and food processing changes. • Encourages observation and analysis through experimental cookery • Reinforces theoretical knowledge through practical food preparation and evaluation.
Prerequisite	Basic knowledge of food groups, kitchen safety, measurements, and nutrition is essential.

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Identify food groups and describe the nutritive value and edible portions of common food items.	K1
CO2	Demonstrate basic skills in measuring, preparing, and cooking foods using moist and dry heat methods.	K3
CO3	Conduct simple experiments to observe physical and chemical changes in food during cooking and processing.	K4
CO4	Prepare commonly consumed foods using cereals, pulses, vegetables, fruits, milk, and animal-based foods.	K3
CO5	Apply principles of experimental cookery in understanding food behavior such as coagulation, fermentation, etc.	K4

Mapping with Program Outcomes:					
Cos/ POs	PO1	PO2	PO3	PO4	PO5
CO1	✓				
CO2		✓		✓	
CO3			✓		✓
CO4	✓	✓		✓	
CO5			✓		✓



Syllabus

S.No.	Contents
1	Food group – Identification of ingredients and grouping of foods, discussion on nutritive value.
2	Measuring ingredients - Methods of measuring different types of foods – grains, flours and liquids, Determination of edible portion of food.
3	Moist heat methods - Boiling, Simmering, Steaming and Pressure cooking.
4	Dry heat methods - Saueting, braising, baking. Fat as a medium for cooking - shallow and deep fat frying.
5	Cereals - Methods of cooking fine and coarse cereals. Structural Examination of starch. Common preparation with Cereals.
6	Pulses - Cooking of soaked, unsoaked pulses, germination and fermentation of pulses. Common preparation with pulses.
7	Fruits - Prevention of darkening in fruits and vegetables. Common preparation with Fruits.
8	Vegetables - Principles of cooking vegetables, Experimental cookery using vegetables pigments of different colors and textures. Common preparation with vegetables
9	Milk - Experimental cookery – cheese curry and cooking vegetables in milk, Coagulation of milk proteins, preparation of paneer and curd common preparations with milk.
10	Experimental cookery of Egg - boiled egg, poached egg. Common preparations with egg.
11	Fleshy foods - Fish, meat and poultry – preparations
12	Sugar - Stages of sugar cookery, factors affecting crystallization. Preparation of sweets using different stages of sugar cookery

Experiments Under DBT

- 1 Determination of juiciness of meat
- 2 Determination of over boiling of eggs and formation of Hydrogen Sulphide

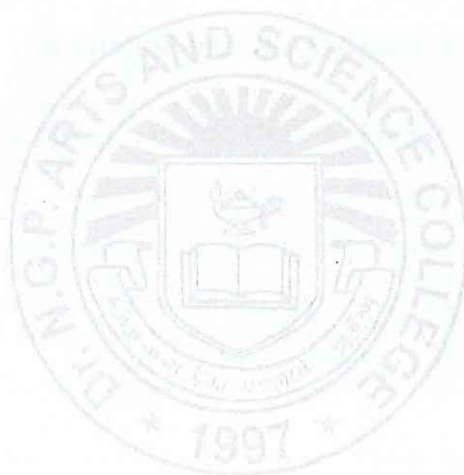
Manuals	1.	Ranganna, S. 2001, Handbook of analysis and quality control for fruit and vegetable products, 2 nd Edn., Tata McGraw-Hill Publishing Company Ltd., New Delhi, India.
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	2.	Mudambi, S. R. and Rajagopal, M. V. 2006, Fundamentals of foods, nutrition and diet therapy, 5 th Edn., New Age International (P) Ltd. Publishers, New Delhi, India
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Learning Method	Demonstration/ Hands on Practical Sessions/Observation and Recording/ Collaborative Learning
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Focus of the Course	Skill Development/ Employability/ Entrepreneurial Development/ Innovations
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Semester – I IDC - I: CHEMISTRY							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25CEU1IA	CHEMISTRY	IDC	36	-	-	3

Preamble	<p>This course has been designed for students to learn and understand</p> <ul style="list-style-type: none"> • The concept of expressing concentration of solutions • The concepts of chemical kinetics and catalysis • About the bonding and basic organic chemistry.
Prerequisite	Knowledge on Basic Chemistry

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy 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 Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓		✓
CO2	✓		✓	✓	
CO3		✓			✓
CO4			✓	✓	
CO5	✓	✓		✓	✓



Syllabus

Unit	Content	Hrs	Resources
I	Solutions 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 - Ostwald and quinonoid theory.	7	Text Book
II	Acids and Bases 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.	7	Text Book
III	Chemical Bonding Types of bonding - Ionic Bond: Nature of ionic bond, factors influencing the formation of ionic bond, Covalent and coordinate bond - Molecular Orbital Theory (MO) - MO configuration of H ₂ , N ₂ , O ₂ - Bond order - diamagnetism and paramagnetism.	8	Text Book
IV	Stereo Chemistry 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.	7	Text Book
V	Chemical Kinetics and Catalysis 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.	7	Text Book
	Total	36	

Text book	1.	Puri. B.R, Sharma. L.R and Pathania. M.S, 2017, "Principles of Physical Chemistry", Forty seventh Edition, John Wiley and Sons & USA.
	2.	Madhan. R.D, 2016, "Modern Inorganic Chemistry", Tenth edition, Mc Graw Hill Company & USA.
Reference Books	1.	Lee. J.D, 2002, "A New Concise Inorganic Chemistry", Fifth 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.

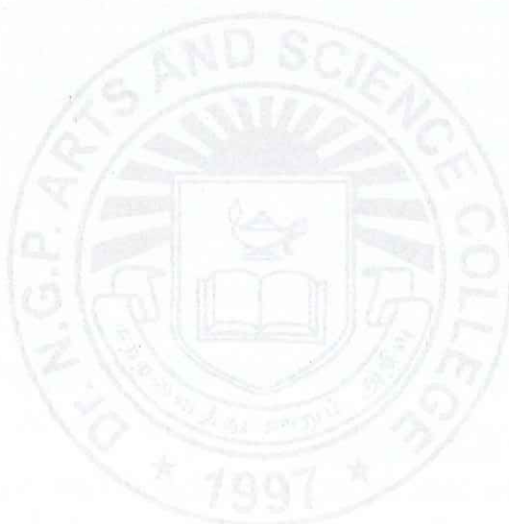


	4.	Glasstone. S and Lewis. D, 2014, "Elements of Physical Chemistry", Second Edition, Macmillan Ltd, London.
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Journal and Magazines	https://onlinelibrary.wiley.com/journal/10974601
E-Resources and Website	https://www.uou.ac.in/lecturenotes/science/MSCH-17/CHEMISTRY%20LN%201%20STERIOCHEMISTRY.pdf

Learning Method	Chalk and Talk/ Assignment/Seminar/ Group Discussion/Case Study
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Focus of the Course	Skill Development/ Employability/ Entrepreneurial Development/ Innovations
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Semester – I							
AECC I: ENVIRONMENTAL STUDIES							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25MBU1AA	ENVIRONMENTAL STUDIES	AECC	24	-	-	2

Preamble	This course has been designed for students to learn and understand <ul style="list-style-type: none">• Multi-disciplinary aspects of Environmental studies• Importance to conserve the biodiversity• Causes of Pollution and its control	
Prerequisite	Aware the basics of environmental components	
Course Outcomes (Cos)		
CO Number	Course Outcomes (Cos) Statement	Bloom's Taxonomy Knowledge Level
CO1	To understand the importance of natural resources in order to conserve for the future	K1
CO2	To impart knowledge on Natural resources and its conservation	K2
CO3	To impart knowledge on Biodiversity and its conservation	K3
CO4	To create awareness on effects, causes and control of air, water, soil and noise pollution etc.,	K3
CO5	To build awareness about sustainable development and Environmental protection	K1

Mapping with Programme Outcomes					
Cos/POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓	✓	✓
CO2	✓	✓	✓	✓	✓
CO3	✓	✓	✓	✓	✓
CO4	✓	✓	✓		
CO5	✓	✓	✓	✓	✓



25MBU1AA AECC - I: ENVIRONMENTAL STUDIES
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Syllabus

Unit	Content	Hours	E-Contents/ Resources
I	Introduction to Environmental studies & Ecosystems: components of environment - atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance - Energy flow in an ecosystem: food chain, food web and ecological succession.	5	Text book and Website
II	Natural Resources: Renewable and Non-renewable Resources: Land Resources and land use - Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs.	5	Text book and Website
III	Biodiversity and Conservation: Global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	4	Text book and Website
IV	Environmental Pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Nuclear hazards and human health risks. Environment Laws: Environment Protection Act; Prevention & Control of Pollution Act - Air & Water. Wildlife Protection Act; Forest Conservation Act; Indigenous knowledge used for sustainable forest use.	5	Text book and Website
V	Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. 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.	5	Text book and Website
	Total	24	



Text Book	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.
Reference Books	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. 2006, Principles of Conservation Biology . Sunderland: Sinauer Associates.
	4.	Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams . Science, 339: 36-37.

Journal and Magazines	https://www.hzu.edu.in/bed/E%20V%20S.pdf
E-Resource and Websites	https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf

Learning Methods	Chalk and Talk/ Seminar/ Assignment
Focus of the Course	Skill Development/Employability/Social Awareness and Environment



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