CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (IIICYCLE) WITH "A" GRADE BY NAAC
ISO 9001:2015 Certified
TIRUCHIRAPPALLI

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

SYLLABUS

2025-2026 and Onwards

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

LEARNING OUTCOME BASED CURRICULUM FRAME WORK (CBCS-LOCF)

(For the Candidates admitted from the Academic year 2025-2026 onwards)

Semester I

Semester	Part	Course	Title	Course Code	Inst .Hrs. / week	Credits	Exam			Total
							Hrs.	Marks		
								Int	Ext	
I	I	Language Course – I (LC) – Tamil * / Other Languages *	தமிழ் இலக்கிய வரலாறு -I	25ULT1	6	3	3	25	75	100
			Hindi ka Samanya Gyan aur Nibandh	23ULH1						
			Poetry, Grammar and History of Sanskrit Literature	23ULS1						
			Foundation Course: Paper I- French I	23ULF1						
	II	English Language Course-I (ELC)	General English– I	23UE1	6	3	3	25	75	100
	III	Core Course –I (CC)	Human Physiology	23UND1CC1	5	5	3	25	75	100
		Core Practical-I (CP)	Human Physiology (P)	23UND1CC1P	3	3	3	40	60	100
		First Allied Course –I (AC)	Food Chemistry	23UND1AC1	4	3	3	25	75	100
		First Allied Course – II (AP)	Food Chemistry (P)	23UND1AC2P	4	3	3	40	60	100
	IV	Ability Enhancement Compulsory Course– I (AECC)	UGC Jeevan Kaushal Universal Human Values	25UGVE	2	2	-	100	-	100
		TOTAL			**30**	**22**				**700**

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS

VISION

To strengthen and integrate academic excellence, ethical values and social responsibility to develop a healthy nation by imparting skill based knowledge, professional competency and entrepreneurial skills.

MISSION

- To have a breath of knowledge across the subject areas of Nutrition and Dietetics.
- To professionally enrich the students for successful career in Academia, Industry and Research.
- To promote and inculcate self-reliance, social relevance, sound value system and code of professional practice among students.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	Statements
PEO1	**LEARNING ENVIRONMENT** To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
PEO2	**ACADEMIC EXCELLENCE** To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
PEO3	**EMPLOYABILITY** To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
PEO4	**PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY** To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
PEO5	**GREEN SUSTAINABILITY** To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

PROGRAMME OUTCOMES FOR
B.Sc., NUTRITION AND DIETETICS PROGRAMME

PO NO	Programme Outcome On completion of B.Sc., Programme, the students will be able to
PO1	**ACADEMIC EXCELLENCE AND COMPETENCE** Elicit firm fundamental knowledge in theory as well as practical for coherent understanding of academic field to pursue multi and interdisciplinary science careers in future.
PO2	**HOLISTIC AND SOCIAL APPROACH** Create novel ideas related to the scientific research concepts through advanced technology and sensitivity towards sustainable environmental practices as well as social issues.
PO3	**PROFESSIONAL ETHICS AND TEAM WORK** Explore professional responsibility through project strategies, internships, field trip/industrial visits and mentorship programmes to transmit communication skills.
PO4	**CRITICAL AND SCIENTIFIC THINKING** Equip training skills in internships, research Projects to do higher studies in multidisciplinary path with higher level of specialization to become professionals of high-quality standards.
PO5	**SOCIAL RESPONSIBILITY WITH ETHICAL VALUES** Ensure ethical, social and moral values in the minds of learners and attain gender parity for building a healthy nation.

PROGRAMME SPECIFIC OUTCOMES FOR B.Sc ., NUTRITION AND DIETETICS PROGRAMME `

PSO NO	Programme Specific Outcomes` Students of B.Sc., Nutrition & Dietetics will be able to	POs Addressed
PSO1	Apply the knowledge of food science, nutrition and dietetics to resolve the scientific issues and problems.	PO1
PSO2	Assess the nutritional status and recommend nutritional support and therapeutic care as sustainable approach for better health and prevention of diseases.	PO1, PO2
PSO3	Associate physiological, biochemical and microbiological parameters with health and diseases.	PO1
PSO4	Develop technical and human relation skills in relation to food services, demonstrate professional attributes required to manage the hospitality industry and to communicate effectively in the context of nutrition and dietetics.	PO3, PO4
PSO5	Demonstrate critical thinking skills and analytical abilities to identify and solve problems through internships and projects.	PO4, PO5

SEMESTER I	INTERNAL MARKS: 25			EXTERNAL MARKS:75
COURSE CODE	COURSE TITLE	CATEGORY	HRS / WEEK	CREDITS
23UND1CC1	HUMAN PHYSIOLOGY	CORE	5	5

Course Objectives

- To augment knowledge on anatomical perception of organs and its co-ordination with other organs.
- To understand the functions of the human organs.
- To study the structure of human organs.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO 1	Define the main structures composing human body	K1
CO 2	Explain process of the system in the body	K2
CO 3	Relate organ structure with function	K3
CO 4	Determine functions of cells, tissues and organs	K4
CO 5	Ascertain physiological adaptations	K4

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	2	3	2
CO2	3	3	3	2	3	3	3	2	3	2
CO3	3	3	3	2	3	3	3	2	3	2
CO4	3	3	3	2	3	3	3	2	3	2
CO5	3	3	3	2	3	3	3	2	3	2

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**a. Cell :** Structure of organelles and functions. Tissues– Structure, classification and functions. **b. Blood :** Composition, functions, coagulation, factors affecting coagulation, blood groups. **c. Immune system** : Innate, acquired and active immunity, cell mediated immunity, humoral immunity and complement system	15	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4
II	**a. Heart and Circulatory system**: Structure, cardiac cycle, cardiac output, factors affecting cardiac output, normal ECG, heart failure, blood pressure, control and factors affecting blood pressure. **b. Respiratory system :** Structure and functions, Lung volumes and lung capacities, Factors affecting efficacy of respiration.	15	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4
III	**a. Nervous System:** General classification of nervous system-, Structural organization of nervous system – neuron, ganglion, neuroglia, nerves – classification - motor, sensory and mixed, Structure and functions - spinal cord, brain - anatomy and functions of cerebrum, cerebellum, brain stem and medulla oblongata. **b. Sense Organs :** Structure and function of eye, ear, nose and tongue.	15	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4
IV	**a Gastrointestinal and Hepto biliary system :** Digestive system- Anatomy, Structure and Functions of mouth, pharynx, esophagus, stomach, Small intestine and large intestine. Digestive gland – salivary, liver, gall bladder and pancreas. Digestion in the mouth, stomach and intestines. **b. Excretory system :** Urinary System-Structure and functions of organs of urinary system, Mechanism of urine formation. micturition Skin- Structure and functions, Regulation of body temperature.	15	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4

V	**a. Endocrine system :** Thyroid, Parathyroid, Adrenal gland, Pituitary and Sex glands – Structure and functions **b. Reproductive system :** Female reproductive system--Structure and functions, menstrual cycle, menarche and menopause. Male Reproductive system - Structure and functions.	15	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Functions of heamoglobin, Artificial respiration, Errors of refraction, Movements of the intestine Menstrual disorders.	-	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4

Text Books

1. Sembulingam. (2016). *Essentials of Medical Physiology*. Health Sciences Publisher. New Delhi.
2. Subramanyam., Sarada. (2018). *Textbook of Human Physiology*. S.Chand and company Ltd, New Delhi.
3. Randhawa.S.S., Atul Kabra.(2017). *Human Anatomy and Physiology*-I. S.Vikas and Company, India.

Reference Books

1. Guyton (2000). Guyton and Hal *Textbook of Medica Physiology*, Saunders, United States of America.
2. Waugh Anne Ross and Wilson (2003). *Anatomy and Physiology in Health and Illness*. Churchill Livingston. New York.
3. Murugesh. N (2011*). Anatomy and Physiology*, Sathya Publishers, Madurai.
4. Wilson Ross (2014). *Anatomy and Physiology in Health and Illness*, Reed Elsevier India Private Limited. New Delhi.
5. Chatterjee .C.2016). *Human Physiology* Volume I, Medical Allied Agency. Kolkata.

Web Link:

1. https://www.khanacademy.org/science/health-and-medicine/human-anatomy- andphysiology
2. https://www.biologyonline.com/tutorials/the-human-physiology
3. https://digitaleditions.library.dal.ca/intropsychneuro/chapter/hunger-and-eating/
4. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=NuAs6SreCGryddEfs4kkB A==

Journals:

1. Human Physiology, Maik Nauka / Interperiodica Publishing, Russian Federation.
2. Indian Journal of Clinical Anatomy and Physiology, Innovative publication Pvt. LTD, India.
3. American Journal of Physiology - Endocrinology and Metabolism, American Physiological Society, United States.
4. Canadian Journal of Physiology and Pharmacology, Canadian Science Publishing, Nrc Research Press, Canada.

Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar.

Course Designers

- Ms. S.FATHIMA

SEMESTER I	INTERNAL MARKS: 40			EXTERNAL MARKS:60
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
23UND1CC1P	**HUMAN PHYSIOLOGY (P)**	**CORE PRACTICAL**	**3**	**3**

Course Objectives

- To acquire knowledge on cellular arrangements
- To understand the components present in blood
- To learn methods to be adopted for the measurement of various blood parameters

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Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO 1	Identify cells present in the body	K1
CO 2	Explain cellular adaptations related to physiological changes	K2
CO 3	Illustrate the methods to be adapted for the measurement of various blood parameters	K2
CO 4	Predict number of cells present in blood	K3
CO 5	Dissect various cellular arrangement in tissues and organs	K4

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	2	3	2
CO2	3	3	3	2	3	3	3	2	3	2
CO3	3	3	3	2	3	3	3	2	3	2
CO4	3	3	3	2	3	3	3	2	3	2
CO5	3	3	3	2	3	3	3	2	3	2

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation

"3" – Substantial (High) Correlation "-" indicates there is no correlation.

List of Experiments

1. Microscopic study of tissues- epithelial, connective and muscular.
2. Collection of blood sample-Capillary blood from finger tips and venous blood.
3. Separation of blood components (Centrifugation).
4. Estimation of hemoglobin-Sahli's Acid hematin method.
5. Determination of Hematocrit (Wintrobe method).
6. Preparation and examination of stained blood smear (Wedge or glass slide method).
7. Determination of Erythrocyte Sedimentation Rate (Wintrobe method).
8. Determination of blood group.
9. Determination of bleeding time (Duke method) and coagulation time (Capillary tube method).
10. Platelet count (Rees Ecker method by hemocytometry).
11. Clinical examination of radial pulse (pulse rate).
12. Measurement of blood pressure (Sphygmomanometry).
13. Effect of exercise on blood pressure and heart rate.
14. Microscopic structure of heart, digestive system and kidney.
15. Microscopic structure of reproductive organs-ovary, uterus, mammary glands and testis.
16. Microscopic structure of endocrine glands-thyroid, pituitary and adrenal.

Text Books

1. G.K.Pal and Parvati Pal.(2001) *Text book of practical physiology*. Orient Longman Ltd.

Reference Books

1.Sembulingam. (2016). *Essentials of Medical Physiology*. Health Sciences Publisher. New Delhi.
2. Subramanyam., Sarada. (2018). *Textbook of Human Physiology*. S.Chand and Company Ltd, New Delhi

Web Links:

1. https://www.khanacademy.org/science/health-and-medicine/human-anatomy-andphysiology
2. https://www.biologyonline.com/tutorials/the-human-physiology
3. https://digitaleditions.library.dal.ca/intropsychneuro/chapter/hunger-and-eating/
4. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=NuAs6SreCGryddEfs4kkB A==

Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Demonstration

Course Designers

- MS. S.FATHIMA

SEMESTER I	INTERNALMARKS:25		EXTERNALMARKS:75	
COURSE CODE	COURSETITLE	CATEGORY	HRS / WEEK	CREDITS
23UND1AC1	FOOD CHEMISTRY	ALLIED	4	3

Course Objectives

- To gain insight into the chemistry of foods
- To understand the scientific principles involved in food preparation
- To understand the various properties exhibited by foods

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the Successful completion of the course, students will be able to	Cognitive Level
CO1	Define physical and chemical properties of food	K1
CO2	Explain the structural changes of food during cooking	K2
CO3	Predict the cooking quality of food	K3
CO4	Classify plant pigments	K3
CO5	Examine the uses of food additives and leavening agent	K4

Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	1	1	3	3	1	1	1
CO2	3	2	2	1	1	3	2	1	1	1
CO3	3	3	2	2	1	3	3	1	1	1
CO4	3	3	2	2	1	3	3	1	2	1
CO5	3	2	1	-	-	3	3	2	1	1

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**Introduction to Food Science, Physiochemical properties of food and water** **a) Introduction to Food Science –** Definition of Food Science, Basic Five Food Groups and its components, Nutritional classification of food. **b) Introduction to physiochemical properties of food** - Physical Properties of water and ice, hydrogen bonding, bound water, water activity, determination of moisture content**.** **c)Types of colloidal system -** Colloids, sol, gel, emulsion and foam.	12	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
II	**Starch and Sugar** **a)Starch-** Structure, characteristics, components and types, swelling of starch granules, gel formation, gelatinization, retrogradation, effect of sugar, acid, alkali, fat and surface-active agents on starch. **b)Sugar** - Stages of sugar, artificial sweeteners, solubility and crystallization, factors affecting crystallisation – crystalline and non-Crystalline candies, caramelization, chemistry of milk sugar, non-enzymatic browning and its preventive measures.	12	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
III	**Protein** **a)Properties and components of protein -** Coagulation and denaturation of protein, protein concentrates, isolates and hydrolysate and their application, effect of soaking, fermentation and germination on pulse protein. **b)Chemistry of protein**-Action of heat, acid, and alkali on vegetable and animal protein.	12	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
IV	**Fats and oils** **a)Physical and chemical properties of fats and oils -** Hydrogenation, winterization, decomposition of triglycerides, shortening power of fats. **b) Changes in fats and oils**–Changes during cooking, factors affecting absorption of fat in foods.	12	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
V	**Pigments, Food additives and Leavening agents** **a) Pigments** - Types of plant pigments, water and fat soluble pigments, natural colours used in foods,	12	CO1, CO2, CO3, CO4,	K1, K2, K3, K4

	pectins, phenolic components, enzymatic browning in fruits and vegetables. volatile compounds in fruits and vegetables. **b) Food additives**-Classification and its uses. **c) Leavening agents** - Types, physical, chemical and biological leavening agents, mechanism of action.		CO5	
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Types of emulsion, Factors affecting gelatinization, Chemistry of coagulation of egg, Types and prevention of rancidity, Uses of Leavening agents.	-	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4

Text Books

1. Shakuntala Manay. N. (2013). *Foods: Facts and Principles*. (3rd ed.). New Age International Publishers, New Delhi.
2. Swaminathan, M. (2019). *Advanced Text Book on Food and Nutrition*. (2nd ed.). Bangalore Printing and Publishing Co. Ltd, Bangalore.
3. Srilakshmi.B.(2020). *Food Science*. (8th ed). New Age International Publishers, New Delhi.
4. Iqbal, Syed Aftab. (2011). *Advanced Food Chemistry*.Discovery Publishing House, New Delhi.
5. Chopra H,K and Panesar P,S. (2015). *Food Chemistry*. Narosa Publishing House(P) Ltd, New Delhi.

Reference Books

1. Vickie, A., Vaclavik Elizabeth, W.Christian. (2014). *Essentials of Food Science*.(4th ed.). Springer Science and Business Media, New York.
2. Raheena Begum, M. (2015). *Textbook of Foods. Nutrition and Dietetics*. (3rd ed.), Sterling Publishers Pvt. Ltd, New Delhi.
3. Avantina Sharm. (2019). *Textbook of Food Science and Technology*. (3rd ed.). CBS Publishers and Distributors.

Web Links

- https://www.sciencedirect.com/journal/food-
- https://www.eolss.net/sample-chapters/c10/e5-08-07-00.pdf
- http://egyankosh.ac.in//handle/123456789/69055

Journals

1. Journal of food chemistry and nutrition science, Pakistan.
2. Food chemistry, Elsevier, United Kingdom.

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Group Discussion

Course Designer

Ms.N.GANGA DEVI

SEMESTER I	INTERNALMARKS:40		EXTERNALMARKS:60	
COURSE CODE	COURSE TITLE	CATEGORY	HRS / WEEK	CREDITS
23UND1AC2P	FOOD CHEMISTRY (P)	ALLIED PRACTICAL	4	3

Course Objectives

- To gain the knowledge on chemistry of various nutrients present in food.
- To understand the physical and chemical changes during cooking.
- To develop skills to judge the quality of food.

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Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On successful completion of the course, students will be able to	Cognitive Level
CO1	Identify the structure of starch molecules	K1
CO2	Describe the factors affecting the cooking quality of food	K2
CO3	Predict enzymatic browning in fruits and vegetables	K3
CO4	Infer the changes of fats and oils during temperature modifications	K4
CO5	Determine the role of food additives	K4

Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	1	2	3	3	1	1	1
CO2	3	2	2	1	1	3	2	1	1	1
CO3	3	2	2	1	1	3	3	1	1	1
CO4	3	2	2	1	1	3	3	1	2	1
CO5	3	2	2	1	1	3	3	2	1	1

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

List of Experiments

1. **Chemistry of starch** - Properties of food starches, microscopic examination of uncooked and cooked gelatinized starch, dextrinization.
2. **Chemistry of sugar** - Stages of sugar cookery, sugar crystallization in preparation of fondant, fudge, and caramel, browning reaction in milk sugar.
3. **Chemistry of proteins in cereals and pulses -** Gluten formation, factors influencing texture, digestibility of pulses - soaking, germination, addition of sodium bicarbonate, addition of salt, water quality- hard and soft water, pressure cooking, and malting of pulses.
4. **Chemistry of proteins in milk and egg** - Curdling of milk using lime juice, butter milk, tomato juice. Coagulation of egg white and egg yolk (boiled egg, poached egg, omelete), prevention of Ferrous sulphide formation on the yolk, factors affecting whipping quality of egg white – effect of salt, sugar, vinegar, fat and milk
5. **Chemistry of Fats and Oils** - Determination of smoking temperature of different fats and oils, effect of temperature of oil on texture and palatability of foods - Frying pooris at different temperatures.
6. **Chemistry of Plant Pigments** - Changes in colour and texture of vegetables due to different methods of cooking, cooking medium and addition of acid/alkali on water-soluble and fat-soluble pigments, enzymatic browning in apples, banana, brinjal and raw banana and its preventive measures.
7. **Food additives and Raising agents** - Role of MSG (Mono Sodium Glutamate), sodium benzoate and KMS (Potassium bi sulphate) in food preparation and preservation, use of baking soda, baking powder, yeast in baking and food preparation- prepare one dish with each of these, uses of herbs and spices to enhance flavour.

Text Books

1. Shakuntala ManayN. (2013). *Foods: Facts and Principles*. (3rd ed). New Age International Publishers,New Delhi.
2. Swaminathan M. (2019). *Advanced Text Book on Food and Nutrition*.(2nd ed). Bangalore Printing and Publishing Co. Ltd, Bangalore.

Reference Books

1. Krishna Arora.(2008). *Theory of cookery*.Frank Brothers & Co.
2. Penfield MP and Ada Marie C.(2012). *Experimental Food Science*. Academic Press, SanDiego

Web Links

- https://www.ihmnotes.in/assets/Docs/Books/Theory_of_Cookery.pdf
- http://staffnew.uny.ac.id/upload/132318572/pendidikan/buku-esp.pdf
- https://www.scienceofcooking.com/

Journals

1. Journal of food chemistry and nanotechnology, United Scientific Group, USA
2. Journal of Agricultural and Food chemistry, American chemical society, United States.

Pedagogy:

E-content, Lecture, Power Point presentation, Seminar, Assignment, Demonstration

Course Designer:

Ms. N.GANGA DEVI