



Department of Food Technology
SRI SAI BABA NATIONAL DEGREE COLLEGE (A) :: ANANTAPUR

About Us

Department Profile:

The department of Food technology was established in the year 2018. Our college is the first affiliated college of Sri Krishnadevaraya University, Anantapur to offer food technology as a self-funding course at the UG level with Microbiology and Chemistry combination.

The Department caters to the academic needs of about 150 students of I, II & III Year UG Courses. The students come both from rural and urban areas. The ratio of boys and girls is 30:70. The department is provided with a well-furnished staff room, two classrooms, two laboratories and one ICT classroom. Besides the regular lecture methods, the Department at present is also making use of computer, CDs related to subject topics, seminar hall for guest lectures, OHP, LCD Projector, magazines and journals for the purpose of widening the subject knowledge of the students.

The pass percentage of the students has been above 90 on an average. The progression of the students has also been excellent. The percentage of students who reach the universities is around 75. This is all because of the semester system and also the hard work of the teachers which enabled the students to be thorough with the prescribed syllabi and prepare well for internal tests and semester-end examinations. The department also constantly monitors the progress of the students by getting feedback from them with regard to the curriculum teaching-learning-evaluation.

Apart from the regular classroom teaching, use of computers and OHPs, encouraging the students to participate in group discussions, panel discussions and seminars along with teachers, are the healthy practices of the department. The students are advised to prepare charts and models. Simple science projects are assigned to students to improve their scientific temper. The faculty regularly conducts seminars, guest lectures, group discussions, quiz programmes for the benefit of the students. Remedial classes are conducted for the slow-learners identified by the faculty. It also involves students in basic research projects, takes them to research institutes as beyond syllabus scholarly activities.

The faculty and the students participate in extension activities such as Swatchabharath programme, clean and green programmes, blood donation camps, plantation, awareness programmes regarding superstitions and diseases, AIDS awareness programmes etc. Some students of the department

are actively engaged in NSS and NCC programmes. Every year Faculty and students of Food technology donate materials worth of Rs 10,000 either to old age homes or to Orphanages.

The department uses innovative methods of teaching as part of imparting quality education. It can boast of its well-equipped laboratories, good student progression and the supporting management. The department has been exposing its students to hand on experiments, guest lectures and interaction with eminent teachers from various colleges. It has some drawbacks such as not having permanent staff, the students not opting for the course as most of the students prefer to join professional courses after their intermediate.

The Department is planning to offer a Certificate course on “Food Processing Technology” for all Biology students, and Skill development courses such as 1. Food intoxications and food borne infections. 2. Nutrition and health and 3. Nutraceuticals (For biology and non biology students). The Department has Memorandums of understanding with Dept of Food technology, OTRI, Anantapuram.











Department of Food Technology
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Faculty



The Department has two faculty members, Miss. S. Gousiya Begum Assistant Professor, who has 3 years of teaching experience. She is specialized in teaching Food Science and technology and Bakery technology. She has participated and presented papers in various national and international seminars and workshops. She has to her credit 01 paper published in a national journal. She received the gold medal for both U.G & P.G at university level during her course of study. She has qualified APSET and GATE -XL.



Smt. N. Swathi Rani, Assistant professor, has 03 years of experience. She is specialized in teaching Analytical Techniques and Food Biotechnology. She has participated in various national and international seminars and workshops.

Technical Support/ Non-teaching Staff:



Sri Hanumantha Reddy
Attender



Department of Food Technology
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Student Zone:

B. SC FOOD TECHNOLOGY COURSE STRUCTURE UNDER CBCS

Year	Semester	Course	Title of the Course	Marks	No. of hrs per week	No. of Credits	
I	I	I	Fundamentals of Food Technology & Food Chemistry	100	4	3	
			Lab Course - I	50	2	2	
	II	II	Instrumental Methods in Food Analysis	100	4	3	
			Lab Course - II	50	2	2	
II	III	III	Food and Nutrition	100	4	3	
			Lab Course - III	50	2	2	
	IV	IV	Nutraceuticals and Functional Foods	100	4	3	
			Lab Course – IV	50	2	2	
		V	V	Clinical Nutrition & Dietetics	100	4	3
				Lab Course - V	50	2	2



S S B N DEGREE COLLEGE (AUTONOMOUS) :: ANANTAPUR

B. SC. FOOD TECHNOLOGY SYLLABUS UNDER CBCS

[2020-2021 Batch onwards]

I Year B. Sc Food Technology : I Semester

Course I: Fundamentals of Food Technology & Food Chemistry

Work load: 60 hrs per semester]

[4 hrs/week

UNIT: I Fundamentals of Food Technology:

- Definition & Scope of Food Technology.
- Importance, Source, composition & nutritive value of Foods-
- Plant foods :(cereals, pulses, fruits & vegetables).
- Animal foods:(milk, meat, fish & egg).
- Health foods (Functional foods, Prebiotics, Probiotics, Nutraceuticals, organic foods & GM foods).
- Branches of food technology.

UNIT: II Carbohydrates:

- Classification and properties of
- Monosaccharides: Glucose, Fructose.
- Oligosaccharides: Maltose, Lactose & Sucrose.
- Polysaccharides: Starch, Cellulose & Glycogen.

UNIT: III Proteins:

- Classification & Structure of amino acids & protein.
- Nature of food proteins (Plant & Animal Proteins)
- Denaturation of proteins.
- Functional properties of proteins (organoleptic, gelation / texturization, emulsification).

UNIT: IV Lipids:

- Classification of lipids & Fatty acids: Saturated, Unsaturated, Polyunsaturated fatty acids.
- Physical and Chemical properties of Lipids –Trans esterification, Rancidification, Acid Value, Saponification value & Iodine value.
- Changes in fats and oils (Rancidity, Lipolysis).

UNIT: V Vitamins & Minerals:

- **Vitamins:** Classification (fat soluble and water soluble vitamins)
- Sources, function, requirements and deficiency.
- **Minerals:** macro and micro nutrients
- Sources, function, requirements and deficiency.

REFERENCE BOOKS:

- Food science, Chemistry and Experimental foods by M. Swaminathan.
- Food Science by Norman.N.Potter.
- Experimental study of Foods by Griswold R.M.
- Food Science by Helen Charley.
- Foundation of Food Preparation by A.G. Peckam.
- Modern Cookery for teaching and trade, volume I&II ,Thangam Philip. OrientLongmans Ltd.
- Food Fundamentals by MacWilliams, John Willy and son's, New York.
- Food Facts & Principles by Shakunthalamanay&Shadakhswamy.
- Food Science by Srilakshmi , second edition,2002.
- Fennema, Owen R, Food Chemistry, 3rd Ed., Marcell Dekker, New York, 1996
- Whitehurst and Law, Enzymes in Food Technology, CRC Press, Canada, 2002
- Wong, Dominic WS, Food Enzymes, Chapman and Hall, New York, 1995
- Potter,N.N.andHotchkiss,J.H, Food Science, 5th Ed., Chapman & Hall,1995
- DeMan, J.M., Principles of Food Chemistry, AVI, NewYork, 1980

LAB COURSE-I

FUNDAMENTALS OF FOOD TECHNOLOGY & FOOD CHEMISTRY PRACTICALS

1. Preparations of primary & secondary solutions.
2. Estimation of moisture content.
3. Determination of acidity of water
4. Determination of alkalinity/ hardness of water
5. Qualitative tests for carbohydrates
6. Qualitative tests for amino acids
7. Estimation of proteins.
8. Estimation of carbohydrates.
9. Determination of specific gravity & refractive index of fats and oils.
10. Estimation of saponification value.

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B. SC. FOOD TECHNOLOGY SYLLABUS UNDER CBCS

[2020-2021 Batch onwards]

I Year B. Sc Food Technology : II Semester

Course II: Instrumental Methods in Food Analysis

Work load: 60 hrs per semester]

[4 hrs/week

UNIT – I Chromatography:

- Historical background of Chromatography.
- Physical forces and interactions.
- Modes of separation. Stationary phases versus mobile phases.
- Principle and applications of Paper, TLC & Ion-exchange chromatography.

Unit – II Colorimetry and Spectrophotometry:

- Historical background.
- Spectrum of light.
- Beer- Lamberts law.
- Principle and applications of colorimeter.
- Principle and applications of UV-Visible Spectrophotometer.

Unit – III Centrifugation:

- Concept of RCF.
- Types of centrifuges
 - Clinical centrifuge
 - High speed centrifuge
 - Ultra-centrifuge.
- Principle and applications of
 - Differential centrifugation
 - Density gradient.

Unit – IV Microscopy:

- Principles and applications of Light microscope
 - Bright field microscope
 - Dark field microscope
 - Fluorescent microscope
 - Phase contrast microscope
- Principles and applications of Electron microscope (SEM and TEM).

Unit – V Electrophoresis:

- History, Migration of ions in electric field.
- Factors affecting electrophoretic mobility.
- Gel Electrophoresis: Types of gels & solubilizers.
- Principle and applications of Agarose gel electrophoresis & SDS- PAGE.

REFERENCE BOOKS:

1. “Instrumental Methods of Analysis” by Willard and H Merrit.
2. “Instrumental Methods of Analysis” by D Skoog
3. Leo ML,2004.Hand book of food analysis.2ndEd.Vols.I-III.
4. Macleod AJ.1973.Instrumental methods of food analysis. Elek Sci. Marcel Dekker.
5. Ranganna.S.2001.Handbook of analysis and Quality control for fruit and vegetable products.2nd Ed. Tata - Mc Graw -Hill.
6. Upadhyay, Upadhyay Nath, Biophysical chemistry principles and techniques, Himalaya Publishing house, 172-173, 2008.

LAB COURSE – II

INSTRUMENTAL METHODS IN FOOD ANALYSIS

1. Separation of amino acids and Sugars by TLC & paper chromatography
2. Verification of Beer’s law and determination of molar extinction coefficient using p-nitrophenol.
3. Isolation and spectrophotometric characterization of plant pigments.
4. Viscosity measurement of Bovine Serum albumin.
5. Measurement of inversion of sucrose by Polarimetry.
6. Separation of proteins by SDS-PAGE
7. Agarose gel electrophoresis.



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B. SC. FOOD TECHNOLOGY SYLLABUS UNDER CBCS

[2021-2022 Batch onwards]

II Year B. Sc Food Technology : III Semester

Course III: Food and Nutrition

Work load: 60 hrs per semester]

[4 hrs/week

Unit I: Introduction to food and nutrition

- Definition of nutrition, under and malnutrition, balanced diet symptoms and remedy of malnutrition
- Meal planning, factors affecting meal planning and principles of meal planning
- RDA, factors affecting RDA and principles deriving RDA
- Health and nutritional status – adequate, optimum and good nutrition
- Basal metabolic rate – Factors affecting BMR
- Food guide – Nutrients supplied by cereals, pulses, fruits and vegetables, milk, meat, fats and sugars

Unit II: Carbohydrates in human nutrition

- Functions, sources, requirements of carbohydrates.
- Enzymes involved in digestion, absorption and assimilation of carbohydrates
- Maintenance of blood sugar levels
- Carbohydrates in health and disease – Diabetics and hypoglycemia

Unit III: Proteins in human nutrition

- Functions, sources, requirements of proteins.
- Enzymes involved in digestion, absorption and assimilation of proteins
- Importance of essential amino acids therapeutic applications of amino acids
- Proteins in health and disease – kwashiorkor and marasmus

Unit IV: lipids in human nutrition

- Functions, sources, requirements and dietary guidelines of lipids
- Importance of essential fatty acids in human like source, functions and deficiency
- Enzymes involved in digestion, absorption and assimilation of lipids
- Lipids in health and disease – Obesity, hypertension and cancer

Unit V: Minerals in human nutrition

- Functions, source, requirements and deficiency of macro nutrients Na, k, Ca, p and Mg
- Source requirements of micro nutrients Fe, I, Zn and Cu
- Classification, source and importance of fibers in human nutrition

REFERENCE BOOKS:

- Bamji MS, Krishnaswamy K, Brahmam GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.
- Srilakshmi (2007). Food Science, 4th Edition. New Age International Ltd.
- Wardlaw MG, Paul M Insel Mosby 1996). Perspectives in Nutrition, Third Edition.
- Introduction to Human Nutrition ed.Gibney et al, Blackwell Publishers, 2005
- Khanna K, Gupta S, Seth R, Mahna R, Rekhi T (2004). The Art and Science of Cooking: A Practical Manual, Revised Edition. Elite Publishing House Pvt Ltd.
- NIN, ICMR (1990). Nutritive Value of Indian Foods.
- Seth V, Singh K (2005). Diet planning through the Life Cycle: Part 1. Normal Nutrition.
- A Practical Manual, Fourth edition, Elite Publishing House Pvt Ltd.
- ICMR (2010). Nutrient Requirements and Recommended Dietary Allowances for Indians.

LAB COURSE- III

FOOD AND NUTRITION

1. Qualitative analysis of monosaccharides-glucose and fructose.
2. Qualitative analysis of Disaccharides –lactose and sucrose.
3. Qualitative analysis of polysaccharides-starch.
- 4 . Qualitative analysis of Amino acids.
5. Estimation of proteins by Biuret method.
6. Estimation of Glucose in a given sample.
7. Determination of lipids in food [SOXHLET METHOD].
8. Determination of mineral contents of food [calcium, phosphorous etc].
9. Preparation of nutritious snacks by using various methods of cooking.
10. Estimation of Iron by Wong method.
11. Estimation of BMI.



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B. SC. FOOD TECHNOLOGY SYLLABUS UNDER CBCS

[2021-2022 Batch onwards]

I Year B. Sc Food Technology : IV Semester

Course IV: Nutraceuticals and Functional foods

Work load: 60 hrs per semester]

[4 hrs/week

Unit - I: Introduction to nutraceuticals as science

- Historical perspective, classification, scope and future prospects
- Applied aspects of the nutraceutical science
- Sources of nutraceuticals
- Relation of nutraceutical science with other sciences: Medicine, human physiology, genetics, food technology, chemistry and nutrition.

Unit- II: Properties of various nutraceuticals

- Phytochemicals – carotenoids, lycopenes
- Phytoestrogens – isoflavones, diazein
- Flavonoids – naringin, catechine
- Carbohydrates – dietary fibre, aminosugars(glucosamine), fatty alcohols (octacosanol), aminoacids (ornithine)
- Hormones and vitamins (melatonin and tocopherol)

Unit – III: Nutraceuticals and the future of medical science

- Role of nutraceuticals in management of helath and disease
- Nutraceuticals in treatment for chronic disease like diabeties, CVD's, obesity, arthritis, cancer, neurological disorders and liver disorders
- Nutraceuticals bridging the gap between food and drug
- Medicinal use and health benefits of nutraceutical rich supplements (greentea, spirulina, garlic, flaxseeds and broccoli)

Unit IV: Functional foods

- Definition, review, history of functional foods
- Relation of functional foods and nutraceutical to foods and drugs
- Applications of herbs to functional foods
- Concept of free radicals and antioxidants
- Nutritive and non- nutritive food components with potential health effects
- Effect of processing on nutrients

Unit V: Types of functional foods and their health benefits

- Millets
- Milk and milk products
- Nuts and oil seeds
- Fruits and vegetables
- Herbs and spices
- Future prospects of functional foods and nutraceuticals

REFERENCE BOOKS:

- Wildman REC, Handbook of Nutraceutical and Functional Foods, CRC Press 2001
- Ghosh D et al, Innovations in Healthy and Functional Foods, CRC Press 2012
- Pathak YV, Handbook of nutraceuticals Volume 2, CRC Press 2011
- Various journals of food technology, food science and allied subjects.

LAB COURSE – IV

NUTRACEUTICALS AND FUNCTIONAL FOODS

1. Identification of various nutraceuticals and functional foods available in the market
2. Estimation of chlorophyll content of green vegetable
3. Determination of lycopene in fruit/vegetable
4. Determination of total pectin in plant material
5. Estimation of crude fibre/dietary fibre content in cereals and their products
6. Estimation of anthocyanins in food sample
7. Preparation and evaluation of probiotic/prebiotic foods
8. Principle and practice of various extraction procedure used in herbal industry
9. Phyto chemical profiling of plant sample and extract
10. Extraction and quantification of alkaloids
11. Extraction and quantification of polyphenols
12. Extraction and quantification of flavonoids
13. Extraction and quantification of saponins
14. Isolation and purification of colors
15. Extraction of chitin chitosan and glucosamine from mushrooms
16. Extraction and estimation of total sugars from food products (dairy, fruit juices, bread)
17. Estimation of crude fat contents of foods by soxhlets method (butter and E.coli)



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B. SC. FOOD TECHNOLOGY SYLLABUS UNDER CBCS

[2021-2022 Batch onwards]

I Year B. Sc Food Technology : IV Semester
Course V: Clinical nutrition and Dietetics

Work load: 60 hrs per semester]

[4 hrs/week

Unit – I Introduction to clinical nutrition and dietetics

- Nutritional care plan
- purpose and principle of therapeutic diets, modification of normal diet
- classification of therapeutic diet, routine hospital diet – regular diet, clear fluid diet, full fluid diet, soft diet, modified diet (high calorie diet and low calorie diet, high residue and low residue diet)
- Basic concepts and methods of clinical feeding
- Oral feeding
- Tube feeding
- Intravenous feeding

Unit – II Introduction to diet therapy

- Purpose of diet therapy, glycemic index
- Dietary supplements, probiotics and prebiotics
- Personalized nutrition
- Immunonutrition, malnutrition in hospitalized patients, nutrition and wound healing, pre and post operative nutrition
- Food nutrition and drug interaction

Unit – III Diet in obesity, cardiovascular diseases and Diabetes mellitus

- Diet in obesity and underweight – definition, causes, types and dietary management
- Diet in cardiovascular diseases – causes, symptoms and dietary management of atherosclerosis and hypertension
- Diet in diabetes mellitus – causes, classification, symptoms and dietary management

Unit – IV Diet in diseases of kidney, liver and gastrointestinal tract

- Kidney diseases : causes, symptoms and dietary management of glomerulonephritis and renal failure
- Liver diseases : causes, symptoms and dietary management of hepatitis and liver cirrhosis
- Gastrointestinal diseases : causes, symptoms and dietary management of peptic ulcer and constipation

Unit – V Diet in lung diseases, infections and fever

- Lung diseases : causes, symptoms and dietary management of asthma and chronic bronchitis
- Infections and fever : causes, symptoms and dietary management of typhoid and tuberculosis

Recommended Books:

- Wardlaw MG, Paul M Insel Mosby 1996). Perspectives in Nutrition, Third Edition.
- Introduction to Human Nutrition ed.Gibney et al, Blackwell Publishers, 2005
- Khanna K, Gupta S, Seth R, Mahna R, Rekhi T (2004). The Art and Science of Cooking: A
- Practical Manual, Revised Edition. Elite Publishing House Pvt Ltd.

LAB COURSE – V

CLINICAL NUTRITION AND DIETETICS

1. Standardization of weight and measures
2. Planning the receipies rich in following nutrients
(a) Protein (b) energy (c) fat (d) carbohydrates
3. Anatomy of heart, kidney, renal organs
4. Testing of blood groups
5. Determination of coagulation time, bleeding time of blood
6. Reading pulse rate and body temperature
7. Calculation of nutritive value of milk and milk products
8. Calculation of nutritive value of meat and meat products
9. Weaning diet
10. Planning of normal diet
11. Planning of clear liquid and liquid diet
12. Planning of soft diet, tube feed and balanced diet



S S B N DEGREE COLLEGE (AUTONOMOUS) :: ANANTAPUR

Skill Development Course (SDC)

OFFERED BY DEPARTMENT OF FOOD TECHNOLOGY

[2020-2021 Batch onwards]

I Semester

Food Intoxications and Food Born Infections

Work load: 30 hrs (02h/wk)]

[02 credits &Max. Marks: 50

Unit 1

- Food contamination and spoilage: Food as a substrate for microorganisms, contamination of food, microorganisms of food spoilage, Spoilage of food material (canned & non canned foods).

Unit 2

- Food poisoning: Definition, Symptoms of food poisoning. Types of food poisoning. Risk of food poisoning.
- Food intoxication: Definition, toxins, types of toxins (exo and endo toxins) examples of intoxication: Botulism, staphylococcal intoxication & Clostridium perfringens intoxication. Mycotoxins.

Unit 3

- Food born infections: Definition, Causative agent, mode of infection, pathogenesis, symptoms, diagnosis, treatment and preventive methods of salmonellosis, E.Coli infection, cholera, amoebiasis & polio.

REFERENCE BOOKS:

- Adams MR and Moss MO. (1995). Food Microbiology. 4th edition, New Age International (P) Limited Publishers, New Delhi, India.
- Banwart JM. (1987). Basic Food Microbiology. 1st edition. CBS Publishers and Distributors, Delhi, India.
- Frazier WC and Westhoff DC. (1992). Food Microbiology. 3rd edition. Tata McGraw-Hill Publishing Company Ltd, New Delhi, India.
- Jay JM, Loessner MJ and Golden DA. (2005). Modern Food Microbiology. 7th edition, CBS Publishers and Distributors, Delhi, India.



S S B N DEGREE COLLEGE (AUTONOMOUS) :: ANANTAPUR

Skill Development Course (SDC)

OFFERED BY DEPARTMENT OF FOOD TECHNOLOGY

[2020-2021 Batch onwards]

II Semester

Nutrition and Health

Work load: 30 hrs (02h/wk)]

[02 credits &Max. Marks: 50

UNIT-I Introduction to fermentation technology:

- Definition and importance of fermentation,
- Types of fermentations (batch, continuous, surface and submerged fermentation).
- Construction and design of fermenters (anaerobic fermenter, stirred tank bioreactor and air lift fermenter).

UNIT-II Products of Fermentation technology:

- Organic acids (Citric acid)
- Enzymes (Amylases)
- Aminoacids (Glutamic acid)
- Antibiotics (penicillin)
- Alcohols (ethyl alcohol)

Unit – III Fermented food products

- Fermented dairy products – Fermented milks, cheese and butter.
- Fermented foods – sauerkraut and Dhokla.
- Fermented bakery products- Cake and cookies.

REFERENCE BOOKS:

1. Dubey, S.C. (2007). Basic Baking 5th Ed. ChanakyaMudrak Pvt. Ltd.
2. Raina et.al. (2003). Basic food Preparation-A complete Manual. 3rd Ed. Orient Longman Pvt. Ltd.
3. Manay, S. &Shadaksharaswami, M. (2004). Foods: Facts and Principles, New Age Publishers.
4. Barndt R. L. (1993). Fat & Calorie – Modified Bakery Products, Springer US



S S B N DEGREE COLLEGE (AUTONOMOUS) :: ANANTAPUR

Skill Development Course (SDC)

OFFERED BY DEPARTMENT OF FOOD TECHNOLOGY

[2021-2022 Batch onwards]

III Semester

Neutraceuticals

Work load: 30 hrs (02h/wk)]

[02 credits &Max. Marks: 50

Unit I

- Neutraceuticals: Introduction to neutraceuticals and functional foods.
- Pro biotic, prebiotic and symbiotic foods and their health benefits.
- List of functional foods and their health benefit.
- Antioxidants: sources, classification and functions;

Unit II

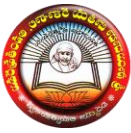
- Secondary metabolites: phyto chemicals– sources, classification and functions. Zoo chemicals – sources, classification and functions.

Unit III

- Role of neutraceutical foods in health and disease- GI disorders, cancer, CVD, diabetes, Diabetes, HIV, obesity.

REFERENCE BOOKS:

1. Spark, Arlene. “Nutrition in Public Health: Principles, Policies, and Practice”. CRC Press, 2007.
2. Mann, Jim and Stewart Truswell “Essentials of Human Nutrition”. 3rd Edition. Oxford University Press, 2007.
3. University Press, 2007.
4. Gropper, Sareen S. “Advanced Nutrition and Human Metabolism”. 5th Edition, Smit Wadsworth Publishing,2008



Course Outcomes:

Aim and objectives of Food Technology:

Food technology is the study of food processing in detail Its aim is to understand the fundamental chemical principles of foods. The program aims to provide an advanced understanding of the core principles and topics of foods and their experimental basis to enable students acquire a specialized chemical knowledge. The program also develops a foundation in the concepts and facts in modern food processing, food chemistry, food microbiology and familiar with various ways of organizing and accessing scientific knowledge.

Course Specific outcomes:

- ❖ To study about various concepts of food structure ,composition and quality aspects
- ❖ To study about preservation methods and microbial spoilage
- ❖ To learn about handling of equipment and its principles and specifications
- ❖ To study about various food preservations, colorants and its applications
- ❖ To study about various standards applied in food industry
- ❖ To study about packaging helps and to increases shelf life of foods
- ❖ To study about the composition of food and their microbial studies
- ❖ Analyze, interpret, and participate in reporting to their peers on the results of their laboratory experiments;
- ❖ Participate in and report orally on team work investigations of problem-based assignments;
- ❖ Build knowledge and understanding in tackling more advanced and specialised courses, and more widely to pursue independent, self-directed and critical learning.
- ❖ Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)



Beyond Syllabus

Measurable:

- Assignments
- Student seminars (Individual presentation of Courses) on topics relating to: Immunology
- Quiz Programmes on: Food Technology.
- Individual Field Studies/projects
- Group discussion
- Group/Team Projects

General:

- Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus.
- Group Discussions on: New scientific approaches and Discoveries.
- Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
- Any similar activities with imaginative thinking.
 - Organizing exhibitions
 - Preparation of charts and models Science fairs
 - Science clubs Essay writing
- Recommended Continuous Assessment methods:
 - Slip test, Oral test, Assignments, Seminars
