

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.dnmgpsc.ac.in | Email: info@dnmgpsc.ac.in | Phone: +91-422-2369100

BoS

21st

Department of Food Science and Nutrition

Board of Studies Meeting

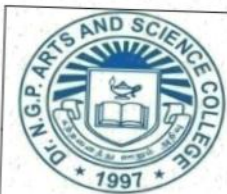
Academic Year: 2026-27

The minutes of the 21st meeting of Board of Studies held on 06.04.2026 at 09.00 am at Seminar Hall - I.

Members Present:

| S. No. | Name | Category |
|--------|--|-----------------------------|
| 1. | Dr. D. Sridevi | Chairman |
| 2. | Dr. Subbarao M. Gavaravarapu Scientist 'F' & Head Dept. of Nutrition Information Communication & Health Education (Niche) ICMR - National Institute of Nutrition | University Nominee |
| 3. | Dr. R. Radha Associate Professor Dept. of Food Service Management and Dietetics Avinashilingam University | Subject Expert |
| 4. | Mrs. Shobana Priya N Dietitian Progen Weight Management | Alumni |
| 5. | Dr. Meera Raman | Member |
| 6. | Dr. Priya A | Member |
| 7. | Ms. Anjali M | Member |
| 8. | Dr. Jancy Rani D | Member |
| 9. | Ms. M. Rakeshwari | Member |
| 10. | Ms. G. Priyaalini | Member |
| 11. | Ms. Kanishka B | Member |
| 12. | Mrs. G. Latha | Member |
| 13. | Ms. Adithya A V | Member |
| 14. | Ms. Nirmala K | Member |
| 15. | Dr. N. Kuppuchamy | Co-opted Member |
| 16. | Dr. A. Hazel Verbina | Co-opted Member |
| 17. | Dr. R. Ravikumar | Co-opted Member |
| 18. | Dr. S. Gowri | Co-opted Member |
| 19. | Ms. Poojasree M | Student Representative - UG |
| 20. | Ms. Nivetha M | Student Representative - PG |





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The HoD and Chairman of the department of Food Science & Nutrition welcomed and introduced all the members and appreciated them for their continuous support and contribution for the development of academic standard and enrichment of the syllabus.

Further, Chairman informed the inability of the following members to attend the meeting and requested to grant leave of absence.

1. Dr. Suresh D Sakhare (Subject Expert)
2. Mrs. C. Vandhana (Industrial Expert)

After brief discussion the items of the agenda were taken one by one for discussion and the following resolutions were passed.

Item 21.1: *To review and approve the minutes of the previous meeting held on 10-11-2025.*

The chairman of the Board presented the minutes of the previous meeting held on 10-11-2025 and requested the members to approve. After brief discussion the following resolution was passed.

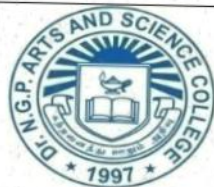
Resolution:

Resolved to approve the minutes of the previous meeting held on 10-11-2025

Item 21.2: *To consider and approve the syllabi for I semester for UG and PG students admitted during the academic year 2026-2027.*

The chairman presented the detailed scheme and regulation for the students admitted from the academic year 2026-27 for I semester. The members deliberated in detail about the modification required. After discussion it is unanimously decided to adopt the following changes.





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Changes Made:

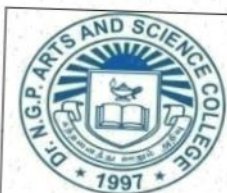
UG:

| Course Code | Course | Reason |
|-------------|--|---|
| 26FNU1CA | Core: Fundamentals of Food Science | Dr. Subbarao M Gavaravarapu suggested to include the concepts of <ul style="list-style-type: none"> In unit 2 – Introduction to microgreens and its nutritional benefits was included so the students could leverage it for targeted dietary interventions, food security and sustainability In unit 3 – Crystallization of sugar and factors affecting them were added for the students to understand its impact on the sensory quality of sugar-based confectionery, dairy, and bakery products In unit 4 – Problems encountered while cooking milk was added for knowing the optimal dairy product quality and safety |
| 26FNU1CB | Core: Chemistry of Foods | Dr. R. Radha suggested to add the concepts of gelatinization to equip the students with critical insights into starch's physicochemical transformations |
| 26FNU1CP | Core Practical: Food Science | Dr. R. Radha suggested to include the following experiments to enhance practical understanding and align better with core culinary techniques: Experiments under DBT: <ul style="list-style-type: none"> Microgreen Cultivation Lab: From Seeding to Harvest Fenugreek Microgreen Powder-Enriched Instant dhokla Mix |

PG:

| Course Code | Course | Reason |
|-------------|--|---|
| 26FNP1CA | Core: Advanced Food Science | Dr. R. Radha suggested to include the milk products – paneer, fresh cream and ghee in unit 4 as it is essential for product development and nutritional optimization |
| 26FNP1CB | Core: Nutrition Through Life Cycle | Dr. Subbarao M Gavaravarapu suggested to include the concepts of Nutrition of Adulthood and Old Age together in unit 5 to equip the students with specialized acumen to counteract age-associated physiological changes |
| 26FNP1CQ | Core Practical: Food Analysis | Dr. Subbarao M Gavaravarapu suggested to include the following experiments as it enables the students to analytically quantify carbohydrate fractions and screen bioactive phytochemicals <ul style="list-style-type: none"> Estimation of starch by Anthrone method Qualitative analysis of phytochemical constituents |





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New Courses PG:

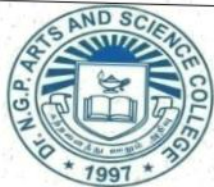
| Course Code | Existing Course | New Course | Reason |
|-------------|---------------------------------|---------------------------------|---|
| 26FNP1DQ | DSE: Functional Foods | DSE: Indigenous Foods | The course was introduced as it enables the students to develop the ability to scientifically assess traditional food systems for their nutritional value, cultural significance and potential role in sustainable and community-based dietary practices. |

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above modification and adopt the revised syllabus for UG & PG students admitted for the academic year 2026-27.





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Item 21.3: To consider and approve the syllabi for III semester for the students admitted in UG and PG during the academic year 2025-2026.

The chairman presented the detailed scheme and Regulation for the students admitted in UG and PG from the academic year 2025-2026 and syllabi for the III semester. The members deliberated in detail about the modification required.

After discussion it is unanimously decided to adopt the following changes.

Changes Made:

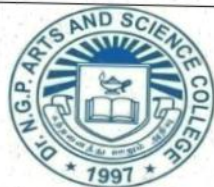
UG

| Course Code | Course | Reason |
|-------------|---|--|
| 25FNU3CA | Core: Nutrition Through Life Span | Mrs. Shobana Priya N suggested to include the concepts <ul style="list-style-type: none"> Unit 1 – Basics of Estimated Average Requirement Unit 2 – Preconception – nutrition and complication Unit 3 – First 1000 days of life Unit 5 – Adolescent pregnancy – psychological problems As it equips students with essential competencies to optimize maternal–child health outcomes and contribute to evidence-based public health interventions |
| 25FNU3CB | Core: Human Physiology | Dr. R. Radha suggested that the units of the syllabus be revised and reorganized to ensure alignment with current developments and recent research findings |
| 25FNU3CP | Core Practical: Nutrition Through Life Span | Dr. Subbarao M Gavaravarapu suggested to include the following experiment as it is <ul style="list-style-type: none"> Standardisation of portion sizes for common cooked foods and yield calculation using AI Experiments under DBT: <ul style="list-style-type: none"> Planning and preparation of healthy snack for anemic adolescent Planning and preparing recipes for old age people: Breakfast/Dinner |

New Courses UG:

| Course Code | Existing Course | New Course | Reason |
|-------------|---|-------------------------------------|--|
| 25FNU3CC | Core: Institutional Management | Core: Sports Nutrition | The course was introduced as it enables the students with scientific competency to optimize athletic performance, facilitate recovery and enhance metabolic efficiency through evidence- |





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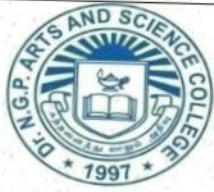
21st

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|-----------------|---|--|--|
| | | | based nutritional strategies tailored to the physiological demands of exercise and training |
| 25FNU3SP | SEC Theory: Basics of Research Techniques – Computer Applications | SEC Practical: Basics of Research Techniques – Computer Applications | The course was introduced to equip students with competencies in digital data management, statistical analysis and scientific documentation, thereby strengthening their ability to conduct research and data interpretation in nutritional sciences |

PG:

| Course Code | Course | Reason |
|-----------------|--|--|
| 25FNP3CB | Core: Therapeutic Nutrition – Systemic Disorders | Dr. R. Radha suggested to include relevant biochemical parameters for all the disease conditions as it enables students to interpret clinical indicators, evaluate nutritional status and formulate dietary interventions for disease prevention and management |
| 25FNP3CC | Core: Food Processing | Dr. R. Radha suggested to add the following concepts: <ul style="list-style-type: none"> • Unit 1 – Hydrothermal treatment • Unit 2 – Processing of pulse-based products • Unit 3 – Pearson square method, types of sugar • Unit 4 – Fish silage and fish protein hydrolysate • Unit 5 – Cryo-processing, ultrasound and PEF techniques. Oxygen and ethylene scavenging technology and non-migratory bioactive polymers As it equips students with multidisciplinary expertise in advanced food processing, formulation optimization and modern preservation technologies for the development of nutritionally enhanced food products |
| 25FNP3CD | Core: Food Safety and Quality Management | Dr. Subbarao M Gavaravarapu suggested to include the concepts of SOP for food safety auditors in unit 4 as it is significant to systematically evaluate food safety systems, ensure regulatory compliance and uphold quality assurance |
| 25FNP3CE | Core: Public Health Nutrition | Ms. Shobana Priya N suggested to add the need for nutritional assessment - direct method, indirect method - ecological parameters and vital statistics in unit 2 to comprehensively assess population nutritional status and detect disparities in nutrient adequacy |
| 25FNP3CQ | Core Practical: Therapeutic Nutrition – Systemic Disorders | The Board members suggested to include the assessing requirement and diet planning for the disease conditions as they play a vital role in designing individualized therapeutic diets that support clinical management and improve health outcomes |





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New Courses PG:

| Course Code | Existing Course | New Course | Reason |
|-------------|---|---------------------------|---|
| 25FNP3DA | DSE: Instrumentation in Food Industry | DSE: Food Microbiology | The course was introduced to equip students with knowledge of microbial dynamics in foods, facilitating food safety assurance, spoilage control and the application of microbiological principles in food quality |
| 25FNP3DB | DSE: Food Packaging Techniques | DSE: Diet Counseling | The course was introduced to enable the students to provide individualized nutritional guidance that supports dietary behaviour modification and disease prevention and management |

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above modification and adopt the revised syllabus for UG & PG students admitted for the academic year 2025-26.

Item 21.4: *To consider and approve the syllabi for V semester for the students admitted in UG during the academic year 2024-2025.*

The chairman presented the detailed scheme and Regulation for the students admitted in UG from the academic year 2024-2025 and syllabus for the V semester. The members deliberated in detail about the modification required.

Changes Made:

UG:

| Course Code | Course | Reason |
|-------------|---|--|
| 24FNU5CA | Core: Fundamentals of Food Microbiology | The Board members recommended revamping the syllabus to integrate theoretical concepts with practical applications, thereby enabling students to comprehend both the beneficial and detrimental roles of microorganisms in food and to effectively utilize them for safe and quality food production |





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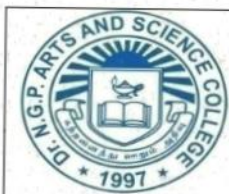
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| | | |
|----------|---|---|
| 24FNU5CC | Core: Food Processing | Dr. Subbarao M Gavaravarapu suggested to include sugar processing in unit 5 as it is significant to understand the physicochemical changes of sugar during refining and processing facilitating their application in product formulation and quality control |
| 24FNU5CD | Core: Food Safety and Quality Control | The board members suggested to include the concepts of: <ul style="list-style-type: none"> • Unit 1 – Food preservation methods • Unit 2 – Mandatory and voluntary certification • Unit 3 – Cross contamination • Unit 4 – HACCP guidelines for milk • Unit 5 – Basic food testing methods, Legal compliance As it to helps the students to ensure food safety, quality assurance and regulatory compliance across food processing and distribution systems |
| 24FNU5CP | Core Practical: Food Preservation | The board members suggested to rearrange the experiments and to include the methods of food preservation by traditional vs modern drying. Experiments under DBT: <ul style="list-style-type: none"> • Methods of food preservation by hurdle technology • Methods of food preservation by natural preservatives |
| 24FNU5DA | DSE: Post-Harvest Technology | Dr. R. Radha suggested to include the following topics: <ul style="list-style-type: none"> • Unit 1 - Different infrastructural facilities to minimize post - harvest loss, Supply chain stages, and the importance of value addition • Unit 2 – Post harvest losses (field loss) • Unit 3 – Basic food packaging materials • Unit 4 - Economic impact on post-harvest loss • Unit 5 - Food marketing, export of Agri- products, supply chain and distribution As it is crucial to enhance food preservation efficiency, reduce supply chain losses and strengthen sustainable food distribution |
| 24FNU5DB | DSE: Clinical Nutrition | Dr. Subbarao M Gavaravarapu suggested to revamp the syllabus. Key concepts added are reduced depth, introductory and fundamental approach and nutrition screening tools as they are crucial for preliminary nutritional assessment and early identification of nutrition-related risks in clinical settings |





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New Courses UG:

| Course Code | Existing Course | New Course | Reason |
|-------------|--|---|---|
| 24FNU5SP | SEC Practical: Food Processing and Quality Control | SEC Practical: Quantitative Nutrient Analysis | The course was recommended as it equips students with essential laboratory skills to accurately determine nutrient composition, interpret analytical data and conduct scientific nutritional and quality evaluation of food products. |

After discussion it is unanimously decided to adopt the following changes.

Resolution:

Resolved to approve the above modification and adopt the revised syllabus for UG students admitted for the academic year 2024-25.

Item 21.5: *To consider and approve the syllabi for UG Diploma, Certificate, Skill oriented courses to be offered during the academic year 2026-27.*

The chairman presented the detailed scheme for Diploma, Certificate, Skill oriented courses to be offered the students admitted from the academic year 2026-27 onwards. The members deliberated in detail about the modification required. After discussion it is unanimously decided to adopt the following changes.

- **Diploma** - Food Safety and Quality Control (UG & PG)
- **Skill Courses** – ISO Internal Auditor, FoSTAC, HACCP & NSDC (UG & PG)
- **NCVRT** – Chocolate making (UG) & Diet Counseling (PG)

Resolution:

Resolved to approve the above modification and adopt the revised courses for the students admitted from the academic year 2026-27.

Item 21.6: *To consider and approve the panel of examiners for conducting of End Semester Practical's examination, Central Valuation and Question Paper Setting.*

The chairman presented the detailed the panel of examiners for conducting of End





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Semester Practical's examination, Central Valuation and Question Paper Setting. The members deliberated in detail about the modification required. After discussion it is unanimously decided to adopt the following changes.

Resolution:

Resolved to retain the existing panel of 2024-25 batch without any Modification for the students admitted from the academic year 2026-27.

Item 21.7: *To consider and approve the syllabi of Self-study paper offered in III semester for the students admitted during 2025-26.*

The chairman presented the detailed scheme and Self-study syllabi for the students admitted in UG and PG from the academic year 2025 -2026. The members deliberated in detail about the modification required.

After discussion the following resolution was passed.

Resolution:

Resolved to retain the existing syllabus of 2024-25 batch without any modification for the students admitted from the academic year 2025-26.

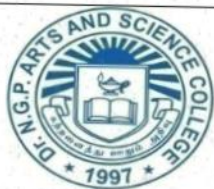
Finally, the Chairman thanked all the members for their cooperation and contribution in enriching the syllabus with active participation in the meeting and sought the same spirit in the future also. The meeting was closed with formal vote of thanks proposed by Dr. D. Sridevi, Head & Chairman – Food Science and Nutrition.

Date: 06.04.2026

(Dr. D. SRIDEVI)

BoS Chairman/HoD
Department of Food Science & Nutrition
Dr. N. G. P. Arts and Science College
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21st

ATTENDANCE OF THE TWENTY FIRST BOARD OF STUDIES MEETING

Faculty: Biosciences

Board: Food Science and Nutrition

Date : 06/04/2026

Time : 09.00 a.m.

Venue : Seminar Hall - I

The following members were present for the Board of Studies meeting

| S. No | Name | Designation | Signature |
|-------|--|----------------------------|-------------|
| 1. | Dr. D. Sridevi Professor and Head | Chairman | PRESENT |
| 2. | Dr. Subbarao M. Gavaravarapu Scientist 'F' & Head Dept. of Nutrition Information Communication & Health Education (Niche) ICMR - National Institute of Nutrition | University Nominee | ONLINE MODE |
| 3. | Dr. R. Radha Associate Professor Dept. of Food Service Management and Dietetics Avinashilingam University | Subject Expert | PRESENT |
| 4. | Dr. Suresh D Sakhare Sr. Principal Scientist & Head Dept. of Flour Milling and Baking Technology CFTRI | Subject Expert | ABSENT |
| 5. | Mrs. C. Vandhana Chief Dietitian Ramakrishna Hospitals | Industrial expert | ABSENT |
| 6. | Mrs. Shobana Priya N Dietitian Progen Weight Management | Alumni | PRESENT |
| 7. | Ms. M. Poojasree II B.Sc. FSN | Student Representatives | PRESENT |
| | Ms. M. Nivetha I M.Sc. FN | | PRESENT |





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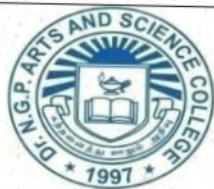
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|-----|--|-----------------|---------|
| 8. | Part I (Language I) Dr. N. Kuppuchamy Associate Professor and Head Department of Tamil | Co-opted member | PRESENT |
| 9. | Part II (Language II) Dr. A. Hazel Verbina Professor and Head Department of English | Co-opted member | PRESENT |
| 10. | Allied - IDC- Applied Chemistry Dr. R. Ravikumar Associate Professor and Head (i/c) Department of Chemistry | Co-opted member | PRESENT |
| 11. | Allied – IDC - Biochemistry Dr. S. Gowri Professor and Head Department of Chemistry | Co-opted member | PRESENT |
| 12. | Dr. Meera Raman Professor | Internal Member | PRESENT |
| 13. | Ms. Anjali M Assistant Professor | Internal Member | PRESENT |
| 14. | Dr. D. Jancy Rani Assistant Professor | Internal Member | PRESENT |
| 15. | Ms. M. Rakeshwari Assistant Professor | Internal Member | PRESENT |
| 16. | Ms. G. Priyaalini Assistant Professor | Internal Member | PRESENT |
| 17. | Dr. Priya A Assistant Professor | Internal Member | PRESENT |
| 18. | Ms. Kanishka B Assistant Professor | Internal Member | PRESENT |
| 19. | Mrs. G. Latha Assistant Professor | Internal Member | PRESENT |
| 20. | Ms. Adithya A V Assistant Professor | Internal Member | PRESENT |
| 21. | Ms. Nirmala K Assistant Professor | Internal Member | PRESENT |

Date: 06.04.2026

(Dr. D. Sridevi)

BoS Chairman/HoD
Department of Food Science & Nutrition
Dr. N. G. P. Arts and Science College
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Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

Course Code/ Name: 26FNU1CA/ FUNDAMENTALS OF FOOD SCIENCE

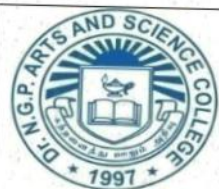
| Unit | Existing | Changes |
|------|--|---|
| I | Food Groups & Cereal Introduction to Food Science: Food groups- 4 (ICMR) and 5, Functional food groups- energy yielding, Body building, protective and regulatory foods (only sources) food pyramid and my plate. Improving Nutritional Quality:-Definition-fermentation, germination(process), malting, Supplementation, Fortification and Enrichment Conservation of nutrients-Guidelines to minimize nutrient losses during preparation Methods of cooking: Objectives of cooking. Cooking methods – Dry heat and moist heat methods, solar cooking and ohmic cooking. Cereals: Structure and composition of rice and wheat, parboiled rice, role of cereals in cookery. Millet: classification of millets | |
| II | Pulses, Fruits and Vegetables Pulses and legumes: varieties of Pulses, legumes and grams , composition, anti-nutritional factors and factors affecting cooking quality of pulses Fruits: Classification and composition, ripening of fruits, enzymatic browning and its prevention methods. Vegetables: Classification, selection and preparation for cooking, changes and loss of nutrients during cooking, | steps to reduce, and role of pulse in cookery, fungi and algae as foods, Introduction of microgreen and overview of nutritional benefit |
| III | Sugar, Beverages, Fats and Spices Sugars - Properties, sugar related products , Stages of sugar cookery, and artificial sweetener (aspartame, saccharin, sucralose and stevia) Beverages - Classification, milk based beverages-methods of preparing tea and coffee, fruit based, malted beverages and Aerated beverages. Fats and Oils: Types of oils, fat substitutes, functions of fats and oils Spices and Condiments: Functions and medicinal values of Cumin, Pepper, Fenugreek, Cinnamon, Cloves, Cardamom, Onion, Turmeric, Ginger and Garlic spices. | and Crystallization and factors affecting crystallization and Role of sugar in cookery. Effect of heating, role in cookery |
| IV | Milk and Egg Milk – Composition, types of milk, milk substitute, physical properties of milk, pasteurization and homogenization of milk, changes in milk during heat processing, preparation of fermented (cheese) and non-fermented (milk powder), role of milk and milk products Egg - Structure, composition, selection, Effect of cooking on eggs. Green ring formation in boiled egg, evaluation of egg quality uses of egg in cookery , factors affecting foam formation | Problems encountered in cooking milk Functional properties of egg, and coagulation of egg proteins |
| 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 . | Functional properties of meat |

PERCENTAGE OF SYLLABUS REVISED: 33 %

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

Course Code/ Name: 26FNU1CB/ CHEMISTRY OF FOODS

| Unit | Existing | Changes |
|------|---|--|
| 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 | - |
| 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 | Gelatinization and observe it characteristics |
| 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 | - |
| 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 | - |
| 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). 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 | - |

PERCENTAGE OF SYLLABUS REVISED: 5 %

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision – Practical Course B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

Course Code/ Name: 26FNU1CP /FOOD SCIENCE

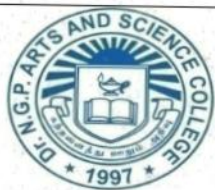
| Exp. No. | New Course |
|----------|--|
| 1. | Food group – Identification of ingredients and grouping of foods, Measuring ingredients and Determination of edible portion of food |
| 2. | Cereals – Group Experiment on Methods of cooking fine and coarse cereals. Structural Examination of starch. Prepare recipes using the following processes- Gelatinization, gluten formation and gel formation. Common preparation with cereals |
| 3. | Pulses – Group Experiment on Cooking of soaked, unsoaked pulses, germination and fermentation of pulses. Common preparation with pulses |
| 4. | Vegetables & Fruits - Group Experiment on Experimental cookery using vegetables pigments of different colors and textures. Prevention of darkening in fruits and vegetables |
| 5. | Vegetables & Fruits - prepare a snack, salads, soups and curries. |
| 6. | Milk - Prepare a product based on processing techniques, such as coagulation, fermentation, evaporation and drying. |
| 7. | Prepare any one recipe using milk processing techniques. |
| 8. | Prepare recipes where egg acts as – thickening agent, binding agent, emulsifying agent and enriching agent |
| 9. | Prepare one specialized beverage, focusing on a specific functional benefit—Healthy, Detoxifying, Refreshing, Nourishing, Stimulating and Appetizing |
| 10. | Sugar - Stages of sugar cookery |
| 11. | Preparation on sweets using different stages of sugar cookery |
| 12. | Prepare any one recipe for Fleshy Foods - Fish, meat and poultry Using Ageing, Tenderizing, and Curing Techniques |

PERCENTAGE OF SYLLABUS REVISED: 100%

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

Course Code/ Name: 26FNP1CA / ADVANCED FOOD SCIENCE

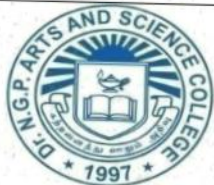
| Unit | Existing | Changes |
|------|---|---|
| I | Cereals Rice - Structure, composition and nutritive value. Wheat - Structure, composition and nutritive value. Wheat flour - types, functionality of components , baking qualities, manufacture of bread, pastries and cakes. Millets- Jowar, Bajra, Maize and Ragi, Composition and nutritive value and Products. | |
| II | Pulses, Nuts and Oilseeds Pulses - Composition and nutritive value, methods of processing – dry and wet processing, vegetable protein mixes, Anti nutritional factors and eliminations. Nuts and Oilseeds- Composition and nutritive value, nutritious food mixes from oil seeds, toxins. Fats and Oil – Sources, Nutritional importance of oil and fats , nutritional composition, functions, rancidity – types and prevention, role of fat/oil in food preparations. | and preventive measures. |
| III | Fruits & Vegetables Classification, Composition and nutritive value, selection, storage, pigments, browning reactions (Enzymatic and Non-Enzymatic), pectic substances, ripening of fruits, changes on cooking Beverages—Classification, fruit-based beverages, carbonated nonalcoholic beverages Spices and condiments – Type, uses and adulteration, role in cookery and medicinal uses Evaluation of foods - Subjective and objective evaluation of foods. Study of proximate constituents | |
| IV | Milk and milk products and Egg Composition, physical and chemical properties – effects of heat, acid and enzymes, processing of milk – pasteurization, homogenization, types of milk. Milk products – Butter, curd, yogurt, butter milk, cheese, milk powder, khoa, ice cream . Egg - Structure, composition, grading and selection, effects of heat on egg protein, egg foam (factors affecting foam formation) and role in cookery. | paneer, fresh cream, ghee. Role in cookery. |
| V | Meat, poultry and fish Meat - Structure, composition, postmortem changes, Rigor mortis, Aging and Tenderization of meat, color of meat, changes of meat in cookery and methods of cooking, meat analogues. Poultry - Classification, composition, market forms, selection factors and methods of cooking. Fish - Classification, composition, kinds of fish, characteristics of fresh fish, fish products and methods of cooking. | |

PERCENTAGE OF SYLLABUS REVISED: 10%

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

Course Code/ Name: 26FNP1CB / NUTRITION THROUGH LIFE CYCLE

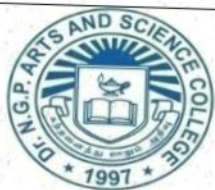
| Unit | CONTENT |
|------|---|
| I | Nutrition in Preconception and Pregnancy Nutrition in Preconception-Introduction, premenstrual syndrome, obesity and fertility, eating disorder and fertility, polycystic ovary syndrome, factors contributing infertility in female, nutrient intake for pre-conceptual women Nutrition in pregnancy - Stages of gestation, maternal physiological adjustments, weight gain during pregnancy, nutritional requirements and dietary guidelines for pregnancy, miscarriage, preterm delivery and complications of pregnancy. |
| II | Nutrition in Lactation and Infancy Nutrition in Lactation - Physiological adjustments during lactation, Physiology of milk Production - hormonal controls and reflex action, lactation in relation to growth and health of infants, Breast feeding and problems of breast feeding, Factors affecting the quantity and quality of Breast Milk, Nutritional composition of colostrum and mature milk, special foods during lactation, nutritional requirements during lactation. Expressing and storing breast milk, Breast feeding promotion network of India. |
| III | Nutrition in Infancy, Toddlers and Preschool age Nutrition in Infancy - Rate of growth, weight as the indicator, premature infant, feeding premature infants, low birth weight, breast vs. bottle feeding, nutritional allowances, complementary feeding, and weaning foods Nutrition in Toddlers-Physiological and Cognitive development, feeding skill and behavior, common nutrition problems. Nutrition in Preschool Children - Growth and development of preschool children, food habits, nutritional requirements and dietary guidelines. |
| IV | Nutrition in School Age and Adolescence Nutrition in School Age – Early and middle childhood, Growth and development, nutritional requirements and dietary guidelines, packed lunches, post school snacks, physical activity and nutrition. Nutrition During Adolescence - Physical growth, physiological and psychological changes associated with puberty (menarche and menstruation in girls), nutritional requirements and dietary guidelines, eating disorders - anorexia nervosa, bulimia nervosa, physiological and nutritional problems in adolescent pregnancy and its requirements and complications, physical activity and nutrition. |
| V | Nutrition in Adulthood and Old age Nutrition during Adulthood — Physiological changes of adulthood, work efficiency, nutritional requirements and dietary guidelines. Nutrition for Old Age – senescence and sarcopenia - theories of ageing, physiological changes, Socio economic and psychological factors — geriatric foods, nutritional requirements and dietary guidelines, factors affecting food intake, Common nutrition problems, Nutritional institutionalized changes in old age. |

PERCENTAGE OF SYLLABUS REVISED: 100%

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision – Practical Course M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

Course Code/ Name: 26FNP1CP / Food Analysis

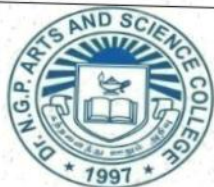
| Exp. No. | Existing | Changes |
|----------|--|--|
| 1. | Determination of Moisture content and Ash content | |
| 2. | Estimation of Carbohydrates by Anthrone Method | |
| 3. | Estimation of Cellulose in plant material | |
| 4. | Determination of Crude Fibre Content | |
| 5. | Estimation of protein by Lowry's Method | |
| 6. | Estimation of protein by Kjeldahl Method | |
| 7. | Estimation of total Fat by Soxhlet Extraction | |
| 8. | Estimation of lipid in egg yolk | Estimation of Starch by Anthrone Method |
| 9. | Estimation of Ascorbic Acid by volumetric method | |
| 10. | Estimation of Iron | |
| 11. | Estimation of Phosphorus | |
| 12. | Estimation of Calcium | |
| 13. | Quantitative Analysis of Phytochemical Constituents | Qualitative Analysis of Phytochemical Constituents |

PERCENTAGE OF SYLLABUS REVISED: 16%

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision – Practical Course M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

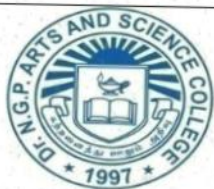
Course Code/ Name: 26FNP1PQ / INDIGENOUS FOODS

| Exp. No. | Contents |
|----------|--|
| 1. | Preparation of Misal Pav |
| 2. | Preparation of Makki di Roti with Sarson da Saag |
| 3. | Preparation of Dhokla (Fermented Food) |
| 4. | Preparation of Litti Chokha |
| 5. | Preparation of Hyderabadi Biryani(South India) |
| 6. | Preparation of Dal Baati Churma (North India) |
| 7. | Preparation of Momos (Indigenous/Tribal Influence) |
| 8. | Preparation of Pongal (South India) |
| 9. | Preparation of Appam with Coconut Milk (South India) |
| 10. | Preparation of South Indian Sambar Powder |
| 11. | Preparation of North Indian Garam Masala |
| 12. | Preparation of West Indian Goda Masala |

COURSE FOCUSES ON:

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





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BoS

21st

Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNU3CA / NUTRITION THROUGH LIFE SPAN

| Unit | Existing | Changes |
|------|--|--|
| I | Introduction to RDA and Balanced Diet Basics for Recommending the Dietary Allowances-Introduction, Purpose of RDA, Factors Affecting RDA, Dietary Goals and 15 dietary guidelines steps, Recommended Dietary Allowances for Indians, concept of balanced diet- Components and food groups, Principles and factors affecting meal planning. Nutritional needs of adults (men and women) – Occupational considerations – Sedentary, Moderate, and Heavy work (Consumption Units) and Reference Man and Woman. | Basics of EAR, Reference Man and Woman- Definition |
| II | Nutritional Needs during Pregnancy and Lactation Pregnancy: Stages, physiological and metabolic changes, common discomforts and complications. Nutritional requirements and dietary changes during pregnancy. Lactation- Physiological changes during lactation, hormonal control and relaxation, nutritional components of colostrum. Nutritional requirements and diet for lactating women | Preconception nutrition and complications. Common discomforts and minor complications. |
| III | Nutrition during Infancy Infancy- Growth and development (growth chart interpretation), Exclusive breastfeeding practices, Bottle feeding – risks and hygiene. Nutritional requirements of normal and preterm infants (0–1 year). Common feeding problems and their management. Weaning Foods - Types of supplementary food, ARF (Amylase Rich Foods), guidelines for introducing weaning foods, problems in weaning and Low-cost supplementary foods in India. | First 1000 days of Life. |
| IV | Nutritional needs of Pre-school & School children Pre-school (1–6 years): Growth pattern, feeding problems, nutrient needs, and development of healthy eating behaviour School-age children (6–12 years): Nutritional requirements, packed lunch ideas, school health programs, and current concerns (junk food, screen time, micronutrient deficiencies) | Lifestyle changes (junk food, screen time, micronutrient deficiencies and their supplements. |
| V | Nutrition during adolescence and old age Adolescence- Physical and Psychological Changes during adolescence, changes in food habits, Nutritional problems – anemia, obesity, eating disorders (anorexia nervosa, bulimia), Adolescent pregnancy – causes, consequences , and nutrition intervention Old Age - Physiological changes in ageing, Psychological and Nutritional problems of the elderly and their management, Nutritional requirement. | Adolescent pregnancy – Psychological problems, and nutrition intervention |

PERCENTAGE OF SYLLABUS REVISED: 8%

COURSE FOCUSES ON:

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



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Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNU3CB/ HUMAN PHYSIOLOGY

| Unit | Contents |
|------|---|
| I | <p>Cell, Tissues and Blood Cell: Basic structure and functions of the cell. Tissues: Classification, structure, and functions of epithelial, connective, muscular and nervous tissue. Blood: Composition and functions of blood, plasma proteins, RBC, WBC and platelets. Blood groups and blood coagulation Activity: Determination of blood groups and blood clotting time</p> |
| II | <p>Digestive System and Excretory System Digestive System: Structure and functions of the gastrointestinal tract. Digestion, absorption and assimilation of food. Accessory Organs for Digestion- Structure and function of Liver, Gall bladder and Pancreas. Excretory System: Structure and functions of kidney and nephron. Mechanism of urine formation. Composition of urine and micturition. Activity: Prepare a model of the digestive system and Kidney</p> |
| III | <p>Circulatory and Respiratory System Circulatory System: Structure and functions of heart and blood vessels. Cardiac cycle. Blood pressure – definition, types and factors affecting it. Electrocardiogram (ECG) – basic concept and significance. Respiratory System: Structure of respiratory tract. Gaseous exchange in lungs, tissues and transport of oxygen and carbon dioxide. Disturbances in respiration- Apnea, Hypoxia and Asphyxia - definition only. Activity: Measurement of blood pressure</p> |
| IV | <p>Endocrine and Reproductive System Endocrine Glands: Basic structure, functions and hormone of endocrine glands – pituitary, thyroid, parathyroid, adrenal glands and pancreas. Reproductive System: Structure and functions of male and female reproductive systems. Spermatogenesis and Oogenesis. Overview of menstrual cycle. Activity: Menstrual cycle calendar</p> |
| V | <p>Central Nervous System and Sense Organs Central Nervous System: Structure and functions of Brain, Spinal cord, neuron, reflex action and reflex arc. Peripheral nervous system- Sympathetic and parasympathetic nervous system. Sense Organs: Structure and functions of eye, ear, nose, tongue and skin. Activity: Taste sensitivity.</p> |

PERCENTAGE OF SYLLABUS REVISED: 100%

COURSE FOCUSES ON:

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



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Syllabus Revision – Practical Course B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/Name: 25FNU3CP / NUTRITION THROUGH LIFE SPAN

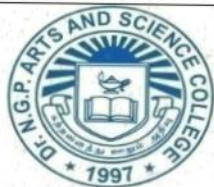
| Exp. No. | Existing | Changes |
|----------|--|--|
| 1. | Standardisation of portion sizes for common cooked foods. | And yield Calculation |
| 2. | Planning, preparation, and nutritional evaluation of diets based on physical activity levels. | |
| 3. | Planning and preparation of a balanced diet for pregnant women (first, second, and third trimesters). | |
| 4. | Planning and preparation of diets for lactating women (0-6 months and 6-12 months postpartum). | |
| 5. | Planning and preparation of diets for infants and toddlers. | |
| 6. | Planning and preparation of diets for preschool children. | Preparation of Amylase-Rich Food (ARF), complementary foods, and low-cost weaning foods |
| 7. | Planning and preparation of diets for school-going children. | Planning and preparation of diets for preschool children. |
| 8. | planning and preparation of diets for adolescent boys and girls. | Planning and preparation of diets for school-going children. |
| 9. | Planning and preparation of diets for adult men and women of different income groups. | Planning and preparation of nutritious snacks for children using Dietcal Software. |
| 10. | Planning and preparation of diets for senior citizens. | Preparation of packed lunches suitable for school-going children and office workers using a Bento Box. |
| 11. | Preparation of Amylase-Rich Food (ARF), complementary foods, and low-cost weaning foods. | Planning and preparation of diets for adolescent boys and girls. |
| 12. | Preparation of packed lunches suitable for school-going children and office workers. | Planning and preparation of diets for adult men and women of different income groups. |
| 13. | Planning and preparation of Nutritious Snacks for Children. | Planning and preparation of diets for Old Age people. |
| 14. | Planning and preparing recipes for a senior citizen:- Breakfast/Dinner | Planning and preparing recipes for Old Age People: Breakfast/Dinner |

PERCENTAGE OF SYLLABUS REVISED: 40 %

COURSE FOCUSES ON:

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





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21st

Syllabus Revision – New Course B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

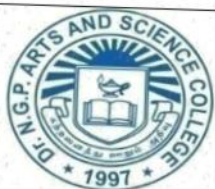
Course Code/ Name: 25FNU3CC / SPORTS NUTRITION

| Unit | CONTENT |
|------|---|
| I | <p>Introduction to Sports Nutrition Basics of Sports Nutrition- Definition and importance of sports nutrition, Role of nutrition in physical performance and fitness , Types of sports and physical activity . Energy Requirements in Sports- Energy systems (ATP-PC, glycolytic, oxidative), Factors affecting energy requirements , Energy balance and body composition. Activity: Case study on dietary habits of a sportsperson</p> |
| II | <p>Macronutrients and Sports Performance Carbohydrates and Fats - Role of carbohydrates in endurance and performance , Glycemic index and glycemic load , Role of fats in sports and energy utilization . Proteins in Sports Nutrition- Protein requirements for athletes , Muscle building and repair, importance and sources of protein in muscle building Activity: Preparation of a diet plan for a sports person</p> |
| III | <p>Micronutrients and Hydration Vitamins and Minerals in Sports- Role of key vitamins (B-complex, C, D) , Minerals (iron, calcium, electrolytes) in performance , Deficiency and its impact on athletes . Hydration and Electrolyte Balance- Importance of water in exercise , Dehydration and its effects , Sports drinks and electrolyte balance . Activity: Assessment of hydration status using simple methods</p> |
| IV | <p>Nutrition for Different Sports Nutrition for Endurance and Strength Sports- Nutritional needs for endurance athletes , Nutritional needs for strength and power athletes , Pre, during and post exercise nutrition. Special Considerations in Sports Nutrition- Nutrition for adolescent and female athletes , , Weight management in sports , , Eating disorders in athletes . Activity:Comparative study of diet for endurance vs strength athletes</p> |
| V | <p>Supplement and Meal Planning Dietary Supplements in Sports- Types of supplements (protein, creatine, vitamins) , Benefits and risks , Guidelines for supplement use . Meal Planning for Athletes- Principles of meal planning, Pre-event, during event and post-event meals , Sample meal plans . Activity: Preparation of a one-day meal plan for an athlete</p> |

COURSE FOCUSES ON:

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





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21st

Syllabus Revision – Practical Course – New Course B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

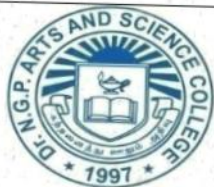
Course Code/ Name: 25FNU3SP / BASICS OF RESEARCH TECHNIQUES – COMPUTER APPLICATIONS

| Exp. No. | Contents |
|----------|---|
| 1. | Introduction to research: types, steps, and significance; role of computer applications in research. |
| 2. | MS Word: formatting research documents, creating tables, inserting citations, and references |
| 3. | Advanced MS Word: mail merge, styles, table of contents, page layout for reports |
| 4. | MS Excel: data entry, data coding, dataset creation, sorting, filtering, and basic formulas |
| 5. | MS Excel: charts, graphs, and descriptive statistics (mean, median, mode) |
| 6. | MS PowerPoint: designing presentations, slide structuring, animation, audiovisual aids, and inserting links. |
| 7. | Online literature search: Google Scholar, PubMed, ResearchGate, keywords, and Boolean operators |
| 8. | Reference management: Mendeley/Zotero, citation styles (APA, MLA, Vancouver) |
| 9. | Questionnaire design: creating surveys using Google Forms, types of questions, and scaling techniques. |
| 10. | Data collection and analysis: importing survey data and basic statistical interpretation |
| 11. | Plagiarism and research ethics: understanding plagiarism, using detection tools (Turnitin, Grammarly, Quilbot). |
| 12. | Report writing and final presentation: preparation of a mini research report and viva |

COURSE FOCUSES ON:

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





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Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNP3CB / THERAPEUTIC NUTRITION – SYSTEMIC DISORDERS

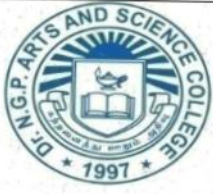
| Unit | Existing | Changes |
|------|---|---|
| I | Diet for Gastrointestinal Disorders Etiology, clinical manifestations, normal blood values , dietary management (dietary principles, foods to be included and avoided) for Esophagitis, Hiatal hernia, Dysphagia, Acid Peptic Disorders (Gastroesophageal Reflux Disease, Gastritis, Peptic Ulcer Disease, Zollinger-Ellison syndrome), Constipation, Diarrhea, Ulcerative colitis , Lactose intolerance. | relevant biochemical parameters, Inflammatory Bowel Disease, Galactose Intolerance |
| II | Diet for Hepatobiliary and Pancreatic Disorders Etiology, clinical manifestations, blood test normal values , dietary management (dietary principles, foods to be included and avoided) for Hepatitis, Cholangitis, Fatty Liver Disease, Cholelithiasis, Choledocholithiasis, Cholecystitis, Pancreatitis | relevant biochemical parameters, Cirrhosis, Jaundice, Hepatic, Hepatic coma, Biliary Disorders-Protein and Fat modification in Hepatobiliary and Pancreatic Disorders |
| III | Diet for Renal Disorders Etiology, clinical manifestations, normal blood values and urine tests, dietary management (dietary principles, foods to be included and avoided) for Nephritis, Nephrosis , Nephritic Syndrome, Urinary calculi , Chronic Kidney Disease, End Stage Renal Disease. Dialysis – types and dietary management. | relevant biochemical parameters, Fluid and Electrolyte balance, Nephrotic Syndrome, Acute kidney disease and Nephrolithiasis |
| IV | Diet for musculoskeletal and thyroid disorders Etiology, clinical manifestations, blood and urine test normal values, dietary management (dietary principles, foods to be included and avoided) for Osteoarthritis, Rheumatoid arthritis, Gout, Osteoporosis, Hypothyroidism, Hyperthyroidism. | relevant biochemical parameters, Calcium and Iodine Nutrient basics, Osteomalacia, Neurological Disorders-Epilepsy, Seizures, stroke, Parkinsons disease |
| V | Diet for Cancer and Critical illnesses Etiology, dietary management (dietary principles, foods to be included and avoided) for cancer. Nutritional manifestations associated with cancer. Feeding problems related to cancer therapy (surgery, radiation therapy and chemotherapy). Burns – types and complications, Dietary management. Pre- and post- operative nutrition. | Enteral and Parenteral nutrition |

PERCENTAGE OF SYLLABUS REVISED: 30%

COURSE FOCUSES ON:

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





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Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNP2CC / FOOD PROCESSING

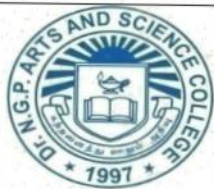
| Unit | Contents |
|------|--|
| I | Rice – Parboiling, Aging of rice, Milling, by products of milling and processed products-Rice flakes, puffed rice, rice cakes, rice paper, instant rice and rice flour. Wheat - Milling, by products of milling, hydrothermal treatment, Quality characteristics of flour and processed products -whole wheat flour, semolina and vermicelli. Millets – Milling of pearl Millet. Breakfast cereal foods – puffed ,flakes extruded and shredded products. |
| II | Pulses and Legumes - Modern methods of milling and by products, Processing of pulse-based products-flour and papad Nuts and Oil Seeds – Milling and it's by products, extraction of oil - Lemon and moringa seed oil, preparation of hydrogenated fats, industrial fats, and low-fat spreads and virgin oil, Fortification of fats and oils. Processing of fat substitute and fat replacer. |
| III | Fruits and vegetable processing- Drying and dehydration-Basic concept of Drum drying, cabinet,tunnel, spray drying, freeze drying, solar drying and fluidized bed drying. Minimal processing.. Processing of beverages -standardization- Pearson's square method, squashes , nectar and Cordial . Sugar-types of sugar and processing of sugar Value added spice product spice oleoresins, curry powder Milk and Milk products- Processing, Different types of milk- Flavored milk, soft-curd milk, frozen concentrated milk, vitaminized and Irradiated milk, Imitation milk, Instanization of milk, by product of Cream- ghee. Fermented milk (cultured butter milk, acidophilus milk, bulgarian butter milk, Cheese Kumiss, Kefir and yoghurt) Flavour defects in milk, their causes and prevention, cream separation- bactofugation. |
| IV | Meat & poultry- Slaughtering, Processing and Preservation -chilled, frozen, cured and smoked meat. meat based products-sausage & Nuggets Fish - processing and by products of fish- fermented fish, fish meal, fish silage, fish liver oil fish protein concentrate, fish protein hydrolyzate and fish crackers. Egg- preparation of egg white, egg yolk powder, frozen egg pulp and designer eggs. |
| V | Recent technology in food processing and packaging Thermalprocessing-Canning,blanching, sterilization and irradiation Non-thermal processing- High Pressure Processing, Ozone and Pulse Electric Field Technology, ultra sound, pulsed light, Hurdle Technology and Cold Plasma Technology. Cryo-processing of foods Nanotechnology: Principles and applications in foods. Recent trends in packaging technology: Modified Atmospheric Packaging and Controlled Atmospheric Packaging, Edible and Smart Packaging, Single Use Plastic Packaging Intelligent & Nano Active Packaging, Novel Oxygen and ethylene scavenging technology, Non-migratory bioactive polymers (NMBP) |

PERCENTAGE OF SYLLABUS REVISED: 100 %

COURSE FOCUSES ON:

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





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Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNP2CD / FOOD SAFETY AND QUALITY MANAGEMENT

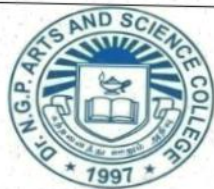
| Unit | Contents | Changes |
|------|---|------------------------------|
| I | Fundamentals of Food Safety Definition and significance of food safety. Types of food hazards: biological, chemical, physical. Emerging concerns: GMOs, allergens, pesticide residues, heavy metals, antibiotics. Foodborne illnesses and outbreak investigations. Introduction to risk analysis: risk assessment, risk management, risk communication. | |
| II | Food Laws and Regulatory Framework Indian Food Regulatory Agencies: FSSAI, AGMARK, BIS, EIC. International Food Regulations: Codex Alimentarius, WHO, FAO, ISO, WTO. Food Safety and Standards Act (FSSA) 2006 – key features. Licensing, registration, and labeling regulations. Food import/export regulations and certification schemes. | |
| III | Food Quality and Management Systems Concepts of food quality: sensory, nutritional, microbiological. Total Quality Management (TQM). Quality control vs. Quality assurance. Food Safety Management Systems: ISO 22000, BRC, FSSC 22000. Good Manufacturing Practices (GMP), Good Hygiene Practices (GHP), and Sanitation SOPs. | |
| IV | HACCP and Food Safety Audits Principles and application of HACCP. Prerequisite programs (PRPs). HACCP plan development and documentation. Internal and external audits – types, preparation, reporting. Role of auditors and audit procedures in food industries. | SOP for food safety auditing |
| V | Recent Trends in Food Safety and Quality Monitoring Rapid methods for microbiological testing (ELISA, PCR). Non- destructive quality evaluation methods. Food traceability systems: Blockchain, RFID. Food fraud and adulteration detection. Role of AI and digital technologies in food safety monitoring. | |

PERCENTAGE OF SYLLABUS REVISED: 5 %

COURSE FOCUSES ON:

| | | | |
|---|------------------------------------|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | | Gender Sensitization |
| | Intellectual Property Rights (IPR) | ✓ | Innovations |
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Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNP3CE / PUBLIC HEALTH NUTRITION

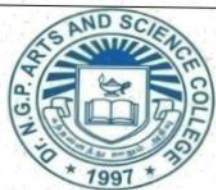
| Unit | Existing | Changes |
|------|---|--|
| I | Concept of public health nutrition Introduction to public health nutrition, definition and scope. Relationship between health and nutrition, role of public nutritionists in community health; Population dynamics - Demographic transition, population structure, population policy. | Double Burden of Malnutrition |
| II | Nutritional Status Assessment Techniques Definition, Methods of Assessment, Advantage and disadvantages — Nutritional anthropometry, biochemical and biophysical assessment, clinical, Dietary assessment – Food weighment survey, 24 hour recall, food diary and food frequency method. | Need for nutritional assessment, Direct method, Indirect method – ecological parameters and vital statistics |
| III | Preventive measures of communicable diseases Definition of epidemiology – causes, signs and symptoms, treatment and prevention of communicable diseases, emerging infectious diseases, dengue, filarisis. Types of immunity – active and passive, Immunization agents – vaccine, Immunization schedule, Expanded programme on Immunization and chemoprophylaxis. | - |
| IV | Nutrition Intervention Nutrition Intervention programmes: Nutritious Noon Meal Programme, ICDS, Poshan Abhiyan and National Nutrition Mission. Nutrition Education: Objectives and Methods used integration of nutrition education, principles of planning, executing and evaluating and problems in conducting nutrition education programmes. | nutrition education methods – Individual, group, mass, Challenges |
| V | National and International Organizations National organization – History, objectives and functions of ICAR, ICMR, NIN, CFTRI, DFRL, NIPCCID, NFI and FSSAI – Food fortification Resource Center and Eat Right India Movement. International Organizations – History, objectives and functions of WHO, FAO, UNICEF, FFHC, CRS. | - |

PERCENTAGE OF SYLLABUS REVISED: 30 %

COURSE FOCUSES ON:

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





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Syllabus Revision – Practical Course M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

Course Code/ Name: 25FNP3CP / THERAPEUTIC NUTRITION-SYSTEMIC DISORDERS

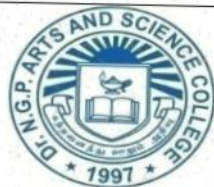
| Exp. No. | CONTENT |
|----------|---|
| 1. | Assessing requirements and planning diet for Dysphagia & IBS |
| 2. | Nutritional requirements and planning diet for patients with GERD and Peptic Ulcer |
| 3. | Assessing requirements and planning diet for Constipation and Diarrhea |
| 4. | Assessing requirements and planning diet for Hepatitis and Fatty Liver Disease |
| 5. | Nutritional Assessment and diet Planning for a Patient with Cholelithiasis |
| 6. | Assessing requirements and planning diet for Acute and Chronic Pancreatitis |
| 7. | Assessing requirements and planning diet for patients with Nephrolithiasis, CKD & End stage renal disease |
| 8. | Nutritional requirements and planning diet for patients with Osteoporosis and Gout |
| 9. | Assessing requirements and planning diet for patients with Hypothyroidism and Hyperthyroidism |
| 10. | Nutritional requirements and planning diet for patients with Cancer |
| 11. | Nutritional Assessment and diet Planning for Patients with Epilepsy |
| 12. | Assessing requirements and planning diet for Pre- and Post-Operative Nutrition |

PERCENTAGE OF SYLLABUS REVISED: 100%

COURSE FOCUSES ON:

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





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Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: III

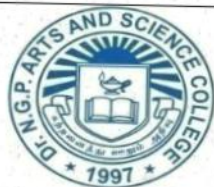
Course Code/ Name: 25FNP3DA / FOOD MICROBIOLOGY

| Unit | New Syllabus |
|------|--|
| I | Unit I – Food and Microorganisms General characteristics and classifications of microorganisms (Bacteria, Mold and yeasts) in food; Factors affecting the growth of microorganisms in food – pH, moisture, oxidation-reduction potential, nutrient content and inhibitory substances and biological structure. |
| II | Unit II – Food Fermentation Role of microorganism in manufacturing of Bread, Traditional Indian fermented foods, Malt beverages, Wines, Vinegar, Fermented Vegetables, dairy products and oriental fermented foods. |
| III | Unit III – Contamination and Spoilage of food Cereals and cereal products, sugars and sugar products, vegetables, fruits, meat and meat products, fish and other sea foods, poultry, egg, milk and milk products and canned foods. |
| IV | Unit IV – Bacterial Food borne diseases Food poisoning and food borne infections – Salmonella, E. coli, Staphylococcus, Clostridium, Listeria, Shigella, Campylobacter, Yersinia, Vibrio, Aeromonas, Mycobacterium and Bacillus. |
| V | Unit V – Non- Bacterial Food borne illness Mycotoxins - Aflatoxin, patulin and Ochratoxin. parasites, viruses – Infectious hepatitis, poliomyelitis and other viruses. Sea food toxicants. |

COURSE FOCUSES ON:

| | | |
|---|------------------------------------|---|
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| | Intellectual Property Rights (IPR) | Innovations |
| ✓ | Social awareness / Environment | Constitutional Rights/Human Values/Ethics |





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Syllabus Revision M.Sc. Food and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: I

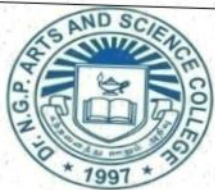
Course Code/ Name: 25FNP3DB / DIET COUNSELLING

| Unit | Contents |
|------|--|
| I | Introduction to Diet Counselling Definition and importance of diet counselling. Scope of diet counselling in clinical and community settings. Principles and approaches to effective diet counselling. Ethical considerations in diet counselling practice. Role and responsibilities of the dietitian. Determinants of food choices and dietary behaviour. |
| II | Communication and Behavior Modification Communication in diet counselling: verbal and non-verbal communication. Active listening techniques. Behavior modification techniques in counselling. Motivation, patient compliance and adherence. Psychological and social factors affecting dietary habits. |
| III | Counselling Process and Practical Application Steps in diet counselling: assessment, planning, implementation, and follow-up. Sample counselling session workflow. Goal setting for dietary change. Patient education on dietary modification in various conditions. Individual and group counselling approaches. Simple documentation methods in diet counselling. Practice sessions using case-based counselling |
| IV | Teaching Aids and Tools in Counselling Teaching aids used in diet counselling: charts, posters, leaflets, flip books, and models. Use of visual aids for effective communication. Preparation of educational materials for individuals and groups. Use of digital tools in diet counselling. Interactive tools in counselling: demonstrations and quizzes |
| V | Diet Counselling in Disease Conditions Principles of diet counselling for obesity, diabetes mellitus, hypertension, cardiovascular disorders, and digestive disorders. Planning appropriate dietary advice for selected disease conditions. Patient motivation strategies in disease management. Evaluation of counselling effectiveness. Monitoring and follow-up methods |

COURSE FOCUSES ON:

| | | | |
|---|------------------------------------|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | ✓ | Gender Sensitization |
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Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: V

Course Code/ Name: 24FNU5CB / FUNDAMENTALS OF FOOD MICROBIOLOGY

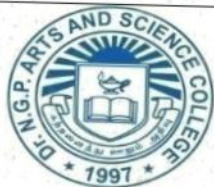
| Unit | Content |
|------|--|
| I | <p>Basics of Microbiology Microbiology- Definition of Microbiology, classification of Bacteria based on nutrition, temperature and oxygen requirement, Growth curve of bacteria, signification of bacteria in foods. Mold, Yeast, Algae-General characteristics and its industrial importance, Signification of microorganism in food industries. Activity:Preparation of a chart illustrating classification and characteristics of microorganisms associated with foods.</p> |
| II | <p>Factors Affecting Microbial Growth Factors affecting the growth of microorganisms- Intrinsic and Extrinsic factors. Micro Organisms and Food Spoilage-General principles underlying spoilage, Classification of foods by ease of spoilage. Activity: Demonstration and analysis of intrinsic and extrinsic factors influencing microbial growth in different food samples.</p> |
| III | <p>Spoilage of Different Origin of Foods Spoilage of Plant Origin - Cereals and cereal products , Cereal grains and flours , Baked products , Spoilage of fruits and vegetables. Spoilage of Miscellaneous and Animal Origin Foods - Fats and oils, Bottled beverages and spices , Spoilage of canned foods, meat and meat products, milk and milk products and canned foods. Activity: Observation and documentation of spoilage in selected food samples under different storage conditions.</p> |
| IV | <p>Beneficial Role of Microorganisms Role of Microorganism in Food-Lactic Acid Fermentation-Yoghurt, Sauerkraut, Kimchi, Cheese, Idli, Fermented meat (Sausages). Yeast Fermentation-Bread, Wine. Mold Fermentation-Tempeh, Soy sauce production, Acetic acid Fermentation- Kombucha Role of Microorganism In Health- Significance of prebiotic foods, Probiotic and symbiotic organisms and its significance in maintaining health. Activity:Identification and presentation of fermented foods and the microorganisms involved in their production.</p> |
| V | <p>Food Safety and Microbial Analysis Food Spoilage: Food borne intoxication - Staphylococcus, clostridium, Bacillus cereus, Vibrio parahaemolyticus and Campylobacter jejuni. Food borne Infections - E.Coli, Salmonella, Shingella, and Listeria monocytogenes. Algal toxins and Mycotoxins. DESTRUCTION OF MICRO ORGANISMS: Physical agent , Chemical agents , Other agents. Types of media (Selective, enrichment, differential media)- Preparation of media (Steps in preparation)-Measurement of microbial growth (Direct and Indirect methods)- Methods of isolating pure culture (Pour plate, spread plate and streak plate techniques). Activity:Preparation of a report on methods of microbial control and basic techniques used in microbial analysis of foods.</p> |

PERCENTAGE OF SYLLABUS REVISED: 100%

COURSE FOCUSES ON:

| | | | |
|---|------------------------------------|---|---|
| ✓ | Skill Development | ✓ | Entrepreneurial Development |
| ✓ | Employability | | Gender Sensitization |
| | Intellectual Property Rights (IPR) | ✓ | Innovations |
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BoS

21st

Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: V

Course Code/ Name: 24FNU5CC / FOOD PROCESSING

| Unit | Existing | Changes |
|------|--|---|
| I | Cereals and Pulses Processing Paddy Processing - Types, milling of rice, by products of rice and their utilization. Wheat processing - Milling of wheat, by products of wheat, Extrusion Techniques Millet processing - Types of millet and its processing.. Pulse processing - Wet and dry processing, protein concentrates and protein isolates. | - |
| II | Milk and Edible Oils Processing Processing of Milk and milk products - Kinds of milk, Cheese and its types, butter, Probiotic milk products - Yoghurt, Kefir, Indigenous Milk products - Paneer, khoa, curd, ghee. Technology of oil seeds - Processing of edible oils, vegetable oils, by products of edible oil processing. | - |
| III | Vegetables and Fruit Processing Vegetable and fruit processing - Minimal processing High temperature processing – Sun drying, mechanical drying - drum drying, vacuum drying, infra-red drying, oven drying, foam mat drying, kiln drying and tunnel drying. Low temperature processing – freezing, refrigeration, cold storage, thawing, freeze drying. | - |
| IV | Processing of Meat, Poultry, Egg and Fish Meat and poultry processing - Curing, smoking, freezing and cryogenic and vacuum packaging, Egg - Whole egg powder, egg yolk powder, Fish - Fish protein concentrate, fish protein isolate, fish meal and fish oil. | - |
| V | Processing of sugar and spices Non – alcoholic beverages – Manufacturing process of tea and coffee, Processing of cocoa bean into cocoa powder, manufacture of dark chocolate. Alcoholic beverages – Manufacturing process of Beer and wine. Spices - processing, of spices, manufacturing process of spice oil and oleoresin. | Sugar Processing, By-Products of sugar processing |

PERCENTAGE OF SYLLABUS REVISED: 10%

COURSE FOCUSES ON:

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





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Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: V

Course Code/ Name: 25FNU5CD / FOOD SAFETY AND QUALITY CONTROL

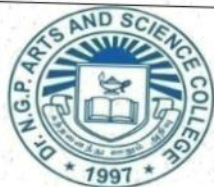
| Unit | Existing | Changes |
|------|---|--|
| I | Food Safety and Quality Control Food Safety - definition of food safety and food spoilage, factors affecting food safety and food spoilage. Quality control: definition of quality control, Principles of Quality control of food, quality assurance. Raw material control, process control and finished product inspection. | Food preservation methods, food hazards (Biological, chemical, physical) |
| II | National and International Quality Standards Indian Standards - FAO/WHO, FSSAI, AGMARK, BIS, ISI, CPA, PFA, FPO, MPO. International Standards - Codex Alimentarius, ISO - 9001:2000, 22000:2005 Standards, WTO, FAO, APEDA, JECFA, EPA. | Importance of food standards, mandatory and voluntary certification. |
| III | Pre-requisite Programs GHP - Personal hygiene – occupational health and safety specification, Food Plant Sanitation Management - Plant facilities construction and maintenance - exterior of the building- interior of the building- equipment. GHP in Processing, Storage, transportation, traceability, recalling procedures, training and Documentation. GMP - Risk Analysis, Risk Management, Risk Assessment, Risk Communication - Traceability and authentication. | Cross-contamination, Cleaning and Sanitation Methods. |
| IV | HACCP HACCP principles- Types of Hazards, HACCP team, conduct a hazard analysis, CCP identification, establish critical limits for each CCP, establish CCP monitoring procedures, establish corrective action procedures, establish procedures for HACCP verification and validation, and document the HACCP Program. | Milk HACCP Guidelines |
| V | Quality evaluation of foods Determination and Compliance of finished product quality with FSSAI Standards, assessment of food quality, Panel selection, sensory Laboratories, Subjective and Objective methods of evaluation. | Basic food testing methods |

PERCENTAGE OF SYLLABUS REVISED: 15 %

COURSE FOCUSES ON:

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





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Syllabus Revision – Practical Course B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: V

Course Code/ Name: 24FNU5CP / FOOD PRESERVATION

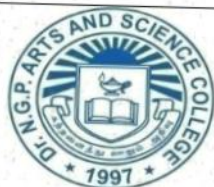
| Exp. No. | Existing | Changes |
|------------------------------|--|---|
| 1. | Methods of food preservation by minimal processing | |
| 2. | Methods of food preservation by sugaring | |
| 3. | Methods of food preservation by salting | |
| 4. | Methods of food preservation by pickling | |
| 5. | Methods of food preservation by drying | Sun drying |
| 6. | Methods of food preservation by freezing and refrigeration | |
| 7. | Methods of food preservation by fermentation | |
| 8. | Methods of food preservation by smoking | |
| 9. | Methods of food preservation by sterilization and pasteurization | |
| 10. | Methods of food preservation by canning and bottling | |
| 11. | Prepare a preserved product and evaluate its sensory attributes | |
| 12. | Conduct a consumer acceptability trial for a preserved product | |
| Experiments under DBT | | |
| 1 | Preservation of foods by fats—confit & sous-vide method | Methods of food preservation by hurdle technology |
| 2 | Preservation of foods using protein based edible coatings | Methods of food preservation by natural preservatives |

PERCENTAGE OF SYLLABUS REVISED: 15 %

COURSE FOCUSES ON:

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





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Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: V

Course Code/ Name: 24FNU5DA / POST HARVEST TECHNOLOGY

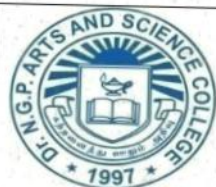
| Unit | Existing | Changes |
|------|--|--|
| I | Introduction to Post-Harvest Technology Introduction to Post Harvest Technology - Definition, importance. Elements of post-harvest system. Scenario of Food Processing in india. and Post-Harvest Management Agro Processing Centers, Cold Storages, Food Parks, Agri Export Zones , Agri Logistics-Long & Short Holding Produce, Record Keeping System on food supply chain | Different Infrastructural facilities to minimise post-harvest loss, Supply chain stages, and the importance of value addition. |
| II | Harvesting and Field Handling Maturity Indices, Harvesting Techniques, and Operations-Hand Harvesting, Machine Harvesting, Transport - Modes of transport (road, rail, cold chain vehicles), and distribution of agricultural produce, challenges in logistics. Grading and its Equipment's | Post-harvest handling losses (field level) |
| III | Packinghouse and storage Packing house- Need, packhouse operations, Storage- Principles, Types of Storage operations, Factors affecting storage, Storage structures and Temperature for fruits, vegetables and root crops, milk, and meat products . Use of IoT, sensors, AI for storage monitoring. | Basic Food Packaging Materials, Cold Chain |
| IV | Post-Harvest Loss and its Control Food loss -Types, Agents- Physical agents (moisture, temperature), Chemical losses, Biological losses— insect infestation, rats and rodents, birds, animals , and Control of Spoilage Agents- Methods to prevent the entry of rats and rodents, Fumigation, Controlling the inhouse conditions. | Economic impact on post-harvest loss, Food preservation methods. (Drying, Dehydration) |
| V | Post-Harvest Distributions MOFPI-Integrated Cold Chain and Value Addition Infrastructure Scheme- Objectives and Components, Grains- Underground & Above-ground storage , Food Corporation of India- Godown, Functions of Central Warehouse Corporation, State Warehouse Corporation, PDS | Food Marketing, Export of Agri- products, Supply chain and Distribution. |

PERCENTAGE OF SYLLABUS REVISED: 25%

COURSE FOCUSES ON:

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





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Syllabus Revision B.Sc. Food Science and Nutrition

Faculty: Bio-Sciences

Board: Food Science and Nutrition

Semester: V

Course Code/ Name: 24FNU5DB / CLINICAL NUTRITION

| Unit | Contents |
|------|--|
| I | Introduction to Clinical Nutrition Clinical Nutrition – definition, importance. Concept of nutrition in health and disease - optimum nutrition, undernutrition, overnutrition. Components of Clinical Nutrition - Assessment, Diagnosis, Intervention, Monitoring, and Evaluation. Activity: Case study on weight management using ADIME format. |
| II | Nutrition Screening Purpose of nutrition screening in clinical setting. Difference between nutrition screening and assessment. Common nutrition screening tools – Nutrition Risk Screening (NRS-2002), Malnutrition Universal Screening Tool (MUST), Mini Nutritional Assessment (MNA), Subjective Global Assessment (SGA), NUTRIC Score. Activity: Case study based nutritional screening of a patient who undergone knee replacement surgery using SGA tool. |
| III | Metabolic stress, Musculoskeletal disorders Metabolic response to stress - metabolic effects of hormones released during the stress response. Inflammatory response. Determining nutritional requirements in acute stress. Approaches to Nutrition Care in Acute Stress. Nutrition in Pre- and Post-operative care. Dietary management in Gout. Dietary management in Arthritis. Activity: Determination of nutritional requirements of a patient admitted to a burns unit using a case scenario. |
| IV | Inborn Errors of Metabolism and Endocrine disorders Dietary management in common hereditary metabolic disorders: Phenylketonuria (PKU), Galactosemia, Glycogen Storage Disease (GSD), Wilson disease (WD). Dietary management in Hyperthyroidism, Hypothyroidism. Dietary management in Polycystic Ovarian Syndrome (PCOS). Activity: Collection of Evidence based articles for Wilson disease. |
| V | Emerging Trends in Clinical Nutrition Culinary Nutrition – Food as Medicine: Healthy cooking for lifestyle disease prevention. Role of Artificial Intelligence in clinical nutrition (e.g., AI-driven nutrition planning or risk prediction tools). Nutrition Technology: Use of mobile apps, software, and tele-nutrition in diet planning and monitoring. Activity: Monitoring individual nutrients intake and nutritional status using a mobile application. |

PERCENTAGE OF SYLLABUS REVISED: 100 %

COURSE FOCUSES ON:

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

