GOVT. D.B. GIRLS' P.G. AUTONOMOUS COLLEGE

RAIPUR (CHHATTISGARH)

FACULTY OF HOME SCIENCE

SYLLABUS

OF

B.Sc

Food science

2020-2021

Food Science and Quality Control
Syllabus for B.Sc. Part II

There shall be three papers and one practical for this course.

A. Theory Papers	Title	Duration	Max Marks	Min. Pass Marks
Paper I	Sensory Evaluation and Food Packaging	3 Hours	34	11
Paper II	Post Harvest Technology	3 Hours	33	11
Paper III	Analytical Instrumentation	3 Hours	33	11
B. Practical	Analytical Instrumentation	5 Hours	50	17
C. On Job Training (Preferably in Summers)	In any related field	1 Month	-	-

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Name	**In the capacity of chairman**	
Chairman Dr.J.R.Tiwari		
Subject Expert (VC nominee)		
1 Dr. Rekha Lilhare	**2 Dr.Aruna Palta**	**3 Dr.Minakshi Saxena**
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DEPARTMENT OF HOME SCIENCE
CLASS: B.Sc.II

Food Science and Quality Control

NAME OF PAPER: Sensory Evaluation and Food Packaging

PAPER:I

MAXIMUM MARKS:34 NUMBER OF UNITS: V

Unit I

1. Factors affecting food acceptance: Sensory, psychological and psycho-social.
2. Sensory assessment of food quality:
   - (a) Appearance of food – Visual perception, colour of food.
   - (b) Odour and mell
   - (c) Taste
   - (d) Texture
   - (e) Flavour
3. Sensory testing of foods:
   Different tests used for the sensory evaluation of various food products:
   - (a) Threshold tests
   - (b) Difference tests
   - (c) Ranking
   - (d) Scoring
   - (e) Hedonic scale
   - (f) Acceptance and preference tests

Unit II

4. Considerations for conducting sensory evaluation tests:
   Testing area, testing set-up, lighting, testing schedule, preparation of samples order of presentation, choosing and training panelist.
5. Types of panels used for sensory evaluation: Trained and consumer panel.
6. Data analysis required for sensory evaluation of food.

Unit III

7. Objective evaluation of food: Different objective methods used for the evaluation of appearance and texture of foods.
8. History and development of food Packaging.
9. Importance/functions of packaging.

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Unit IV

10. Packaging materials: Ceramicals, metals, plant products, plastics etc., their advantages and disadvantages.
11. Package forms: Rigid, Semi-rigid and flexible package forms, Primary, secondary and tertiary package forms.
12. Materials and package testing: Quality testing of packaging materials like paper, plastic films, aluminium foil testing, glass containers testing etc.

Unit V

13. Food and food packaging interaction.
14. Food packaging laws
15. Aseptic packaging, Edible, Biodegradable and Microwavable packaging. Modified atmosphere Packaging (MAP), Active packaging.

References:

1. Food Packaging – Sacharow and Griffin, Avi Publishing Co.
2. Packaging Management – Biston and Noill, Gower Press.
3. Principles of Packaging Development by Griffin, Sacharow, Brody.
4. Food Facts and Principles – N. Shakuntala Manay, M. Shadaksharaswamy, Wiley Eastern Ltd.
5. Food Science – B. Srilaksmi, New Age International Pvt. Ltd.

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NAME OF PAPER: Post Harvesting Technology
PAPER:II

MAXIMUM MARKS:33 NUMBER OF UNITS: V

Unit I

1. Physical principles underlying food processing operations including thermal processing, ionising radiations, refrigeration, freezing, dehydration etc.
2. Chemical principles in food processing: Chemical changes in food that affect the texture, colour, flavour, odour, stability and nutritive quality during processing and storage.
3. Processing technology of cereals: Rice and wheat, losses during processing, storage.

Unit II

4. Processing technology of legumes: Losses during processing, storage.
5. Processing technology of oil seeds: Extraction of oil, by-products obtained.
6. Processing technology of fruits and vegetables: Dehydration, canning, bottling, processing using sugar and spices.

Unit III

7. Processing technology of milk: Pasteurization, homogenization, drying, condensation.
8. Processing technology of milk products: cream, butter, curd, cheese.
9. Processing technology of meat, fish, Poltry and eggs. Products made by their processing.

Unit IV

10. Fermentaion technology: Advantages, products made out of fermentation.
11. High protein food technology: Advantages, product made using this technology.
12. Enrichment and fortification technology: Advantage, commonly enriched and fortified foods.

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Unit V

13. Extruded foods: Technology of preparing such foods, advantages.
14. Waste disposal and sanitation in food processing industry.
15. Quality control in food industry: Methods of evaluation, control of various aspects of quality of raw materials and manufacturing process, testing of finished.

References:

1. Principles and Practices of Post Harvest Technology – Dr. P.H. Pandey, Kalyani Publishers.
2. Post Harvest Technology of Cereals, Pulses and Oil seeds. IIIrd Edn., A. Chakravarty, Oxford and IBH Publishing Co. Pvt. Ltd.

३ए फल सब्जी परिक्षण के सिद्धांत : श्यामसुंदर श्रीवास्तव

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Food Science and Quality Control

NAME OF PAPER: Analytical Instrumentation

PAPER:III

MAXIMUM MARKS:33 NUMBER OF UNITS: V

Unit I

- Sample for analysis, manual sampling, continuous sampling, sampling errors, preparation of sample – grinding, enzymic and chemical treatment, controlling oxidative and microbial attack, reporting results, reliability of analysis.
- Electromagnetic radiation, wavelength, frequency, wave number, complete electromagnetic spectrum, visible-UV spectroscopy.somponents of UV-visible spectrophotometer, Beer-Lambert's law, spectrophotometric analysis of phosphorous and ascrobic acid, analysis of colours in food products, spectrophotometric determination of proteins.

Unit II

- Fluorimetry: Principle, instrument components, analysis of thieamine and riboflavin.
- Thermal analysis of foods: TGA, DTA, TMA, Modern thermal analyser, thermal analysis of proteins, lipids and carbohydrates.
- Atomic absorption spectroscopy: Principle, hollow cathode, plasma formation, analysis of iron, calcium and trace elements in food.

Unit III

- Principles and techniques of separation methods – Partition chromatography tailing, Rf value, thin-layer chromatography, GLC, HPLC, electrophorisis, paper chromatography, moving boundary, Agar, B-carotene.

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Unit IV

- Measurement of enzyme activity: General principle of enzyme activity. Enzym kinetics: Deetermination of substrates, general assay procedure, analysis of stard cellulose, sucrose, lactose, glucose, alcohols, acids, amino acids in food product Determination of enzymatic activity, application of enzymes in food processing determination of pesticides.

Unit V

- Radioactive tracer techniques: Counting devices, GM counter, scintillation counter, proportional counter, semiconductor detectors, isotopic dilution method. neutron activation analysis (naa). Food irradiation, Radio immunoassay.
  Polarimetry: Polarizers and Analyzers, Saccharimeters.
  Analysis of sugar in food products, analysis of honey.

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Food Science and Quality Control

NAME OF PAPER: Analytical Instrumentation
Practical

Max Mark: 50
Only two experiments listed below to be performed in practical examination 5 Hours duration.

1. Estimation of Phosphorous spectrophotometrically.
2. Estimation of ascorbic spectrophotometrically.
3. Estimation of thiamine by fluorimetry method.
4. Estimation of riboflavin by fluorimetymethod.
5. Separation of two components by TLC.
6. Separation Techniques in Moving boundry electrophoresis method.
7. Separation Techniques in Paper electrophoresis.
8. Estimation of Iron by AAS.
9. Estimation of Zinc by AAS.
10. Estimation of Calcium by AAS.

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