

B. Sc 5th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE (DSE)

OPTION-I

FT520DA: FOOD SCIENCE & TECHNOLOGY: FOOD QUALITY ASSURANCE AND PACKAGING

CREDITS: THEORY-4, PRACTICAL -2

THEORY (4 CREDITS): 60 HOURS

MAXIMUM MARKS: 60, MINIMUM MARKS: 24

Objectives/Expected Learning

To make students understand about food quality and its evaluation.

To acquaint students about packaging requirements of food and properties of different packaging materials used in food packaging

Unit – 1 (15 MARKS)

- Sampling-Definition and types.
- Establishment of quality control laboratory.
- Hazard Analysis Critical Control Point (HACCP), Good Manufacturing Practices (GMP).
- Introduction of National and International Food laws.
- Food Safety and Standards Act-2006.

Unit –2 (15 MARKS)

- Sensory evaluation of foods-Introduction; Sensory perception-Appearance, flavour, texture.
- Selection of sensory panellists.
- Classification of sensory tests.

Unit – 3 (15 MARKS)

- Refractometry: Basic principles and applications.
- Optical aspects of Colour (Tinto meter).
- Viscosity and Viscometers
- Spectroscopy- Principles and applications.
- Texture Analysis of Foods

Unit – 4 (15 MARKS)

- Packaging- definition and functions
- Properties of different packaging materials-glass, metal, polymers.
- Packaging requirements of various food-fruits, vegetables, spices, milk, meat and their processed products.
- Novel Food Packaging techniques- Active packaging, MAP.

PRACTICALS (2 CREDITS: 60 HOURS)

MAXIMUM MARKS: 30, MINIMUM MARKS: 12

1. To examine the quality of fruits, vegetables, milk and meat.
2. Sensory methods for measuring food attributes- Difference tests and Rating tests.
3. Common adulterants in milk, chillies, honey and their detection.
4. Identification of different packaging materials.
5. Determination of shelf life of packaged foods
6. Working of spectrophotometer and Refractometer.
7. Visit to research labs and industries.

REFERENCES:

1. Food Quality Evaluation by Eram S Rao.
2. Food Packaging Principles by Gordon Robertson. .
3. Handbook of Food Packaging by Paine and Paine.
4. Food Packaging- Science & Technology by Lee
5. Food Analysis by Pomeranz.
6. Food Analysis by S. Suzanne Nielsen

B. Sc 5th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE (DSE)

OPTION-II

FT520DB: FOOD SCIENCE & TECHNOLOGY: HANDLING AND STORAGE OF AGRICULTURE PRODUCE

CREDITS: THEORY-4, PRACTICAL -2

THEORY (4 CREDITS): 60 HOURS

MAXIMUM MARKS: 60, MINIMUM MARKS: 24

Objectives/Expected Learning

To impart knowledge related to the storage requirements of fruits, vegetables and cereals.

To study the structure and design of storages for fruits, vegetables and cereals.

Unit – 1 (15 MARKS)

- Fruit maturity and ripening indices.
- Postharvest changes in fruits and vegetables.
- Ethylene biosynthesis, mode of action, inhibition of ethylene synthesis.
- Precooling and transport of horticultural commodities.
- Cold chain management.

Unit – 2 (15 MARKS)

- Storage: Definition & functions
- Types of storage: low cost and high cost storage systems
- Hypobaric storage
- Zero energy cool chamber: Its construction and advantages.

Unit – 3 (15 MARKS)

- Controlled atmospheric storage.
- Construction of CA storage
- Role of different gases in CA storage and control of gases.
- CA storage requirements for various fruits and vegetables (Elementary idea).
- Adverse effects of CA storage on fruits and vegetables.

Unit – 4 (15 MARKS)

- Grain storage: Types of storages used for cereals; Solid-wall bins and silos for bulk storage; Reinforced concrete silos; Steel bins
- Bag storage of grains
- Insect control: Losses caused by insects and their management.
- Rodent and bird control in stores.
- Storage management, hygiene and safety

PRACTICALS (2 CREDITS: 60 HOURS)

MAXIMUM MARKS: 30, MINIMUM MARKS: 12

1. Maturity indices of different fruits and vegetables.
2. Identification of postharvest diseases and physiological disorders of fruits and vegetables.
3. Visit to cold storage and controlled atmospheric stores
4. Checking of grains for insect infestation.
5. Visit to FCI godown.

References

1. Postharvest Technology of Fruit & Vegetables by A.K. Thompson.
2. Postharvest Technology of Fruits & Vegetables by Verma & Joshi 2000. Indus publications, New Delhi.
3. Rural Structures in the Tropics: Design and Development by Geoffrey C. Mrema, Lawrence O. Gumbe, Hakgamalang J. Chepete, Januarius O. Agullo, FAO.
4. Grain Storage Techniques by D.L. Proctor, FAO.
5. Engineering for Storage of Fruits and Vegetables by Chandra Gopala Rao, Elsevier.
6. Controlled Atmosphere Storage of Fruits and Vegetables by A. Keith Thompson. CABI.