



## 16FT305 FOOD PACKAGING

Hours Per Week :

L	T	P	C
3	-	2	4

Total Hours :

L	T	P	WA/RA	SSH/HSH	CS	SA	S	BS
45	-	30	10	50	-	-	5	5

### Course Description and Objectives:

This course deals with types and functions of packaging material along with its various methods and equipment used for packaging. The objective of this course is to impart knowledge to students on applications of food packaging materials and methods effectively in accordance with relevant standard regulations, environment protection and ethical principles.

### Course Outcomes:

The student will be able to:

- understand various methods of packaging, factors affecting the shelf life of packaged foods.
- know about hazards and toxicity associated with packaging materials.
- understand various testing methods used for packaging materials.
- develop knowledge on laws and regulations involved in safety and labeling of foods.

### SKILLS:

- ✓ *Measure and evaluate properties of packaging materials.*
- ✓ *Define the packaging requirements for a given food product.*
- ✓ *Suggest suitable labeling requirements for a food package.*

**UNIT - 1****L-9**

**INTRODUCTION TO FOOD PACKAGING:** Importance and Functions of Food Packaging, Packaging requirements for cereals, meat, poultry, fish, milk, vegetables, fruits, plantation crop based products and carbonated beverages Types of Packaging Materials: Permeability modeling, Migration of chemicals. Metal Containers: Strength requirement, Seaming and coating properties, Contamination from lacquers. Glass containers and closures.

**UNIT - 2****L-9**

**FOOD PACKAGES:** Rigid and Flexible packages: Paperboard, Special packing: Gas, vacuum and Aseptic packaging, Smart packaging, Intelligent Packaging, Active Packaging, Reportable pouches.

**UNIT - 3****L-9**

**TESTING OF PACKAGING MATERIAL:** Destructive & Non-destructive test, Testing of rigid, Semi rigid and flexible packaging material, Shelf life study, Corrosion.

**UNIT - 4****L-9**

**BIODEGRADABLE FOOD PACKAGING MATERIALS:** Edible packaging materials, Biodegradable packaging materials, Environmental aspects, Future trends.

**UNIT - 5****L-9**

**STORAGE AND STANDARDS:** Storage losses and their estimation, Bin and silo storage for cereals and pulses, Loss in cereal quality due to insect and pest control, Food packaging labelling standards and regulations.

**LABORATORY EXPERIMENTS****LIST OF EXPERIMENTS**

Total Hours: 30

1. Determination of GSM of Packaging materials
2. Determination of Bursting Strength of Packaging materials
3. Determination of Tensile Strength of Packaging materials
4. Determination of WVTR
5. Determination of GTR
6. Puncture testing of packaging materials.
7. Torque testing of packaging materials.
8. Determination of Cobb Value
9. Determination of edge crush strength of a food package.
10. Determination of transport worthiness of a food package.

**TEXT BOOKS:**

1. G. L. Robertson, "Food Packaging - Principles and Practices", 3<sup>rd</sup> edition, Marcel Dekker, 1992.
2. R. Ahvenainen, "Novel Food Packaging Techniques", 3<sup>rd</sup> edition, CRC, 2001.

**REFERENCE BOOKS:**

1. R. Coles, "Food Packaging Technology", 2<sup>nd</sup> edition, Blackwell, CRC Press, 2003.
2. N. Khetarpaul and D. Punia, "Food Packaging" 2<sup>nd</sup> edition, Daya Publishing House, 2008.

**ACTIVITIES:**

- *Prepare database for packaging materials with their functional properties.*
- *Report on national and international packaging standards*