

## **UNIT OPERATIONS IN FOOD PROCESSING**

SUBJECT CODE : FTC305

FULL MARKS : 100 (80+20)

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3	–	2

### **RATIONALE**

This subject is aimed to develop an understanding among the students about various methods of handling, transportation and storage of food grains and perishables. It will also impart knowledge and skills as how to minimize post – harvest loss of food commodities

### **DETAILED CONTENTS**

1. Preliminary Unit operation (04 hrs)  
Cleaning, sorting & Grading - aims, methods and applications
2. Size Reduction and Sieve Analysis (16 hrs)  
Theory of comminution; Calculation of energy required during size reduction.  
Crushing efficiency; Size reduction equipment; Size reduction of fibrous, dry and liquid foods; effects of size reduction on sensory characteristics and nutritive value of food  
Sieving: Separation based on size (mesh size); types of screens; effectiveness of screens
3. Mixing (10 hrs)  
Mixing, Agitating, kneading, blending, homogenization and related equipment
4. Separation Processes (18 hrs)  
Principles of Filtration, Sedimentation, Crystallization and Distillation and equipment used

## **UNIT OPERATIONS IN FOOD PROCESSING LAB**

**SUBJECT CODE : FTC310**

### **LIST OF PRACTICALS**

1. Analysis of sampled foods for physical characteristics
2. Determination of critical speed of ball-mill
3. Size reduction and particle size distribution using hammer-mill
4. Steam distillation of herbs
5. Concentration by crystallization
6. Clarification of apple juice using filter press
7. Visit to a public distribution system (PDS) showing storage facilities, warehouse, cold storage, refrigeration system and slaughter house etc
8. Visit to various food industries for demonstration of various unit operations

### **RECOMMENDED BOOKS**

1. Handling, Transportation and Storage of Fruits and Vegetables by A Lloyd, Ryall Penizer (AVI Publications)
2. Proceedings of Regional Workshop on Warehouse Management of Stored Food Grains by Girish and Ashok Kumar (UNDP)
3. Modern Potato and Vegetable Storage by Volkind and Roslov (Amerind)
4. Controlled Atmospheric Storage of Fruits by Mettel Skilv
5. Food Grains in Tropical and Sub Tropical Areas by Hall
6. Food Storage Part of a system by Sinha and Muir (AVI)
7. Post Harvest Technology of Fruits and Vegetables – Handling, Processing, Fermentation and Waste Management by LR Verma and VK Joshi; Indus Publishing com., New Delhi
8. Drying and Storage of Grains and Oilseeds by Brooker & Hall, CBS