

## **Milling of Cereals 3(2-1)**

### **Theory**

Wheat milling: Types of mills, handling, storage, blending, cleaning, tempering and conditioning. Wheat impurities separation: Principles, methods and equipment. Grinding process: Types of grinding machines, different extraction rates of flour. Operations of roller mill. Grinding systems: Break, reduction and tailings. Sieving process: Principles and types of sifters. Purification process. Flour handling and storage. Mill's wheat-cleaning system. Air classification and fine grinding. Whole wheat products. Milling of soft and durum wheats. Wet milling of corn: Production of starch, oil, gluten. Milling of rice. Recent developments in commercial milling.

### **Practical**

Test weight and kernel hardness measurement. Effect of tempering time and moisture content on flour yield. Experimental milling. Flour mill stream analysis: color, moisture, protein, ash, pH and particle size. Flour performance test; farinograph, mixograph and amylograph. Gluten washing tests, alkaline water retention capacity, pelshenke value and SDS sedimentation test.

### **Books Recommended**

1. Atwell, W.A. 2001. Wheat flour. Eagan Press, U.S.A.
2. Khan, K. and Shewry, P.R. 2009. Wheat: chemistry and technology. American Association of Cereal Chemists Inc., St. Paul., Minnesota, U.S.A.
3. Owens G. 2001. Cereals processing technology. Woodhead Pub. Ltd. Cambridge, U.K.
4. Posner, E.S. and Hibbs, A.N. 1997. Wheat flour milling. American Association of Cereal Chemists Inc., St. Paul., Minnesota, U.S.A.

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