



RKDF University

Value-Added courses imparting transferable and life skills

Course Name: Advances in food and value addition of grains

About The Course:

Value addition to foods may be done by several ways. It could be done by the use of preservatives, food ingredients capable of eliciting functionalities and by fortification using micronutrients. There are novel and emerging food processing technologies that are possible to preserve the ingredients in the food intact. The shelf life enhancement of the processed food can be done by adapting newer packaging technologies. Food processing industries in many of the countries across the world generates huge quantity of by-products that can be put into use by value addition. These by-products have less use and create considerable environmental pollution. The byproducts of the fruits, vegetables, etc. may be used for value addition adapting commercially viable approaches. Fermented foods are value added foods that could be developed using novel starters.

Course Objectives:

- To understand the relationship between food, nutrition and health.
- To understand digestion, absorption, functions and food sources of various nutrients.
- To appreciate the concept of balanced and healthy diets.
- To know the different methods of cooking and ways to prevent nutrient losses.
- To be able to plan and prepare meals and nutritious dishes for various age groups.
- To be able to assess nutritional status of adults.

COURSE OUTCOMES

Students will be able to

- Appreciate the relationship between food, nutrition and health.
- Explain digestion, absorption, functions and food sources of various nutrients.
- Understand the concept of balanced diets and menu planning.
- Describe different methods of cooking and ways to prevent nutrient losses.
- Plan and prepare meals and nutritious dishes for various age groups.
- Assess nutritional status of adults.

DETAIL CONTENTS

Introduction to Food and Nutrition

- Basic terms used in study of food and nutrition
- Methods of assessment of nutritional status
- Functions of food-physiological, psychological and social
- Understanding relationship between food, nutrition and health

Nutrients

- Classification, digestion, absorption, functions, dietary sources, RDA, clinical manifestations of deficiency and excess of the following in brief:
- Energy
- Carbohydrates, lipids and proteins
- Fat soluble vitamins-A, D, E and K
- Water soluble vitamins – thiamine, riboflavin, niacin, pyridoxine, folate, vitamin B12 and vitamin C
- Minerals – calcium, iron, iodine, fluorine, copper and zinc

Planning Balanced Meals and Selection of Healthy Foods

- Food Groups
- Concept of Balanced Diets
- Healthy and Fad Diets
- Factors affecting meal planning
- Understanding specific considerations for planning meal for different groups of people.
- Understanding Nutrition labeling on foods, FSSAI regulations, Codex guidelines for health and nutrition claims

Methods of Cooking and Nutrient Retention

- Dry, moist, frying and microwave cooking - Advantages, disadvantages
- Effect of various methods of cooking on foods and nutrients.
- Preventing nutrient losses

Food Preservation by Low temperature

- Freezing and Refrigeration: Introduction to refrigeration, cool storage and freezing, definition, principle of freezing, freezing curve, changes occurring during freezing, types of freezing i.e. slow freezing, quick freezing, introduction to thawing, changes during thawing and its effect on food.

Food Preservation by Moisture control

- Drying and Dehydration - Definition, drying as a means of preservation, differences between sun drying and dehydration (i.e. mechanical drying), heat and mass transfer, factors affecting rate of drying, normal drying curve, names of types of driers used in the food industry.
- Evaporation – Definition, factors affecting evaporation, names of evaporators used in food industry, evaporation equipment's- Batch/Pan evaporator ,rising film evaporator, falling film evaporator, natural circulation and forced circulation evaporator, scraped surface evaporator and vacuum pan evaporator ,application of evaporation in food industry