

- To implement the food safety and quality management systems in a food business in a precise and systematic way

### Theory:

Food safety, security and quality: definitions and importance; Different terminologies used in food safety & quality; Categories of hazards: Physical, chemical, biological. Good manufacturing practices; Good storage practices; Plant design layout; Global Food Safety Initiative; Global Food Safety Systems: HACCP, BRC, FSSC 22000, ISO 22000; Quality Management System (ISO 9001:2008); Food safety laws in Pakistan—West Pakistan Pure Foods Ordinance 1960, Cantonments Pure Food Ordinance Act 1966, West Pakistan Pure Food Rules 1965, The Punjab Pure Food Rules 2007 & 2011.

### Suggested Readings:

1. Ali, I. 2003. Food Quality Assurance: Principles and Practices. CRC Press, Taylor & Francis Group, Boca Raton, FL, USA.
2. David A.S. and F.S. Norah. 1998. Principles and Practices for the Safe Processing of Foods. Woodhead Publishing Limited, Cambridge, England.
3. Early, R. 1995. Guide to Quality Management Systems for the Food Industry. Springer Science + Business Media, LLC., New York, USA.
4. Motarjemi, Y and Lelieveld, H. 2014. Food Safety Management: A Practical Guide for the Food Industry. Academic Press, Elsevier Inc., San Diego, CA, USA.
5. Sun, D. 2012. Handbook of Food Safety Engineering. Wiley-Blackwell, John Wiley & Sons Ltd., Chichester, West Sussex, UK.
6. Theuvsen, L., A. Spiller, M. Peupert and G. Jahn. 2007. Quality Management in Food Chains. Wageningen Academic Publishers, The Netherlands.

## FOURTH SEMESTER

Course No.	Title of Course	Credit Hours
Stat	Bio-Statistics	3(2-1) CC
CS	Computer Science and Information Technology	3(2-1) CC
HND	Assessment of Nutritional Status	3(2-1) MC
HND	Nutrition Through the Life Cycle	3(3-0) FC
Path	General Pathology	3(2-1) FC
FST	Food Analysis	3(1-2) FC
		18 (12-6)

### Statistics-I

**Credit 3 (2-1)**

Definition and importance of Statistics in Agriculture, Data Different types of data and variables

Classification and Tabulation of data, Frequency distribution, stem-and-Leaf diagram, Graphical representation of data Histogram, frequency polygon, frequency curve.

Measure of Central tendency, Definition and calculation of Arithmetic mean, Geometric mean, Harmonic mean, Median quantiles and Mode in grouped and un-grouped data.

Measure of Dispersion, Definition and Calculation of Range, quartile deviation, Mean deviation, Standard deviation and variance, coefficient of variation.

**Practical:**

- a. Frequency Distribution
- b. Stem-and-Leaf diagram
- c. Various types of Graphs
- d. Mean, Geometric mean Harmonic Mean,
- e. Median, Quartiles Deviation, mean Deviation.
- f. Standard Deviation, Variance, Coefficient of variation,
- g. Skewness and kenosis

**Recommended Books:**

1. Introduction to Statistical Theory Part- I by Sher Muhammad and Dr. Shahid Kamal (Latest Edition)
2. Statistical Methods and Data Analysis by Dr. Faquir Muhammad
3. A. Concise Course in A. Level Statistic with world examples by J. Crashaw and J. Chambers (1994)
4. Basic Statistics an Inferential Approach 2<sup>nd</sup> ed. (1986) Fran II. Dietrich-II and Thomas J. Keans

**Statistics-II**

**Credit 3 (2-1)**

Sampling Probability and non-Probability Sampling, Simple random sampling stratified random sampling Systematic sampling error, Sampling distribution of mean and difference between two means. Interference Theory: Estimation and testing of hypothesis, Type—I and type-II error, Testing of hypothesis about mean and difference between two means using Z-test and t-test, Paired t-test, Test of association of attributes using X<sup>2</sup> (chi-square) Testing hypothesis about variance.

**Practical:**

- a. Sampling random sampling
- b. Stratified random sampling.
- c. Sampling distribution of mean
- d. Testing of hypotheses regarding population mean
- e. Testing of hypotheses about the difference between population means
- f. Chi-square test
- g. Testing of Correlation Coefficient
- h. Fitting of simple linear regression
- i. One-way ANOVA
- j. Two-way ANOVA

## **Recommended Books:**

1. Introduction to Statistical Theory Part-II by Sher Muhammad and Dr. Shahid Kamal (Latest Edition)
2. Statistical Methods and Data Analysis by Dr. Faquir Muhammad
3. Principles and Procedures of Statistics A Bio-material approach, 2<sup>nd</sup> ed., 1980 by R. G. D Steal and James H. Tarric
4. Statistical Procedures for Agricultural Research 2<sup>nd</sup> ed.,(1980) by K. A. Gomez and A. A. Gomez

## **Introduction to Information and Communication Technologies**

**Course Structure:** Lectures: 2 Labs: 1 **Credit Hours: 3**  
**Pre-requisite:** **None** **Semester: 1**

### **Course Description:**

This is an introductory course on Information and Communication Technologies. Topics include ICT terminologies, hardware and software components, the internet and World Wide Web, and ICT based applications.

After completing this course, a student will be able to:

- Understand different terms associated with ICT
- Identify various components of a computer system
- Identify the various categories of software and their usage
- Define the basic terms associated with communications and networking
- Understand different terms associated with the Internet and World Wide Web.
- Use various web tools including Web Browsers, E-mail clients and search utilities.
- Use text processing, spreadsheets and presentation tools
- Understand the enabling/pervasive features of ICT

### **Course Contents:**

Basic Definitions & Concepts

Hardware: Computer Systems & Components

Storage Devices, Number Systems

Software: Operating Systems, Programming and Application Software

Introduction to Programming, Databases and Information Systems

Networks

Data Communication

The Internet, Browsers and Search Engines

The Internet: Email, Collaborative Computing and Social Networking

The Internet: E-Commerce

IT Security and other issues

Project Week

Review Week

### **Textbooks/Reference Books:**

1. Introduction to Computers by Peter Norton, 6th International Edition, McGraw-Hill
2. Using Information Technology: A Practical Introduction to Computer & Communications by Williams Sawyer, 6<sup>th</sup> ed., McGraw-Hill
3. Computers, Communications & information: A user's introduction by Sarah E. Hutchinson, Stacey C. Swayer
4. Fundamentals of Information Technology by Alexis Leon, Mathews Leon, Leon Press.

### **HND ASSESSMENT OF NUTRITIONAL STATUS 3 (2-1)**

#### **Learning Outcomes:**

- To impart hands-on training in nutritional assessment techniques to diagnose health problems
- To understand and apply dietary guidelines for standard nutrient intake
- To select an appropriate method for measuring dietary needs of hospitalized patients.

#### **Theory:**

Nutritional assessment systems: nutrition surveys, nutrition surveillance, nutrition screening. Nutritional assessment methods: anthropometrics, biochemical, clinical, dietary. Measuring food consumption at national level: food balance sheets, total diet consumptions. Food consumption at the household levels: food account, household food records, household 24-hour food record. Measuring food consumption at individual levels: 24-hour recall, repeated 24-hour recall, weighed food records, diet history, food frequency questionnaire. Selecting an appropriate method: determining the mean nutrient intake, calculating the population at risk, ranking individuals by food and nutrient intake.

#### **Practical:**

Practicing methods of nutritional assessment (ABCD of Nutritional assessment); Comparison of the data with references values for drawing conclusions.

#### **Suggested Readings:**

1. Driskell, J.A. and Wolinsky, I. 2011. Nutritional Assessment of Athletes, 2<sup>nd</sup> ed. CRC Press, Taylor & Francis Group, New York, USA.
2. Gibson, R.S 2005. Principles of Nutrition Assessment. Oxford University Press Inc., New York, USA.
3. Lee, R.D. and Nieman, D.C. 2012. Nutritional Assessment, 6<sup>th</sup> ed. The McGraw-Hill Companies Inc., New York, USA.
4. McGuire, M. and Beerman, K.A. 2011. Nutritional Sciences: From Fundamentals to Food. Cengage Learning, Belmont, CA, USA.

**Learning Outcomes:**

- To analyze the nutritional needs during conception, infancy, childhood, adolescence, male and female adults, pregnancy, lactation and during aging
- To suggest dietary recommendations in special clinical conditions

**Theory:**

Preconception nutrition: overview, reproductive physiology, nutrition related disruption in fertility, nutrition and contraceptives, other nutrition concerns, premenstrual and polycystic ovary syndrome, obesity and fertility, diabetes prior to pregnancy, disorders of metabolism. Nutrition during pregnancy: status of pregnancy outcomes, embryonic and fetal growth & development, pregnancy weight gain, nutrition and outcome of the pregnancy, common health problems during pregnancy, nutrient needs and dietary guidelines during pregnancy. Nutrition and lactation: human milk composition, benefits of breast feeding, breast milk supply and demand, maternal diet during lactation, factors influencing breastfeeding initiation and duration, common breast feeding conditions, medical contradictions in breast feeding. Infant nutrition: assessing new born health, energy and nutrient needs, development of infant feeding skills, common nutritional problems and concerns, infants at risk. Toddlers and pre-schooler nutrition: normal growth and development, energy and nutrient needs, common nutritional problems, nutrition related conditions, food allergies and intolerances. Child and pre-adolescent nutrition: normal growth and development, energy and nutrient needs, common nutritional problems, prevention of nutrition related disorders, dietary recommendations. Adolescent nutrition: normal physical growth and development, health and eating related behavior, energy and nutrient requirements, overweight and obesity, eating disorders. Adult nutrition: physiological changes of adulthood, maintaining a healthy body, dietary recommendations, nutrient recommendations, nutrition intervention for risk reduction. Geriatric nutrition: physiological changes, nutritional risk factors, dietary recommendations and food safety, nutrient recommendations, nutrition in special clinical conditions.

**Suggested Readings**

1. Brown, J.E. 2014. Nutrition through the Life Cycle, 5<sup>th</sup> ed. Cengage Learning, Belmont, CA, USA.
2. Rolfes, S.R., K. Pinna and E. Whitney. 2015. Understanding Normal and Clinical Nutrition, 10<sup>th</sup> ed. Thomson and Wadsworth Publishers, USA.
3. Shetty, P. 2002. Nutrition Through the Life Cycle. Leatherhead International Ltd. And Royal Society of Chemistry, Cambridge, U.K.
4. Worthington-Roberts, B.S. and S.R. Williams. 2000. Nutrition Throughout the Life Cycle. The McGraw-Hill Education, Maidenhead, Berkshire, U.K.

**Learning Outcomes:**

- To understand the basic terminologies in different pathological states
- To elaborate the cell injuries, necrosis, their types and practical applications of pathology

**Theory:**

Scope of pathology and concept of diseases; Definition and terminology: Ischemia, Hypoxia, Necrosis, Infarction, Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Plasia, Anaplasia; Response of body to injury and infection, growth disturbance, circulatory disturbances, wound healing and repair, neoplasia, fever, disturbance of mineral deposits and pigmentation, anaemia, diarrhoea, burn injury, infectious diseases, hypertension, acute & chronic inflammation, immunity, allergy, hypersensitivity, ulcer (peptic, duodenal), leukemia or blood cancer, environmental and nutritional diseases; Diagnosis and treatment of Cancer in general, fate, survival and prognosis with tumors.

**Practical:**

Selection, collection, preservation and dispatch of morbid material for laboratory examination; Study of pathological slides of various pathological conditions; Demonstration of blood sampling; Basic concepts of anemia; Demonstration of routine urinalysis, faecal examination and skin scraping; Blood smears, staining and examination; Haematology report interpretation, basic concepts of contents and interpretation of pathology report (serum enzymes and other markers of disease).

**Suggested Readings:**

1. Carton, J. 2012. Oxford Handbook of Clinical Pathology, 1<sup>st</sup> ed. Oxford University Press, New York, U.S.A.
2. Kierszenbaum, A.L. and L. Tres. 2015. Histology and Cell Biology: Introduction to Pathology, 4<sup>th</sup> ed. Elsevier Saunders, Philadelphia, PA, USA.
3. Kumar, V., A.K. Abbas, N. Fausto, and J.C. Aster. 2015. Robbins and Cotran Pathologic Basis of Disease, 9<sup>th</sup> ed. Saunders Elsevier, USA.
4. McPhee, S.J. and W.F. Ganong. 2014. Pathophysiology of Disease: An Introduction to Clinical Medicine, 7<sup>th</sup> ed. McGraw-Hill Education, New York, USA.

**FST FOOD ANALYSIS 3 (1-2)**

**Learning Outcomes:**

- To highlight the significance of food analysis in product development and overall quality
- To comprehend commonly employed types of analysis for product characterization
- To prepare and standardize commonly used lab solutions

**Theory:**

Food analysis: significance; Sampling: techniques, preparation, preservation; Physical properties and analysis of foods and food products: appearance, texture, specific gravity, refractive index, rheology; Chemical analysis: significance; Proximate analysis: moisture, ash, proteins, lipids, carbohydrates, fiber, NFE, acidity, pH, sugars, mineral elements, vitamins – significance, methods; Chromatography: paper, thin layer; Spectroscopy: atomic emission, atomic absorption; Sensory evaluation of foods: attributes, difference and preference tests, consumer acceptance. Overview of the commonly employed statistical methods.

**Practical :**

Lab safety requirements; Preparation and standardization of laboratory solutions; Sampling; Determination of specific gravity, refractive index, moisture, ash, crude protein, crude fat, crude fiber, NFE, pH and acidity; Estimation of vitamin C; Determination of mineral elements through flame photometer and atomic absorption spectrophotometer; Paper and thin layer chromatography; Identification of toxins by TLC; Sensory evaluation of foods.

**Suggested Readings:**

1. AOAC. 2016. Official Methods of Analysis of AOAC International, 20<sup>th</sup> ed. Association of Official Analytical Chemists, Arlington, USA.
2. Awan, J.A. and S.U. Rehman. 2015. Food Analysis Manual. Unitech Communications, Faisalabad, Pakistan.
3. Cruz, R.M.S., I. Khmelinskii and M. Vieira. 2014. Methods in Food Analysis. CRC Press. Taylor & Francis Group, Boca Raton, F.L, USA.
4. Pomeranz, Y. and C.E. Meloan. 2000. Food Analysis: Theory and Practice, 3<sup>rd</sup> ed. Chapman & Hall, New York, USA.
5. Winton, A. and K.B. Winton. 2006. Techniques of Food Analysis. Agrobios Publishing Co., Jodhpur, India.

**FIFTH SEMESTER**

Course No.	Title of Course	Credit Hours
HND	Dietetics-I	3(2-1) MC
HND	Nutrition and Psychology	3(3-0) MC
HND	Nutritional Education and Awareness	3(2-1) MC
HND	Meal Planning and Management	3(2-1) MC
HND	Public Health Nutrition	3(2-1) MC
FST	Food and Drug Laws	2(2-0) MC
		17 (13-4)

**HND                    DIETETICS-I                    3 (2-1)**

**Learning Outcomes:**

- To understand the discipline of dietetics and its role in human wellbeing

- To familiarize with the foundations of healthy diets and their role in disease prevention and management
- To acquaint hands-on training for calorie calculation and menu planning using food composition table and data bases
- To assess BMI and energy expenditures in relation to overweight and obesity

### **Theory:**

Dietetics: definitions, history, importance; Dietitian: role in food service and clinical practice, responsibilities in multidisciplinary team, code of ethics; Foundations of healthy diet: Dietary Reference Intakes, Recommended Dietary Allowance, Food Guide Pyramid and allied approaches, Dietary Guidelines, Exchange system and menu planning; Energy expenditure and basal metabolism; Body mass index; Role of diet in disease conditions; Diet therapy and its principles; Food selection and factors affecting its acceptance; Nutrient density; Alternative patterns of food consumption; Nutritional counselling in clinical practice. Critical diet assessment. Nutrition and diet clinics.

### **Practical:**

Interpretation of food guide pyramid, MyPyramid, Myplate, Eatwell Plate; Energy value of different foods: carbohydrates, fats, proteins; Calculating energy requirements; BMI in relation to obesity and overweight, energy and calorie requirements; Balanced diet and menu planning using exchange lists, food composition tables & data bases; Food intake analysis: Dietary Recall, Food Frequency Questionnaires, Food Surveys.

### **Suggested Readings:**

1. Mahan, L.K., S. Escott-Stump and J.L. Raymond. 2012. Krause's Food, Nutrition & Diet Therapy, 13<sup>th</sup> ed. Elsevier Saunders, St. Louis, Missouri, USA.
2. Mudambi, S.R. and M.V. Rajagopal. 2007. Fundamentals of Foods, Nutrition & Diet Therapy, 5<sup>th</sup> ed. New Age International Pvt. Ltd. Publishers, New Delhi.
3. Punekar, M. and J. D'Souza. 2010. Handbook of Applied Nutrition, Dietotherapy and Diet Management. SBS Publishers & Distributors Pvt. Ltd., New Delhi.
4. Rawat, S. 2015. Applied Nutrition. Random Publication, New Delhi.
5. Schlenker, E. and J.A. Gilbert. 2015. Williams' Essentials of Nutrition and Diet Therapy, 11<sup>th</sup> ed. Elsevier/Mosby Inc., Louis, Missouri.
6. Singh, J. 2008. Handbook of Nutrition and Dietetics. Lotus Press, India.

**HND                      NUTRITION & PSYCHOLOGY                      3 (3-0)**

### **Learning Outcomes:**

- To understand psychology, its types and importance in nutrition
- To abreast the impact of psychological influences on appetite and attitude behavior relationship



**Theory:**

Psychology: introduction, types, classification; Psychology and nutrition adherence; Attitude and eating patterns and the field of cognitive psychology; Perception, visualization and eating patterns, errors in perception process; Eating disorders: diagnosis, assessment and treatment; Face perception; Conceptual model of food choice; Psychological influences on appetite; Process over the life course, integration of biological, social, cultural and psychological influences on food choice; Understanding behaviour: sensation, sense organs/special organs, attention and concentration, memory and its stages, methods for improvement, types and theories of thinking, cognition and levels of cognition, problem solving and decision making strategies, attitude behavior relationship; Measurement issues, indirect effects of attitude on behavior; The theory of reasoned action; Additional variables within the theory of planned behavior; Personality and intelligence; Stress management.

**Suggested Readings:**

1. Blackman, M.C. and C.A. Kvaska. 2011. Nutrition Psychology: Improving Dietary Adherence. Jones and Bartlett Learning Publishers, Ontario, Canada.
2. Booth, D.A. 1994. The Psychology of Nutrition. Taylor & Francis Inc., Bristol, PA, USA.
3. Elmes, D.G., B.H. Kantowitz and H.L. Roediger. Research Methods in Psychology, 9<sup>th</sup> ed. Wadsworth Cengage Learning, Belmont, CA, USA.
4. Jane O. 2010. The Psychology of Eating: From Healthy to Disorders Behavior, 2<sup>nd</sup> ed. Wiley Blackwell, John Wiley & Sons Ltd., Chichester, West Sussex, UK.

**HND NUTRITIONAL EDUCATION AND AWARENESS 3 (2-1)****Learning Outcomes:**

- To learn the techniques of creating awareness about health issues in masses
- To acquire information about different modes of communication and their effective use
- To understand the ethical responsibilities for dissemination of knowledge

**Theory:**

Nutrition education: introduction, history, need, competencies and skills, framework, training needs, new development; Nutrition education programs: scope and challenges of educating people about eating well; Biological influences, cultural and social preferences; Education and communication strategies for different groups and settings; Evaluation of nutrition education programs; Family and psychological factors; Expectancy-value theories of motivation, social and cognitive theory; Behavior change as a process, phases of change; Addressing multiple and overlapping influences on behavior; A logical model approach for planning a framework of nutrition education;

Understanding communication model, preparing/organizing oral presentations, delivering oral presentation, delivering nutrition education workshops, types of supporting visual aids, nutrition mass media communication campaigns, social marketing; Ethics in nutrition education, conflicts, participating process in community coalition; Non-government and public health organizations and their current programs.

**Practical:**

Nutritional counselling; Program designing for specific diseases like anemia, neural tube defects, rickets, etc.; Surveys and seminars in different educational institutions; Individual presentations by students on different nutrition topics; Visits of public places for nutrition awareness; Independent student projects.

**Suggested Readings:**

1. Contento, I.R. 2007. Nutrition Education: Linking Research, Theory and Practice. Jones and Bartlett Publishers, Ontario, Canada.
2. FAO. 1997. Nutrition Education for the Public: Discussion Papers of the FAO Expert Consultation. Food and Agriculture Organization of the United Nations, Rome, Italy.
3. Semba, A.D. and M.W. Bloem. 2008. Nutrition and Health in Developing Countries, 2<sup>nd</sup> ed. Humana Press, New York, USA.
4. Walter, W. 2013. Nutritional Epidemiology, 3<sup>rd</sup> ed. Oxford University Press, New York, USA.

**HND MEAL PLANNING AND MANAGEMENT 3 (2-1)**

**Learning Outcomes:**

- To understand the importance of meal planning and its role in everyday life
- To apply the principles of meal planning in the planning of balanced and appropriate meals keeping in mind the nutritional requirements, family budget and food requirements choices of different age groups
- To identify market trends and conditions while purchasing food keeping in mind food costs and quality

**Theory:**

Importance and principles of meal planning for family and occasions; Nutritional value of meal; Family meal budgeting; Rules for good menu planning; Menu planning for families; Selection of various foods in relation to season and market conditions; Composition and storage of food; Selection, use and care of table appointments; Study of different types of table settings, table manners and etiquettes; Kitchen safety and settings; Basics of food hygiene and sanitation; Food labelling; Menus for schools, geriatric and healthcare centers.

**Practical:**

Survey and record keeping of market prices (retail & wholesale); Types of foods available in the market from different food groups. e.g. retail cuts of meat and types of milk; Comparison of weight, volume and effect of cooking on color, taste

and texture of different foods; Planning, preparation and service of meals for different occasions at different income levels; Understanding food labels; Market visits for cost and quality and food marketing regulations. Food service visits (Restaurants, School, Colleges, Hospitals).

### **Suggested Readings**

1. Brown, A. 2015. Understanding Food Principles & Preparation, 5<sup>th</sup> ed. Cengage Learning, Belmont, CA, USA.
2. McWilliams, M. 2012. Fundamentals of Meal Management, 5<sup>th</sup> ed. Dorling Kindersley India Pvt. Ltd., New Delhi, India.
3. Narvaez-Soriano, S. 2004. A Guide to Meal Management and Table Services. Rex Book Store, Manilla, Philippine.
4. Sethi, M. 2008. Institutional Food Management. New Age International Pvt. Ltd. New Delhi, India.

## **HND PUBLIC HEALTH NUTRITION 3 (2-1)**

### **Learning Outcomes:**

- To figure out global and local scenario of public health nutrition
- To understand the core concepts and assessment methods at the population level
- To acquaint hands-on training for development of policies related to nutrition and possible gaps in the matrix of nutrition policies

### **Theory:**

Public health nutrition: overview, concepts, determinants, foundations; Disease burden and its control; Health promotion and disease prevention; Modes of intervention, monitoring and surveillance; Safety and health at work place; Public health nutrition: assessment and programs. Nutritional surveillance and growth monitoring; Public health policies and strategies; Marketing nutrition programs in public; Public health nutrition: a field of practice; Public health nutritionist: competencies, duties, responsibilities, ethics.

### **Practical:**

Food and nutrition surveys for monitoring of public health; Community need assessment; Planning, implementation and monitoring nutrition intervention program based on the need assessment of the community; Marketing nutrition programs in the public; Visit of various public health departments.

### **Suggested Readings:**

1. Edelstein, S. 2011. Nutrition in Public Health: A Handbook for Developing Programs and Services, 3<sup>rd</sup> ed. Jones & Bartlett Learning, Sudbury, M.A, USA.
2. Gibney, M.J., B.M. Margette and J.M. Kearney. 2004. Public Health Nutrition. Blackwell Science Ltd. Oxford, UK.
3. Lawrence, M. and T. Worsley. 2007. Public Health Nutrition: From Principles to Practice. Allen & Unwin Book Publishers, Australia.

4. McKenzie, J.F. and R.R. Pinger. 2015. An Introduction to Community & Public Health. 8<sup>th</sup> ed. Jones & Bartlett Learning, LLC Burlington, MA, USA.
5. Spark, A. 2007. Nutrition in Public Health: Principles, Policies and Practice. CRC Press, Taylor & Francis, Boca Raton, FL, USA.

## **FST FOOD AND DRUG LAWS 2 (2-0)**

### **Learning Outcomes:**

- To get know how about the existing food and drug laws prevailing in the country
- To understand duties and authorities of food safety officers and drug inspectors
- To familiarize with food and drug laws enforcement agencies in Pakistan

### **Theory**

Punjab Pure Food Rules 2011: legal terms and definitions from the food industry; Rules for food additives, categories, permissible limits; Food packaging: rules, criteria for packaging material, labelling requirements; Duties and responsibilities of public analysts and food safety officer; The Drug Regulatory Authority of Pakistan Act, 2012; DRAP Alternative Medicines and Health Products Enlistment Rules 2014; Halal food dietary laws. Consumer protections laws in Pakistan; The Punjab Consumer Protection Rules 2009; The Punjab Consumer Protection Act 2005; The Pakistan Hotels and Restaurants Act, 1976; The Punjab Food Authority Act 2011; The Pakistan Halal Authority Act 2015; Pakistan National Accreditation Council; Punjab Halal Development Agency; Pakistan Standards and Quality Control Authority (PSQCA); Role of electronic and print media in public awareness and empowerment.

### **Suggested Readings:**

1. GOP. 2005. The Punjab Consumer Protection Act 2005. Government of the Punjab, Lahore, Pakistan.
2. GOP. 2011. Punjab Pure Food Rules 2011. Health Department, Government of the Punjab, Lahore, Pakistan.
3. GOP. 2012. Drug Regulatory Authority of Pakistan Act, 2012 *The Drug Regulatory Authority of Pakistan*, Government of the Pakistan, Islamabad.
4. GOP. 2015. *Pakistan Halal Authority Act, 2015*. Minister for Science and Technology, Government of the Pakistan, Islamabad.
5. Independent topics for readings.