The Royal Environmental Health Institute of Scotland

Diploma in Advanced Food Hygiene Course

Syllabus

Minimum teaching time – 36 hour

The course is credit rated on the Scottish Credit and Qualifications Framework (SCQF) at level 8 and awarded 5 credits

The Royal Environmental Health Institute of Scotland is a registered Scottish Charity, No SC009406

All Objectives to be prefixed by the words: The expected outcome is that the course participant is able to:

1.0. GENERAL INTRODUCTION

Aim To provide an understanding of the relationship between food hygiene, food poisoning, food allergies and food spoilage in addition to the socio-economic costs of poor food hygiene.

Objectives

1.1. Define the terms: food hygiene, food safety, contamination, high risk food, micro organism, pathogen, food poisoning, gastroenteritis, healthy carrier, convalescent carrier, case, incubation/onset period, and allergic responses to food and toxins.

1.2. Explain in detail the moral, legal and financial benefits of high standards of food hygiene.

1.3. Explain the cost of poor food hygiene in economic terms to the country, to the employer, and in terms of inconvenience to employees.

1.4. Explain that food poisoning may be caused by the ingestion of poisonous plants and fish, and food contaminated by:

(a) bacteria and/or their toxins
(b) chemicals including metals
(c) viruses
(d) mycotoxins

1.5. State the incidence of food poisoning in Scotland and the U.K. over the most recent 10 year period, and describe the types of premises commonly involved in causing cases of food poisoning/food borne infections

1.6. Explain the reasons for seasonal variations in reported cases of food poisoning.

1.7. Describe the foods most commonly involved in outbreaks of food poisoning, and those foods rarely involved in outbreaks of food poisoning.

1.8. Describe the role of the Environmental Health Officer, Food Safety Officers, the Public Analyst, Food Examiner, Microbiologist, and the Public Health Specialists in food poisoning investigations.

2.0. BACTERIOLOGY

Aim To provide an understanding of the characteristics and classification of bacteria, and their potential to cause illness and spoil food.

Objectives

2.1. Describe in detail the structure, shape and size of a bacterium.

2.2. Define the terms: spoilage bacteria, pathogen, psychrophile, mesophile and thermophile.

2.3. Describe the formation, and the function of, spores and their role in the survival of bacteria.

2.4. Describe the formation of bacterial neurotoxins and bacterial enterotoxins, and distinguish between exotoxins and endotoxins.

2.5. Describe in general terms the methods commonly used to identify bacteria, in particular: Gram staining, microscopic examination, phage and sero typing.

2.6. Explain that bacteria multiply by binary fission and give examples of typical generation times under optimum conditions.

2.7. Describe the multiplication curve of bacteria and the lag, logarithmic, stationary and decline phases.

2.8. Describe in detail the factors influencing bacterial multiplication.

2.9. Explain how bacteria are killed by the application of adequate heat, irradiation and/or chemicals.

3.0. BACTERIAL FOOD POISONING

Aim To provide an understanding of the causes of, and control measures for, bacterial food poisoning.

Objectives

3.1. Describe the sources, types of food commonly involved, vehicles and routes of transmission, average onset period, symptoms, duration of symptoms, likely carrier status and control measures for:

(a) Salmonella
(b) Clostridium perfringens
(c) Clostridium botulinum
(d) Staphylococcus aureus
(e) Bacillus cereus
(f) Vibrio parahaemolyticus
(g) Escherichia coli
(h) Yersinia enterocolitica

3.2. Explain the hazards associated with the consumption of raw milk (including products made from raw milk) , raw shellfish, and raw eggs.

4.0. FOOD BORNE INFECTIONS

Aim To provide an understanding of the causes of, and control measures for, food-borne infections and parasitic infections.

Objectives

4.1. Distinguish between food poisoning and food borne infections and describe the difference between them.

4.2. Describe the causative organisms, sources, types of food commonly involved, vehicles and routes of transmission, average onset period, symptoms, duration of symptoms, likely carrier status and control measures for:

(a) Campylobacteriosis
(b) Bacillary dysentery
(c) Typhoid
(d) Paratyphoid
(e) Listeriosis
(f) Hepatitis A
(g) Brucellosis
(h) Tuberculosis
(i) E. Coli (VTEC) eg O157 Infection & Toxin *(vtec = verotoxigenic E. coli)*
(j) Giardiasis
(k) Cryptosporidiosis
(l) Streptococcus zooepidemicus
(m) Norovirus
(n) Cyclosporiasis

4.3. Describe the public health significance of and control measures for the following parasites.

(a) Taenia saginata
(b) Taenia solium
(c) Fasciola hepatica
(d) Trichinella spiralis
(e) Echinococcus granulosus

5.0. NON-BACTERIAL FOOD POISONING

Aim To provide an understanding that food poisoning can be caused by the consumption of poisonous plants, and fish; and food contaminated by chemicals, metals, mycotoxins and viruses.

Objectives

5.1. Explain that food poisoning can be caused by poisonous plants and give examples.

5.2. Explain that food poisoning can be caused by the consumption of certain types of fish and shellfish, and give examples of the foods responsible, onset times and symptoms.

5.3. Explain that food poisoning may be caused by chemicals and metals, and give examples of the way in which food may become contaminated by such substances.

5.4. Provide examples of chemical and metal food poisoning stating the symptoms, duration of symptoms and average onset period.

5.5 Explain the causes and effects of mycotoxin contamination of food.

5.6. Explain that food poisoning can be caused by viruses and give examples, detailing vehicles and routes of transmission, onset times, symptoms, duration of symptoms and the foods commonly involved. (eg Norovirus and Hepatitis A)

6.0. FOOD CONTAMINATION AND ITS PREVENTION

Aim To provide an understanding of the potential for bacterial, viral and physical contamination of food, and measures available for the prevention of contamination.

Objectives

6.1. Describe in detail the sources, vehicles and routes of bacterial and viral contamination of food.

6.2. Provide examples of ways by which food may become contaminated by bacteria and viruses.

6.3. Define the term "cross-contamination" and describe ways in which cross contamination can occur.

6.4 Describe methods for prevention and control of cross contamination and state different sources of current information and guidance on good practice eg FSA/FSS guidance on *E. coli* O157 Control of Cross contamination, good manufacturing practice, etc.

6.5. Describe common physical contaminants of food and possible sources of the contaminants.

6.6. Describe **in detail** the terms food allergies, allergy and intolerance.

6.7. Describe **in detail** the foods involved in food allergies and intolerances.

6.8. Describe **in detail** the steps a food business should take to inform their customers and control allergens to prevent affecting consumers.

6.9. Explain why care is required in the packing and unpacking of food and describe the consequences when care is not exercised.

6.10. Explain how food may be contaminated by non-food personnel.

6.11. Explain how food may be contaminated by sabotage.

6.12. Describe procedures available for the detection of extraneous material in food.

7.0. PERSONAL HYGIENE

Aim To provide an understanding of the need for high standards of personal hygiene in food handling situations.

Objectives

7.1. Explain the need for careful staff selection including appearance, attitude, training and the role of medical screening.

7.2. Explain when food handlers should wash and disinfect their hands and describe

acceptable methods.

7.3. Describe the problems associated with cuts, boils, spots and other skin infections.

7.4. Describe the problems caused by smoking, eating, nail biting, coughing and sneezing.

7.5. Describe the problems cause by wearing jewellery and nail varnish.

7.6. Explain the need for detectable waterproof dressings and suitable first aid equipment.

7.7. Explain the need for, and describe in detail the properties of, satisfactory protective overclothing.

7.8. Explain why cases and suspected cases of certain medical conditions should be excluded from food handling duties.

7.9. Describe the role of food handlers and proprietors in excluding cases and suspected cases from food handling duties.

8.0. FOOD STORAGE AND TEMPERATURE CONTROL

Aim To provide an understanding of the importance of providing and maintaining suitable conditions for the storage of food.

Objectives

8.1. Explain the importance of satisfactory storage to prevent contamination and infestation, and to minimise decomposition.

8.2. Explain the effect of various storage temperatures on the control of enzyme and bacterial activity in food.

8.3. Describe the properties required of storage facilities for:

(a) raw materials
(b) raw meat, poultry, fish and shellfish
(c) meat, poultry, fish and shellfish products
(d) fruit and vegetables
(e) milk and dairy products
(f) ice cream
(g) canned foods
(h) flour, cereals and pulses
(i) packaging materials

8.4. Explain why the hygienic and efficient use of refrigerated storage units is dependent on attention to the following:

(a) design
(b) siting
(c) maintenance
(d) defrosting
(e) cleaning
(f) appropriate loading
(g) regular temperature checks

8.5. Define the terms "use by" and "best before".

8.6. Explain the necessity for correct cooling, storing and reheating of food.

8.7. Explain the importance of stock rotation and describe how various systems can be implemented to ensure satisfactory control.

8.8. Explain why the shelf life of stored products varies, in particular frozen food and canned foods.

8.9. Describe the essential principles of sous-vide, cook-chill and cook-freeze operations, and the hazards inherent in these processes.

8.10. Describe the benefits and hazards associated with automatic food vending machines.

9.0. FOOD PRESERVATION

Aim To provide an understanding of the causes of food spoilage and the principles involved in its prevention.

Objectives

9.1. Describe the effects of spoilage micro organisms on food.

9.2. Describe in detail the principles involved in minimising the deterioration of food by the use of:

(a) low temperatures
(b) high temperatures
(c) canning
(d) dehydration, salt and sugar
(e) chemical preservation
(f) irradiation
(g) controlled atmosphere packaging and vacuum packing
(h) smoking
(i) ohmic heating

9.3. Describe processes used for preserving food by each of the above methods.

10.0. DESIGN, CONSTRUCTION AND MAINTENANCE OF FOOD PREMISES

Aim To provide an understanding of the importance of satisfactory design, the use of suitable constructional materials and the proper maintenance of food premises.

Objectives

10.1. Explain the importance of choosing a suitable site.

10.2. Explain the principles involved in the satisfactory design of food premises.

10.3 Explain the importance of the use of suitable materials for the construction of food premises.

10.4. Explain the necessity for the satisfactory provision of services.

10.5. Explain the need for acceptable levels of lighting and ventilation, and give examples of acceptable levels in different types of food rooms.

10.6. Describe the main types of waste disposal systems available and explain the need for the provision and maintenance of these facilities. Explain how the Waste (Scotland) Regulations 2014 can impact food businesses.

10.7. Explain the importance of proper maintenance of food premises.

10.8. Explain why domestic premises are normally unsuitable for the preparation and storage of food intended for sale for human consumption.

10.9. Describe the principles of hygienic construction of food vehicles for bulk transport and retail sales.

11.0. DESIGN, CONSTRUCTION AND MAINTENANCE OF EQUIPMENT AND UTENSILS.

Aim To provide an understanding of the importance of satisfactory design and construction, the use of suitable materials, and the proper maintenance of food equipment and utensils.

Objectives

11.1. Describe the design and construction requirements for food equipment and utensils.

11.2. Explain the need for proper maintenance of food equipment and utensils

11.3. Explain the need for the replacement of worn equipment and utensils.

11.4. Describe the problems associated with the incorrect fixing and siting of equipment and describe methods by which these problems can be overcome.

12.0. CLEANING AND DISINFECTION

Aim To provide an understanding of the principles of, and the procedures for, the satisfactory cleaning and disinfection of food premises, equipment and utensils.

Objectives

12.1. Define the terms: bactericide, biodegradability, cleaning, detergent, disinfectant, disinfection, bactericidal detergent, sequestrant, surfactant, soil solvent, sterilant, sterilisation.

12.2. Explain in detail the need for, and benefits of, cleaning and disinfection.

12.3. Describe the different types of soiling encountered in the food industry.

12.4. Describe acceptable equipment for the application of detergents and disinfectants.

12.5. Explain the principles of "in place" cleaning.

12.6. Describe various methods of disinfection.

12.7. List the types of disinfectant available and describe suitable areas of application. Explain what a chemical disinfectant with British Standards BS and or EN accreditation e.g. BS EN 1276:1997 or BS EN 13697:2001 means in regard to destroying food pathogens.

12.8. List typical areas which require regular disinfection.

12.9. Explain the procedures and methods employed in cleaning and, where necessary, disinfecting equipment, utensils, work surfaces and premises.

12.10. Explain the management and administrative functions in relation to cleaning and disinfection.

12.11. Explain the need for, and describe the essential elements of, cleaning schedules.

13.0. PEST CONTROL

Aim To provide an understanding of the habitats and characteristics of food pests and acceptable methods for their control.

Objectives

13.1. Define the term food pest and describe the hazards associated with food pests.

13.2. Describe in detail the habitat, characteristics, food requirements, visual signs of infestation and reasons for control of the following:

(a) rodents
(b) birds
(c) insects

13.3. Explain the following methods of control for rodents, birds and insects in and around food premises:

(a) environmental control
(b) physical control
(c) chemical control

13.4. Describe the types, and explain the limitations of, control measures available for the control of food pests under each of the above categories.

14.0. FOOD SAFETY MANAGEMENT

Aim To provide an understanding of the role of management in securing food safety.

Objectives

14.1. Explain the management role in ensuring food safety.

14.2. Explain the management role regarding developing, implementing, monitoring, reviewing, evaluating food safety procedures.

14.3. Explain the importance of promoting a positive food safety culture within a food business.

14.4. Describe the importance of a food safety policy and outline the content usually contained within a food safety policy

14.5. Explain the importance of management inspections of food premises.

14.6. Explain the importance of checking supplies and delivery vehicles.

14.7. Describe how bacteriological monitoring of food and equipment may be used to assess standards of hygiene.

14.8. Explain the necessity for the regular organoleptic assessment of food.

14.9. Explain the importance of monitoring all procedures and processes which could affect the hygiene and quality of food.

14.10. Describe methods of monitoring personnel in food premises and state the methods available for detecting carriers of food poisoning and food-borne infection.

14.11. Explain the role of management in the investigation of food poisoning outbreaks.

14.12. Explain the need for a systematic approach to food safety management to ensure the production of safe food and compliance with legislation.

14.13. Explain the role of management with regard to food safety management systems based on HACCP principles.

15.0. HAZARD ANALYSIS AND CRITICAL CONTROL POINTS (HACCP)

Aim To provide an understanding of the importance of, principles involved in, and the application of an HACCP system within a food business.

Objectives

15.1. Explain the need for, and advantages of, a food safety management system based on HACCP Principles, for a food business.

15.2. Describe the CODEX principles of HACCP involved in establishing and maintaining such a system in a food business.

15.3. Outline the legal requirements for food safety management systems.

16.0. THE TRAINING AND EDUCATION OF FOOD HANDLERS

Aim To provide an understanding of the need for and the techniques involved in food hygiene training.

Objectives

16.1. Explain the need for and benefits of food hygiene training of food handlers.

16.2. Describe the factors to be considered in the design of food hygiene training programmes.

16.3. Explain the training techniques and describe the communication aids available to trainers.

16.4. Explain the necessity for feed-back and evaluation following hygiene training, and explain how this is used to improve training programmes.

16.5. Describe the need for and benefits of training records.

16.6. Explain how to target the level and techniques of training for different staff in an organisation.

16.7. Explain the legal requirement for training commensurate with the duties of the food handler.

16.8. Explain how the general public may be made aware of food hygiene in domestic premises.

17.0. LEGISLATION

Aim To provide an understanding of the format of legislation, and the requirements of the main Statutes and Statutory Instruments which relate to food.

Objectives

17.1. Explain that legislation includes Acts, Regulations, Byelaws and Orders.

17.2. Describe the role of Codes of Practice and Industry Guides to Good Hygiene Practice.

17.3. Explain the significance of E.C. Directives and Regulations and their role in the formation of UK food legislation.

17.4. Describe the role and the main requirements of the Food Safety Act 1990.

17.5. Describe the main requirements of the Food Hygiene (Scotland) Regulations and Regulation (EC) 852/2004 and describe in general terms the main requirements of Regulations (EC) No. 853/2004 and 854/2004.

17.6. Describe the main requirements of the General Food Regulations 2004 and the Food Hygiene (Scotland) Regulations 2006; schedule 4 Temperature Control Requirements.

17.7. Explain the need for, and existence of, the legislation relating to food composition and labelling.

17.8. Describe the role of Environmental Health Officers and other Authorised Officers under the Food Safety Act 1990, Food Hygiene (Scotland) Regulations and the Food (Scotland) Act 2015.

17.9. Describe the system of Scottish Courts.

17.10. Describe the procedure by which a case is taken to court, and explain that contraventions of food legislation may be tried summarily or on indictment.

17.11 Describe in general terms The Food Information (Scotland) Regulations 2014 and Pre-packed for Direct Sale (PPDS) 2021

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