

Ministry of Health and Family Welfare

2017



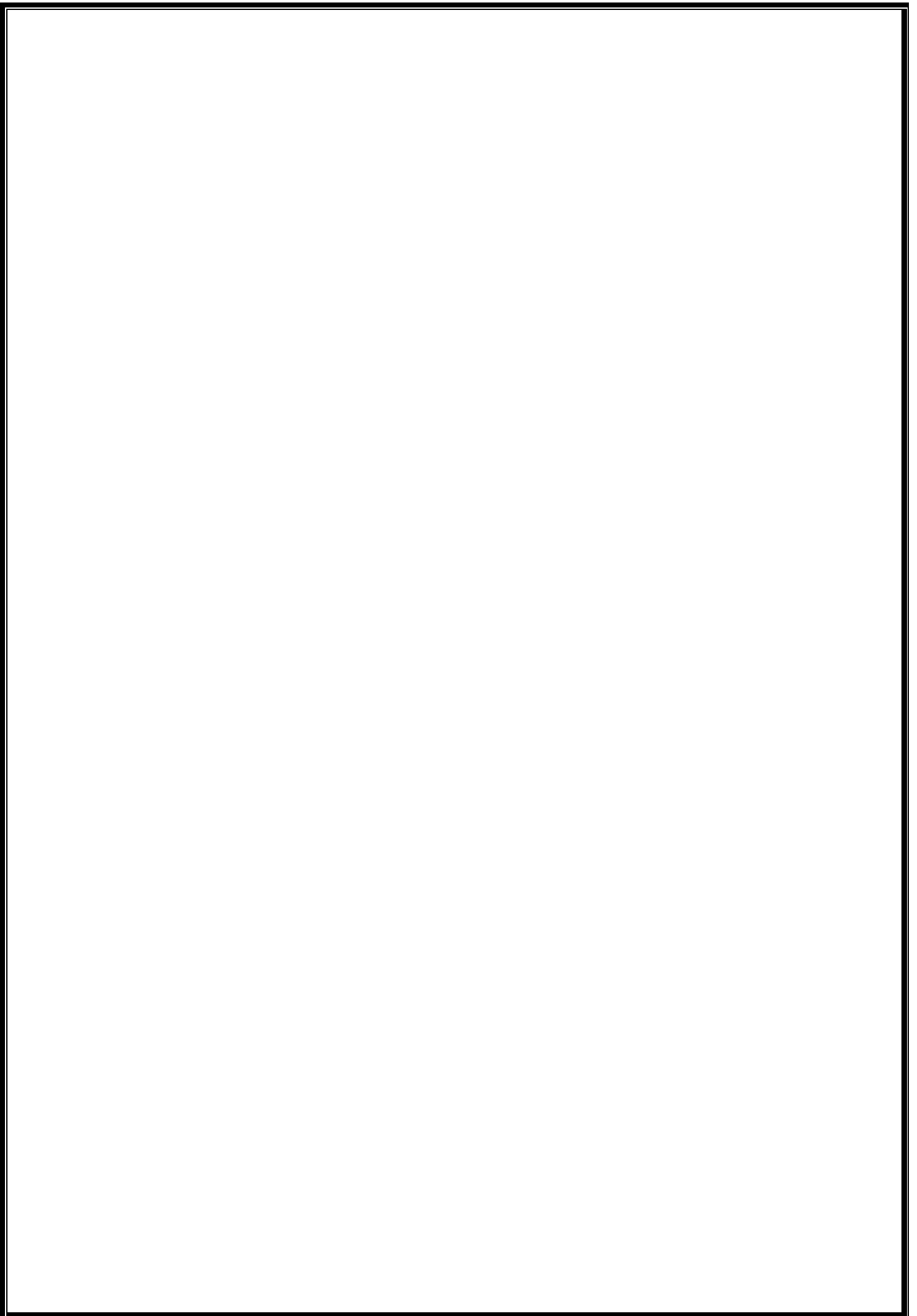
सत्यमेव जयते

# Short Term Training Curriculum Handbook

## **DIETETIC AIDE**



**Standards in accordance with  
The National Skills Qualifications Framework (NSQF)  
Ministry of Skill Development and Entrepreneurship**



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MOHFFEN

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## INTRODUCTION TO THE SKILLS BASED TRAINING CURRICULA

The Skill based training courses are the training content developed for enhancing the specific skills of existing professionals or provide for a platform for imparting skills to candidates with no formal qualification.

To undertake the skill based training programme, it is mandatory that the candidate must fulfil the entry criteria provided for the job profile. The training and assessment will certify that the candidate is able to undertake specific set of activities. **These must not be equated with the formal qualifications- diploma/ degrees which are given by a University.**

It is recommended that the employer must help the candidate in continuing the studies to degree level and formal qualification, if the candidate is willing to gain knowledge and wants to move up the traditional career pathway.

### Who is a Dietetic Aide?

“A Dietetic Aide is a support worker and works under the close supervision of a Dietitian in a hospital or community setting and performs tasks as delegated by a Dietitian.”

Dietetic Aide make it possible to ensure quality dietetic care to be given by a Dietitian, by releasing them of those activities which does not mandatorily needs their intervention or attention. This also increases the reach to larger population and extends the scope of practice of a Dietitian.

### Scope of practice

A Dietetic Aide may perform some of the key activities in a hospital setting such as maintaining cleanliness in kitchen area, preparation of diet under Dietitian’s supervision, preparing for logistics and inventory management of food items required as per the direction of the Dietitian, food handling, safety and sanitary standards, administrative functions, to name a few.

As per the training module at the end of the training, the candidate would be certified to perform following activities–

1. Maintain hygiene & food safety
2. Handle food safely to avoid contamination
3. Store food safely and prevent contamination
4. Handle a therapeutic diet/menu planned by the dietician
5. Prepare food safely to maintain nutritive value and avoid contamination
6. Educate patient on dietary restrictions under the guidance of a Dietician
7. Act within the limits of competence and authority
8. Maintain a safe, healthy and secure environment
9. Practice Code of conduct while performing duties
10. Follow biomedical waste disposal protocols
11. Follow infection control policies and procedures

### Minimum Entry requirement

Educational requirement - The candidate must have completed 10+2 with basic understanding of English and Mathematics.

### Minimum Course duration

It is recommended that any programme developed from this curriculum should have a minimum of the following duration to qualify as an entry level professional in the field of dietetic aide: 727 hours (177 hours Theoretical, 368 hours practical and 182 hours internship)

### Teaching faculty

- Practicing Dietitians with at least two years of experience (*for the nutritional inputs*)  
Or
- Dietician-Nutritionists who have completed 4 years or more of study in Foods and Nutrition/ Food science/ Clinical nutrition/ Dietetics.
- Other experts in Emergency medicine, Technology, Waste disposal, Computers, Nursing.

### Medium of instruction:

English/ regional language shall be the medium of instruction for all the subjects of study and for examination of the course.

### Attendance:

A candidate has to secure minimum 80% attendance in overall with at least-

1. 75% attendance in theoretical
2. 90% in Skills training (practical) for qualifying to appear for the final examination.

No relaxation, whatsoever, will be permissible to this rule under any ground including indisposition etc.



## TRAINING CURRICULA FOR SKILL CERTIFICATION

### Training Outcomes:

1. Demonstrate knowledge and understanding about the role of Dietetic Aide in the healthcare settings.
2. Demonstrate the ability to perform clinical skills essential in providing basic diet services such as preparation of food & serving meals to the patient.
3. Demonstrate safe handling and management of food by following quality assurance process.
4. Demonstrate understanding patient education on dietary requirements under supervision.
5. Demonstrate techniques to show safe disposal of food waste.
6. Practice infection control measures.
7. Demonstrate maintenance and cleanliness of all equipment, utensils and tools coming in contact with food.
8. Demonstrate techniques to maintain the personal hygiene needs
9. Demonstrate professional behavior, personal qualities and characteristics of a Dietetic Aide
10. Demonstrate good communication and team worker ability in the role of Dietetic Aide

## MODULE – 1: FOUNDATION MODULE – INTRODUCTION TO DIETETIC AIDE PROGRAMME

**Learning Outcomes:** At the completion of this module, the student should be able to -

1. Understand the healthcare scenario in India
2. Develop understanding of role of a dietetic aide
3. Develop understanding of general medical and nutrition related terminologies
4. Develop skills for anthropometric measurement for record keeping
5. Adhere to legislation, protocols and guidelines relevant to one's role and field of practice
6. Work within organizational systems and requirements as appropriate to one's role
7. Recognize the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority
8. Maintain competence within one's role and field of practice
9. Understand the art of effective communication with various stakeholders like patients, nurses, etc.
10. Learn how to identify rapidly changing situations and adapt accordingly
11. Have a basic working knowledge of computers
12. Understand the importance of and process for first aid and triage
13. Understand his/her role in disaster preparedness and management

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Introduction to healthcare and hospitals	3	2	5
2.	Introduction to a Dietetic aide Programme	2	3	5
3.	Anthropometric measurements and its importance	2	10	12
4.	Professionalism and Values	2	1	3
5.	Communication	3	7	10
6.	Interpersonal skills and working with others	2	3	5
7.	Computers and information technology	2	8	10
8.	Basics of emergency care and life support skills	2	13	15
9.	Disaster preparedness and management	2	3	5
<b>TOTAL</b>		<b>20</b>	<b>50</b>	<b>70</b>

**Detail of Topics**

### 1. Introduction to healthcare and hospitals

- a. Healthcare delivery system in India at primary, secondary and tertiary care
- b. Community participation in healthcare delivery system
- c. Issues in Health Care Delivery System in India
- d. Health scenario of India- past, present and future
- e. Basic medical and nutrition related terminologies

### 2. Introduction to a Dietetic aide Programme

- a. Role of a Dietetic aide
- b. Do's and Don'ts

- c. Requirements to become a Certified Dietetic aide

### **3. Anthropometric measurements and its importance**

- a. Points for consideration before measuring weight, height and other parameters
  - i. Check the equipment before taking it to the patient
    - process of checking each equipment
    - reporting error to the Dietician
  - ii. Process of taking permission from the patient
  - iii. Recording measurements
  - iv. Any other measure – dos and don'ts
- b. Weight
  - i. Process of measuring weight
  - ii. Importance of weight measurement - weight for age and weight for height
  - iii. Do's and don'ts while measuring weight
- c. Length (for under 2 years of age)
- d. Height – steps for measuring height using- height measuring scale and inch tape
- e. Circumference measurements –
  - i. process of measuring circumference – arm and waist
  - ii. Do's and don'ts while measuring circumference
- f. Format for reporting the measurements to Dietician

### **4. Basics of emergency care and life support skills**

- a. Vital signs
- b. Basic emergency care – first aid and triage
- c. Identifying signs and taking measures for
  - i. Choking and Heimlich Maneuver
  - ii. Bleeding including nosebleeds
  - iii. Minor burns
  - iv. Hypothermia
  - v. Asthma attack
  - vi. Bites and stings
  - vii. Fainting
  - viii. Sprain
- d. Ventilations including use of bag-valve-masks (BVMs)
- e. One- and Two-rescuer CPR
- f. Using an AED (Automated external defibrillator).
- g. Managing an emergency including moving a patient – log transfer

### **5. Professionalism and Values**

- a. Code of conduct, professional accountability and responsibility, misconduct
- b. Ethics in healthcare – Privacy, confidentiality, consent, medico legal aspects
- c. Understanding scope of work and avoiding scope creep
- d. Handling objections
- e. Gather information from observation, experience and reasoning
- f. Identification of rapidly changing situations and adapt accordingly

- g. Planning and organization of work

## **6. Communication**

- a. Writing skills
  - i. Basic reading and writing skills, sentence formation, grammar and composition, how to enhance vocabulary
  - ii. Business communication like letters, e-mails
- b. Special characteristics of health communication
- c. How to be a good communicator
  - i. Addressing the patient
  - ii. Body language, posture and gestures
- d. Barriers of communication & how to overcome them
- e. Listening and Speaking skills
  - i. How to be a good listener
  - ii. Structure brief and logical messages
  - iii. Speak clearly and slowly in a gentle tone
  - iv. Use the correct combination of verbal and non-verbal communication
  - v. Use language familiar to the listener
  - vi. Give facts and avoid opinions unless asked for
  - vii. Communicating with patient with impaired hearing/ vision/ speech/ memory
- f. Recognizing changes in the patient- behavior/ abnormal signs and reporting to the Medical Officer/ Dietician
- g. Dealing with anger or depression of the patient

## **7. Interpersonal skills and working with others**

- a. Goal setting, team building, team work, time management,
- b. Thinking and reasoning, problem solving
- c. Need for customer service and service excellence in medical care
- d. Communication with various stakeholders
  - i. Handling effective communication with patients & family
  - ii. Handling effective communication with peers/colleagues using medical terminology in communication
  - iii. Telephone and email etiquettes
- e. Manage work to meet requirements
  - i. Time management
  - ii. Work management and prioritization

## **8. Computers and information technology**

- a. Use of computers, its input and output devices
- b. Use of basic software such as MS Office, operating systems (Windows) and internet
- c. Use of data –
  - i. Entry, saving and retrieving
  - ii. Scanning and copying medical records/documents
  - iii. Efficient file naming and uploading

- iv. Printing, as needed
- d. Application of Computers in clinical settings

### 9. Disaster preparedness and management

- a. Fundamentals of emergency management
- b. Preparedness and risk reduction
- c. Incident command and institutional mechanisms
- d. Resource management

#### Equipment required/ teaching strategies for the above content-

1. Charts and demonstration dummies
2. Videos and presentations
3. First Aid kit
4. Inch tape
5. Height measuring scale
6. Weighing machine

#### Assessment for the above content -

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills Practical	
1.	Explain the role of a Dietetic aide in a hospital setting/ community setting	10	0	10
2.	What are the indicators for 'Don'ts for a Dietetic aide'	15	0	15
3.	Describe and demonstrate how to communicate with patient with impaired hearing/ vision/ speech/ memory	5	25	30
4.	Enumerate the changes in the patient with abnormal behavior	5	5	10
5.	Identify the various contents of First Aid Kit	0	20	20
6.	Demonstrate Heimlich Maneuver	0	10	10
7.	Demonstrate the immediate action to be taken for a patient with nosebleed/ minor burns/ asthma attack/fainting/ sprain/ hypothermia/ bites – bee sting or snake bite	0	30	30
8.	Demonstrate how to do CPR	0	25	25
9.	Identify the various equipment for anthropometric measurement	0	5	5
10.	Demonstrate the steps for measuring weight and record on the recording/ reporting sheet	0	5	5
11.	Demonstrate the steps for measuring height of a child/ length of an infant and record on the recording/ reporting sheet	0	10	10
12.	Demonstrate the steps for measuring arm circumference and record on the recording/ reporting sheet	0	10	10
13.	Describe precautions in the event of a disaster	5	5	10
14.	Demonstrate the basic use of computers and aspects related to data handling	0	10	10
<b>Total</b>		<b>40</b>	<b>160</b>	<b>200</b>

## MODULE – 2: MAINTAIN HYGIENE AND FOOD SAFETY

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Develop understanding of the concept of healthy living
2. Develop understanding of good hygiene practices
3. Develop understanding of techniques and importance of hand hygiene
4. Develop understanding of food safety and its principles
5. Develop understanding of maintaining institutional hygiene
6. Develop understanding of waste segregation and disposal

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Health and healthy living	3	2	5
2.	Good hygiene practices	5	10	15
3.	Food safety and basic concepts	5	10	15
4.	Sanitation and cleaning	5	10	15
5.	Waste disposal and management	5	10	15
<b>TOTAL</b>		<b>23</b>	<b>42</b>	<b>65</b>

**Detail of Topics**

### 1. Health and healthy living

- a. What is health and healthy living
- b. Identifying common symptoms of ailments with oneself
- c. Need for reporting the supervisor and medical examination in case of conditions/symptoms such as vomiting, fever, diarrhoea, skin lesions, discharge etc. and exclusion from food handling.
- d. Vaccination against common infectious diseases

### 2. Good Hygiene Practices

The word hygiene means using sanitary principles to maintain health. Just as food hygiene refers to all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain, personal hygiene refers to all conditions and measures necessary to ensure the cleanliness of a person's clothes and body.

Good personal hygiene is essential to ensure that food is not contaminated with food-poisoning bacteria or other matter such as foreign objects or chemicals. Hands and other parts of the body can transfer food-poisoning bacteria to food. Food handlers can be a source of microbial contamination and therefore need good personal hygiene to ensure safety of food.

Every food handler must maintain a high standard of personal hygiene and cleanliness. Hair, jewellery and clothing can also contain and spread bacteria, as can ill food handlers or those with wounds or infections.

- a. **Sources of Microbial contamination within human body and Good Hygiene practices**
  - i. Various sources of microbial contamination
  - ii. Precautions to be taken before food handling
  - iii. Good hygiene practices – Handwashing, Protective clothing, personal hygiene
  - iv. Facilities required for maintain hygiene – hand wash basin, soap, cloak room etc.
  - v. Controlled access to food cooking and handling areas
- b. **Personal Cleanliness and behaviors**
  - i. Unhygienic practices in food handling areas and personal habits - Don'ts
  - ii. Personal grooming
- c. **Handwashing**
  - i. Importance of hand washing
  - ii. Types of hand washing techniques
  - iii. Steps in handwashing
  - iv. Moments of hand hygiene (when should one wash his/her hand)
  - v. Using antiseptics, hand rubs gels or alcohol swabs for hand antiseptis
- d. **Clothing and headgear – Personal protective Equipment**

### 3. Food safety and basic concepts

- a. Importance of safe food and food safety
- b. Factors affecting food safety
  - i. Physical hazards
  - ii. Chemical hazards
  - iii. Biological hazards
- c. Food safety measures
  - i. Institutional planning – selection of site for kitchen, selection of equipment, food service area, storage and drainage area
  - ii. Institutional hygiene- floor, walls and ceiling, ventilation and lighting
  - iii. Equipment and utensils
  - iv. Cold chain management and scientific facts of preserving cooked foodstuffs / ice-cream products etc. for specific time duration

### 4. Sanitation and cleaning

- a. What is the difference between cleaning and sanitizing?
- b. Cleaning Agents – natural, alkaline, acidic, soaps and detergents, solvents
- c. Disinfectants and sanitizer – chemicals, heat, radiation
- d. Pest and rodent control measures- importance of pest and rodent control, methods- environmental, physical and chemical, preventive measures
- e. Cleaning and sanitizing food handling, storage and serving areas
- f. Ensuring cleanliness of food handling, storage and serving equipment

### 5. Waste disposal and management

- a. Importance of waste disposal and management
- b. Waste separation and food waste disposal practices

- c. Refuse disposal in kitchen – dos and don'ts
- d. Disposal of contaminated and expired food – measures to be taken
- e. Reducing food waste in hospital
- f. Clean and green practices– recycling, composting etc.

### Equipment required-

1. Charts and demonstration dummies
2. Videos and presentations
3. Sample food items and kitchen mock sets
4. Hand wash basins with running water supply
5. Antibacterial liquid soap/ sanitizers
6. Mock sets/ presentation of settings – hospital kitchen
7. PPE
8. Sample of cleaning agents, disinfectants and sanitizer
9. Refusal bins
10. Sink for washing utensils with hot and cold water supply

### Assessment -

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills Practical	
1.	Enumerate good hygiene practices for a dietetic aide	10	5	15
2.	Describe importance of hand hygiene, types of hand washing techniques and moments of hand hygiene	15	5	20
3.	Demonstrate steps of handwashing	5	15	20
4.	Enumerate the factors affecting food safety	10	0	10
5.	Demonstrate food safety measures	5	20	25
6.	Demonstrate and describe how to maintain cleanliness of all equipment, utensils and tools coming in contact with food	5	15	20
7.	Describe the difference between cleaning and sanitizing	5	0	5
8.	Explain and demonstrated proper disposal techniques for food waste, contaminated food or expired food	3	7	10
9.	Demonstrate how to ensure food waste is removed promptly from food handling, storage and serving areas	2	8	10
10.	Demonstrate how to ensure food waste is not allowed to contaminate other areas/ items in the food handling, storage or serving areas	5	5	10
11.	Explain and demonstrate how to maintain storage areas in a clean and hygienic condition	10	10	20
12.	Identify the cleaning agents and disinfectants	0	10	10
13.	Describe the measures for reducing food waste	5	0	5
14.	Demonstrate the pest control methods and preventive measures in the hospital kitchen	10	10	20
<b>Total</b>		<b>90</b>	<b>110</b>	<b>200</b>



## MODULE – 3: STORE FOOD SAFELY AND PREVENT CONTAMINATION

**Learning Outcomes:** At the completion of this module, the student should be able to–

1. Develop knowledge and understanding of importance of nutrition and dietetics
2. Describe the requirements for safe food storage
3. Understand and execute the basic principles of food storage
4. Understand the concept of food protection and prevention

### Content -

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Introduction to Nutrition and Dietetics	5	5	10
2.	Food storage	10	20	30
3.	Food protection	5	5	10
<b>TOTAL</b>		<b>20</b>	<b>30</b>	<b>50</b>

### Detail of Topics

#### 1. Introduction to Nutrition and Dietetics

- a. Nutrition for healthy life style
  - i. What are the Essential nutrients?
  - ii. The Macronutrients
  - iii. The Micronutrients
  - iv. The Phytonutrients
  - v. Nutrient needs during infancy, childhood and adolescent
  - vi. Nutrient needs during adulthood, pregnancy and lactation
- b. Therapeutic diet
  - i. Importance of therapeutic diet
  - ii. Diet planning and basic principles, including exchange lists
  - iii. Nutritional assessment
  - iv. Nutritional intervention in critically ill patients
  - v. Nutritional management for Surgical patients Dietary management in Coronary heart disease , hypertension and hyperlipidemia
  - vi. Dietary management of overweight and obesity
  - vii. Dietary management of Diabetes mellitus
  - viii. Dietary management of renal disorders
  - ix. Dietary management of Cancers
  - x. Dietary management of gastrointestinal diseases
  - xi. Nutrition in HIV
  - xii. Elderly
  - xiii. Dietary management in Paediatric patients
- c. Importance of nutrition and diet
  - i. Type of food
  - ii. Food pyramid and food groups
  - iii. Why supplements sometimes are prescribed?
- d. Hospital Standard diet - Diets modified in consistency

- i. Clear liquid
  - ii. Full liquid
  - iii. Semi solid
  - iv. Tube feeds
- e. Recognition of individual preferences/ needs – Religious, Cultural, Age, Allergies, Preferences

## 2. Food Storage

- a. Inspection of raw food material on purchasing or receiving
- b. Types of food storage practices and guidelines for storing food
  - i. Dry storage
  - ii. Refrigerated storage
  - iii. Freezer storage
  - iv. Hot storage
- c. Features of storage area
- d. High risk foods and their storage
- e. Precautions for food storage
- f. Inventory and Stock rotation – product date codes
- g. General Food storage guidelines including FIFO, PHF, food labelling

## 3. Food protection

- a. Basic principles of food protection to prevent from contamination
- b. Importance of food handler's hygiene

## 4. Food packing and transportation from Kitchen to Pantry to Patient

### Equipment -

- 1. Charts and demonstration dummies
- 2. Videos and presentations
- 3. Sample food items and kitchen mock sets
- 4. Refrigerator
- 5. Preservatives
- 6. Microwave

### Assessment -

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills Practical	
1.	Identify the essential nutrients and describe the importance of Therapeutic Diet	5	15	20
2.	Identify the raw material for a diet of a diabetic patient/ hypertensive patient/obese patient	10	30	40
3.	Compare and enumerate the differences between a pureed meal, a ground meal, a diabetic meal, as compared to a regular texture and regular meal	5	15	20
4.	Identify the type of food- grains/ protein/ diary/ fruit/ vegetable	0	20	20

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills Practical	
5.	Enumerate the process of inspection of raw food for storage	5	10	15
6.	Demonstrate steps for dry storage	5	10	15
7.	Demonstrate steps for hot storage	5	10	15
8.	Demonstrate steps for refrigerated storage	5	10	15
9.	Demonstrate steps for freezer storage	5	10	15
10.	Identify high risk foods and demonstrate their process for storage	5	10	15
11.	Identify the 'Use by' date code on the product and describe the process for storage	5	10	15
<b>Total</b>		<b>50</b>	<b>150</b>	<b>200</b>

## MODULE – 4: HANDLE FOOD SAFELY TO AVOID CONTAMINATION

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Describe the factors that contribute to microbial growth and multiplication
2. Understand and explain the sources and types of food contamination
3. Describe the main routes of food contamination
4. Describe the types of food spoilage and characteristics of food spoilage

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Introduction to infectious agents	5	10	15
2.	Food Contamination	5	10	15
3.	Food Spoilage	5	5	10
4.	Food Adulteration	2	3	5
5.	Temperature Control	2	8	10
<b>TOTAL</b>		<b>19</b>	<b>36</b>	<b>55</b>

**Detail of Topics**

### 1. Introduction to infectious agents

- a. Microorganisms in food- bacteria, fungi, yeast, mould etc.
- b. Factors affecting growth of microorganisms in foods
  - i. Intrinsic factors such as –
    - pH
    - Moisture
  - ii. Extrinsic factors such as -
    - Temperature
    - Humidity
    - Oxygen
- c. Control and destruction of microorganism, food protection and preservation
  - i. Definition of food protection and preservation
  - ii. Aseptic technique
  - iii. Physical methods –
    - Washing, trimming, sieving and filtration
    - Cooking and boiling
    - Fermentation and pickling
    - Drying
    - Temperature modulation
      - High temperature- pasteurization, blanching, canning, sterilization and irradiation
      - Low temperature – chilling, freezing
  - iv. Chemical preservation- Salting, sugaring, smoking, spices etc.

## **2. Food contamination-**

- a. What is food contamination?
- b. Factors which contribute to contamination of food and its effect
  - i. Factors which affect the growth of micro-organisms
  - ii. Preparation of food too far in advance
  - iii. Food left at room temperature
  - iv. Improper warm holding
  - v. Improper cooling
  - vi. Inadequate reheating
  - vii. Handling of food by infected person
  - viii. Inadequate cleaning of equipment and utensils
  - ix. Cross contamination
  - x. Toxic containers
  - xi. Contamination raw ingredients
- c. Measures to prevent contamination of food-
  - i. Microbial contamination
  - ii. Chemical contamination
  - iii. Physical contamination

## **3. Food spoilage and deterioration–**

- a. What is food spoilage?
- b. Difference between food contamination and food spoilage
- c. Types of food spoilage
  - i. Microbial spoilage
  - ii. Physical spoilage
  - iii. Chemical spoilage
- d. Appearance of spoiled food
- e. Factors affecting food spoilage
- f. Preventing food spoilage

## **4. Food adulteration and quick tests for detecting adulterants**

## **5. Temperature control**

- a. Food requiring temperature control and its effect on microbes
- b. Time temperature control process

## **Equipment required-**

1. Charts and demonstration dummies
2. Videos and presentations
3. Sample food items and kitchen mock sets

### Assessment -

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills practical	
1.	Define food protection and preservation	5	0	5
2.	Demonstrate the steps to prepare fruit/ vegetable for immediate consumption	5	10	15
3.	Problem solving – there is no refrigerator in a setting, what traditional vegetable preservation method would you adopt to keep the vegetable safe?	0	30	30
4.	Demonstrate process of salting or sugaring for food preservation	5	10	15
5.	Elaborate the process for various temperature modulation techniques	5	25	30
6.	Differentiate between food contamination and spoilage	5	0	5
7.	Elaborate various measures to prevent food microbial / physical or chemical contamination	5	10	15
8.	Describe various types of food spoilage	5	0	5
9.	Enumerate the signs of food spoilage	5	10	15
10.	Demonstrate the tests for adulteration	5	10	15
<b>Total</b>		<b>45</b>	<b>105</b>	<b>150</b>

## MODULE – 5: PREPARE FOOD SAFELY TO MAINTAIN NUTRITIVE VALUE AND AVOID CONTAMINATION

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Understand the concept of safe food preparation
2. Understand and gain knowledge regarding therapeutic diet and its importance
3. Prepare food as per the direction of the dietician
4. Understand the process of safe food preparation
5. Gain knowledge regarding various cooking equipment and its effective use

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Principles of Safe food preparation	5	0	5
2.	Food preparation	5	50	55
3.	Cooking equipment	5	10	15
<b>TOTAL</b>		<b>15</b>	<b>60</b>	<b>75</b>

**Detail of Topics**

1. **Principles of safe food preparation**
2. **Food preparation**
  - a. Identification of content of the diet prescription and selection of the raw material
  - b. Measuring content for food preparation
  - c. Preliminary treatment of food
  - d. Preparation process of normal and therapeutic diet
    - i. Basic cookery process
      - Moist heat method
        - Boiling
        - Simmering
        - Poaching
        - Stewing
        - Blanching
        - Steaming
        - Pressure cooking
      - Dry heat method
        - Roasting
        - Grilling and broiling
        - Toasting
        - Baking
        - Sautéing
        - Frying
        - Microwave cooking
      - Combination –braising
    - e. Making diet palatable as per patient condition – liquid / soft/ normal

- f. Precautions for food preparation

### 3. Types of Cooking equipments

- a. Cooking equipment
  - i. Grill
  - ii. Broiler
  - iii. Oven and microwave oven
- b. Mechanical processing equipments
  - i. Vegetable peeler
  - ii. Chopper
  - iii. Mixer
  - iv. Slicing machine
- c. Non cooking equipments- refrigerator

#### Equipment required-

1. Charts and demonstration dummies
2. Videos and presentations
3. Food raw material and kitchen
4. Food weighing machine
5. Visit to Hospital dietetic department
6. All other relevant equipment

#### Assessment -

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills practical	
1.	Describe the key principles of safe food preparation	5	0	5
2.	Enumerate how to measure content for food preparation	5	10	15
3.	Demonstrate any five methods of moist heat cooking	10	50	60
4.	Demonstrate any three methods of dry heat cooking	10	50	60
5.	Identify various cooking equipments	10	50	60
<b>Total</b>		<b>40</b>	<b>160</b>	<b>200</b>



## MODULE – 6: HANDLE A THERAPEUTIC DIET BASED ON DIETICIAN'S PRESCRIPTION

**Learning Outcomes:** At the completion of this module, the student should be able-

1. To understand and execute the process of meal distribution

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Distribution of meals	5	30	35
<b>TOTAL</b>		<b>5</b>	<b>30</b>	<b>35</b>

**Detail of Topics**

### 1. Meal service/ Distribution of meals

- a. Types of food service system
- b. Identification of the prescribed food and labelling
- c. Serving meals
  - i. Checking the patient's tray with the prescribed menu
  - ii. Placing meals on the serving trolley for bed side distribution
  - iii. Coding or marking meal as per the bed
  - iv. Precautions and Don'ts
- d. Recognizing the need to provide assistance
  - i. Situations to provide assistance- such as buttering bread, placing straw etc.
  - ii. Identification of assistive devices – divided plate, scooped spoons etc.
  - iii. Feeding
    - Steps to follow for feeding
    - Precautions and don'ts
- e. Identifying and reporting serving hazards such as
  - i. Wrong meals served to patient
  - ii. Spills
  - iii. Superficial burn due to hot food

**Equipment required-**

1. Charts and demonstration dummies
2. Videos and presentations
3. Food raw material and kitchen
4. Food trolley , trays and other relevant equipment
5. Visit to Hospital dietetic department

**Assessment -**

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills practical	
1.	Demonstrate proper serving practices for cooked and raw food	0	50	50
2.	Demonstrate measures to prevent contamination while serving food	5	10	15
3.	Enumerate the precautions while distribution/serving food	10	10	20
4.	Demonstrate how to ensure correct food allotment as per the patient	5	10	15
5.	Identify the situation in which assistance may be required by the patient	5	20	25
6.	Demonstrate the process of reporting spilling of hot food over a patient/ wrong meal served to a patient	10	30	40
<b>Total</b>		<b>35</b>	<b>130</b>	<b>165</b>

## MODULE – 7: EDUCATE PATIENT ON DIETARY RESTRICTIONS AS PER THE INSTRUCTIONS OF DIETICIAN

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Understand the concept of balanced diet
2. Make others understand the importance of balanced diet and proper hydration
3. Understand the protocols of advising patient as per the guidance of dietician
4. Understand the concept of various restricted food items as per the guidance of dietician

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Concept of balanced diet and hydration	5	10	15
2.	History taking (recording) – food habits and food preferences	5	10	15
3.	Restricted food items	5	10	15
4.	Advising regarding diet	5	10	15
<b>TOTAL</b>		<b>20</b>	<b>40</b>	<b>60</b>

**Detail of Topics**

- 1. Concept of Balanced diet and hydration**
  - a. What is balanced diet
  - b. Consistency of diet
  - c. Importance of balanced diet for different age groups
  - d. Importance of hydration
- 2. History taking of food habits and food preferences**
  - a. Recording food habits
  - b. Recording food preferences
  - c. Recording food allergens
  - d. Recording food intolerance
- 3. Restricted food items as per the direction of dietician**
- 4. Advice regarding diet in different conditions as per the direction of the dietician**

**Equipment required-**

1. Charts and demonstration dummies
2. Videos and presentations
3. Performa for recording
4. Visit to Hospital dietetic department

**Assessment -**

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills practical	
1.	Describe what is balanced diet and its importance	10	10	20
2.	Demonstrate process to record food habits and food preferences	5	20	25
3.	Enumerate the restricted food items for diabetic patient	10	30	40
4.	Advise a pregnant female for nutritious food	5	30	35
<b>Total</b>		<b>30</b>	<b>90</b>	<b>120</b>

## MODULE – 8: INFECTION CONTROL PRACTICE

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Understand all procedures required for infection control
2. Follow high level of personal hygiene
3. Follow all standard precautions and infection control procedures
4. Identify deviation from normal health
5. Understand hospital borne infections and practices to curb them
6. Understand different types of spillages and their management

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Infection Control practices	5	10	15
2.	Universal/ Standard Precautions	5	10	15
3.	Contact Precautions	5	5	10
4.	Healthcare Associated Infections	5	5	10
5.	Healthcare worker safety	5	5	10
<b>TOTAL</b>		<b>25</b>	<b>35</b>	<b>60</b>

**Detail of Topics**

- 1. Infection Control practices**
  - a. Definition
  - b. Basic principles of infection control practices
  - c. Medical Asepsis - Practices to promote medical asepsis
- 2. Universal/ Standard Precautions**
  - a. Hand hygiene
  - b. Use of personal protective equipment (e.g., gloves, gowns, masks)
  - c. Safe handling of potentially contaminated equipment or surfaces in the patient environment
  - d. Respiratory hygiene/cough etiquette
- 3. Contact precautions**
- 4. Healthcare Associated Infections**
  - a. Nosocomial Infection
  - b. Infection Prevention
  - c. Needle stick injuries and their prevention
  - d. Catheter-related infections
  - e. Urinary Tract Infections
  - f. Surgical site infections
- 5. Healthcare worker safety**

### Equipment required-

Patient daily care articles, crash cart, emergency codes, fire extinguisher

### Assessment -

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills practical	
1.	Describe all procedures required for infection control	30	0	30
2.	Demonstrate the standard precautions	0	20	20
3.	Describe the rules to dispose of biomedical waste and sharps	5	15	20
4.	Demonstrate and describe the process of medical asepsis	5	5	10
5.	Describe hospital borne infections and practices to curb them	5	5	10
6.	Describe different types of spillages and demonstrate their management	5	5	10
<b>Total</b>		<b>50</b>	<b>50</b>	<b>100</b>

## MODULE – 9: FOLLOW BIOMEDICAL WASTE DISPOSAL

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type.
2. Apply appropriate health and safety measures and standard precautions for infection prevention and control and personal protective equipment relevant to the type and category of waste.
3. Segregate the waste material from work areas in line with current legislation and organizational requirements, at source with proper containment, by using different color coded bins for different categories of waste.
4. Check the accuracy of the labelling that identifies the type and content of waste.
5. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal.
6. Check the waste has undergone the required processes to make it safe for transport and disposal.
7. Transport the waste to the disposal site, taking into consideration its associated risks.
8. Report and deal with spillages and contamination in accordance with current legislation and procedures.
9. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols.

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Introduction of Bio-medical waste (BMW)	5	10	15
2.	Need for safety treatment and disposal of BMW	5	20	25
3.	Different treatment option for different categories of BMW	5	5	10
4.	Treatment and disposal methods of biomedical waste.	5	5	10
<b>TOTAL</b>		20	40	60

**Detail of Topics**

1. Introduction of Bio-medical waste (BMW)
  - a. What are Bio- medical waste generated during patient care
  - b. Classification of Bio-medical waste
  - c. Sources of Biomedical waste
  - d. Importance of Bio- medical waste management during home health aide (care)
2. Need for safety treatment and disposal of BMW
  - a. Identifying the risk of Bio-medical waste
3. Different treatment option for different categories of BMW
  - a. Color coding
  - b. Types of container
  - c. Waste category

- d. Treatment option
4. Treatment and disposal methods of biomedical waste.
    - a. Incineration
    - b. Autoclaving
    - c. Shredding
    - d. Disposal option

**Assessment:**

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/Theory	Skills practical	
1.	Demonstrate and describe appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type	5	5	10
2.	Demonstrate and describe how to maintain appropriate health and safety measures	0	10	10
3.	Identify and demonstrate methods of segregating the waste material in colored bins	0	30	30
4.	Explain how is the accuracy of the labelling that identifies the type and content of waste is checked.	5	0	5
5.	Explain how will you check the waste has undergone the required processes to make it safe for transport and disposal	5	0	5
6.	Demonstrate how will you report and deal with spillages and contamination in accordance with current legislation and procedures	0	10	10
<b>Total</b>		<b>15</b>	<b>55</b>	<b>70</b>



## MODULE – 10: MAINTAIN SAFE AND SECURE ENVIRONMENT

**Learning Outcomes:** At the completion of this module, the student should be able to-

1. Identify the components of the patients' environment which include the room and equipment, and elements for communication and to provide comfort.
2. Identify how the patients' rights affect their functioning in their environment including right to privacy, expression of individuality, possession of personal belongings and furnishings and availability of locked storage.
3. Identify the care giver role in admissions, transfers and discharges (other than death) of a clients.
4. Identify the steps of making an unoccupied bed.

**Content -**

Sl. No.	Topics	Hours		
		Theory	Practical	Total
1.	Components and Care of the Environment	10	10	20
<b>TOTAL</b>		10	10	20

**Detailed topics:**

1. Components and Care of the Environment
  - a. Enhances quality of life
  - b. Promotes independence and self-sufficiency
  - c. Maintains the home during family crisis
  - d. Importance of maintaining a clean home
  - e. Infection control – keeps bacteria, fungus under control
  - f. Safety and security – less accidents likely to occur
  - g. Basic needs are met – comfort, belonging, pride, higher self-esteem, self-fulfillment

**Assessment**

Sl. No	Assessment Criteria for the Assessable Outcomes	Marks Allocation		Total Marks
		Viva/ Theory	Skills practical	
1.	List 5 components of the environment.	4	6	10
2.	State 3 ways to promote clients' rights related to their environment.	6	4	10
3.	List 5 duties performed by a caregiver in admissions, transfers and discharges (other than death) of a residents/clients/patients.	7	3	10
<b>Total</b>		<b>17</b>	<b>13</b>	<b>30</b>

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## EQUIPMENT LIST

Equipment list Dietetic aide Training (Batch of 25 candidates)		
Sl. No.	Equipment List	Quantity
1	Food preparation lab	12 units per batch
3	Sinks for utensil washing	12
4	Food Trolley	1
5	Storage cupboards	2
6	Refrigerator	2
7	Cooking gas and burners & lighters	12 sets
8	Microwave	2
9	Dinning utensils	12 sets
10	Measuring cups	12
11	Weight machine for food-10-50-gram sensitivity	12
12	Blenderizers	3
13	Kitchen Utensils and Equipment- cooking/processing	12 sets
14	Measuring Spoons	12
15	Stadiometer	5
16	Measuring Tape	3
17	Gas burner	12
18	Cylinder	12
19	Common House hold measures	4 sets
20	Flip books and models for Food Groups	<b>6</b>
21	Food models for portion size -2 sets	All food groups
22	Cutlery – cooking and serving	12
23	Storage and Garbage bins at all cooking stations	12
24	Charts of food groups, portion sizes, nutrient sources etc.	<b>12</b>
25	Dry and fresh cooking ingredients with storage	as required
26	Internet access	1
27	Computer	1 for 3 students
28	Teaching board (Preferably smart board)	1 in each classroom
29	Sample forms & formats	10
30	Aprons and head scarfs	5 each
31	Gloves (disposable) - packet	5
32	Gloves (surgical) - packet	5
33	Liquid Soap Bottle	3
34	Nutritional brochures	5
35	Visit to a center for understanding of methods to prepare food	as per curriculum
36	Bio degradable Plastic Bags (Red, Blue, Black and Yellow 10 each) with dustbins	10 each

Equipment list Dietetic aide Training (Batch of 25 candidates)		
Sl. No.	Equipment List	Quantity
37	Registers (attendance 2, records etc.) Pens, Pencils Erasers, Sharpeners, Marker pens 12 each, charts paper, drawing board etc.	as required
38	Dusters	1 in each classroom
39	Paper (Ream of 500)	as required
40	Cleaning Solution (Colin)	1 at each kitchen
41	Flip charts on diet preparation& management	in each classroom and should be visible to learners
42	Scrubbers and Liquid soap for cleaning utensils etc.	1 at each kitchen
43	Paper Tissues	as required
44	Fire Extinguisher 5 KG ABC type	1
45	Weighing Machine	1
46	Replacement battery	2
47	Electric or Induction Cooking stove ( for emergency use)	4

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## REFERENCES:

1. Scottish Government. Food in Hospitals- National Catering and Nutrition Specification for Food and Fluid Provision in Hospitals in Scotland. 2008 ISBN: 978-0-7559-5705-7 <http://www.gov.scot/resource/doc/229423/0062185.pdf>
2. WHO. Module 6- Malnutrition and Anaemia. IMCI-Integrated Management of Childhood Illness. 2014 [http://apps.who.int/iris/bitstream/10665/104772/8/9789241506823\\_Module-6\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/104772/8/9789241506823_Module-6_eng.pdf)
3. Queensland Government, Department of Health. Management of food safety in Hospital and Health Service facilities: Guideline. July 2013
4. IGNOU.
  - a. Practical Module 2 Anthropometric Measures
  - b. Unit 2 Adaptation of Therapeutic Diets
  - c. Unit 3 Setting up food service unit
  - d. Unit 4 Themes in Nutrition Education
  - e. Unit 6 Nutritional Management of Food allergies and food intolerance
  - f. Unit 8 Quantity food production: Kitchen production
  - g. Unit 10 Pest control
  - h. Unit 12 Food Management: Types of food service systems
5. The British Dietetic Association. Dietetic Support Worker & Assistant Practitioner Roles. 2010 <https://www.bda.uk.com/publications/apdswcareer>
6. Dietitians of Canada. Best Practices for Nutrition, Food Service and Dining in Long Term Care Homes. 2013 <http://www.dietitians.ca/Downloads/Public/2013-Best-Practices-for-Nutrition,-Food-Service-an.aspx>
7. Indian Dietetic Association. Competency package for RD Training completion. 2016 <http://www.idaindia.com/Files/NEW%20COMPETANCY%20PACKAGE-%20Modified.1.pdf>
8. Emily Olney. Design and analysis of meal assembly and delivery methods in hospital foodservice systems. 2003 <http://scholarworks.rit.edu/cgi/viewcontent.cgi?article=6725&context=theses>
9. Department of Medical Assistance Services. Personal Care Aide Training Curriculum. 2003 [http://www.dmas.virginia.gov/Content\\_attachments/ltc/ltc-wvr\\_pca.pdf](http://www.dmas.virginia.gov/Content_attachments/ltc/ltc-wvr_pca.pdf)
10. Proper Food Handling, Food Safety, and Sanitation Practices (excerpted from the Michigan Food Law of 2000 as amended) <https://www.mtu.edu/dining/pdf/food-handling.pdf>
11. Managing food waste in the NHS.2005 <http://www.hospitalcaterers.org/documents/foodwst.pdf>
12. Tse, K. M. (2000). A study on the hospital food servicesystem in Hong Kong. (Thesis). University of Hong Kong,Pokfulam, Hong Kong SAR. Retrieved from[http://dx.doi.org/10.5353/th\\_b3122352](http://dx.doi.org/10.5353/th_b3122352) Issued Date 2000
13. Christina Mior. Strategies to reduce waste in patient food services. Aramark Healthcare Canada. 2008/2009 <http://greenhealthcare.ca/~greenhea/images/publications/h2010102%20waste%20reduction%20research%20paper.pdf>
14. Food Safety Authority of Ireland. Guide to Food Safety Training. Level 3 – Food Safety Skills for Management.2016 ISBN1-904465-08-0