PROGRAM SPECIFICATION FOR Professional Diploma In Clinical Nutrition

(According to currently applied credit point bylaws)

Clinical Nutrition Unit
Faculty of medicine
Assiut University
2020-2021/2021-2022

Contents

Program Specification for Professional diploma in Clinical nutrition

1. Basic Information

- **Program Title: Professional diploma in Clinical Nutrition**
- **Nature of the program: Single**
- **Course code: CLN493**
- **Responsible Department: Clinical Nutrition Unit-Faculty of Medicine-Assiut University.**
- **Academic Director (Head of Clinical Nutrition unit):**

Dean of the faculty of medicine

Vice Dean for Graduate Studies and Research:

- **Coordinator (s):**
  - **Principle coordinator: Prof. Dr. Medhat Araby Khalil Saleh**
  - **Assistant coordinator: Prof. Dr. Osama M El-Asheer**
- **Date last reviewed: February 2021**
- **Date of Approval by the Faculty of Medicine Council of Assiut University: 23-2-2021**
- **Date of the most recent approval of the Program by the Faculty of Medicine Council of Assiut University: 23-2-2021**
- **Requirements from the students to achieve the required ILOs are clarified in the joining logbook.**
- **Admission Requirements (prerequisites) if any:**

I. General Requirements:

- **Graduated from the faculty of medicine. (Physician)**
- **Acceptance letter from the site of work to work full time for one day or part-time for two days in the clinical nutrition unit within the duration of the program (academic year; 2 semesters)**

Fees of the Diploma: As regulated and approved by the Clinical Nutrition Unit and Faculty councils.

2. Program Aims

This program **is aimed to enable all** students to be able to do the following;

A-Provide students with knowledge and understanding of the knowledge in Clinical Nutrition and be able to use this knowledge in clinical practice

B- Promote training and experience of the students in all topics related to clinical nutrition

C-Develop knowledge and skills in the assessment of nutritional status for different diseases.

D-Be skillful in recording the relationship between the scientific aspects of Human Nutrition Science and current clinical, public health, and societal and commercial issues.

E-Apply evidence-based knowledge and skills to calculate nutrients' requirements for different nutrition protocols, both short and long term.

F-Acquire the link between therapeutic clinical nutrition and different diseases' status

G-Apply skills in preparing modified dietary menus for different nutrition disorders

H-Provide skills in acquiring transferable practical and laboratory skills.

I-Give students opportunities to gain experience in various transferable skills to enhance their employment and postgraduate education prospects.

3a. Competencies

The Competencies are;

- Practice-Based Learning and Improvement.
- Patient Care and Procedural Skills.
- Systems-Based Practice.
- Medical Knowledge.
- Interpersonal and Communication Skills

- Professionalism.

3b. Intended learning outcomes (ILOs) of the program:

K- Knowledge and understanding

Trainees will be able to:

K1-Demonstrate a comprehensive working knowledge of nutrition's theoretical and practical basics to use in different clinical nutrition settings.

As designated in the curriculum, K2-Demonstrate more detailed knowledge and experience in specific areas of clinical nutrition practices for most common nutritional problems and diseases.

K3-Develop an awareness and expert knowledge of clinical and scientific literature and evidence-based practice in different clinical nutrition health problems.

K4-Demonstrate the ability to elicit and synthesize relevant information and plan different nutritional strategies in other healthcare settings

K5-Critically evaluate the relevance of scientific and clinical literature on clinical nutrition topics.

K6-Demonstrate capacity for higher-order thinking and decision making related to clinical nutrition problems and diseases

K7-Access and approach literature databases as well as online journal facilities on all topics related to clinical nutrition health problems

K8-Outline an audit project related to common nutritional problems national and international

K9-Outline and plan a research project and write relevant reports and papers about prevalent nutritional topics.

S- Practical skills. (practical training in different clinical departments in Assiut University Hospitals)

Trainees will be able to:

S1- Apply skills relevant to the discipline comprising the planning, counseling, and undertaking of procedures, including

managing, aftercare, and potential complications of various nutritional problems and diseases
S2-Demonstrate professional skills to work with, organize, and lead the team in practice on different clinical nutrition topics.
S3- Perform clinical training to manage various nutrition problems and diseases in different health care facilities.

G-General skills

G1-Use Evidence-Based Medicine in management decisions.

G2-Work effectively and be productive within the health care team.

G3-Solve problems related to patients' work management.

G4-Cope with a changing work environment.

G5- Perform practice-based improvement activities using a systematic methodology (share in audits and use logbooks).
G6- Appraises evidence from scientific studies related to clinical nutrition topics.
G7- Maintain therapeutic and ethically sound relationships with mal-nourished persons and patients.
G8-. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.
G9- Provide information using effective nonverbal, explanatory, questioning, and writing skills.
G10- Work effectively with others as members of a health care team or another professional group.
G11- Demonstrate respect, compassion, and integrity; responsiveness to the needs of patients and society
G12-Demonstrate a commitment to ethical principles, including provision or withholding of clinical care, the confidentiality of patient information, informed consent, business practices
G13-Work effectively in relevant health care delivery settings and systems.
G14-Practice cost-effective health care and resource allocation in managing different nutritional problems that do not compromise the quality of care.

4. External Program References (Benchmarks)

- **ESPEN_Diploma_and_Application_2019**

http://nni-egypt.org/%d9%88%d8%ad%d8%af%d8%a9-%d8%a7%d9%84%d8%aa%d8%af%d8%b1%d9%8a%d8%a8/

Comparison between program and external reference		
Item	**Professional Diploma in clinical nutrition**	**ESPEN_Diploma_and_Application_2019**
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	Different	**Different**
Requirement	Different	Different
Program structure	Different	Different

5. Program Structure

A-Duration of the program: one Academic year, two semesters;

-Unit A study is conducted in the first semester, including five modules; A1-A5.

- The unit B study is conducted in the second semester, including five modules; B1-B5.

B-Structure of the program:

Total number of the credit points: 60 CPS

a. Completion of ten curriculum modules divided into two semesters, 15 CP Didactic teaching (15 weeks) for each semester = 30(50% of program structure) CP

b. Practical nutrition course attendance, fulfillment of skills and competencies in portfolio requirements and assignments including formative assessment after each module 6 CP for each semester =12CP(20 % of program structure)

Total CP for ten curriculum modules=42 CP (100% of modules teaching; 70% of program structure); Didactics =30(71.5%) CP,15 CP for each semester and 12(28.5%) CP for attendance and practical training; 6CP for each semester. Out of 42CP,5CP for attendance and assignments, 2.5CP for each semester.

c. Attendance of two national/international congresses or webinar 5CP (8.3% of program structure)

d. Critical appraisal and design of research papers (submission and providing abstract) from the medical record, fieldwork, or hospital-based data at the end of the Diploma 5 CP (8.3% of program structure)

e. Success at the exit exam (should pass the exam) 8 CP (13.3%) of program structure) after the success of the preparatory exam for admission to the final exam.

(In the failure of the final exam, repeat the exam only without repetition of didactic teaching or practical training).

6. Modules Contents and matrix

Ten curriculum modules are included in two central units in two academic semesters:

A-First semester: Basics of clinical nutrition and malnutrition management semester = 5 modules A1-A5; 21 CPs 15 CP for didactics&6 CP for training including formative assessment.

B-Second semester: Nutrition in different clinical diseases and health problems = five modules B1-B5; 21 CPs: 15 CP for didactics&6 CP for training including formative assessment

6.A1-Unit A-Basics of clinical nutrition, malnutrition management and nutritional research (21 CPs);15 CP for didactics &6 CP for training

Didactic	Covered ILOS	Practical training in	Covered ILOS
Module A.1 **(Introduction and basic concepts of nutrition):** 1. History and evolution of nutrition 2. Planning diet using Food Composition Tables for selected diseases. 3. Factors affect basal metabolic rate 4. Harris-Benedict equation	K1-K9	Assessment of nutritional status by different techniques: • Bio-electrical impedance • Skinfold thickness • Waist circumference	S1-S3& G1-14

5. Using weighing and serving measures in diet planning 6. Plan DASH diet, low oxalate, low urate, gluten-free, low, high protein diet 7. Determination of Energy from Carbohydrate, Protein, and Fat. 8. Planning diet using Food Exchange List for different diseases. 9. Estimating the Energy Requirements of individuals. 10. differentiate between different nutrition reference values. 11. Macro and micronutrients 12. Diet planning in different settings 13. Assessment of nutritional status at individual and national levels 14. Food Allery and food-drug interaction 15. Immune response against infections 16. Tumor immunology 17. Mechanism of Autoimmune Diseases 18. Planning diet for common malnutrition disorders: • Stunting • Wasted • Underweight • Anemia • vitamin D and calcium deficiency		• And other techniques	
Total	**3**		**1**
Module A.2 **(Pediatric nutrition)** 1. Assessing the nutritional status of neonates and children 2. Breastfeeding and metabolic	K1-K9	1. Proper breastfeeding skills 2. Prescription of complementary feeding 3. Use and dilutions of different infant milk formula	S1-S3& G1-G14

programming 3. Types of infant formulas 4. Neonatal and pediatric TPN 5. Intravenous fluids management in pediatrics 6. Hidden hunger and micronutrients 7. Infant and childhood malnutrition 8. Enteral nutrition and management of tubal feeding 9. Nutrition in a critically ill child 10. Nutrition concerns in different congenital malformations 11. Nutritional interventions in childhood neurological diseases 12. Food milk allergy 13. Nutrition in a diabetic child 14. Nutrition management in inborn errors of metabolism 15. Nutrition recommendations in infants with chronic diseases		4. Perform Nutritional calculations and follow up in renal, hepatic, and cardiac child 5. Clinical manifestations of micro and macronutrients deficiency 6. Follow up of Childs with celiac disease and gluten-free diets 7. Calculation of dietary points for a diabetic child 8. Ketogenic diet, preparation, and follow up 9. Calculations of milk formula for inborn errors of metabolism 10. TPN calculations 11. Ryle insertion and Ryle feedings 12. Enteral nutrition calculations in children	
Total	**3**		**2**
<u>Module A 3</u> (Geriatric and sports nutrition) 1. Nutritional requirements in elderly peoples 2. Food guide pyramid for elderly 3. Modification of diet to go with physiological changes of elderly 4. Assessment of the nutritional status of elderly peoples 5. Design dietary plan for cases of other morbidities as:	K1-K9	1. Doping and anti-droppings 2. How to Calculate different food staff in different types of sports 3. Plan different forms of diets in different geriatric settings	S1-S3& G1-G14

• Diabetes • Hypertension • Osteoporosis 6. Food guide pyramid for athletics 7. Role of different food groups in bodybuilding 8. Power of protein 9. Food supplements health hazards 10. Sports Doping 11. Sports Ant-Doping 12. Diet planning in different sports			
Total	**3**		**1**
<u>Module A.4</u> (**Obesity management and weight reduction**) 1. Pathophysiology of obesity 2. Emotional eating 3. Hormonal regulations of appetite 4. Role of lifestyle in obesity 5. Dietary management of obesity using different diet plans as ketogenic, low CHO, intermittent fasting … 6. Pharmacological management of obesity 7. Herbal treatment of obesity 8. Role of surgery in the management of obesity 9. Role of plastic surgery in obesity management	K1-K9	1. assessment of obesity using different anthropometric methods and bio-electrical impedance methods 2. Calculate different forms of diets in obese patients	S1-S3 & G1-G14

Total	**3**		**1**
Module A .5 (Nutritional surveys, screening, and research) 1. Prevalence of different nutritional problems locally and worldwide. 2. Definition of nutrition survey 3. Examples of different national nutritional scurvies conducted in the field 4. Steps of the nutritional survey in clinical practice 5. Principles of screening in nutrition 6. Different national screening nutrition programs conducted 7. Methods of evaluation of national nutritional programs 8. Different types of scientific research in nutrition 9. How to conduct a sound nutritional study? 10. Steps of Evidence-based medicine 11. How to apply evidence-based medicine scientific data in nutrition? 12. How to conduct an effective search about nutrition topics on different websites	K1-K9	1. calculate and use different indicators of screening as sensitivity, specificity - 2. Design a nutritional survey infield practice? 3. Perform Critical appraisal of scientific articles related to nutrition 4. Design a nutritional research 5. Submit and publish a nutritional research article	S1-S3 & G1-G14
	3		**1**

6A.2Didactics weighting of modules in Unit A

Name of the Program	Credit points	Responsible department	Attendance	Percentage of Achieved

	CP			points of didactics
Professional Diploma in Clinical Nutrition in Unit A	0.6	**Clinical Nutrition Unit/Assuit University**	30 hours **Module A.1** (**Introduction and basic concepts of nutrition)**	20%
	0.6		30hours **Module A.2** (**Pediatric nutrition)**	20%
	0.6		30hours **Module A 3** (Geriatric and sports nutrition)	20%
	0.6		30 hours **Module A.4** (**Obesity management and weight reduction**)	20%
	0.6		30 hours **Module A .5** (Nutritional surveys, screening, and research)	20%
Student signature			Principle coordinator Signature	Supervisor of Education Development Center signature

6A.3-At the end of fulfilling portfolio requirements including didactics and fulfilling the clinical training schedule and case log in the first semester /the candidate will be achieved these Clinical Competencies and skills in unit A; A1-A5 modules; which include the following;

1. assess nutritional status in different healthy ages.
2. Handle cases of malnutrition in pediatric and adults?
3. Put a nutritional plan and protocols for different kinds of sports
4. Design and apply the nutritional protocol for different healthy ages, especially geriatrics
5. Conduct a nutritional survey in different age groups and diseases.
6. Transfer skills in the health team.
7. Write protocol and report competently about the survey for nutritional status.
8. Design and critically appraise nutritional scientific papers to prepare the international publication.

NB- Clinical training and case log mentioned in detail in the portfolio, i.e., number of cases and acquired achieving clinical competencies and skills in ascending order from C – observe to A- Independent performance.

6A.4-Acquired competencies in each module (A1-A5) training of unit A

Modules	Clinical Competencies and skills
A.1-Introduction and basic concepts of nutrition	• Assessment of nutritional status at different ages. • How to handle cases of malnutrition in adults?
A.2-Pediatric Nutrition	• Proper breastfeeding skills • Prescription of complementary feeding • Ryle insertion and Ryle feedings • Enteral nutrition calculations in children
A.3-Geriatric and sport nutrition	• calculation of different food staff in different types of sports • Planning different forms of diets in different geriatric settings
A.4-Obesity management and weight reduction	• assessment of obesity using different methods • Design of different forms of diet plans in obese patients
A.5-Nutritional surveys, screening, and research	• design o nutritional survey infield practice. • Critical appraisal of scientific articles related to nutrition.

6B.1-Unit B. Nutrition in different clinical diseases /21 CP
15 CP for didactics and 6CP training

Didactic	Covered ILOS	Practical training	Covered ILOS
Module B.1 **(Role of nutrition in different Gastro-Intestinal Tract (GIT) Diseases)** 1. Nutrition support GERD 2. Nutrition support in Peptic Ulcer diseases 3. Nutritional management in Diarrhea 4. Nutritional management Constipation 5. Role of Nutrition in Inflammatory Bowel Disease IBD. 6. Nutrition support in cancer stomach 7. Nutrition management of cancer colon 8. Nutrition in Acute liver diseases such as hepatitis 9. Nutrition support in Chronic Liver Diseases 10. Role of nutrition in Non-Alcoholic Fatty Liver (NAFLD) 11. Nutrition in Gall Bladder Disease: Gall Bladder stone 12. Nutrition in Gall Bladder Disease: Cholestasis. 13. Nutrition in acute pancreatic diseases 14. and chronic pancreatic diseases 15. nutrition support in cancer pancreas 16. nutrition in liver transplantation (before and after)	K1-K9	1. How to assess patients clinically with NAFLD 2. Treatment of NAFLD 3. Role of MNT in treatment of NAFLD 4. NAFLD in the setting of bariatric surgery 5. MNT in Wilson diseases 6. MNT in Hemochromatosis 7. Assessment of liver functions clinically, Laboratory and radiological 8. Nutrition focused History taking and clinical examination in assessing liver patients 9. Laboratories and Anthropometric measurements in hepatic patients 10. Meal planning in liver cirrhosis 11. MNT in patients with Ascites, hepatic encephalopathy	S1-S3 & G1-G14

Total	**3**		**2**
Module B.2 Role of nutrition in internal medicine diseases 1. Role of nutrition in treatment and management of anemia 2. Nutritional in diabetes mellitus management including Glycemic index and Glycemic load 3. The art of low CHO diet in diabetes management 4. Role of nutrition in thyroid diseases (Goitrogens) 5. 10-Nutrition in COPD 6. 11- Nutrition in cystic fibrosis 7. 12- Role of nutrition in Pulmonary cachexia 8. Nutrition in Cerebro-Vascular Stroke 9. Nutritional management of Epilepsy 10. Nutritional support in Parkinsonism 11. Role of nutrition in Alzheimer's management	K1-K9	1. Gglycemic index calculation 2. How to use glycemic load 3. How to read and interpret laboratory and anthropometric measures related to different chronic diseases	S1-S3 & G1-G14
Total	**3**		**1**
Module B.3 (Nutrition in cardiac and renal diseases) 1. Role of Nutrition in Dyslipidemia management 2. Good and bad fats in cardiac patients 3. Role of nutrition in the management of Atherosclerosis 4. Nutritional support in Hypertension 5. Nutrition in ischemic heart diseases	K1-K9	1- Enteral and parenteral nutritional support in renal disease 2- Nutritional management in patients receiving RRT and in AKI 3-. Nutritional management in CKD Healthy management for patients with special needs in CKD 4-how to read and interpret laboratory analysis in renal and cardiac patients	S1-S3 & G1-G14

(IHD) 6. Nutrition in Congestive Heart Failure 7. Assessing the nutritional status of renal patients 8. Nutrition in Chronic kidney disease in Non-dialyzed, 9. Nutrition of patients on dialysis 10. Nutrition after renal transplantation 11. Role of nutrition in the management of different types of renal stones 12. Role of nutrition in hyperuricemia and gout 13. Hyperphosphatasemia and kidney diseases			
Total	**3**		**1**
Module B.4 (Nutrition support in critically ill patients and patients in (ICU)) 1- Enteral and Parenteral nutrition in ICU 2- Metabolic response to stress 3- Systematic Inflammatory Response Syndrome 4- Anti-Inflammatory Diets 5- Nutrition for critically ill burnt patients 6- Energy, protein, and fat requirements in ICU 7- Nutrition for critically ill surgical patients 8- Nutrition in sick critically renal patients 9- Nutrition in critically ill hepatic patients 10- Nutrition in polytrauma patients 11- Nutrition care for patients with bariatric surgeries 12- Nutrition in patients with pulmonary disorders	K1-K9	1. examination and assess the nutritional status of critically ill patients 2. Constitute Different forms of parenteral nutrition 3. Different formulas of Enteral and Parenteral nutrition	S1-S3& G1-G14

13- Fluid and electrolytes management 14- Prevention and management of clinical problems in ICU, e.g., refeeding syndrome.			
Total	**3**		**1**
Module B.5 (Nutritional support in cancer, surgical and Burn patients) 1. Food that can cause cancer (carcinogenic) 2. Pathophysiology of cancer 3. Role of nutrition in the prevention of different types of cancers 4. Role of nutrition in management and treatment of different types of cancers 5. Pathophysiology of Burns 6. Types of Burns 7. Hemodynamic changes in Burns and surgery 8. Nutrition support after Burns 9. Assessment of nutritional status in burns 10. Malnutrition in surgical patients 11. Pre-operative nutritional support of surgical patients 12. Post-operative nutritional support of surgical patients	K1-K9	1-types of different TPN in cancer patients 2- assessment of nutritional status in cancer patients 3- calculations of other dietary requirements in cancer patients 4- types, Techniques, indications, and contraindications of Ileostomy 5- complications of Ileostomy 6- Surgical cases that need nutritional support such as atresia, anastomosis, and fistula	S1-S3 & G1-G14
Total	**3**		**1**

6B.2-Weighting of Didactics modules in Unit B

Name of the Program	Credit points	Responsible department	Attendance	Percentage of Achieved points Of didactics B
Professional Diploma in **Clinical Nutrition in Unit B**	0.6	**Clinical Nutrition Unit**	30 hours **Module B.1** (**Role of nutrition in different Gastro-Intestinal Tract (GIT) Diseases**)	20%
	0.6		30 hours **Module B.2** Role of nutrition in internal medicine diseases.	20%
	0.6		30 hours **Module B.3** (Nutrition in cardiac and renal diseases)	20%
	0.6		30hours Module B.4 (Nutrition support in critically ill patients and patients in (ICU)	20%
	0.6		30 hours **Module B.5** (Nutritional support in cancer, surgical and Burn patients)	20%
Student signature			Principle coordinator Signature	Supervisor of Education Development Center signature

6B.3-At the end of fulfilling portfolio requirements including didactics and

fulfilling clinical training schedule and case log in the second semester /the candidate will be achieved these clinical Competencies in unit B; module: B1-B5 which include the following;
1. conduct Assessment of nutritional status in different clinical diseases: **2. Design and apply the nutritional protocol for different diseases** **3. To be skillful in Nutrition focused History taking and clinical examination** **4. Read and interpret laboratory and anthropometric measures related to different chronic diseases** **5. Apply for Enteral and parenteral nutritional support in ICU and renal diseases** **6. Constitute Different forms of parenteral nutrition** **7. Select types of different TPN in cancer patients** **8. Transfer skills in health team care**

NB- Clinical training and case log mentioned in detail in the portfolio, i.e., number of cases and achieving clinical competencies and skills in ascending order from C –observe to A- Independent performance.

6B.4-Acquired competencies and skills in each module training (B1-B5) of unit B

Modules	Clinical Competencies and skills
B.1-Role of nutrition in different Gastro-Intestinal Tract (GIT) Diseases	• assessment of clinical patients with NAFLD • MNT in patients with: Ascites, hepatic encephalopathy • Laboratories and Anthropometric measurements in hepatic patients
B.2-Role of nutrition in internal medicine diseases	• glycemic index calculation • How to use glycemic load • How to read and interpret laboratory and anthropometric measures
B.3-Nutrition in cardiac and renal diseases	• enteral and parenteral nutritional support in renal disease

	• Nutritional management in patients receiving RRT and in AKI
B.4-Nutrition support in critically ill patients and patients in (ICU)	• Examination and nutritional assessment status of critically ill patients • Constitute Different forms of parenteral nutrition
B.5-Nutritional support in cancer, surgical and Burn	• types of different TPN in cancer patients • Assessment of nutritional status in cancer patients • Calculations of different dietary requirements in cancer patients

7. Methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Active discussion
3. Demonstrations.
4. Practical application
5. Workshops
6. Case studies
7. Individual and group exercises
8. Clinical work in outpatient& inpatients clinics.
9. Clinical case presentation and weekly conference
10. National and international conferences.

8. Assessment methods:

i. Assessment tools:

a. Regular assessments every month will be performed by the clinical nutrition unit staff members to confirm the trainees' progress in their program. This will be through discussion in outpatient clinics, clinical conferences, =2.5CP, etc.

b. Monthly assessment after every curriculum unit through =2.5CP
    i. Review outpatient clinic and tutorial attendance and performance
    ii. Portfolio assessment
    iii. Assessment of research project progress
    iv. Assessment of curriculum unit progress by MCQ exam (60% to pass)

5 CP for assessment of performance in a &b including attendance and assignments (8.3 % of the program)

c. Exit assessment at the end of the program include Written exam 60% of exit exam, clinical exam =30% of exit exam, and oral exam =10% of exit exam)
    i. Assessment of the criteria necessary for the completion of the program by fulfilling an assignment, portfolio, and research assessment in progress
d. Formal interview of the trainee by the exam committee in an oral exam

NB- Success at the exit exam (should pass the exam)

(In failure, repeat the exam only without repetition of didactic teaching or practical training).

ii-Time schedule of exit exam: At the end of the training unit A&B.

	Method assessment	**Covered ILOs/Competencies**
a-	Attendance and Regular assessments of trainees progress every month by discussion in outpatient clinics clinical conferences, =2.5CP (12% of estimate)	K-S-G
b-	Monthly Assessment of the following activities; =2.5CP (12% of assessment)	K-S-G

	I--Review outpatient clinic and tutorial attendance and performance ii--Portfolio assessment iii-Assessment of research project progress iv-Assessment of curriculum unit schedule progress by MCQ	
c	Critical appraisal and design of research paper=8CP (38% of assessment)	K-S-G
d	Exit final exam at the end of training unit A &B= 8CP (38% of assessment) i-written exam=60% ii-clinical exam =30% iii-oral exam and formal interview =10%	K-S-G

9. List of references

I. Lectures notes

ii. Essential books

- **Oxford Handbook of Nutrition and Dietetics 3rd edition. 2021**
- **Human Nutrition: Science for Healthy Living (ISE HED MOSBY NUTRITION) Paperback – International Edition, May 24, 2021, b, y Tammy J. Stephenson Ph.D. (Author)**
- **Advanced Nutrition and Human Metabolism 7th Edition by Sareen S. Gropper (Author), Jack L. Smith (Author), Timothy P. Carr (Author)**, ISBN13: 9781305627857, ISBN10: 1305627857, by Sareen S. Gropper, Jack, Smith and Timothy P. Carr Cover type: Hardback, Edition: 7TH Copyright: 2018 Publisher: Cengage Learning, Published: 2018

- **Medical Nutrition Therapy: A Case-Study Approach 5th Edition by Marcia Nelms (Author)**
- **Advanced Human Nutrition** - 3rd edition, by Denis M. Medeiros and Robert E.C. Wildman, Cover type: Hardback, Edition: 3RD 15, Copyright: 2015 Publisher: Jones & Bartlett Publishers, Published: 2015
- **Understanding Normal and Clinical Nutrition,** by Sharon Rady Rolfes, Kathryn Pinna, and Ellie Whitney Hardback ISBN13: 978-1337098069, 11th Edition
- **Samour & King's Pediatric Nutrition in Clinical Care** 5th Edition, by Susan H Konek (Author), Patricia J Becker, ISBN-13: 978-1284146394, ISBN-10: 1284146391
- **Management of Eating Disorders and Obesity** - 2nd edition, ISBN13: 9781588293411, ISBN10: 1588293416, by Goldstein, Edition: 2ND 05 Copyright: 2005, Publisher: Humana Press, Inc.

iii. Recommended books

- Selected chapters in textbooks of clinical nutrition and therapeutic nutrition.

10. Signatures

Program Coordinator: **Prof. Dr. Medhat El-Araby** **Prof. Dr. Osama El–Asher**	**Head of the Unit: Dean of the Faculty of Medicine** **Prof. Dr.Alaa Attaia**
Date: February 2021	**Date: February 2021**

End of the program specification