

# **KHALSA COLLEGE**

# **AMRITSAR**

**(An Autonomous college)**

**Affiliated to Guru Nanak Dev University, Amritsar**

**SYLLABUS**

**DIPLOMA IN NUTRITION AND DIETETICS**

**SESSION: 2021-22**

**Post Graduate Department of Food Science and Technology**

**ELIGIBILITY: 10+2 PASS IN ANY STREAM**

**DIPLOMA IN FOOD NUTRITION AND DIETETICS**  
**Study Scheme**

**Semester I**

Sr. No	Subject code	Subject	Teaching Periods			Marks			
			T	P	Total	Theory	Practical	IntAsst	Total
1	DND 101	Basic Nutrition	3	3	6	50	25	25	100
2	DND 102	Food Science	3	3	6	50	25	25	100
3	DND 103	Anatomy and Physiology I	3			37	-	13	50
4	DND 104	Dietetics	3	3	6	50	25	25	100
5	DND 105	Seminar I		2	2		25	---	25
								Total	375

**Semester II**

Sr No		Subject	Teaching Periods			Marks			
			T	P	Total	Theory	Practical	IntAsst	Total
1	DND 201	Community Nutrition	3			50	25	25	100
2	DND 202	Therapeutic Nutrition	3	3	6	50	25	25	100
3	DND 203	Anatomy and Physiology II	3	3	6	37	-	13	50
4	DND 204	Food Hygiene and Microbiology	3	3	6	50	25	25	100
5	DND 205	Diet Counselling and Computer operations		2	2		25	---	25
								Total	375

## DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)

### DND 101 BASIC NUTRITION

Theory-50  
Practical-25  
Int. Ass-25  
Total-100

#### Instructions for the Paper Setters:

**Theory:** Question paper will be of eight questions in all. All questions will carry equal marks.

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

#### UNIT 1

**Introduction to nutrition** – Scope of nutrition.

**Carbohydrates-** Classification, functions of carbohydrates, metabolism of carbohydrates.

**Proteins and Amino acids-** Classification, functions of proteins, daily protein requirement, factors affecting protein requirement, effect of protein excess and deficiency, Metabolism of proteins and amino acids.

**Lipids-** Classification, functions of fats and oil, metabolism of fats and lipids.

#### UNIT 2

Nutritive component of food water.

Energy metabolism- Basal metabolic rate, Resting metabolic rate, factors affecting BMR.

Phytochemicals

#### UNIT 3

##### VITAMINS-

Fat soluble vitamins-A,D,E,K.

Water soluble vitamins- B complex, vitamin C

##### MINERALS-

Macrominerals – Calcium, phosphorus, magnesium

Microminerals- Iron, Iodine, Zinc, Copper

##### PRACTICAL

Preparation of modified recipes in terms of- Low protein, High protein, Low fat, Low sodium, Calcium rich, Iron rich, Rich in vitamin A.

##### BOOKS:

Food nutrition: M. swaminathan Vol I and Vol II.

Textbook of Nutiriton and dietetics : Khanna, Gupta, Passi and Mahna

Nutrition and Dietetics: Joshi SA 2011 (Tata Mc Graw Hill).

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)**

**DND -102 FOOD SCIENCE**

**Theory-50**  
**Practical-25**  
**Int. Ass-25**  
**Total-100**

**Instructions for the Paper Setters:**

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

**UNIT 1**

Introduction to food science- classification of foods.

Cereal grains and products - structure of cereal grain, cereal cookery.

Vegetables and fruits – composition and nutritive value.

Oils and fats in food

**UNIT 2**

Pulses – Toxic constituents in pulses , processing.

Milk – composition, processing.

Meat ,Poultry, Fish

Egg- Nutritive value, evaluation of egg quality.

**UNIT 3**

Food preservation – principles of food preservation, methods of food preservation.

Methods of improving nutritional quality of foods- germination, fermentation, fortification, supplementation.

Food adulteration

**PRACTICAL**

Preparation of food by different methods-

Germination

Fermentation

Baking

Frying

Books-

Food Science: Potter NN.

Food facts and Principals: Manary N.

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)**

**DND-103 ANATOMY AND PHYSIOLOGY 1**

**Theory-37**

**Int. Ass-13**

**Total-50**

**Instructions for the Paper Setters:**

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**UNIT 1**

Introduction to living beings

The cell

Digestive system – structure, functions of salivary glands, stomach, pancreas, liver and the intestine. Mechanism of digestion and adsorption of carbohydrates, proteins and fats.

Role of enzymes in digestion of carbohydrates, proteins and fats.

**UNIT 2**

Excretory system – Structure and function of kidney, mechanism of urine formation, disorders indicated by abnormal constituents of urine.

Musculoskeletal system – Types of bones , muscles.

Integumentary system – The skin and its functions , different layers of the skin, abnormalities of the skin.

**BOOKS-**

Human physiology Vol I and Vol II- Chatterjee CC.

concise medical physiology- Chaudhary SK.

BD chaurasia- handbook of general anatomy 5th edition CBS publication.

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)**

**DND-104 DIETETICS**

**Theory-50**  
**Practical-25**  
**Int. Ass-25**  
**Total-100**

**Instructions for the Paper Setters:**

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

**UNIT 1**

Introduction to dietetics

Fundamentals of meal planning

**UNIT 2**

Nutrition in life cycle -

Adulthood

Pregnancy

Lactation

Infancy

Childhood

Adolescence

Old age

**PRACTICAL**

Make a diet plan for –

Adulthood

Pregnancy

Lactation

Infancy

Childhood

Adolescence

Old age

**BOOKS-**

Textbook of nutrition and dietetics by Khanna S. GUPTA, Passi and Mahna.

Textbook of nutrition and dietetics by Joshi SA, 2011

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)**

**DND-105 SEMINAR**

**Practical -25**

Seminar will be based on topics taken from advances in the field of community nutrition, public health and allied areas.



## **DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)**

### **DND-201 COMMUNITY NUTRITION**

**Theory-50**  
**Practical-25**  
**Int. Ass-25**  
**Total-100**

#### **Instructions for the Paper Setters:**

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

#### **UNIT 1**

Concept of community nutrition

Aim , scope and concept of public health nutrition

Methods for assessment of nutritional status of community

#### **UNIT 2**

Approaches for nutrition education in community – scope and its importance.

Counselling skills

National and health programs – National programmes, supplementary feeding programmes ,

National deficiency control programmes , Programmes for communicable diseases.

Nutritional surveillance – Meaning , need, importance, objectives.

#### **PRACTICAL**

Planning and preparation of low cost nutritious recipes.

Visit the primary health care centre.

#### **BOOKS-**

1. Jelliffy DB AND Jelliffy EFP. 1989- Community nutritional assessment. Oxford University press.
2. Wadhwa A and Sharma S. Nutrition in the community- A textbook, SSCN news UN ACC/ SCN subcommittee on nutrition.

## DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)

### DND-202 THERAPEUTIC NUTRITION

Theory-50  
Practical-25  
Int. Ass-25  
Total-100

#### Instructions for the Paper Setters:

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

#### UNIT 1

Therapeutic modification of normal diet

Gastrointestinal disorders – Gastritis , Hernia , Diarrhoea , constipation , peptic ulcers, ulcerative colitis , crohns disease , dumping syndrome.

Metabolic disorders – Diabetes, gout, hypothyroidism, hyperthyroidism, polycystic ovarian disorders.

#### UNIT 2

Cardiovascular disorders – Hypertension, Atherosclerosis, myocardial infarction.

Liver disorders- Jaundice, hepatitis, diseases of gall bladder.

Febrile disorders – Typhoid, tuberculosis

#### UNIT 3

Musculoskeletal disorders – Osteoarthritis, osteoporosis

Renal diseases – Glomerulonephritis, nephrotic syndrome, renal stones, acute and chronic renal failure.

Food allergies and food intolerance

Weight management

Practical

1. Make a diet plan for a diabetic person
2. Make a diet plan for women with hyperthyroidism
3. Make a diet plan for a person with high cholesterol
4. Make a diet plan for a gout patient
5. Make a diet plan for hernia patient
6. Make a diet plan for a patient suffering from peptic ulcer.

Books-1. Bamji MS, Rao NP and Reddy V (2003) textbook of human nutrition. Oxford and IBH.

2. Swaminathan M (1974) Essentials of foods and Nutrition Vol. II ganesh.

## **DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)**

### **DND-203 ANATOMY AND PHYSIOLOGY II**

**Theory-37**

**Int. Ass-13**

**Total-50**

#### **Instructions for the Paper Setters:**

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

#### **UNIT 1**

Endocrine system – Definition , functions, kinds of hormones.

Structure and functions of following glands – Thyroid , parathyroid , adrenal , pancreas, pituitary and pineal gland.

Cardiovascular system – composition of blood , ABO blood group . basic structure of heart , cardiac cycle . Blood pressure and factors affecting it.

Lymphatic system – Functions and life cycle of lymphocytes.

#### **UNIT 2**

Nervous system – structure and functions of nerve and receptor cells , transmission of nerve impulse , Autonomic nervous system – sympathetic and parasympathetic nervous system.

Respiratory system – structure of respiratory system , mechanism of respiration and its regulation.

Reproductive system – structure and function of male and female sex organs and glands, role of hormones in reproduction , placenta.

#### **Books-**

1. Bamji MS, Rao NP and Reddy V (2003) textbook of human nutrition. Oxford and IBH.
2. Swaminathan M (1974) Essentials of foods and Nutrition Vol. II ganesh.

## **DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)**

### **DND-204 FOOD HYGINE AND MICROBIOLOGY**

**Theory-50**  
**Practical-25**  
**Int. Ass-25**  
**Total-100**

#### **Instructions for the Paper Setters:**

**Theory: Question paper will be of eight questions in all. All questions will carry equal marks.**

**Students are required to attempt five questions only.**

**Question no. 1 (Short answer type) will be compulsory.**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

#### **UNIT 1**

Discovery and history of microbiology.

Introduction to important micro organism in foods.

Physical and chemical methods used in destruction of micro organisms.

#### **UNIT 2**

Use of high or low temperature, dehydration, irradiation and preservatives in food preservation .

Contamination and spoilage of cereal and cereal products, vegetables and fruits, canned foods, meat and meat products, milk and milk products.

#### **Practical**

Study of compound microscope

Study of autoclave and hot air oven

Study of laminar flow and colony counter

Preparation of nutrient broth and agar medium for growth of microorganism

Study of pour plate, spread plate and streak plate method of isolation of microorganisms

Study of different hygiene maintaining techniques in a food establishment

#### **BOOKS-**

1. Principles of Food Sanitation by Marriott, 5<sup>th</sup> ed., 2006, CBS Publisher, New Delhi.
2. Jay JM Modern Food Microbiology CBS publishers ND, 2005.
3. Pawar and Daginawala- 2010 Gen Microbiology (Vol II).
4. Food Microbiology by Frazier and westerner. 4th Edition Tata Mc Graw Hill.

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)**

**DND-205 DIET COUNSELLING AND COMPUTER OPERATIONS**

**Practical -25**

**Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.**

**Practical**

1. Operation of diet clinic and counseling.
2. Computer applications in nutrition related software, online software and diet calculation.
3. Case study report and presentation.
4. Visit to any institution such as Anganwari/ hotel industry/ hospital/ department of any institution/ NGO/ and presentation report.