

# **FACULTY OF FOOD SCIENCE & TECHNOLOGY**

**SYLLABUS FOR THE BATCH FROM THE YEAR 2024 TO YEAR 2025**

**Programme Code: DIND**

**Programme Name: DIPLOMA IN NUTRITION AND DIETETICS  
(Semester I-II)**

**Examination: 2024-2025**



**Department of Food Science and Technology**

## **Khalsa College, Amritsar**

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(b) Subject to change in the syllabi at any time.  
(c) Please visit the College website time to time.

S.No.	PROGRAMME OBJECTIVES
1.	To understand about the scientific aspects of food; their classification, structure, composition, processing methods and nutritive value.
2.	To apply knowledge of nutrition and dietetics to create diet plans, manage chronic diseases. They will also be able to maintain and preserve the nutritional value of foods.
3.	To apply the principles of nutrition and dietetics to identify and analyze complex problems related to food supplementation and fortification.
4.	To utilize the gained knowledge in hospitals for managing diets and nutrition of patients.
5.	To give detailed information related to national programmes, supplementary feeding programmes, National deficiency control programmes, Programmes for communicable diseases.

S.No.	PROGRAMME SPECIFIC OUTCOMES (PSOS)
PSO-1	To equip students with the knowledge of various food components and nutritional value of food groups so that they are able to create diet plans for all groups of persons.
PSO-2	To make students understand the role of nutrition and dietetics and entrepreneurship techniques along with the environmental challenges in daily and professional life.
PSO-3	To enhance the capability of students to identify, analyze and solve to problem arising in food industries related to nutrition in the process of preparation & preservation of foods.
PSO-4	To strengthen the foundation of students to build up their career as nutritionist or dietician to pursue career in food as well as interdisciplinary areas or to establish their entrepreneurship ventures.
PSO-5	To help students focus on the importance of dietary management in day to day life

## **ORDINANCE FOR DIPLOMA IN NUTRITION AND DIETETICS AS PER NEW EDUCATION POLICY**

### **1. Eligibility for Admission and duration of the courses**

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

### **2. Fee**

Every candidate shall pay such fee as the College may prescribe from time to time.

### **3. Scheme of Instructions-Examination**

For each examination, every student admitted to the courses under the semester system must be on the rolls of the institution, and shall send his/her admission form and fees for the examination through the Principal/Head of the Institution, accompanied by the following certificates:

- a) Of having attended at least 75% of the total number of lectures delivered in each theory and practical course separately. Deficiency in lectures may be condoned as per ordinances of college/University. If in a particular semester, a student falls short of attendance in a maximum of two courses, he/she would be permitted to appear in the semester examination of the papers in which he/she fulfils the attendance requirements. The course/s in which the student does not fulfill the minimum attendance requirements, he/she shall not be permitted to appear in the semester examination of such course/s, and shall be declared as having failed in such course/s. A student who is falling short of attendance in maximum of two courses, he/she shall be required to attend the minimum number of lectures which were falling short, during next year when the course/s is/are offered.
- b) Of having good moral character.
- c) The syllabi, courses of reading and regulations for the courses shall be notified by the College from time to time, and shall be deemed to constitute integral part of the ordinances. Course evaluation under the semester system of evaluation shall be done on marks basis. If a course has both the theory and practical components, the student will be required to pass both the components, separately. However, if the student fails in theory, but is passing in practical of that course, he/she will be required to clear the theory paper only, and vice-versa.

### **4. Carry on system for various semester examinations.**

#### **I. Courses having two semester duration:**

1. There shall be no condition for promoting a student from first semester to second semester.
2. **For certificate courses/UG/PG Diploma** - In case a student fails to pass all the courses/papers within a period of two semesters (One Year), he/she shall be given two consecutive semesters (one year) more to pass.
3. **For one year degree course-** In case a student fails to pass all the courses/papers within a period of two semesters (One Year), he/she shall be given two year more to pass.

#### **II. The medium of instructions shall be English.**

#### **III. Maximum time allowed to pass a degree is given in the table below \*:**

<i>Programme duration</i>	<i>Maximum time to complete a degree</i>
One year*	Three years

\*For certificate course/UG/PG Diploma maximum time limit is N+1.

- IV. The candidate shall be treated to be failing in the courses offered in the semester in which he has not sought admission/ dropped the semester and such courses/papers in which the candidate has failed shall be taken into account while deciding the promotion of the candidate in subsequent semesters as per the condition. The candidate shall be required to seek admission into the dropped/ gap semester examination as a regular candidate at the end of the prescribed duration of the course, but within the maximum time allowed to pass a course as given above table VII of the ordinances, provided that he fulfills all other requirements under the prevailing ordinances. Regular students admitted to a programme shall register/enroll themselves with the college in the very first semester of their admission and pay prescribed fee to the college/University. Direct admission to second semester is not allowed. The above shall also apply to all such courses in which admission to a college is a prerequisite as a regular student.

The above provision is extended to all the Under Graduate, Post Graduate Courses & Diplomas. This provision shall also be extended for subsequent semesters.

#### 5. **Course Credit**

Each course shall have a certain number of credits assigned to it depending upon the academic load of the course assessed on the basis of weekly contact hours of lecture, tutorial and laboratory classes, assignments or field study and/or self study.

Generally, each course shall have an integer number of credits reflecting its weightage. The number of credits of a course in a semester shall ordinarily be calculated as under:

- (1) **Lectures/Tutorials:** One lecture hour per week shall normally be assigned one credit. One hour of tutorial per week shall be assigned one credit. Theory courses shall be generally two to four credits, and tutorials one credit each. For determining the credits of a theory course, lectures and tutorials shall be added.
- (2) **Practicals:** Two laboratory hours per week shall be assigned one credit. Courses other than Lectures /Tutorials shall be treated as practical courses.

The Course credits for each course shall be given as L-T-P. For example, 3-1-0 will mean that it is a lecture based course and has 3 lectures, 1 tutorial, and no practical assigned to it. Similarly, a course with 0-0-2 means that it is a practical course with 4 hours of class work. Credit will be assigned to seminar, dissertation, project etc. under the practical component.

Generally the course work per semester will be 20 to 30 credits. A student shall register for a minimum of 20 credits in a semester. Syllabi will be designed with minimum credits required to complete a degree as follows:

Duration of Degree Programme	Minimum Credits
One year	45

#### 6. Grading System

The Grading will follow Credit-Based System, the details of which are given below:

While undertaking the course work, the following terms are defined:

'Course' means a paper.

'Credit' means weightage assigned to a course

'Grade' means a letter grade assigned to a student on a 10 point scale.

'Grade point' means points assigned to a letter grade.

'Semester Grade Point Average' (SGPA) means weighted average of grades in a semester.

$$SGPA = \frac{\sum_{i=1}^m (G_i \times C_i)}{\sum_{i=1}^m C_i},$$

Where  $G_i$  are the grade points obtained by a student in the  $i^{\text{th}}$  registered course and  $C_i$  are the credits of the  $i^{\text{th}}$  registered course and 'm' is the number of courses registered by a student in a particular semester.

$$\sum_{i=1}^m (G_i \times C_i) = \text{Total grade points obtained by a student in a semester,}$$

$$\sum_{i=1}^m C_i = \text{Total credits registered by the student in that semester.}$$

Or

$$SGPA = \frac{[(G_1 \times C_1) + (G_2 \times C_2) + \dots + (G_m \times C_m)]}{[C_1 + C_2 + \dots + C_m]}$$

'Cumulative Grade Point Average' (CGPA) means weighted average of grades in all the semesters computed at the end of any semester or at the end of the course completion.

$$CGPA = \frac{\sum_{i=1}^n (G_i \times C_i)}{\sum_{i=1}^n C_i}$$

$$= \frac{[(G_1 \times C_1) + (G_2 \times C_2) + \dots + (G_n \times C_n)]}{[C_1 + C_2 + \dots + C_n]},$$

where  $G_i$  are the grade points obtained by a student in the  $i^{\text{th}}$  registered course and  $C_i$  are the

credits of the  $i^{\text{th}}$  registered course, 'n' is the number of courses registered in all the semesters.

SGPA and CGPA shall be calculated up to two decimal places, after rounding off the third decimal to the nearest second place integer decimal, hence 0.005 to be increased to 0.01

The student would be awarded a letter grade on a 10 point scale on the basis of his/her performance. Grades shall be awarded as per the following table:

Common Grading Table		
Percentage Marks	Letter Grade	Grade Points
>90 to ≤100	O (Outstanding)	10
>80 to ≤90	A+ (Excellent)	9
>70 to ≤80	A (Very Good)	8
>60 to ≤70	B+ (Good)	7
>50 to ≤60	B (Above Average)	6
>40 to ≤50	C (Average)	5
≥35 to ≤40	P (Pass)	4
Below 35	F (Fail)	0
Absent (Ab)	F (Fail)	0

#### 7. Discipline

**Each student shall be under the control and discipline of the college. In case of any misconduct on the part of a student, the college shall have a power to take disciplinary action against the defaulter, to the extent of cancellation of admission of the defaulting student from the rolls of the institution.**

#### 8. Minimum Credits and Minimum CGPA required for a degree

The credits for the courses in which a student has obtained 'P' (minimum passing grade for a course) grade or higher shall be counted as Credits earned by him/her. A student shall have to earn a minimum of such number of Credits as may be required for the award of a degree in a particular course/discipline. A student, who has obtained a minimum CGPA of 4 and earned a minimum number of Credits as per scheme as specified for the programme, shall be eligible for the award of the respective degree.

- A student shall be required to maintain a minimum of 4 CGPA at the end of the final semester of his/her degree programme. If his/her CGPA falls below 4 at the end of final semester, the student will be declared as having failed in that particular year and will have to seek readmission in the odd semester of the particular year. For Example: In three year UG programme, the candidate having failed in the (final) 6th semester will have to seek readmission in the 5th semester.
- A student getting 'F' grade in any course will be treated as having failed in that course. If he/she fails in a course, he/she will have to repeat the course and will have to obtain at least 'P' grade in that course within the maximum period defined above in Table VII to complete the degree for that programme.
- A student who does not complete the programme of study within the minimum duration of the course of his/her study, or gets 'F' grade in any course shall not be eligible for any merit position/medal/award of the College.

#### Notes:

- All such students who were admitted under the non-credit based system before the implementation of credit based evaluation and grading system will be governed under the prevalent respective Ordinances of non-credit based System of examination till they pass such classes/courses.
- The clauses which are not covered under these Common Ordinances be read with their respective Ordinances and other general rules.
- Clauses relating to medium of instructions, duration of courses, eligibility, re-appear etc. which have not been mentioned under the new Common Ordinances will remain the same as per the previous ordinances.

**DIPLOMA IN NUTRITION AND DIETETICS****COURSE SCHEME****SEMESTER-I**

Course Code	Course Name	Hours/ Week	Credits			Total Credits	Marks				Page No.
			L	T	P		Th	P	Int A.	Total	
DIND11-101	Basic Nutrition	5	3	1	1	5	50	35	40	125	9
DIND11-102	Food Science	4	2	1	1	4	50	25	25	100	11
DIND11-103	Anatomy and Physiology – I	2	2	-	-	2	37	-	13	50	13
DIND11-104	Dietetics	4	2	1	1	4	50	25	25	100	14
DIND11-105	Food Safety	4	2	1	1	4	50	25	25	100	16
DIND11-106	Seminar I	4	-	-	4	4	-	100	---	100	17
	<b>Current Affairs*</b>					1					

**\*Non-Credit**

SEMESTER-II											
Course Code	Course Name	Hours/ Week	Credits			Total Credits	Marks				Page No.
			L	T	P		Th	P	Int A.	Total	
DIND12- 201	Community Nutrition	5	3	1	1	5	50	35	40	125	18
DIND12- 202	Therapeutic Nutrition	4	2	1	1	4	50	25	25	100	19
DIND12- 203	Anatomy and Physiology- II	2	2	-	-	2	37	-	13	50	21
DIND12- 204	Food Hygiene and Microbiology	4	2	1	1	4	50	25	25	100	22
DIND12- 205	Food Quality	4	2	1	1	4	50	25	25	100	24
DIND12-206	Diet Counselling and Computer operations	4	-	-	4	4	-	100	---	100	26
	<b>Current Affairs*</b>	1				1					

**\*Non-Credit**



**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)**  
**COURSE CODE: DIND11- 101**  
**COURSE TITLE: BASIC NUTRITION**

**CREDIT HOURS (per week): 05**

**(L=3,T=1 P=1 TOTAL=5)**

**TOTAL HOURS:75**

**Time: 3 Hours**

**Maximum Marks:125**

**Theory Marks-50**

**Practical Marks-35**

**Internal assessment-40**

**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.**

**COURSE OBJECTIVES:** Student will know about various components of food, their classification, functions and metabolism. They will be aware of various metabolic processes and also able to calculate their own metabolic rates as per their physical activity.

**COURSE CONTENTS:**

**THEORY**

**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:**

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

**BOOKS PRESCRIBED:**

1. Food nutrition: M. swaminathan Vol I and Vol II.
2. Textbook of Nutrition and dietetics : Khanna, Gupta, Passi and Mahna
3. Nutrition and Dietetics: Joshi SA 2011 (Tata Mc Graw Hill).

**COURSE OUTCOMES:** On completing the course, students will be able:

CO1: To provide detailed knowledge about the relation between food and nutrition.

CO2: To provide practical knowledge of modified recipes in terms of- Low protein, High protein, Low fat, Low sodium, Calcium rich, Iron rich, Rich in vitamin A.

CO3: To provide detailed knowledge about functions, metabolism, classification, RDA values and nutritive value of macro and micronutrients.

CO4: To furnish information about vitamins and minerals

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)****COURSE CODE: DIND11- 102****COURSE TITLE: FOOD SCIENCE****CREDIT HOURS (per week): 04****(L=2,T=1 P=1 TOTAL=4)****TOTAL HOURS: 60****Time: 3 Hours****Maximum Marks: 100****Theory Marks-50****Practical Marks-25****Internal assessment-25****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.****COURSE OBJECTIVES:**

This subject will help students to understand about the scientific aspects of food; their classification, structure, composition, processing methods and nutritive value. This subject will also enlighten students about different methods of improving nutritional quality of food and they will be able to understand food preservation techniques. Students will also be aware about food adulteration and their detection methods.

**COURSE CONTENTS:****THEORY****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 PRESCRIBED:**

Food Science: Potter NN.

Food facts and Principals: Manay N.

**COURSE OUTCOMES:** On completing the course, students will be able:

CO1: To understand about the scientific aspects of food; their classification, structure, composition, processing methods and nutritive value.

CO2: To familiarize students with composition and nutritive value of fruits and vegetables.

CO3: To access the egg quality and structures, functions and classification cereal grains, pulses, oilseeds and protein rich foods.

CO4: To introduce the students to the general principles regarding food processing, preservation and nutrition improving techniques.

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)****COURSE CODE: DIND11- 103****COURSE TITLE: ANATOMY AND PHYSIOLOGY-I****CREDIT HOURS (per week): 02****Maximum Marks:50****Theory (L=2)****Theory Marks-37****TOTAL HOURS:30****Internalassessment-13****Time: 3 Hours****INSTRUCTIONS FOR THE PAPER SETTERS:****Theory: Question paper will be of eight questions in all.****Question no. 1 (Short answer type questions) will be compulsory of 5 marks. All other questions will carry 8 marks each. Students are required to attempt five questions only.****COURSE OBJECTIVES:**

Students will be able to define basic anatomical and physiological terms, structure and functions of cells and tissues. They will be able to explain the concept of excretory system and their disorders and further able to understand the musculoskeletal and integumentary system.

**COURSE CONTENTS:****THEORY****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 PRESCRIBED:**

- Human physiology Vol I and Vol II- Chatterjee CC.
- Concise medical physiology- Chaudhary SK.
- BD chaurasia- handbook of general anatomy 5th edition CBS publication.

**COURSE OUTCOMES:** On completing the course, students will be able:

CO1: To describe the structure and functions of digestive system and mechanism of digestion and absorption processes.

CO2: To provide detailed information on the cells and cell structures.

CO3: To explain the structure and functions of integumentary system, skeletal system and muscular system.

CO4: To provide brief knowledge about the diseases associated with the excretory system.

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER I)****COURSE CODE: DIND11- 104****COURSE TITLE: DIETETICS****CREDIT HOURS (per week): 04****(L=2,T=1 P=1 TOTAL=4)****TOTAL HOURS: 60****Time: 3 Hours****Maximum Marks: 100****Theory Marks-50****Practical Marks-25****Internal assessment-25****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.**

**COURSE OBJECTIVES:**

This subject is concerned with diet and its effects on health. Students will be able to use food exchange list in the meal planning. They will be able to understand the role of diet at various life stages and can make diet plan accordingly.

**COURSE CONTENTS:****THEORY****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 PRESCRIBED:**

- Textbook of nutrition and dietetics by Khanna S. GUPTA, Passi and Mahna.
- Textbook of nutrition and dietetics by Joshi SA, 2011

**COURSE OUTCOMES:** On completing the course, students will be able:

CO1: Provide comprehensive and essential practical guidance on all aspects of dietetics from the promotion of health to the management of diseases

CO2: Provide knowledge about meal planning and portion size, food exchange list.

CO3: Students will be able to collect data based on assessment of body or body composition analysis.

CO4: Provides essential knowledge about nutrition for different age groups.

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)****COURSE CODE: DIND11- 105****COURSE TITLE: FOOD SAFETY****CREDIT HOURS (per week): 04****(L=2, T=1, P=1 TOTAL=4)****TOTAL HOURS:60****Time: 3 Hours****Maximum Marks:100****Theory Marks-50****Practical Marks-25****Internal assessment-25****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.

**COURSE OBJECTIVES:**

CO1 :To provide knowledge about the importance of food safety.

CO2: To provide practical knowledge about identification of different hazards related to food

CO3: To make students aware to food borne illnesses and their precautions

CO4: To furnish information about FSSAI and Food safety management tools

**COURSE CONTENTS:****THEORY****Unit – I**

Introduction, Factors affecting Food Safety, Importance of Safe Foods

Food Hazards (Physical, Chemical and Biological)

**Unit – 2**

Food Borne Illness

Food Safety Management Tools (GMP, GHP, HACCP, and TQM)

Introduction to FSSAI and its functions, New approaches to Food Safety

**Practicals :-**

1. Identification of Different Food Hazards
2. HACCP Chart for different food industries
3. Detection of Food Adulterants
4. Working of FSSAI
5. Identification of different good hygiene practices in daily life

**BOOKS PRESCRIBED:**

- Jay JM Modern Food Microbiology CBS publishers ND, 2005.
- Pawar and Dagainawala- 2010 Gen Microbiology (Vol II).
- Food Microbiology by Frazier and westerner. 4th Edition Tata Mc Graw Hill
- Bhunia AK Food borne Microbial Pathogens (Mechanism and Pathogenesis) Food Science text series Springer Food Safety by Ian C Shaw: Publisher Wiley Blackwell

(Signature)



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

**COURSE CODE: DIND11- 106**

**COURSE TITLE: SEMINAR -I**

**Credit Hours/Week (P): 4**

**Total Hours: 60**

**Time : 3 Hours**

**Maximum Marks: 100**

**Practical: 100**

**Course Objectives:**

Students will be able to get to know about the advancement carried out in the field of community nutrition, public health and allied areas.

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

**COURSE OUTCOMES:** On completing the course, students will be able:

CO1: Perform better in their academic field

CO2: Understand the role of nutrition in different fields such as public health nutrition/community nutrition or medical fields

CO3: To Prepare seminar based on related fields

CO4: To enhance knowledge in the advancement of nutrition and wellness sector

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)****COURSE CODE: DIND12- 201****COURSE TITLE: COMMUNITY NUTRITION****CREDIT HOURS (per week): 05****Maximum Marks:125****(L=3,T=2 P=1 TOTAL=5)****Theory Marks-50****TOTAL HOURS: 75****Practical Marks-35****Time: 3 Hours****Internal assessment-40****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.**

**COURSE OBJECTIVES:**

Students will develop an in-depth understanding of community nutrition and the role of dietitian in this area by examining community nutrition programs and program planning principles. Students will also get knowledge of counselling skills, nutritional approaches in community, national health programs, deficiency control programmes and nutritional surveillance.

**COURSE CONTENTS:****THEORY****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 PRESCRIBED:**

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.

**COURSE OUTCOMES:** On completing the course, students will be able to:

CO1: Develop a knowledge base in key areas of nutrition/dietetics and food service management such as public health nutrition

CO1: Give a detailed information related to national programmes, supplementary feeding programmes, National deficiency control programmes, Programmes for communicable diseases.

CO3: Train the students as a diet or nutrition/health counsellor.

CO4: Give an exposure of primary health care center

(Signature)

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)****COURSE CODE: DIND12- 202****COURSE TITLE: THERAPEUTIC NUTRITION****CREDIT HOURS (per week): 04****Maximum Marks:100****(L=2,T=1 P=1 TOTAL=4)****Theory Marks-50****TOTAL HOURS:60****Practical Marks-25****Time: 3 Hours****Internal assessment-25****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.****COURSE OBJECTIVES:**

Students will be able to interpret and apply nutrition concepts to evaluate and improve the nutritional health of individuals with medical conditions. This subject will help students to learn about principle of therapeutic diets.

**COURSE CONTENTS:****THEORY****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.

Feblile 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.

**(Signature)**

**BOOKS PRESCRIBED:**

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

**COURSE OUTCOMES:** On completing the course, students will be able to:

CO1: Get knowledge about modification of normal diet

CO2: Get detailed information on gastrointestinal and metabolic disorders.

CO3: Give awareness regarding the cardiovascular, liver, febrile, musculoskeletal and renal disorders

CO4: Inform the students about food allergies.

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)****COURSE CODE: DIND12- 203****COURSE TITLE: ANATOMY AND PHYSIOLOGY- II****CREDIT HOURS (per week): 02****Maximum Marks: 50****Theory (L=2)****Theory Marks-37****TOTAL HOURS:30****Internal assessment-13****Time: 3 Hours****INSTRUCTIONS FOR THE PAPER SETTERS:****Theory: Question paper will be of eight questions in all.****Question no. 1 (Short answer type questions) will be compulsory of 5 marks. All other questions will carry 8 marks each. Students are required to attempt five questions only.****COURSE OBJECTIVES:**

Students will be able to apply the concept in medical field and have knowledge of cell structure, function, anatomy and physiology of organ system. Students will also be able to learn inter relation between different human organ system.

**COURSE CONTENTS:****THEORY****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 PRESCRIBED:**

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.

**COURSE OUTCOMES:** On completing the course, students will be able to:

CO1: Explain the endocrine and lymphatic system of the human body.

CO2: Explain cardiovascular system and diseases associated with it.

CO3: Provide information about nervous system and its types.

CO4: Explain the mechanism and structure of respiratory and reproductive system.

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)****COURSE CODE: DIND12- 204****COURSE TITLE: FOOD HYGIENE AND MICROBIOLOGY****CREDIT HOURS (per week): 04****(L=2,T=1 P=1 TOTAL=4)****TOTAL HOURS:60****Time: 3 Hours****Maximum Marks:100****Theory Marks-50****Practical Marks-25****Internal assessment-25****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.****COURSE OBJECTIVES:**

This subject will provide the key concepts and principles of food microbiology with special emphasis on the interaction between microorganisms and food. Students will be able to learn important microorganisms, different methods used for destruction of microorganism, preservation techniques.

**COURSE CONTENTS:****THEORY****UNIT 1**

Discovery and history of microbiology.

Introduction to important microorganisms in foods.

Physical and chemical methods used in destruction of microorganisms.

**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

**(Signature)**

**BOOKS PRESCRIBED:**

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

**COURSE OUTCOMES:** On completing the course, students will be able to:

CO1: Provide information about history of microbiology and importance of micro-organisms.

CO2: Explain different food preservation techniques.

CO3: Provide information regarding contamination and spoilage of food products.

CO4: Describe the methods used for destruction of micro-organisms.

**(Signature)**

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)**  
**COURSE CODE: DIND12- 205**  
**COURSE TITLE: FOOD QUALITY**

**CREDIT HOURS (per week): 04**  
**(L=2, T=1, P=1 TOTAL=4)**  
**TOTAL HOURS:60**  
**Time: 3 Hours**

**Maximum Marks:100**  
**Theory Marks-50**  
**Practical Marks-25**  
**Internal assessment-25**

**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.**

**COURSE OBJECTIVES:**

CO1: To familiarize students with concept of food quality w.r.t food.

CO2: To know about various quality characteristics of food.

CO3: To make students aware about the importance of quality evaluation in food

CO4: To make student know about standardisation aspect in food industry

**COURSE CONTENTS:**

**THEORY**

**Unit – I**

- Definition and Concept of Food Quality
- Quality contributing properties of Foods
- Importance of Quality evaluation

**Unit-II**

- Quality evaluation: Fruits and vegetables, Milk, Egg and cereals
- Concept of ISO in food industry
- Introduction to BIS
- Food analysis using Refractometer and Lactometer

**PRACTICALS:**

1. Identification of different hazards in food
2. Quality evaluation of Fruits and Vegetables
3. Quality evaluation of milk
4. Candling of eggs
5. Determination of physical properties of different cereal grains.

(Signature)



**BOOKS PRESCRIBED:**

1. Quality Control for Food Industry by Kramer A, Twigg BA, 1970, AVI Publishers, USA.
2. Handbook of Analysis and Quality Control for Fruits & Veg. Products by Ranganna S, 2<sup>nd</sup> Ed., 2000, Tata McGraw Hill, New Delhi.
3. Food Science by Potter NN, 5<sup>th</sup> Ed, 2006, CBS Publishers New Delhi

**COURSE OUTCOMES:**

Students will know about the role and functions of quality in food, how to evaluate the quality of different food products, how to analyse food, various organization associated with food standardisation

(Signature)

**DIPLOMA IN NUTRITION AND DIETETICS (SEMESTER II)**  
**COURSE CODE: DIND12- 206**  
**COURSE TITLE: DIET COUNSELLING AND COMPUTER OPERATIONS**

**Credit Hours/Week (P) : 4**

**Total Hours:60**

**Time : 3 Hours**

**Maximum Marks: 100**

**Practical Marks: 100**

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

**COURSE OBJECTIVES:**

Students will get knowledge about operations of diet clinic, computer applications, nutrition related software, diet calculations and diet counselling. Students will be able to make case study report and presentation. Students will be able to demonstrate a variety of communication strategies in nutrition and food education.

**COURSE CONTENTS:**

**PRACTICAL:**

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

**COURSE OUTCOMES:** On completing the course, students will be able to:

CO1: Give awareness regarding the organizational understanding of hospitals and wellness sector.

CO2: Explain the application of nutrition care process.

CO3: Help students to use the diet counselling form and to operate computer applications, diet calculations or nutrition related online software.

CO4: Help students in preparing case study report and presentation and to impart necessary expertise to enable learners to function as dieticians, diet counsellors and nutrition and health communicators.

**(Signature)**