

(First page for SECs, model only)

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION
REVISED UG SYLLABUS UNDER CBCS
(Implemented from Academic Year 2020-21)
PROGRAMME: 4 Year B.Sc.,

Domain Subject: NUTRITION

Skill Enhancement Courses (SECs) for Semester V, from 2022-23
(Syllabus-Curriculum)

Structure of SECs for Semester – V

(To choose One pair from the Four alternate pairs of SECs)

Univ. Code	Courses 6 & 7	Name of Course	Th. Hrs. / Week	IE Mar-ks	EE Mar-ks	Credits	Prac. Hrs./ Wk	Mar-ks	Credits
	6A	Advanced Diet Therapy	3	25	75	3	3	50	2
	7A	Human Physiology	3	25	75	3	3	50	2

OR

	6B	Nutrition & Fitness	3	25	75	3	3	50	2
	7B	Nutrition Health Communication	3	25	75	3	3	50	2

OR

	6C	Food processing & preservation	3	25	75	3	3	50	2
	7C	Food labelling & packaging	3	25	75	3	3	50	2

OR

	6D	Food Product development	3	25	75	3	3	50	2
	7D	Entrepreneurship Management	3	25	75	3	3	50	2

Note-1: For Semester–V, for the domain subject Nutrition, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the field skills embedded in the syllabus citing related real field situations.

Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 6A: ADVANCED DIET THERAPY
(Skill Enhancement Course - 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)

ADVANCED DIET THERAPY
(Theory -3 Credits)

I. Learning Outcomes:

Students after successful completion of the course will be able to:

- Apply nutrition principles to health promotion and the prevention of diseases
- Apply the principles in planning menus for disease conditions
- Master professional diet counselling skills
- Manage a dietary department at the capacity of a dietitian.
- Recommend personalized diets for various disease condition

II. Theory Syllabus: (50 Hrs)

Unit I: Diet in Diabetes Mellitus

Classification, symptoms, Complications, diagnosis of diabetes mellitus- Insulin therapy. Dietary management and nutritional therapy, meal plan (with and without insulin). Diabetes in pregnancy, Diabetic coma, Juvenile Diabetes- diet management. 10 Hrs

Unit II: Diet in diseases of the cardiovascular system

Atherosclerosis: Etiology, symptoms and risk factors. Dietary care management, Ischemic heart disease – nutritional management. Congestive heart disease and nutritional management. Hypertension – etiology, prevalence, nutritional management and prevention. 10 Hrs

Unit III: Diet in Liver diseases

Alcoholic liver disease, cirrhosis, hepatic coma and gall stones- etiology, Symptoms, complications, diagnostic tools and dietary management of liver diseases. 10 Hrs

Unit IV: Diet in Renal diseases

Diseases of kidney – classification, etiology, characteristic symptoms and dietary management in: Glomerulonephritis – acute and chronic, Nephrotic syndrome, renal failure and uremia, acute and chronic renal failure. 10 Hrs

Unit V: Diet in Critically ill patients

Cancer – Types, Nutritional and non- nutritional etiological factors, symptoms of Surgery and burns, Pre-operative and post- operative nutritional care. Nutritional management of burns patients. Inborn errors of metabolism – Biochemical basis and nutritional management of PKU and Maple Syrup Urine Disease. 10 Hrs

ADVANCED DIET THERAPY **(Practical – 2 Credits)**

III. Skill Outcomes:

On successful completion of this practical course, student shall be able to:

- Understand the etiology and symptoms of different diseases
- Comprehend the diet management for different types diabetes
- Understand the dietary management of cardiovascular disorders and liver diseases
- Gain knowledge on diet therapy of renal diseases
- Get insights in to the diet therapy of critically ill patients

IV. Practical Syllabus: (30 Hrs.)

Computation of nutrient requirements, planning, preparation & evaluation of therapeutic diets for the following conditions.

1. Diabetes mellitus & its complications
2. Cardio Vascular Disorders
3. Liver diseases
4. Renal disorders
5. Burns
6. Pre and post-surgery conditions
7. Different types of cancers
8. Inborn disorders of metabolism

V. RECOMMENDED READINGS:

1. Mahan LK & Ecott- Stump S (2000): Krause's Food, Nutrition and Diet therapy, 10th ed. WB Saunders Ltd.
2. Srilakshmi B (2005) Dietetics, 5th ed. New age International (P) Ltd. Pbs. New Delhi
3. Gopalan C (1996) Nutritive value of Indian foods. NIN. Hyderabad.
4. Michele JS, Sadler J, strain J, Benjamin C (1999) Encyclopedia of Human Nutrition.
5. Ganesh and Co., Williams S (1981) Nutrition and diet therapy. 4th Ed. Missouri. Masby co. Pbs.
6. Gopalan C and Narasinga Rao B(1988) Dietary Allowances for Indians. NIN

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. **For Teacher:** Training of students by teacher, in laboratory and field visits for a total of 10 hours on visit to a local hospital having a dietary department and disease specific diet planning and computation of nutritive value
2. **For Student:** Individual visits to local Govt. and corporate hospitals, submission of a hand written field work report not exceeding 10 pages in given format
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: *Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.*
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like project formulation, model projects and report writing.
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques of diet prescription and counselling.
5. Invited lectures and presentations on related topics by Dietitians in the field

VII. Suggested Question Paper Pattern

ADVANCED DIET THERAPY (Theory)

Max. Marks: 75

Time – 3 Hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks: 5x3)

1. Types of Diabetes Mellitus
2. Atherosclerosis
3. Symptoms of Cirrhosis
4. Low salt diet
5. Energy requirements for Burns

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1	Write about Complications of Diabetes
2	Discuss about nutritional management of Congestive heart disease
3	Discuss about the diagnostic tools in liver diseases
4	Explain the types of kidney diseases
5	Brief about etiological factors of cancer
6	Discuss about diagnosis of Diabetes
7	Write about High fiber diets
8	Discuss about high and low cholesterol foods

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Elaborate on diet management of diabetes in pregnancy
2	Explain in detail about etiology and nutritional management of Hypertension
3	Discuss about etiology and diet management of Alcoholic liver disease
4	Discuss about the symptoms and dietary management of Glomerular nephritis
5	Explain about the post operative nutritional management of critically ill patients
6	Explain in detail symptoms and diet therapy for Phenyl ketonuria condition

Suggested Question Paper Model for Practical Examination

Semester – V/ Nutrition – 6A (Skill Enhancement Course)

ADVANCED DIET THERAPY (Practical)

Max. Marks: 50

Time: 3 Hrs.

1. Write the nutritional requirements, plan whole day menu for a Cirrhosis patient and calculate nutritive value– 25 M
2. Write a discharge diet plan for a diabetic patient on insulin therapy - 15 M
3. Record + Viva-voce 6+4 = 10 M

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Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 7 A: HUMAN PHYSIOLOGY
(Skill Enhancement Course (Elective), 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)

HUMAN PHYSIOLOGY
(Theory- 3 Credits)

I. Learning Outcomes:

Students after successful completion of the course will be able to:

- Understand and distinguish the functions at cellular level
- Comprehend the physiological functions of cardio vascular system
- Illustrate the role of gut in digestion and absorption
- Get an insight of functions of respiratory system
- Get sensitized about organs of special senses

II. Theory Syllabus (50 Hrs)

UNIT 1: Introduction to human body

Definition of Anatomy and physiology, Types of cells and tissues of the body. Skeletal system – Function, types of bones, classification of bones, and growth of long bone. 10 Hrs

UNIT 2: Blood and circulatory System

Composition of blood- WBC, RBC, Platelets –Structure, formation and function, coagulation, of blood, blood groups and Rh factor, Heart – Structure, and functions, blood pressure, types of circulation, principal blood vessels- structure and function. 10 Hrs

UNIT 3: Digestive system

Structure and functions of various organs of the GI Tract, Digestion and absorption of food and the role of enzymes and hormones. 10 Hrs

UNIT 4: Respiratory system

Structure of Lungs, Mechanism of respiration and its regulation, O₂ and CO₂ transport in blood, vital capacity and other lung volumes, Respiratory passages, Alveoli, Physiology of respiration; rate and control. 10 Hrs

UNIT 5: Organs of special senses:

Tongue, nose, ear, eyes and skin-structure and their physiological functions. 10 Hrs

HUMAN PHYSIOLOGY

(Practical- 2 credits)

III. Skill Outcomes:

- On successful completion of this practical course, student shall be able to:
 - Identify various tissues
 - Attain experience in assessment of blood clotting time
 - Gain hands on experience in blood grouping
 - Evaluate and assess the CBC
 - Estimate of some clinical parameters
 - Measure blood pressure

IV Practical Syllabus – (30 Hrs)

1. Identification of tissues slides – epithelial tissues, neuron, muscular tissues, Cardiac tissues, blood, CS of an artery and lung, pancreas, liver, esophagus, stomach and intestine
2. Blood clotting time (both methods) and bleeding time (Duke's method)
3. Blood groups and Rh factor.
4. Estimation of hemoglobin- Sahli's method
5. Enumeration of RBC / WBC, Differential count of WBC
6. Complete Blood Count (CBC)
7. Measurement of Blood Pressure and Pulse Rate
8. Spotters: Instruments and Reagents.

V. RECOMMENDED READINGS:

1. Human Physiology & health, David Wright (2004)
2. Fundamentals of Human Physiology, Stuart Ira fox (2008)
3. Human Anatomy and Physiology, S.B.Bhise, AV.Yadav, Nirali Prakashan (2005)
4. Handbook Of General Anatomy, B.D. Chaurasia, Third Edition (1996)
5. Review Of Medical Physiology, William F.Ganong, MD , 20 th Edition.
6. Elements Of Human Anatomy Physiology& Health Education by Ramesh K.Goyal

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. **For Teacher:** Training of students by teacher, a total of 10 hours on identification of slides of tissues, blood pressure measurement etc
2. **For Student:** Individual visits to local Govt. hospital labs, submission of a hand written field work report not exceeding 10 pages in given format
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: *Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.*
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like project formulation, model projects and report writing.
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on anatomy and digestion of food, role of enzymes etc.
5. Invited lectures and presentations on related topics by field/industrial experts.

VII. Suggested Question Paper Pattern:

HUMAN PHYSIOLOGY (Theory)

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks: 5 x3)

1. Functions of cell.
2. Platelets
3. Salivary gland secretions
4. Structure of Alveoli
5. Functions of tongue

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks)
(At least 1 question should be given from each Unit)

1	Explain about the hormones of digestive system
2	Write about types of bones
3	Explain the composition of blood
4	Write about the structure and functions of stomach
5	Write about the structure of lungs
6	Explain the structure and functions of nose
7	Describe the layers of GI tract
8	Brief about clotting of blood

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Elaborate on structure and growth of long bones
2	Describe in detail the structure and functions of heart
3	Discuss about the digestion and absorption of nutrients in GI tract
4	Write about the mechanism of respiration
5	Elaborate on structure and physiological functions of skin
6	Explain the anatomy of Muscle tissue

Suggested Question Paper Model for Practical Examination Semester – V/ Nutrition – 7A (Skill Enhancement Course)

HUMAN PHYSIOLOGY Practical

Max. Marks: 50

Time: 3 Hrs.

1. A. Measure the blood pressure and evaluate
B. Identify the spotter – 25 M
2. Estimate the Haemoglobin % of given sample - 15 M
3. Record + Viva-voce 6+4 = 10 M

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Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 6 B: NUTRITION & FITNESS
(Skill Enhancement Course (Elective) 05 Credits)
Max Marks: Theory: 100 + Practical: 50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)

NUTRITION & FITNESS
(Theory -3 Credits)

I. Learning Outcomes

Students after successful completion of the course will be able to:

- Understand the health benefits of exercise and fitness
- Acquire critical knowledge on nutrition for fitness
- Develop insights in to physical activity guidelines
- Acquire skills to plan diets for different sports categories
- Gain knowledge on planning weight loss diets

II. Theory Syllabus (50 Hrs)

Unit 1

- Understanding Fitness
 - Definition of fitness, health and related terms
 - Different methods of Assessment of fitness
 - Approaches for keeping fit
- 10 Hrs

Unit 2

- Importance of nutrition
 - Role of nutrition in fitness
 - Nutritional guidelines for health and fitness
 - Nutritional supplements
- 10 Hrs

Unit 3

- Importance of Physical activity
 - Benefits of physical activity
 - Physical Activity – frequency, intensity, time and type with examples
 - Physical Activity Guidelines and physical activity pyramid
- 10 Hrs

Unit 4

- Different categories of sports activities in India
 - Nutrient requirements for sports persons
 - Different types of sports drinks
 - Pre and post-game meals
 - Ergogenic aids
- 10 Hrs

Unit 5

- Weight Management
 - Assessment, etiology, health complications of overweight and obesity
 - Diet and exercise for weight management
 - Fad diets, Pros & Cons, principles of planning weight reducing diets
- 10 Hrs

NUTRITION & FITNESS **(Practical -2 Credits)**

III. Skill Outcomes

On successful completion of this practical course, student shall be able to:

- List out and identify the nutritional requirements for sports persons
- Demonstrate the procedures of planning pre and post-game meals
- Exhibit skills on development of sports drinks
- Acquire skills in anthropometric and BMI assessment
- Equipped to prepare weight loss diets

IV. Practical Syllabus: (30 Hrs)

1. Assessment of Nutritional fitness - Assessment of nutrient intake -Recall, Food record & Food Frequency Questionnaire, Anthropometric measurements
2. Methods Planning & Preparation of menus for different sports activities
3. Planning & Preparation of Macro and micro nutrient Modified recipes
4. Planning & Preparation of Antioxidant rich recipes
5. Planning & Preparation of natural and healthy Sports drinks.
6. Commercial sports drinks and compilation of label information and analysis
7. Planning & Preparation of weight loss diets
8. Visits to different fitness centers and Gyms

V. Recommended Reading

1. Wardlaw, Smith. Contemporary Nutrition: A Functional Approach. 2nd ed: 2012.McGraw Hill.
2. Williams Melvin. Nutrition for health, fitness and sports. 2004.Mc Graw Hill
3. Joshi AS. Nutrition and Dietetics 2010. Tata Mc Graw Hill.
4. McArdle W, Katch F, Katch V (1996) Exercise Physiology. Energy, Nutrition and Human Performance. 4th ed. Williams and Wilkins, Philadelphia
5. Sports Nutrition &Health, H.S Anderson, Sports and Physical Education

VI. Co-Curricular Activities

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. **For Teacher:** Training of students by teacher in laboratory and field for a total of 10 hours on diet planning for sports persons, pre and post-game meal preparation, formulation of sports drinks
2. **For Student:** Visit to a local fitness centre and study the patterns of exercise and diet advised for obese persons Submission of a hand-written Fieldwork Report not exceeding 10 pages in the given format.
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: *Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.*
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like assessment of nutritional status , assessment of fitness status)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on different types of physical activities, weight loss programs and sports activities
5. Visits to Gyms and Fitness centres
6. Invited lectures and presentations on related topics by field/industrial experts.

VII. Suggested Question Paper Pattern:

**NUTRITION & FITNESS
(Theory)**

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks : 5 x3)

1. Define Fitness
2. Nutritional supplements
3. Physical activity Pyramid
4. Categories of sports activities
5. Fad Diets

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1	Brief about the assessment of fitness
2	Discuss about the nutritional guidelines for health and fitness
3	Write about the benefits of Physical activity
4	Enumerate the role of sports drinks in hydration of sports persons
5	Discuss about the requirements of pre- and post-game meals
6	Discuss about the methods of assessment of obesity
7	Write about safety concerns of high protein diets in sports persons
8	Describe the role of exercise in weight management

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Discuss in detail about various approaches of maintaining fitness
2	Write about the role of diet and nutrition in fitness
3	Discuss about the significance of frequency , intensity and type of physical activity
4	Elaborate up on the nutrient requirements of sports persons
5	What are Ergogenic aids? Discuss their role in enhancing sports performance
6	Discuss in detail about planning of weight loss diets

Suggested Question Paper Model for Practical Examination
Semester – V/ Nutrition – 6B (Skill Enhancement Course)

**NUTRITION & FITNESS
(Practical)**

Max. Marks: 50

Time: 3 Hrs.

1. Write the nutrient requirements of a badminton player, 25 yrs of age - 15 M
2. Plan a weight loss diet for an adult man of 100 Kg weight, Height 5'8" . Age 40 years and calculate the nutritive value - 25M
3. Record + Viva-voce 6+4 = 10 M

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Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 7 B: NUTRITION HEALTH COMMUNICATION
(Skill Enhancement Course (Elective), 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)

NUTRITION HEALTH COMMUNICATION
(Theory- 3 Credits)

I. Learning Outcomes:

Students after successful completion of the course will be able to:

- Know about the basic concepts in Communication
- Understand concept of Behaviour Change Communication
- Gain information on growth of different media and its role in society
- Gain knowledge about Global and National programs
- Attain knowledge regarding evolution of NHC in Government nutrition health programs in India

II. Theory Syllabus (50 Hrs)

Unit I: Concepts and Theories of Communication in Nutrition & Health

Definitions of concepts, Formal – non-formal communication, Participatory communication, Theories of NHC
History, need and relevance of NHC in India 10 Hrs

Unit II: The Components and Processes of NHC

Concept of Behaviour Change Communication (BCC) from imparting information to focusing on changing practices, Components of BCC: Sender, Message, Channel, Receiver, Various types of communication – interpersonal, mass media, visual, verbal/ non-verbal, Features of successful BCC, Market research and social marketing 10 Hrs

Unit III: Growth and Development of media

Folk Media – role of folk media in society, Press - its roles and values in society, Radio - its role and value in society, Cinema - its role and value in society, Television - its role and value in society, New Media- internet - its role and value in society 10 Hrs

Unit IV: Programs and Experiences of NHC global and Indian perspective

NHC in developed and developing nations: some examples, Evolution of NHC in India: traditional folk media to modern methods of communication, Traditional folk media in Andhra Pradesh and its influence on NHC, Communication for urban and rural environment; for target specific audience. 10 Hrs

Unit V: Nutrition - Health – Communication in Government Programs and NGOs

Evolution of NHC in Government nutrition health programs - shift in focus from knowledge gain to change in practices, Overview of NHC in government programs (Activities, strengths and limitations), NHC in ICDS, Nutritional counselling in micronutrient deficiency control programs: control of IDA, IDD, VAD, Strengths and limitations of NHC imparted in NGO programs. 10 Hrs

NUTRITION HEALTH COMMUNICATION (Practical- 2 Credits)

III. Skills Outcomes:

On successful completion of this practical course, student shall be able to:

- Design media for development communication
- Carry out analysis of development programs
- Evaluate strategies used by development agencies for implementation of development programmes
- Develop skills in planning and using individual and small group methods in extension
- Develop skills in implementing Nutrition Health Communication in various programs

IV. Practical Syllabus: (30 Hrs)

1. Visit to an ongoing NHC program in ICDS: one rural, one urban
2. Visit to a health centre (ANC clinic run by Government health department and observe quality of counselling imparted to pregnant women (especially awareness of anemia, importance of IFA).
3. To visit an NGO either rural or urban and observe one NHC program implemented for women, school children or adolescence (For all the above observation, appropriate observation check lists will be made and used)
4. Improving the NHC-To conduct brief interviews with service providers in all the above programs and to compare the observations, discuss the strength and weakness of the NHC activities carried out.
5. To prepare various audio-visual aids for Nutrition and Health education in community
6. To design and plan NHC sessions on a specific nutrition topic for any vulnerable group: children, adolescents, women taking into account all components of NHC.
7. Submit the visual, the script of the session: the communication strategy and evaluation plan.
8. To implement one NHC session in the field and evaluate it as per guidelines provided.

V. Recommended Readings

1. Field guide to designing communication strategy, WHO publication-2007.
2. Behaviour changes consortium summary (1999-2003) www1.od.nih.gov/behaviourchange
3. Communication strategy to conserve/improve Public Health., John Hopkins University- Centre for Communication programmes.
4. Michael Favin and Marcia Griffiths 1999, Nutrition tool kit-09-Communication for Behaviour change in Nutrition projects. Human Development Network-The World Bank1999
5. Harvard Institute of International Development (1981) Nutrition Education in Developing Countries, New York: Oelgeschlager Gunn and Hain Publishers Inc.
6. Hubley J (1993) Communicating Health. London: Teaching Aids at Low Cost, London, UK.

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. For Teacher: Training of students by teacher in laboratory and field for a total of 10 hours on various concepts of Nutrition Health Communication
2. For Student: Individual visit to a local ICDS, Anganwadi and NGO or related field work. Submission of a handwritten Fieldwork Report not exceeding 10 pages in the given format.
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments, Seminars, Group discussions, Quiz, Debates etc. (on related topics).
3. Preparation of videos on various media for implementing Nutrition Health Communication
4. Visits to local ICDS, NGOs and Anganwadi centres.
5. Invited lectures and presentations on related topics by experts.

VII. Suggested Question Paper Pattern:

NUTRITION HEALTH COMMUNICATION (Theory)

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks: 5 x 3)

1. Define Nutrition Health Communication
2. Interpersonal communication
3. Radio as an aid in mass communication
4. Behaviour Change Communication
5. ICDS

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1	Describe various theories of Nutrition Health Communication
2	Differentiate formal communication from non-formal communication
3	Discuss various components of Behaviour Change Communication
4	Discuss the role of internet in Nutrition Health Communication
5	What are the Strengths and limitations of Nutrition Health Communication imparted in NGO programs?
6	Discuss about Nutrition Health Communication in developed and developing nations with examples
7	What is Communication. Write barriers of communication
8	Write about communication strategy for target specific audience with suitable example

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Discuss the history, need and relevance of Nutrition Health Communication in India
2	Define communication. Explain various types of communication methods in detail
3	Describe in detail about Growth and development of media in India
4	Explain the role of traditional folk media in Andhra Pradesh and its influence on Nutrition Health Communication
5	Describe about evolution of Nutrition Health Communication in India and its role in Government initiated health programmes
6	Discuss the role of Nutrition Health Communication in relation to nutritional counselling in micronutrient deficiency control programs

Suggested Question Paper Model for Practical Examination

Semester – V/ Nutrition – 7B (Skill Enhancement Course)

NUTRITION HEALTH COMMUNICATION (Practical)

Max. Marks: 50

Time: 3 Hrs.

1. Design and plan NHC session on Iron deficiency anaemia for adolescents taking into account all components of NHC - 25 M
2. Write the script and communication strategy for educating Women about importance of Breastfeeding - 15 M
3. Record + Viva-Voce 6+4 = 10 M

Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 6C: FOOD PROCESSING & PRESERVATION
(Skill Enhancement Course (Elective), 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)

FOOD PROCESSING & PRESERVATION

(Theory – 3 Credits)

I. Learning Outcomes:

Students after successful completion of the course will be able to:

- Know the principles of preservation behind the methods of preservation
- Understand the stages of sugar cookery, quality of pectin and acidity in the development of preserved food products
- Explore the principles of preservation in fruits and vegetables-based products
- Skills to prepare cereals and pulse based preserved products and develop new products with retention of quality.

II. Syllabus: Theory (50 Hrs)

Unit-I. Concept of Food Preservation

Importance of Food Processing & Preservation, Blanching, Types of Food spoilage by Microorganisms and by Enzymes, Basic Principles of Food Preservation, Food preservatives- Use of Salt, Acid, Sugar, natural food preservatives and artificial preservatives.

10 Hrs

Unit-II. Preparation of dehydrated products

Methods of drying & dehydration, different types of driers, freeze drying- lyophilization, packing & storage, Drying methods for the selected products -Rice, Sago, Wheat, Maida, Rice flakes, black gram dhal, green gram dhal, Horse gram dhal Roots and Tubers, General tips for drying foods, Preparation of salted, dehydrated, preserves (Traditional Indian varieties of chips, Papads, Khakras etc and Masala Powders, onion, garlic, ginger powder etc)

10 Hrs

Unit-III. Preservation by Using Sugar

Sugar Concentrates – Principles of Gel Formation, Preparation of Jam, Jelly, Marmalades, Sauce and Squash, Preserves, Candied, Glazed, Crystallized Fruits, Toffee.

10 Hrs

Unit-IV. Preservation by Using Chemicals and Salts and Fermentation

Preparation and Preservation of Fruit Juices, RTS, Pickling – Principles involved and Types of Pickles, Importance of fermentation, Chemical Preservatives – Definition, Role of Preservation, Permitted Preservatives, FSSAI guidelines.

10 Hrs

Unit-V. Preservation by Advanced Preservation Technology

Meaning and needs of freezing of foods, types of freezing and managing freezers, Guidelines for types of frozen foods-Fruits, Vegetables, fish, meat and poultry, Smoking foods, Pasteurization and Sterilization, Irradiation, Vacuum Packing, Canning and Bottling, starting a food preserving unit, Product Promotion strategies and marketing skills.

10 Hrs

FOOD PROCESSING & PRESERVATION (Practical – 2 Credits)

III. Skill Outcomes:

On successful completion of this practical course, student shall be able to:

- Know the principles of preservation and the methods of preservation
- Understand the stages of sugar cookery, quality of pectin and acidity in the development of preserved food products
- Acquire skills to formulate dehydrated food products
- Explore the principles of preservation in fruits and vegetables-based products
- Skills to prepare cereals and pulse based preserved products and develop new products with retention of quality.

IV. Practical Syllabus: (30 Hrs)

1. Preparation of salted, dehydrated foods, preserves & cookies.
2. Pickle making
3. Preparation of Jam, Jelly, Marmalades
4. Preparation of Sauce and Squash
5. Preparation of Candied, Glazed, Crystallized Fruits & Toffee
6. Techniques of Blanching of fruits & Vegetables
7. Techniques of home level freeze drying
8. Preparation of Dehydrated vegetables

V. RECOMMENDED READINGS:

1. Srivastava R.P. (2012), Fruit and vegetable preservation – Principles and Practices, International Book Distributing Co., (IBDC), New Delhi.
2. Maria Parloa (2009), canned fruit, preserves and jellies: Household methods of preparation, US Department of Agriculture, Washington.
3. Shafiur, Rahman, M. (2007), Handbook of Food Preservation, 2nd edition, CRC press, New Delhi

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. **For Teacher:** Training of students by teacher in laboratory and field visits for a total of 10 hours on sensory evaluation & preparation of preserved products, Visit to Commercial Pickle Manufacturing Food Industry.
2. **For Student:** Individual visit to food preservation units, Submission of a hand-written Fieldwork Report not exceeding 10 pages in the given format.
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: *Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.*
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like preservation techniques, techniques of blanching, canning & bottling)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques of preservation.
5. Invited lectures and presentations on related topics by field/industrial experts.

VII Suggested Question Paper Pattern

FOOD PROCESSING & PRESERVATION (Theory)

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks: 5 x 3)

1. What is the importance of food preservation?
2. Lypophilization
3. Principles of gel formation
4. Pickling
5. Examples of smoked foods.

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1.	Explain different types of spoilages that occur in foods.
2.	Drying methods of roots and tubers
3.	Explain the preparation of any one candied fruit.
4.	Write a note on RTS foods
5.	Guidelines of freezing foods
6.	Artificial food preservatives
7.	Dehydrated products
8.	Food irradiation

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1.	Explain in detail the basic principles of food preservation.
2.	Elaborate on methods of dehydration and drying of foods.
3.	Explain in detail how mixed fruit jam is prepared.
4.	Elaborate on different types of pickles.
5.	What is vacuum packaging, and what are the most commonly vacuum-packed foods.
6.	Explain how to start a food preserving unit and its product promotion strategies.

Suggested Question Paper Model for Practical Examination

Semester – V/ Nutrition – 6C (Skill Enhancement Course)

FOOD PROCESSING & PRESERVATION (Practical)

Max. Marks: 50

Time: 3 Hrs.

1. Preparation of cookies or Fruit Jelly or Squash and display 25 M
2. Blanching of the given vegetable and observation of changes 15 M
3. Record + Viva-voce 6+4 = 10 M

Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 7 C: FOOD LABELLING & PACKAGING
(Skill Enhancement Course (Elective), 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)
FOOD LABELLING & PACKAGING
(Theory- 3 Credits)

I. Learning Outcomes:

Students after successful completion of the course will be able to:

- Interpret a typical food label – be familiar with the categories of information labels contain
- Get an insight in to functions of food packaging, laws and regulations
- Understand different packaging material
- Comprehend the overview of the scientific and packaging designing of food.
- Understand food packaging testing methods

II. Theory Syllabus: (50 Hrs)

UNIT I: Food Labelling

Functions of labelling; Mandatory label elements: Statement of identity, statement of net contents, statement of ingredients, name and place of business of the manufacturer, packager or distributor; Food allergen labelling, gluten free; Nutrition labeling; Claims of labels; Use of “fresh”, “natural”, “organic” indications; GMO food labeling guidance; Labelling for nutraceuticals, functional foods, and pediatric food. 10 Hrs

UNIT II: Food Packaging

Definitions, status of packaging industry in India and globally, Packaging rules & functions, Barcodes & RFID (Radio-Frequency Identification Tags), Food Packaging and Labelling Laws (FSSAI) 10 Hrs

UNIT III: Packaging Material

Food Packaging Materials, Manufacturing of paper, types of paper and corrugated fiber board (CFB), Food grade plastics, properties, methods of manufacturing (Injection molding and Blow, molding) Biodegradable plastics, edible packaging, Metals, Tinplate, tin free can (TFC), types of can, Glass: Composition, Properties, methods of bottle making, types of closures. 10 Hrs

UNIT IV: Package Designing for Foods

Factors affecting spoilage, package requirement and package designing for: Fresh horticultural produce, Animal foods, Dry and moisture sensitive foods, Frozen foods, Fats and oils, thermally processed foods 10 Hrs

UNIT V: Special Packaging and testing

Aseptic packaging, Active packaging, Intelligent packaging, modified atmospheric packaging (MAP) and controlled atmospheric packaging (CAP), Shrink packaging, stretch packaging, Biodegradable packaging, Tetra packs, Edible films and coatings. Testing Procedures for Packaging Materials- thickness, tensile properties, puncture resistance, bursting strength, seal strength, water vapor permeability, gas transmission rate (CO₂ and O₂ permeability), grease resistance. 10 Hrs

FOOD LABELLING & PACKAGING **(Practical- 2 Credits)**

III. Skill Outcomes:

On successful completion of this practical course, student shall be able to:

- Design food labels for different categories of food products
- Develop knowledge in identifying different packaging material
- Analyze the quality parameters of packaging material
- Develop skill in testing properties of packaging material
- Analyse shelf life of various foods

IV. Practical Syllabus (30 Hrs)

1. Identification of plastic using floatation method.
2. Collect labels of any FIVE food products (oils, packaged food, processed food, raw foods, savoury food.) Study and compare them with mandatory label requirements.
3. Prepare one food label highlighting the following information:
 - Name & trade of the Food product and the List of Ingredients
 - Food labelling requirements for declaring Nutritional Information
 - Declaration of Veg/Non vegetarian
 - Food labelling requirements for declaring Food Additives
 - Food labelling requirements: Date of Manufacture or Packing and Best Before or Use by Date
 - Food labelling requirements – Declaration of Net Quantity
 - Food labelling requirements – Identification of Lot/Code/Batch number
 - Food labelling requirements – “Instructions for use” - Specific Requirements and Manner of Labeling of Infant Milk Substitute and Infant Foods
 - Food labelling requirements for edible oils & fats, permitted food colours and irradiated food
4. Testing of physical/mechanical properties of food packaging material.
5. Identification of various packaging material
6. Estimation of shelf life of foods
7. Visit to relevant packaging industries
8. Introducing the students with the latest trends in packaging consulting the websites and magazines

V. Recommended Readings

1. Paine, F.A. and Paine, H.Y. (1992). A Handbook of Food Packaging. Blackie Academic and Professional
2. Coles, R., McDowell, D.& Kirwan, MJ. (2003). Food Packaging Technology. Blackwell publication, Ch 7, www.fssai.gov.in(FSSAI website)
3. Gordon L. Robertson (2012), “Food Packaging: Principles and Practice”, Third Edition, CRC Press.
4. Gosby, N.T. 2001. Food Packaging Materials, Applied Science Publication
5. John, P.J. 2008. A Handbook on Food Packaging, Narendra Publishing House,
6. Mahadevia, M., Gowramma, R.V. 2007. Food Packaging Materials, Tata McGraw Hill
7. Food Packaging Technology Handbook. NIIR Board, National Institute of Industrial Research,2003
8. Ahvenainen, R. (Ed.) Novel Food Packaging Techniques, CRC Press, 2003

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. For Teacher: Training of students by teacher in laboratory and field for a total of 10 hours on designing labels, different packaging materials and latest trends in packaging.
2. For Student: Individual visit to a local industry or packaging unit and observe different equipment and packaging material. Submission of a handwritten Fieldwork Report not exceeding 10 pages in the given format.
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on food labelling and packaging technology.
5. Visits to local food industries and packaging units for better understanding of the students
6. Invited lectures and presentations on related topics by industrial experts.

VII. Suggested Question Paper Pattern:

FOOD LABELLING & PACKAGING (Theory)

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks: 5 x 3)

1. Food Allergen Labelling
2. Write about FSSAI
3. Write about the composition of glass
4. What are the factors affecting spoilage of thermally processed foods?
5. Describe grease resistance test

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1	Write the functions of labelling
2	What are Food laws
3	Discuss about method of glass bottle making
4	Elaborate upon MAP & CAP
5	Discuss various steps involved in manufacturing of paper
6	Write about factors affecting spoilage and packaging requirements for fats & oils
7	What are the guidelines for labelling of functional foods and nutraceuticals
8	Explain different types of closures

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Define the term Food Labelling. Discuss the importance and guidelines for labelling of foods
2	Discuss about functions of Food packaging & labelling and their laws
3	Explain in detail about various packaging material used in packaging unit
4	Describe various factors affecting spoilage, packaging requirements for frozen foods and animal foods
5	What are the various special packaging methods adopted in Food Industry
6	Discuss about different testing procedures for packaging material

Suggested Question Paper Model for Practical Examination Semester – V/ Nutrition – 7C (Skill Enhancement Course)

FOOD LABELLING & PACKAGING (Practical)

Max. Marks: 50

Time: 3 hrs

1. Identify and write merits and demerits of given packaging material- 15M
2. Prepare a food label highlighting various food labelling guidelines- 25 M
3. Record + Viva-Voce 6+4 = 10 M

Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 6D: FOOD PRODUCT DEVELOPMENT
(Skill Enhancement Course (Elective), 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)
FOOD PRODUCT DEVELOPMENT
(Theory – 3 Credits)

I. Learning Outcomes

Students after successful completion of the course will be able to:

- Understand the latest consumer demand for novel food products.
- Identify various facilities required to set up a small-scale food product unit
- Acquire a critical knowledge on novel food product development technologies
- Demonstrate skills related to product development through hands on experience
- Comprehend the applications Cost analysis and feasibility of new product development

II. Theory Syllabus (50 Hrs)

UNIT – I

Need for new products, Innovations in product development, classification, characterization, Factors to be considered in new product development – social concerns, health concerns, impact of technology, market influence, market sector perspective and market research. Designing need based new products and the R & D Process. 10 Hrs

UNIT – II

Phases of food product development, Introductory phase, growth phase, maturity phase and decline phase, Development of standard products, Types of products and logistics. Processing- primary and secondary, various food ingredients used, use of food additives. Standardization and large-scale preparation, Safety and regulatory aspects, sanitation and waste disposal 10 Hrs

UNIT – III

Packaging, Storage and transportation, development of suitable packaging material, management. Design and package graphics. Labelling, and testing. Types and mode of transportation, optimization of transport taking into account the type of product, distance, storage facilities. 10 Hrs

UNIT – IV

Product costing, Budgeting, Advertising and marketing, Entrepreneurship, land location, Investment and financing of project. 10 Hrs

UNIT-V

Planning for the food product to be developed, Processing steps, ingredients required, equipment required, standardization, evaluation, large scale production, Shelf-life studies and shelf-life prediction. Drawing up a working plan and time schedule. 10 Hrs

FOOD PRODUCT DEVELOPMENT **(Practical – 2 Credits)**

III. Skills Outcomes:

On successful completion of this practical course, student shall be able to:

- List out, identify and understand the RTE products available in the market
- Demonstrate the procedures of preparation of novel value-added food products of utility
- Exhibit skills on methods of nutrient analysis
- Acquire skills in sensory analysis of the new products
- Equipped to launch a new food product in to the market with the knowledge of labelling and packing requirements

IV. Practical Syllabus:

1. Market survey and enlisting various RTE food products available in the market and their movement.
2. Selection of a target group and development of a food product to fulfil the nutritional needs of the target group.
3. Development of low-cost products by using by-products of oil industry.
4. Tests to determine nutritional parameters
5. Tests to determine sensory parameters
6. Determination of Packaging for the food product and labelling
7. Estimating cost and market price, storage and transportation considerations
8. Standardization and evaluation for large scale production of the product

V. RECOMMENDED READINGS:

1. Snack Food Technology (1993) by S.A. Matz.
2. Principles of Cereal Science and Technology (1986) by R.C. Horseny.
3. Breakfast Cereals and How They are Made? (1990) by R.B. Fast and E.F. Caldwell. Food Science (5th edition) by N. N Potter et al.
4. Text book of Food science and Technology (2001) by Vijaya Khader.
5. Storage of cereal grains and their product (3rd edition) by C.M. Christenson. 8. Technology of Cereals (4th edition) by Kents

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. **For Teacher:** Training of students by teacher in laboratory and field for a total of 10 hours on formulation of new food products, sensory evaluation, nutrient content, packaging, labelling and marketing.
2. **For Student:** Individual visit to a local research organization/private laboratory and study of Product development. Submission of a hand-written Fieldwork Report not exceeding 10 pages in the given format.
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: *Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.*
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like development of a new food product for a therapeutic condition and checking the feasibility), Seminars, Group discussions, Quiz, Debates etc. (on related topics).
3. Preparation of videos on tools and techniques in Food Product Development
4. Collection of nutrient information/packaging/photos related to new value-added products in the market
5. Visits to food industries, firms, research organizations etc.
6. Invited lectures and presentations on related topics by field/industrial experts.

VII.Suggested Question Paper Pattern:

FOOD PRODUCT DEVELOPMENT (Theory)

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (15 Marks: 5 x3)

1. Health concerns of Food Products
2. Sanitation and hygiene in food industry
3. Steps of R & D Process in new food product development
4. Standardisation of food products
5. Product costing and its importance

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1	Brief about the designing process of need-based food products
2	Discuss about the food additives added in food products
3	Write about the transportation of food products
4	Enumerate the role of advertising and marketing in food product development
5	Elaborate up on the work plan in innovative food product development
6	Discuss about the development of packaging material for new products
7	Write about safety and regulatory aspects in food industries
8	Describe the necessary precautions during storage of foods

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Discuss in detail about classification and characterisation of new food products
2	Elaborate in detail about phases of new food product development
3	Write about recent developments in labelling of commercial products
4	Discuss about development of suitable packaging materials for new food products
5	What is Entrepreneurship? Discuss its role in new food product marketing
6	Describe the shelf-life studies of developed products

Suggested Question Paper Model for Practical Examination Semester – V/ Nutrition – 6D (Skill Enhancement Course)

FOOD PRODUCT DEVELOPMENT (Practical)

Max. Marks: 50

Time: 3 hrs

1. Write the formula for a new food product for a given specification (Age group, therapeutic condition etc.)
25M
2. Calculate the nutritive value for the developed product and write the sensory evaluation protocol for the product 15 M
3. Record + Viva-voce 6+4 = 10 M

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Four-year B.Sc.
Domain Subject: **NUTRITION**
III Year B. Sc., – Semester – V
Course 7D: ENTREPRENEURSHIP MANAGEMENT
(Skill Enhancement Course (Elective), 05 Credits)
Max Marks: Theory:100 + Practical:50
(Total Hours: 90 including Teaching, Lab, Field Training and unit tests etc.)

ENTREPRENEURSHIP MANAGEMENT
(Theory – 3 Credits)

I. Learning Outcomes:

Students after successful completion of the course will be able to:

- Understand the concept of entrepreneurship, entrepreneur and enterprise
- Identify ways to approach supportive Institutions and Banks for starting an enterprise
- Analyze the steps in product selection and form of ownership
- Focus on the formation of project proposal and practice effective accounting processes

II. Theory Syllabus: (50 Hrs)

Unit-I. Concept of Entrepreneurship

Conceptual meaning, definition and scope of entrepreneurship, Entrepreneur- meaning, qualities, functions and types of entrepreneurs, Enterprise – Definition, nature and classification, Forms of Organization – Sole proprietorship, partnership, Joint Stock Company, Role of entrepreneur in economic development. 10 Hrs

Unit-II. Establishing a Small-Scale Enterprise

Concept and Classification – Product identification and product selection, Infrastructure – Plant Location, Land, building, water and power, 6Ms – Man power, method, machine, material, marketing, mother nature. 10 Hrs

Unit-III. Institutional Support

Commercial Bank , Central level -SSIB – Small scale Industries Board , NSIC – National Small Industries Corporation , SIDO – Small Industries Development Organization, KVIC – Khadi and Village Industries Commission , NIESBUD – National Institute for Entrepreneurship and Small Business Development , NABARD – National Bank for Agricultural and Rural Development , State Level - DIC – District Industrial Center , SFC – State Finance Corporations , SSIDC – State Industrial Development Corporation , SIDBI – Small Scale Industrial Development of India, SISI – Small Industries Service Institutes , ICICI – Industrial Credit Investment Corporation of India. 10 Hrs

Unit-IV. Project Formulation

Meaning and definition of project, Project formulation techniques – Quantifiable and Non-quantifiable projects, Sectoral project, Techno economic project, Project report and preparation of project report, Project appraisal – market feasibility, technical feasibility, financial and economic feasibility. 10 Hrs

Unit-V. Accounting for Small Enterprises

Meaning, need and objectives of accounting, Process of Accounting, Book Keeping, Journal, Ledger and Balance Sheet, Final Accounts , Auditing – nature and types , Preparation of model project, proposal and report. 10 Hrs

ENTREPRENEURSHIP MANAGEMENT (Practical – 2 Credits)

III. Skill Outcomes:

On successful completion of this practical course, student shall be able to:

- Understand the concept of entrepreneurship, entrepreneur and enterprise
- Identify ways to approach supportive Institutions and Banks for starting an enterprise
- Analyze the steps in product selection and form of ownership
- Focus on the formation of project proposal and practice effective accounting processes

IV. Practical Syllabus: (30 Hrs)

1. Visit to an enterprise to observe the qualities of entrepreneurs
2. Visit to financial and supportive institutions to understand or observe their action modalities on financing
3. Carryout market survey of various entrepreneurships.
4. Carry out market survey to know the demand for product
5. Learning of etiquettes and manners in dealing with the clients
6. Preparation of balance sheet, cash flow statement and study of various costs involved in an enterprise
7. Developing a project proposal for setting up an enterprise.
8. Visit note on successful Agri entrepreneur

V. RECOMMENDED READINGS:

- Anil Kumar, S. Poornima S.C. Mini K. Abraham and Jayashree, K. (2012). Entrepreneurship Development. New Delhi: New Age International Pvt. Ltd., Publishers
- Badi, R. V. and Badi N. V. (2011), Entrepreneurship. New Delhi: Vrinda Publications Pvt. Limited
- Gordon, E., and Natarajan, K. (2013), Entrepreneurship Development. Mumbai: Himalaya Publishing House.
- Jayashree Suresh. (2016). Entrepreneurial Development. Chennai: Margham Publication
- Khanka, S.S. (2006). Entrepreneurial Development. New Delhi: S. Chand and Company Limited
- Radha, V. (2015). Entrepreneurial Development. Chennai: Prasanna Publishers and Distributors
- Robert, N.A. Hawkins, F. Kernelt, A. (2009). Accounting. New Delhi: Tata Me Graw – Hill Publishing Company Limited

VI. Co-Curricular Activities:

a) Mandatory: (*Training of students by teacher on field related skills: 10 hrs*)

1. **For Teacher:** Training of students by teacher, a total of 10 hours on project formulation techniques, understanding the accounting processes, form of ownerships and enterprises
2. **For Student:** Individual visit to observe the qualities of entrepreneurs, Submission of a hand-written Fieldwork Report not exceeding 10 pages in the given format.
3. Max marks for Field Work Report: 05.
4. Suggested Format for Field work: *Title page, student details, content page, introduction, work done, findings, conclusions and acknowledgements.*
5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like project formulation, model projects and report writing.
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on setting an enterprise and tips given by successful entrepreneurs
5. Invited lectures and presentations on related topics by field/industrial experts.

VII. Suggested Question Paper Pattern:

ENTREPRENEURSHIP MANAGEMENT (Theory)

Max. Marks: 75

Time: 3 hrs

SECTION A (Total: 15 Marks)

Very Short Answer Questions (5 x3 =15 M)

1. Qualities of entrepreneurs
2. Utilisation of man power
3. Expand NABARD & NIESBUD
4. Market feasibility
5. Book keeping

SECTION B (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1	Discuss about the role of entrepreneur in economic development
2	Write about Sole proprietorship
3	Elaborate on product identification and product selection
4	Write a note on State Industrial Development Corporation
5	Discuss about Khadi and Village Industries Commission
6	Elaborate on Sectoral project
7	Difference between technical feasibility and economic feasibility
8	Discuss about Ledger balance & Balance sheet

SECTION C (Total: 4x10 = 40 Marks)

(Answer any four questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)

1	Write in detail about the various forms of organization.
2	Elaborate on the steps involved in setting up a small-scale enterprise
3	Write a note on the any 3 state level institutions which aid in setting up of establishments.
4	Explain in detail the various Project formulation techniques
5	Elaborate on the nature and types of auditing.
6	Discuss in detail about definition and scope of entrepreneurship

Suggested Question Paper Model for Practical Examination Semester – V/ Nutrition -7 D (Skill Enhancement Course) ENTREPRENEURSHIP MANAGEMENT

Max. Marks: 50

Time: 3 Hrs.

1. Write about the enterprise you have visited - 25 M
2. Formulate a project proposal for setting up an enterprise- 15 M
3. Record + Viva-voce 6+4 = 10 M

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