NAGINDAS KHANDWALA COLLEGE
OF COMMERCE, ARTS & MANAGEMENT STUDIES (AUTONOMOUS)

Re-accredited by NAAC with 'A' Grade (3rd Cycle)
ISO 9001:2015 Certified

Bhavishya Bharat Campus, S. V. Road, Malad (West)

Mumbai-400 064

Programme Code: USHIND

B.Sc. (Honours)
in Integrative Nutrition & Dietetics

Three Year Integrated Programme -

Six Semesters

Course Structure

Under Choice Based Credit, Grading and Semester System

Implemented during Academic Year 2022-23

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1. Preamble

The industry is experiencing accelerated growth in several sectors amid a burgeoning global shift in consumer behavior regarding what we put in our bodies, aging population desiring improved muscle, joint, and cognitive health, and emerging middle and affluent classes in key markets.

The growth in this industry is driven by the increasing focus on personal health and wellbeing. With a shift in urban lifestyle towards sedentary, there is a renewed focus on fitness to avoid lifestyle-related diseases and deal with stress. Seeking professional guidance for fitness and slimming are no longer considered a luxury, but an elementary part of a healthy lifestyle. This change in consumer behavior and preferences will continue to provide an impetus to the industry.

Recruitment and retention of skilled manpower is the biggest challenge faced by the industry today. There is a dearth of good training institutes, with standardized and accredited courses.
The vocational training programs often impart theoretical knowledge with little hands-on experience. Hence, in-house training becomes the only option for companies to equip the workforce with the relevant skill set. There is a very limited pool of skilled professionals available in the country whereas the demand is huge. The attrition rate in the industry is high and retaining experienced professionals has become a key challenge. There are no dedicated government institutes or training centers to equip people with desired skills. Hence, there is a need for Recognized Degree and Diploma programs in Integrative Nutrition & Dietetics.

1.1 About Khandwala College

Khandwala College is a multi-faculty institution (Estd. 1983), affiliated to University of Mumbai. It offers 22 UG, 14 PG and 4 Ph.D. programmes and impart education to more than 6500 students. The Vision of the institute includes Education for all, Education for the youth and Education for the future of our country.

The Mission is to serve the society at large and students belonging to linguistic minorities in particular with commitment, dedication and devotion. The Quality Policy includes commitment towards imparting Quality Education to youth, enabling them to develop the right attitude, professional competence and inculcating right ethical values.

The institution has been awarded "A" Grade (Third Cycle) by National Assessment and Accreditation Council, Best College by University of Mumbai (2012), lead college for a cluster of colleges, Educational Excellence Award by Indus Foundation, USA and Best Ensemble Faculty (Academic Brilliance Awards – 2013) by Education Expo TV's Research Wing for Excellence in Professional Education & Industry and ISO 9001:2015 certified by TUV Nord. We have been awarded IMC Ramkrishna Bajaj National Quality Commendation Certificate in 2013-14. Our college has been awarded Autonomous status from 2016. Khandwala College, as an Autonomous College; is offering a new B.Sc. (Hons.) in Integrative Nutrition & Dietetics Programme as a Three Year Integrated Programme – with Six Semesters Course Structure -Under Choice Based Credit, Grading and Semester System.

1.2 Vision and Mission of Khandwala College

Vision
Education for all
Education for the youth
Education for the future of our country

Mission
The college's focus is on the future of our students irrespective of their gender and place in society. Every student is like a flame reaching out to the brightness of the sun i.e. the bright future of India

2. Programme Objectives & Outcomes

2.1 Programme Objectives

1. To provide intensive theoretical & practical knowledge.
2. To provide an integrated perspective of nutrition & dietetics along with a good amount of exposure to real life cases / technical knowhow.
3. To effectively communicate to people- health and industry professionals, and the media.
4. To know the chemical, biochemical, and biological principles of nutrition and dietetics.
5. To design, develop, and assess individual training methods related to nutrition and dietetics that meet patients' needs.
6. To identify and classify food and food products. To analyse and establish their composition, qualities, nutritional value, nutrients' bioavailability, organoleptic properties, and the alterations experienced as a result of technological and culinary processes.
7. To know the basic processes of production, transformation, and preservation of animal and vegetable-based food.
8. To identify nutrients, their function in the human body, their bioavailability, the requirements and recommendations, and the basis of nutritional balance.

2.2 Programme Outcomes

After successful completion of the B.Sc. (Hons.) in Integrative Nutrition & Dietetics the learner will be able to:

PO-1: Demonstrate comprehensive knowledge of food nutrition, nutrition science, community nutrition, physiology, food planning, processing & preservation, nutrition across lifecycle, biochemistry, clinical nutrition, lifestyle pillars, yoga and exercise. This programme helps students in building a strong base for advanced studies in Integrative Nutrition & Lifestyle

PO-2: Demonstrate competencies relevant to the industry, in the areas of communication, critical thinking, decision making, problem solving, reasoning, presentation, technology, research related and inter-personal skills.

PO-3: Perceive the importance of social, environmental, ethics and other critical issues faced by humanity at the local, national and international level.

PO-4: Acquire job-oriented skills and entrepreneurial skills through a steady progression of internships and industry engagements.

3. Eligibility, Selection and Admission Criterion

The student must have passed 10+2 / Grade 12/ HSC with Physics, Chemistry and Biology. Subjects such as Botany, Zoology, Biotechnology, Biochemistry, etc. and related subjects at the 10+2 level are accepted.

3.1 Eligibility Criterion:

The student must pass a two year Pre-University examination/ 12th / Grade 12/ HSC/A level/O level/IBDP/IBCP or equivalent with Physics, Chemistry and Biology or related subjects, education or equivalent qualification from any Board/ University. Lateral Entry shall be applicable for students who have pursued similar or related Programmes from any University. Eligibility Criteria shall be applicable for lateral entry.

3.2 Selection and Admission Criterion for Eligible Candidates:

The interested students shall register for Aptitude Test and Interview. Reservations as per University rules will be applicable.

The admission of students shall be based on:

- Academic and non- academic credentials till date.
- Performance in Aptitude Test [comprising of questions in Mathematics/Statistics, English, Logical Reasoning, Analytical Ability], and Performance in Personal Interview.
- The candidate must fulfil all the prescribed admission requirements / norms of the College.
- In all the matters relating to the admission to the programme, the decision of the Management of Khandwala college shall be final.
- At any time after the admission, if found that a candidate has not fulfilled one or many of the requirements stipulated by the College, or submitted forged certificates, the College has the right to revoke the admission and will forfeit the fee paid. In addition, legal action may be taken against the candidate as decided by the Management of Khandwala college.

3.3 Eligibility for the award of the degree:

- A candidate shall be eligible for the award of the Degree only if he/she has undergone the prescribed course of study in Khandwala College affiliated to the University for a period of not less than three academic years, passed the examinations of all the Six Semesters earning 160 credits or letter grade of at least D or above (i.e. O/ A+/A/ B+/B/C/D) in core.
- No dues to the Institute, Libraries etc.; and
- No disciplinary action is pending against him / her.

3.4 Faculty under which the Degree is awarded:

B.Sc. (Hons.) in Integrative Nutrition & Dietetics programme is awarded under the faculty of Science.

3.5 Intake & Fees

Intake of 60 Students in the first year with an additional division of 60 students from the second year onwards. Additional 15% shall be permitted to make provision for any cancellation of Admissions. Additional admissions to the extent of 15% will be permitted for foreign students every year.

Programme fees per semester- Rs 1,32,500/-. The fees can be increased by 12% every year.

3.6 Attendance

- A student has to obtain a minimum of 75% cumulative attendance for the theory lectures, practical and tutorial (wherever prescribed) separately will be required out of the total number of lectures, practical and tutorials on the subject conducted in the term.
- 25% allowance in attendance is given to account for activities under NCC / NSS / Cultural / Sports / Minor Medical conditions etc.
- A student with a cumulative attendance of less than 75%, will not be permitted to appear for the end semester examination for all the courses in that semester and will be categorized as "DE", meaning Detained due to shortage of attendance. The students with the "DE" category cannot proceed to the subsequent semester.
- Such students shall register for all the courses of the semester in which DE has occurred, in the subsequent year by paying the prescribed fee.
- Additional condonation may be considered in rare and genuine cases which includes, approved leave for attending select NCC / Sports Camps, Internships, Training, cases requiring prolonged medical treatment and critical illness involving hospitalization.
- For medical cases, submission of complete medical history and records with prior information from the parent / guardian to the institute is mandatory. Such condonation is permitted only twice for a student in the entire duration of the programme.

3.7 Eligibility for Faculty

Master's degree with 55% marks (or an equivalent grade in a point scale wherever grading system is followed) in a relevant/allied subject OR Relevant work experience in the industry or related areas.

4. Scheme of Examination

The Examination shall be divided into parts i.e. Continuous Internal Evaluation including Assignments, Projects, Seminars, Case Studies and Class Tests which will be of 40 marks and the Semester End Examinations which will be of 60 marks. The semester wise Credit Points will be varied from course to course but the value of Credits for Under-Graduate Programme shall be of 160 Credits.

The Credits are defined in terms of the learner's hours which are divided into two parts such as Actual and Notional. The value of a particular course can be measured in number of Credit Points. The value of One (01) Credit is equal to 15 Hours of learners' load. Notional learning hours include direct contact hours with teachers and trainers, time spent in self learning, preparation for assignments, carrying out assignments and assessments etc.

Scheme of Total Credits

Sr. No.	Year	Credits
1	Year 1	52
2	Year 2	52
3	Year 3	56
	Total Credits from Academics	160

4.1 Credit Based Evaluation System Scheme of Examination

Semester End Examination will be organized after all modules of the course are taught in the class. It will be a written examination / or as per the needs of the course a practical examination or a combination of both. This examination will be for 60 marks.

For all 6 semesters, the performance of the learners shall be evaluated into two components. The first component shall carry 40% marks which will be a Continuous Internal Evaluation while the second component shall carry 60% marks at semester end examination.

The allocation of marks for the Continuous Internal Evaluation 40% and Semester End Examination 60% are as shown below.

4.2 Structure of Continuous Internal Evaluation (40%) = 40 marks

Sr. No.	Particulars	Marks
1	Class test held in the given semester	15 marks
2	Subject specific Term Work Module/assessment modes – as decided by the department in the beginning of the semester (like Extension/field/experimental work, Short Quiz; Objective test, open book test etc. and written assignments, Case studies, Projects, Posters and exhibits etc. for which the assessment is to be based on class presentations wherever applicable)	20 marks
3	Attendance & Active participation in routine class instructional deliveries (and in practical work, tutorial, field work, cultural activities etc. as the case may be)	5 marks

4.3 Structure of End Examination (60%) = 60 marks

The End Semester Examinations for each course through semesters I to VI shall be conducted by the college except for the subjects with Asterix symbol (*) for which assignments/assessments for 100 marks shall be evaluated by the subject experts at department level and the marks/grades shall be submitted to the College.

The Semester End Examinations for each course through semesters I to VI shall be conducted by the college except for the subjects with Asterix symbol (*) for which 40 marks includes test for 15 marks, assignment for 20 marks and attendance & code of conduct for 05 marks and 60 marks for two assignments/assessments shall be evaluated by the subject experts at department level and the marks/grades shall be submitted to the College.

The assessment of Continuous Internal Evaluation and Semester End Examination as mentioned above for the Semesters I to VI shall be processed by the College – 'Institutions of their Learners' and issue the grade cards to them after the conversion of marks into grades as the procedure mentioned below.

The learners to pass a course shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Continuous Internal Evaluation & Semester End Examination. The learner shall obtain a minimum of 40% marks (i.e. 16 out of 40) in the Continuous Internal Evaluation and 40% marks in Semester End Examination (i.e. 24 Out of 60) separately, to pass the course and a minimum of Grade D in each project, wherever applicable, to pass a particular semester. A learner will be said to have passed the course if the learner passes the Continuous Internal Evaluation & Semester End Examination together.

4.4 Question Paper Pattern

A) Written Class Test (15Marks) - 30 mins

1.	Match the Column / Fill in the Blanks/ Multiple Choice Questions (1 Marks each) (Any Six out of Eight)	06 Marks
2.	Answers the following (Attempt Any Two out of Three) (Concept based Questions) (2 Marks each)	04 Marks
3.	Answer in Brief (Attempt Any One out of Two) (5 Marks each)	05 Marks

B) Semester End Examinations (60 Marks) - 2hrs

QI	Match the Column / Fill in the Blanks/ Multiple Choice Questions/True or False (Any 10 out of 15) (1 Marks each)	10 Marks
QII A	*(Concept based Questions)* Answer in Brief (Any Three out of Five) (5 Marks each)	15 Marks
	OR	
QII B	*(Concept based Questions)* Answer in Brief (Any Three out of Five) (5 Marks each)	15 Marks
QIII A	(Application based/Scenario based Questions) Answer in Detail (Attempt Any Four of Six) (5 Marks each)	20 Marks
	OR	
QIII B	(Application based/Scenario based Questions) Answer in Detail (Attempt Any Four of Six) (5 Marks each)	20 Marks
QIV	Long Answer Type Question (Any One out of Two)	15 Marks

4.5 Passing Standards

Grade	Marks	Grade Points
O	80 & Above	10
A+	70 to 79.99	9
A	60 to 69.99	8
B+	55 to 59.99	7
B	50 to 54.99	6
C	45 to 49.99	5
D	40 to 44.99	4
F	Less than 40	0

- The learners shall obtain a minimum of 40% marks (i.e. 16 out of 40) in the Continuous Internal Evaluation (CIE) and 40% marks in Semester End Examination (i.e. 24 out of 60) separately, to pass the course and a minimum of Grade D to pass a particular semester.
- Learners who fail to clear Class Test I or were unable to appear for Class Test I on account of Medical grounds, Bereavement of a family member, Internships/Training or Positioned at Events by the Institute can appear for Class Test II
- If a student fails in Class Test I, he/she shall have the opportunity to appear for Class Test II to improve his/her performance only once in the Semester. The re-conduct of the Class Test shall be completed before the commencement of Semester End Examinations.
- If just prior to or during the CIE a bereavement (of an immediate family member) occurs. (Note: In this case the Death Certificate of the departed and the Parent's note will have to be given to the College within 2 days of returning to College, for this clause to hold).
- A learner will be said to have passed the course if the learner passes the Continuous Internal Evaluation (CIE) and Semester End Examination.

4.6 Failure in Class Test II

Students failing to clear the Class Test II will have to submit a project on a topic approved by the subject teacher.

The allocation of marks will be as follows:

- Written Assignment -10 marks
- Presentation - 5 marks

5. Teaching Methodology

1. **Classroom Sessions**
    - Lectures: Lectures shall be delivered by experienced faculties along with visiting faculties and experts from the industry in online/offline or blended mode.
    - Assignments and Projects: Shall be assigned at regular intervals of the course. It offers an opportunity for students to meet, interact and collaborate with experienced people from the industry.
    - Knowledge Workshops and Industry Seminars: Shall be organized at regular intervals to keep the students informed about the latest developments in the Event Industry, these workshops are uniquely designed with a focus on practical industry – relevant topics.
    - Simulated Events: Shall be conducted to get the real feel of organizing and managing an event. Students are trained to make a replica of an Event and present it live in the classroom. The exercise gives the student an opportunity to identify the finer nuances of event execution thereby helping them to identify key success factors and areas of improvement.
2. **Guest Lectures and Case Studies**
    - **Guest Lecture:** Eminent people from the industry shall be invited as guest speakers to impart lessons and their rich experiences on various fields related to this industry to the students. They also focus on imparting training around concepts that have today become essential skills to carve a niche in the industry.
    - **Case Studies:** Case studies highlighting various practical and situational issues shall be regularly discussed during classroom sessions. The discussion caters towards identifying what went wrong in the case and what could have been done in a better manner, this helps train students to handle such situations in the future. The exercise also improves the analysing and analytical capabilities of our students.

3. **Innovative and Interactive Learning Technology**
    - **Educational wikis:** It keeps track of education-oriented wikis, establishes constructive interactions with them, and researches their technology, activity, culture, processes, and impact.
    - **Creative Presentation Ideas:** Gone are the days when Microsoft Presentation was the only means to make academic training interactive and engaging. Enliven your material and engage the students with these simple and easy to implement methodologies:

        - **Prezi Presentation:** Prezi is a powerful communication and presentation tool that aims to replace PowerPoint presentation. Equipping students with the knowledge of this tool helps in preparing them to adapt easily to the ever-changing dynamics of the corporate world.

- **Create through Technology:**
    - **YouTube Broadcasting:** Harness the power of YouTube as an effective broadcasting medium to create and share your ideas and thoughts with diverse audiences.

    - **Communication and Collaboration:** Google Apps provides students a chance to learn how to use webmail services, calendar (shared calendaring), G-Talk (instant messaging and voice/video chat) and Drive (online document creation and sharing).

    - **Education through Blogs:** A powerful and interactive medium for learning. Ideal to educate, discuss and share innovative ideas across a large and diverse set of audiences.

4. **Unparalleled Internships and Practical Training**
    - **Internships and Practical Training:** These events act like great learning platforms giving them the live experience of managing an event.
    - **In-House Events:** Students shall be provided an opportunity to work on the in-house events right from the start to finish, to provide them with hands-on experience, which helps to gain excellent event organization

Three Year Integrated Programme -

Six Semesters

Basic Structure: Distribution of Courses

1	**Core Course (CC)**	13 Papers of 4 Credits Hrs. each (Total Credits Hrs. 13*4)=52 7 Papers of 3 Credits Hrs. each (Total Credits Hrs. 7*3)=21 10 Papers of 2 Credits Hrs. each (Total Credits Hrs. 10*2)=20	93
2	**Discipline Specific Compulsory Course (DSC)**	1 Papers of 2 Credits Hr. each (Total Credits Hrs. 1*2)= 2 4 Papers of 4 Credits Hr. each (Total Credits Hrs. 4*4)= 16 1 Papers of 3 Credits Hr. each (Total Credits Hrs. 1*3)=3 1 Papers of 6 Credits Hr. each (Total Credits Hrs. 1*6)= 6 2 Papers of 8 Credits Hr. each (Total Credits Hrs. 2*8)= 16	43
3	**Discipline Specific Course (DSC) Practical**	1 Papers of 2 Credits Hr. each (Total Credits Hrs. 1*2)	2
	Ability Enhancement Course (AEC)	3 Papers of 2 Credits Hrs. each (Total Credits Hrs. 3*2) = 6	06
5	**Skill Enhancement Compulsory Course (SEC)**	3 Papers of 2 Credits Hrs. each (Total Credits Hrs. 3*2)	06
6	**General Elective (GE)**	5 Papers of 2 Credits Hr. each (Total Credits Hrs. 5*2)= 10	10
	Total Credits Hrs		**160**

B.Sc. (Hons.) in Integrative Nutrition & Dietetics

Under Choice Based Credit, Grading and Semester System

Curriculum Framework

To be Implemented from Academic year 2022-2023 (since 2020-2021)

FIRST YEAR

Semester I

Sem	Course Code	Course	Category	Credits	Internal	External	Total Marks
I	2011UHNDFN	Food Nutrition - I	CC	4	40	60	100
I	2011UHNDFNP	Food Nutrition - I (Practicals)	CC	2	40	60	100
I	2012UHNDNS	Nutrition Science - I	CC	4	40	60	100
I	2012UHNDNSP	Nutrition Science - I (Practicals)	CC	2	40	60	100
I	2013UHNDCN	Community Nutrition - I	CC	4	40	60	100
I	2013UHNDCNP	Community Nutrition - I (Practicals)	CC	2	40	60	100
I	2014UHNDHC	Healthy Cooking	DSC	4	40	60	100
I	2015UHNDFE	Functional English	SEC	2	40	60	100
I	2016UHNDSA 2016UHNDPD	(Any one)* Sanskrit Personality Development Skills	GE	2	40	60	100
			Total	**26**	**360**	**540**	**900**

Semester - II

Seme	Course Code	Course	Category	Credits	Internal	External	Total Marks
II	2021UHNDFN	Food Nutrition - II	CC	4	40	60	100
II	2021UHNDFNP	Food Nutrition - II (Practicals)*	CC	2	40	60	100
II	2022UHNDNS	Nutrition Science - II	CC	4	40	60	100
II	2022UHNDNSP	Nutrition Science - II (Practicals)*	CC	2	40	60	100
II	2023UHNDCN	Community Nutrition – II	CC	4	40	60	100
II	2024UHNDPH	Physiology – I	DSC	4	40	60	100
II	2024UHNDPHP	Physiology - I (Practicals)*	DSCC	2	40	60	100
II	2026UHNDCC	Communication & Counselling Skills - I*	AEC	2	40	60	100
II	2025UHNDES 2025UHNDTT 2025UHNDFS 2025UHNDID 2025UHNDSM	***(Any one)**** Environmental Studies Introduction to Travel & Tourism Basics of Financial Services Introduction to Design Overview of Sports Management	GE	2	40	60	100
			Total	**26**	**360**	**540**	**900**

B.Sc. (Hons.) in Integrative Nutrition & Dietetics
Under Choice Based Credit, Grading and Semester System
Curriculum Framework
To be Implemented from Academic year 2022-2023 (since 2021-2022)
SECOND YEAR

Semester - III

Sem	Course Code	Course	Category	Credits	Internal	External	Total Marks
III	2131UHNDFP	Introduction to Food Planning	CC	3	40	60	100
III	2132UHNDFC	Food Chemistry	CC	3	40	60	100
III	2133UHNDFP	Food Processing & Preservation - I	CC	4	40	60	100
III	2137UHNDIE	Practical Training/Internship- I*	DSC	6	40	60	100
III	2134UHNDPH	Physiology - II	DSC	4	40	60	100
III	2135UHNDCS	Communication & Counselling Skills -II*	AEC	2	40	60	100
III	2136UHNDICT	Information Communication & Technology*	SEC	2	40	60	100
III	2138UHNDSA 2138UHNDSE	***(Any one)**** Sanskrit Selling Skills	GE	2	40	60	100
			Total	**26**	**320**	**480**	**800**

Semester - IV

Sem	Course Code	Course	Category	Credits	Internal	External	Total Marks
IV	2141UHNDFB	Fundamentals of Biochemistry	CC	3	40	60	100
IV	2142UHNDCB	Clinical Biochemistry	CC	4	40	60	100
IV	2143UHNDFPP	Food Processing & Preservation – II	CC	3	40	60	100
IV	2143UHNDFPR	Food Processing & Preservation - II (Practicals)*	CC	2	40	60	100
IV	2144UHNDNL	Nutrition across Lifecycle	CC	4	40	60	100
IV	2144UHNDNLP	Nutrition across Lifecycle (Practicals)*	CC	2	40	60	100
IV	2145UHNDPH	Physiology - III	DSC	4	40	60	100
IV	2146UHNDEM	Entrepreneurship & Management	SEC	2	40	60	100
IV	2147UHNDYE	**(Any one)*** Sanskrit Yoga & Ethics	GE	2	40	60	100
			Total	**26**	**360**	**540**	**900**

B.Sc. (Hons.) in Integrative Nutrition & Dietetics
Under Choice Based Credit, Grading and Semester System
Curriculum Framework
(To be Implemented from Academic year 2022-2023)

THIRD YEAR

Semester - V

Sem	Course Code	Course	Category	Credits	Internal	External	Total Marks
V	2251UHNDCN	Clinical Nutrition - I	CC	4	40	60	100
V	2251UHNDCNP	Clinical Nutrition - I (Practicals)*	CC	2	40	60	100
V	2252UHNDDT	Diet Therapy - I	CC	4	40	60	100
V	2252UHNDDTP	Diet Therapy - I (Practicals)*	CC	2	40	60	100
V	2253UHNDNEF	Nutrition, Exercise and Fitness - I	CC	3	40	60	100
V	2254UHNDPH	Physiology - IV	DSC	3	40	60	100
V	2255UHNDIE	Practical Training/Internship- II*	DSC	8	40	60	100
V	2256UHNDSA 2256UHNDPS	***(Any one)**** Sanskrit Effective Presentation Skills	GE	2	40	60	100
			Total	**28**	**320**	**480**	**800**

Semester - VI

Sem	Course Code	Course	Category	Credits	Internal	External	Total Marks
VI	2261UHNDLP	Lifestyle Pillars	CC	3	40	60	100
VI	2262UHNDCN	Clinical Nutrition - II	CC	4	40	60	100
VI	2263UHNDDT	Diet Therapy - II	CC	4	40	60	100
VI	2263UHNDDTP	Diet Therapy - II (Practicals)*	CC	2	40	60	100
VI	2264UHNDEF	Nutrition, Exercise and Fitness - II	CC	3	40	60	100
VI	2265UHNDYE	Yoga and Exercise*	DSC	2	40	60	100
VI	2266UHNDPT	Practical Training/Internship-III*	DSC	8	40	60	100
VI	2267UHNDHI	Human Rights & Indian Constitutions*	AEC	2	40	60	100
			Total	**28**	**320**	**480**	**800**

The syllabus can be updated/revised/modified from time to time to meet industry requirements.

- CC - Core Course
- AECC - Ability Enhancement Compulsory Course
- DSC - Discipline Specific Compulsory Course
- SEC - Skill Enhancement Course
- GE - General Elective

***Evaluation scheme as per the courses mentioned below**:

(Any one) Sanskrit Personality Development Skills	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Food Nutrition - I	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Nutrition Science - I	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Community Nutrition I (Practicals***)***	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Nutrition Science - II(Practical)	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Food Nutrition - Practical - II	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Physiology - I (Practical)	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Communication & Counselling Skill - I	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
(Any one)* Environmental Studies Introduction to Travel & Tourism Basics of Financial Services Introduction to Design Overview of Sports Management	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Food Processing & Preservation - I (Practical)	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Nutrition Across Lifecycle-(Practicals)	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)

Diet Therapy - I (Practicals)	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Clinical Nutrition I Practicals	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Communication & Counselling Skills - II	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Information Communication & Technology	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Lifecycle Nutrition - Practical - I	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
(Any one) Sanskrit Yoga & Ethics	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
(Any one) Sanskrit Selling Skills	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Practical Training/Internship - II	CIE= 40 mks (Draft Report) SEE = 60 mks (Final Report , Presentation , VIVA =60
Practical Training/Internship - II	CIE= 40 mks (Draft Report) SEE = 60 mks (Final Report , Presentation , VIVA =60
Practical Training/Internship - II	CIE= 40 mks (Draft Report) SEE = 60 mks (Final Report , Presentation , VIVA =60
Entrepreneurship & Management	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Diet Therapy - II - Practicals	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Yoga & Exercise	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)

(Any one) Sanskrit Effective Presentation Skills	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)
Human Rights & Indian Constitution	CIE = 40 mks (Test = 15mks, Assignment = 20 mks, Attendance & Code of Conduct = 05 mks) SEE= 60 mks (2 assignments *30mks)

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1. Food Nutrition - I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction	15
Module 2	Cereals and pulses	15
Module 3	Nuts and seeds	15
Module 4	Fruits and veggies	15
	Total	**60**

Course Objectives

1. Acquire knowledge of the food composition and chemistry of different food products.
2. Understand various food processing techniques, nutritional and physicochemical changes that occur during processing of foods.
3. Gain knowledge of various food additives and its application in food processing.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define and list down functions of food and water. (Level: Remember)
CO2: Explain the concepts of cereals and pulses, nuts and seeds and its relevance in food. (Level: Understand)
CO3: List down the general properties of vegetables and fruits. (Level: Remember)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction**	**15**
	● Introduction to Food science, definitions, functions of food, food groups, solar cooking ● Water - structure and function, impact of dry heat and moist heat on cooking ● Role of water in cooking, different forms of cooking method using water	
2	**Cereals and Pulses**	**15**
	● Composition ● Nutritive value ● Classification ● Structure ● Processed / refined / polished grains ● Toxin constituents of pulses	
3	**Nuts and Seeds**	**15**
	● Composition ● Nutritive value ● Classification ● Structure ● Sources of nuts and seeds its significance - almonds, walnuts, flaxseeds, pumpkin seeds, sunflower seeds	
4	**Fruits and Veggies**	**15**
	● Composition ● Nutritive value ● Classification ● Structure ● Types of veggies - Type A, B, C, carbohydrate content in different types, vegetable cookery, storage of vegetables, algae as food – spirulina	

Reference Books

1. Potter, N. and Hotchkiss, J.H. Food Science, 5th Ed., CBS Publications and Distributors, Daryaganji, New Delhi, 1998.
2. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
3. Usha Chandrasekhar, Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi, 2002.
4. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi, 2010
5. Swaminathan, M, Hand Book of Food Science and Experimental Foods, BAPPCO, Bangalore, 1992
6. Brow, A., Understanding Food, Thomson Learning Publications, Wadsworth, 2000.
7. Mehas, K.Y. and Rodgers, S.L. Food Science and You, McMillan McGraw Company, New York, 2000.
8. Parker, R. Introduction to food Science, Delmer, Thomson Learning Co., Delma, 2000.

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2. Food Nutrition - I Practicals

Practicals

1. Identification of foods and food groups , types of vegetables , nutritive value of fruits and vegetables
2. Detection of toxins and adulterants of some of the common foods
3. Demonstration of different cooking techniques with nutrient loss, grilling, poaching, steaming, tandoor etc
4. Prepare one recipe in each food group indicating best method of cooking
5. Survey of marketed processed and labelling of processed food items

Course Objectives

1. Acquire knowledge of the food composition and chemistry of different food products.
2. Understand various food processing techniques, nutritional and physicochemical changes that occur during processing of foods.
3. Gain knowledge of various food additives and its application in food processing.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Identify various types of foods and food groups. (Level: Remember)
CO2: Demonstrate different cooking techniques to help them understand cooking practices. (Level: Understand)
CO3: Apply scientific thinking in the analysis, synthesis and evaluation of knowledge within the discipline of food nutrition. (Level: Apply)

Reference Books

1. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
2. Usha Chandrasekhar, Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi, 2002.
3. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi, 2010
4. Swaminathan, M, Hand Book of Food Science and Experimental Foods, BAPPCO, Bangalore, 1992
5. Brow, A., Understanding Food, Thomson Learning Publications, Wadsworth, 2000.
6. Mehas, K.Y. and Rodgers, S.L. Food Science and You, McMillan McGraw Company, New York, 2000.
7. Parker, R. Introduction to food Science, Delmer, Thomson Learning Co., Delma, 2000.

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3. Nutrition Science - I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Carbohydrates	15
Module 2	Proteins	15
Module 3	Fats	15
Module 4	Energy balance	15
	Total	**60**

Course Objectives

1. Understand the Composition and structure of carbs, proteins & fats
2. Relate the Physiology of the human body with Food and Nutritional requirements

Course Outcome

After successful completion of the course the learner will be able to:

CO1: State the structure, composition, function and sources of Carbohydrates and Proteins (Level: Remember)
CO2: Identify the general properties of fats and its nutritional value in food. (Level - Understand)
CO3: Explain the basic concepts of energy balance in relation to nutritional intake. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Carbohydrates**	**15**
	● Introduction to Nutrition Science ● Carbohydrates- structure, composition, function, sources ● Nutritive value of Wheat, rice, oats, barley, jowar	
2	**Proteins**	**15**
	● Proteins - Structure, composition, function, sources ● Nutritive value of dals- tur dal, moong dal, masoor dal, moong, matki, rajma, chhole	
3	**Fats**	**15**
	● Fats - Structure, composition, function, sources ● Nutritive value of ghee, coconut oil, mustard oil, sunflower oil, flaxseeds, nuts and seeds	
4	**Energy Balance**	**15**
	● Energy balance – BMR- factors effecting Basal Metabolic Rate, Resting Metabolic Rate ● Energy value of foods , nutritive value of different food groups ● Resting Energy Expenditure, physical activity , impact of activity on nutrition intake	

Reference Books

1. Swaminathan, M., Essentials of food and Nutrition, Vol I & II, Bappco Publishers, Madras 2000.
2. Srilakshmi. B., Nutrition Science, New age International (p) ltd, publishers, 2004.
3. Frances sizer and Ellie whitney, Nutrition Concepts and Controversies, Thomson wadsworth Publisher, New York, 2006.
4. Mangale Kango, Normal Nutrition, Curing Diseases through Diet, CBS publication, First edition, 2005.
5. Bonnie, Worthington – Roberts and Sue Rodwell Williams, Nutrition throughout the life cycle, 3rd edition, WCB/MC Graw Hill Publisher, New York, 1996.
6. Paul. S., Text of Bio Nutrition Fundamental and Management, RBSA Publishers, 2003
7. Journal of Nutritional science
8. American Society for Nutrition
9. Journal of Nutritional biochemistry
10. Journal of Nutrition
11. Indian Journal of Nutrition and dietetics
12. Nutrition Review

Assignment :

1. Different sources of omega 3 and omega 6, and its pros and cons
2. Market survey of protein rich products
3. Myths on ghee and coconut oil - its benefits

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4. Nutrition Science I Practicals

Practicals

Estimation of carbohydrate in fruits and vegetables

1. Estimation of protein by biuret method
2. Qualitative analysis of oils and fats in pulses/food & carbohydrates
3. Demonstration of measuring BMR, RMR, use of calipers
4. Checking the pH of foods

Course Objectives

1. Understand the Composition and structure of carbs, proteins & fats
2. Relate the Physiology of the human body with Food and Nutritional requirements

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Describe critical understanding of principal aspects in nutrition, health, and well-being. (Level - Remember)

CO2: Define qualitative analysis of oils and fats in different food groups. (Level - Understand)

CO3: Demonstrate measurements of BMR, RMR, and use of calipers. (Level - Apply)

Reference Books

1. Swaminathan, M., Essentials of food and Nutrition, Vol I & II, Bappco Publishers, Madras 2000.
2. Srilakshmi. B., Nutrition Science, New age International (p) ltd, publishers, 2004.
3. Frances sizer and Ellie whitney, Nutrition Concepts and Controversies, Thomson wadsworth Publisher, New York, 2006.
4. Mangale Kango, Normal Nutrition, Curing Diseases through Diet, CBS publication, First edition, 2005.
5. Paul. S., Text of Bio Nutrition Fundamental and Management, RBSA Publishers, 2003
6. Journal of Nutritional science
7. American Society for Nutrition
8. Journal of Nutritional biochemistry
9. Indian Journal of Nutrition and dietetics
10. Nutrition Review

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5. Community Nutrition - I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Assessment of Health Status	15
Module 2	Nutritional Intervention Programmes	15
Module 3	International organizations and Voluntary Services	15
Module 4	Education	15
	Total	**60**

Course Objectives

1. Get acquainted with special cultural and political characteristics of various communities.
2. Understand the status and health problems in rural areas.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the concept of assessment of health status and its relevance in community nutrition. (Level: Remember)
CO2: Discuss about different nutritional intervention programmes. (Level - Understand)
CO3: Identify and state role of various International Organizations and Voluntary services. (Level: Remember)
CO4: Discuss the role of education in nutrition and methods of socio-economic analysis. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Assessment of Health Status**	**15**
	● Assessment of Nutritional status – Anthropometric method, Biochemical, Clinical Examination and Dietary survey. ● Malnutrition – Etiology, measures to overcome malnutrition	
2	**Nutritional Intervention Programmes**	**15**
	● School Lunch Programmes – ICDS, TINP ● National Research Institutions – ICMR, CFTRI, NIN - its role and contribution in nutrition science	
3	**International organizations and Voluntary Services**	**15**
	● International organizations – WHO, FAO, UNICEF, World Bank ● Voluntary services – AIWC, AFPRO, HSAI	
4	**Education**	**15**
	● Nutrition education ● Counseling – meaning, aims, objectives, training programs ● Approaches and methods of socio – economic analysis, Rapid Assessment Procedures, rapid rural appraisal, surveys ● Case studies, observation and participant observations.	

Reference Books

1. Wal Ruchi Mishra. S, Encyclopedia of Health Nutrition and Family welfare, Published by Sarup and Sons, new Delhi 2000.
2. Srilakshmi, B. Nutrition Science, New Age International (P) Ltd, New Delhi, 2012
3. Swaminathan, M. Handbook of Food and Nutrition, The Bangalore Printing and Publishing Co. Ltd, Fifth Edition, 2003
4. Reddy, R.s. Nutrition Education, Common Wealth Publisher, First Edition, 2004
5. Park & park, Parks Textbook of Prevention and Social Medicine, 18th edition, M/S Banarasids Bhanot, Jabalpur.

6. Community Nutrition I Practicals

Practicals

1. Assessment of nutritional status of an individual community using anthropometry and dietary survey.
2. Visit to local health centers to identify clinical signs and symptoms of nutritional problems.
3. Visit to an ICDS block.
4. Development of audio visual aids.
5. Planning, implementation and evaluation of nutrition education for a target group.

Course Objectives

1. Get acquainted with special cultural and political characteristics of various communities.
2. Understand the status and health problems in rural areas.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Prepare & develop different types of visual aids suitable to a community nutrition programmes. (Level- Apply)
CO2: Organize different techniques for imparting the knowledge of nutrition to the Community (Level- Apply)

Reference Books

1. Wal Ruchi Mishra. S, Encyclopedia of Health Nutrition and Family welfare, Published by Sarup
2. and Sons, new Delhi 2000.
3. Srilakshmi, B. Nutrition Science, New Age International (P) Ltd, New Delhi, 2012
4. Swaminathan, M. Handbook of Food and Nutrition, The Bangalore Printing and Publishing Co.
5. Ltd, Fifth Edition, 2003
6. Reddy, R.s. Nutrition Education, Common Wealth Publisher, First Edition, 2004
7. Park & park, Parks Textbook of Prevention and Social Medicine, 18th edition, M/S Banarasids
8. Bhanot, Jabalpur.

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7. Healthy Cooking

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction	15
Module 2	Techniques, Myths and Facts	15
Module 3	Healthy Baking	15
Module 4	Microgreens and organic foods	15
	Total	**60**

Course Objectives

1. Acquire knowledge on different methods of cooking
2. Apply process of different foods
3. Use a combination of foods in the development of food products.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: List down the various cooking methods and use of different utensils and materials while cooking. (Level: Remember)
CO2: State the objectives, techniques, and facts of cooking. (Level: Understand)
CO3: Define importance of healthy baking, micro greens and organic foods. (Level- Remember)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction**	**15**
	Introduction to various cooking methods, utensils and materials- ● Baking, ● Roasting, ● Dextrinisation, ● Steam, ● Poach, ● Stir fry/ sauté, ● Deep fry and shallow frying, ● Tandoor, ● Microwave, ● Air fryer, ● Gelatinisation, ● Blanching, ● Broiling etc	
2	**Techniques, Myths and Facts**	**15**
	● Objective of cooking and preliminary techniques- eg Folding, cutting. Grinding, chopping, julienne, cube chopping etc. ● Right way of cooking- how to retain nutrients while cooking, ● Myths and facts of cooking- pertaining to different cooking techniques and methods	
3	**Healthy Baking**	**15**
	● Healthy Baking - Concept of Sourdough, gluten free biscuits and cookies, ● Benefits and breaking the myths,	
4	**Microgreens and organic foods**	**15**
	● Microgreens and organic foods- how to grow your microgreens, ● Benefits, ● Correct way of utilising microgreens ● Which microgreen to be used in which condition ● Organic foods- organic farming, biopesticide, side effects of pesticides	

Application for Theory.

1. Demonstration of different cooking techniques
2. Healthy baking- biscuits, cookies
3. How to make sourdough bread and pizza base
4. How to bake healthy cakes
5. How to grow your microgreens

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8. Functional English

Sr. No.	Modules/Unit	No. of lectures
1	**Word Class**	7
	Articles, Prepositions, Verbs, Adverbs, Conjunctions, Interjections	
2	**Tenses, Concord, Voice**	8
	Tense and Aspect, Subject and Verb Agreement, Person and Number, Active and Passive Voice	
3	**Spelling and Punctuation**	7
	Rules of Punctuation, Basic Rules of Spelling	
4	**Sentences**	8
	Types of Sentences, Conversion of Sentences	

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8. Sanskrit

Modules at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Structure of Language	2
Module 2	Nouns and various cases	2
Module 3	Ten conjugations	2
Module 4	Voices	2
Module 5	Causal	2
Module 6	Absolute Locative	2
Module 7	Frequentatives	2
Module 8	Desideratives	2
Module 9	Sandhis	2
Module 10	Compounds	3
Module 11	Gerunds	3
Module 12	Infinitives	3
Module 13	History of Sanskrit Literature	3
	Total	**30**

Course Objective

- To build the vocabulary of students by equipping them in etymological aspects as per the text

Course Outcome

After the successful completion of course, the learners will be able to:

- CO1: Explain the complex Vedic language and literature. (Level: Remember)

8. Personality Development Skills

Module at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Interpersonal Skills	7
Module 2	Phone Etiquette & Professional Communication	8
Module 3	Email Etiquette	7
Module 4	Time Management	8
	Total	**30**

Course Objective

- To facilitate an all-round development of personality

Course Outcome

After the successful completion of course, the learners will be able to:

- **CO1:** Identify and describe the ways to schedule time more effectively and stay on track and keep important goals top of mind. (Level: Understand)
- **CO2:** Develop interpersonal skills and handle communication in a better manner. (Level: Create)
- **CO3:** Write effective emails. (Level: Create)

Detailed Syllabus

Modules	Topics	No. of Lectures
Module 1	**Interpersonal Skills**	**7**
	● Hard Skills and Soft Skills ● Effective Communication ● Skills for successful interview ● Leadership ● Social Empathy	
Module 2	**Phone Etiquette & Professional Communication**	**8**
	● Ways to make a good first impression. ● Effective call handling ● Major steps of outbound / inbound calls ● Hold the process ● off-air ● Using the right voice of voice ● Tips for good telephone etiquette ● Avoid prohibited phrases ● Physical language on the telephone ● Tele-conferencing skills	
Module 3	**Email Etiquette**	**7**
	● Greeting Enclosures , Closing, CC & BCC, Subject Line, Screen Appearance, Spacing, Font ,Replying, Signature ● Sending effective messages ● Structuring paragraphs and sentences ● Punctuation, grammar and spelling ● Tone of the messages ● Softening a negative message ● Responding to messages ● Handling 'Negative' mails	
Module 4	**Time Management**	**8**
	● Shift Focus from Managing Time to Managing Self ● Identify Typical Time Wasters ● Identify Personal Strengths and Development Opportunities to Control Time ● Define Goals Based on Your Role ● Establish Important and Valid Priorities ● Create a Realistic and Productive Schedule ● Use a Robust Planning Process to Analyse and Review Plans	

	● Attend Meetings with Purpose and Add Value ● Set Clear Expectations with Colleagues, Customers, and Your Boss ● Manage Interruptions from Others ● Build both Productivity and Efficiency ● Re-evaluate Multitasking Strategies ● Overcome Procrastination ● Manage Technological Distractions ● Prioritize and Choose Activities to Balance Life and Work	

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1. Food Nutrition - II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Milk and Egg	15
Module 2	Fish and Meat	15
Module 3	Health Foods	15
Module 4	Sugar	15
	Total	**60**

Course Objectives

1. Acquire knowledge on nutritive value, understand the cooking quality factors and develop skills in the preparation and storage of milk and egg products.
2. Acquire knowledge on the structure and nutritive value, understand the processing factors and acquire skills in processing and storage of flesh foods.
3. Acquire knowledge on the myths & ill-effects if sugar

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the importance of milk, fish, and meat. (Level: Remember)
CO2: Identify the emerging trends in food technology- bio tech, bio-fortification, organic foods, genetically modified food. (Level: Understand)
CO3: Explore the general properties of sugar and its effect on health. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Milk and Egg**	**15**
	● Milk- milk and milk products, its composition, impact on quality of milk and eggs during mass production , ● Egg - Structure, composition, uses in diet	
2	**Fish and Meat**	**15**
	Fish and meat - ● Composition ● Types ● Nutritive value ● Impact on human health ● Classification ● Fish cookery ● spoilage, storage and preservation	
3	**Health Foods**	**15**
	● Health foods- pre-probiotic ● Functional foods- spices and condiments ● Emerging trends in food technology- bio tech, bio fortification, organic foods, genetically modified food	
4	**Sugar**	**15**
	● Myth ● Alternatives ● Ill effects of sugar on health ● Hidden names ● Related products ● Nutritive value ● Properties ● Artificial sweeteners and its impact on health ● Sugar cookery	

Reference Books

1. Potter, N. and Hotchkiss, J.H. Food Science, 5th Ed., CBS Publications and Distributors, Daryaganji, New Delhi, 1998.
2. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
3. Usha Chandrasekhar, Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi, 2002.
4. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi, 2010
5. Swaminathan, M, Hand Book of Food Science and Experimental Foods, BAPPCO, Bangalore, 1992
6. Brow, A., Understanding Food, Thomson Learning Publications, Wadsworth, 2000.
7. Mehas, K.Y. and Rodgers, S.L. Food Science and You, McMillan McGraw Company, New York, 2000.
8. Parker, R. Introduction to food Science, Delmer, Thomson Learning Co., Delma, 2000.

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2. Food Nutrition - II Practicals

Practicals:

1. Different cooking techniques used in industry
2. Market survey of different food items and additives present in them
3. Visit to food manufacturing units

Assignments:

1. Role of additives in food industry
2. Different preservatives used - their classes and its impact on human body

Course Objectives

1. Acquire knowledge of the food composition and chemistry of different food products.
2. Understand various food processing techniques, nutritional and physicochemical changes that occur during processing of foods
3. Gain knowledge of various food additives and its application in food processing.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain scientific thinking in the analysis, synthesis and evaluation of knowledge within the discipline of food science. (Level: Understand)

CO2: Apply ethical reasoning within the discipline of food nutrition. (Level: Apply)

References

1. Potter, N. and Hotchkiss, J.H. Food Science, 5th Ed., CBS Publications and Distributors, Daryaganji, New Delhi, 1998.
2. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
3. Usha Chandrasekhar, Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi, 2002.
4. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi, 2010
5. Swaminathan, M, Hand Book of Food Science and Experimental Foods, BAPPCO, Bangalore, 1992

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3. Nutrition Science - II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Fat soluble Vitamins	15
Module 2	Water soluble	15
Module 3	Minerals	15
Module 4	Antioxidants and anti-inflammatories	15
	Total	**60**

Course Objectives

1. To gain in depth knowledge on the physiological and metabolic role of Vitamins
2. To acquire in depth knowledge of macro and micro minerals

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Identify and list down the compositions, functions and structure of fat-soluble vitamins and water soluble. (Level: Remember)
CO2: Describe the general properties of minerals. (Level: Understand)
CO3: List down the types of antioxidants and anti-inflammatories. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Fat soluble Vitamins**	**15**
	● Fat soluble Vitamin ○ Vitamin A-structure, composition, function, sources RDA, toxicity ○ Vitamin D- structure, composition, function, sources RDA, toxicity ○ Vitamin E- structure, composition, function, sources RDA, toxicity ○ Vitamin K- structure, composition, function, sources RDA, toxicity	
2	**Water soluble**	**15**
	● Water soluble- B complex ○ B1- structure, composition, function, sources-toxicity and RDA ○ B2- structure, composition, function, sources-toxicity and RDA ○ B3- structure, composition, function, sources-toxicity and RDA ○ B5- structure, composition, function, sources-toxicity and RDA ○ B6- structure, composition, function, sources-toxicity and RDA ○ B7- structure, composition, function, sources-toxicity and RDA ○ B9- structure, composition, function, sources-toxicity and RDA ○ B12- structure, composition, function, sources-toxicity and RDA ○ C- structure, composition, function, sources- toxicity and RDA	
3	**Minerals**	**15**
	○ Minerals ○ zinc-structure, composition, function, sources, RDA, toxicity ○ selenium- structure, composition, function, sources, RDA, toxicity ○ copper - structure, composition, function, sources, RDA, toxicity ○ mag- structure, composition, function, sources, RDA, toxicity ○ iron- structure, composition, function, sources, RDA, toxicity	

	○ iodine- structure, composition, function, sources, RDA, toxicity ○ calcium - structure, composition, function, sources, RDA, toxicity ○ phosphorus- structure, composition, function, sources, RDA, toxicity	
4	**Antioxidants and anti-inflammatories**	**15**
	● Antioxidants and anti-inflammatories ○ Beta carotene ○ anthocyanins ○ polyphenols ○ curcumin ○ isoflavones ○ quercetin ○ Sulphur containing foods ○ ellagic acid ○ glutathione ○ L glutamine	

Assignments:

1. Low sodium recipes
2. Low potassium recipes
3. Iron rich recipes
4. Calcium rich foods
5. Magnesium rich sources

Reference Books

1. Swaminathan, M., Essentials of food and Nutrition, Vol I & II, Bappco Publishers, Madras 2000.
2. Srilakshmi. B., Nutrition Science, New age International (p) ltd, publishers, 2004.
3. Frances sizer and Ellie whitney, Nutrition Concepts and Controversies, Thomson wadsworth Publisher, New York, 2006.
4. Mangale Kango, Normal Nutrition, Curing Diseases through Diet, CBS publication, First edition, 2005.
5. Bonnie, Worthington – Roberts and Sue Rodwell Williams, Nutrition throughout the life cycle, 3rd edition, WCB/MC Graw Hill Publisher, New York, 1996.
6. Paul. S., Text of Bio Nutrition Fundamental and Management, RBSA Publishers, 2003
7. Journal of Nutritional science
8. American Society for Nutrition
9. Journal of Nutritional biochemistry
10. Journal of Nutrition
11. Indian Journal of Nutrition and dietetics
12. Nutrition Review

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4. Nutrition Science II Practicals

Nutrition Science Practicals:

1. Determination of egg quality
2. Estimation of calcium, phosphorous iron, iodine

Assignments:

1. Low sodium recipes
2. Low potassium recipes
3. Iron rich recipes
4. Calcium rich foods

Course Objectives

1. Understand the Composition and structure of carbs, proteins & fats
2. Relate the Physiology of the human body with Food and Nutritional requirements

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Demonstrate an understanding of different nutrients in food. (Level: Apply)

CO2: Demonstrate an understanding on the principal aspects in nutrition, health, and well-being. (Level: Apply)

References

1. Frances sizer and Ellie whitney, Nutrition Concepts and Controversies, Thomson wadsworth Publisher, New York, 2006.
2. Mangale Kango, Normal Nutrition, Curing Diseases through Diet, CBS publication, First edition, 2005.
3. Bonnie, Worthington – Roberts and Sue Rodwell Williams, Nutrition throughout the life cycle, 3rd edition, WCB/MC Graw Hill Publisher, New York, 1996.
4. Paul. S., Text of Bio Nutrition Fundamental and Management, RBSA Publishers, 2003

Journals

1. Journal of Nutritional science
2. American Society for Nutrition
3. Journal of Nutritional biochemistry
4. Journal of Nutrition
5. Indian Journal of Nutrition and dietetics
6. Nutrition Reviews

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5. Community Nutrition- II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Community Water and Waste Management	15
Module 2	Concept of Epidemiology	15
Module 3	Challenges faced by women	15
Module 4	White revolution and green revolutions	15
	Total	**60**

Course Objectives

1. To address issues related to waste management and find solutions
2. To acquire knowledge and analyze the challenges faced by women

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the concept of Community Water and Waste Management. (Level: Remember)
CO2: Define the importance of Epidemiology of communicable diseases and its control. (Level: Remember)
CO3: Identify and list down the challenges faced by women. (Level: Understand)
CO4: Explain the basic concepts of White and Green revolution. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Community Water and Waste Management**	**15**
	● Importance of water to the community, ● Etiology and effects of toxic agents, ● Water borne infectious agents, ● Sources of water, ● Safe drinking water, ● Potable water, ● Waste and waste disposal, ● Sewage disposal and treatment, ● Solid waste and disposal, liquid waste disposal.	
2	**Concept of Epidemiology**	**15**
	● Concept of Epidemiology: Study of the epidemiologic approach-determinants of disease preventive & social means. ● Communicable and infectious disease control: Nature of communicable and infectious diseases, infection, contamination, disinfection, decontamination, ● Transmission-direct & indirect, vector borne disease infecting organisms and positive agents, environmental agents and epidemiological principles of disease control.	
3	**Challenges faced by women**	**15**
	Challenges faced by women ● Anemia- causes, symptoms, tests, types of anemia, management, ● Menses- sanitary pads, hygiene, early conception, psychological changes, hormonal imbalance	
4	**White revolution and green revolutions**	**15**
	● White revolution and green revolutions- poultry, fishing-revolutions, ● What can we do differently to benefit our community – eg Different organizations / clubs that can be open to benefit the community- ● Practical- pros of cons of each that the students come up with eg laughter clubs, gyms and park	

Reference Books

1. Wal Ruchi Mishra. S, Encyclopedia of Health Nutrition and Family welfare, Published by Sarup and Sons, new Delhi 2000.
2. Srilakshmi, B. Nutrition Science, New Age International (P) Ltd, New Delhi, 2012
3. Swaminathan, M. Handbook of Food and Nutrition, The Bangalore Printing and Publishing Co. Ltd, Fifth Edition, 2003

4. Reddy, R.s. Nutrition Education, Common Wealth Publisher, First Edition, 2004
5. Park & park, Parks Textbook of Prevention and Social Medicine, 18th edition, M/S Banarasids Bhanot, Jabalpur.

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6. Physiology-I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction to Human Physiology	15
Module 2	Cells and Tissues	15
Module 3	Blood	15
Module 4	Heart	15
	Total	**60**

Course Objectives

1. To understand the basic tenets of human physiology
2. To understand the basics of cells & tissue
3. To provide students insight into normal physiology of the Cardiovascular System

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Outline the basic concepts of Human Physiology. (Level: Remember)
CO2: Interpret an understanding of the basic concepts related to cells and tissues, blood and heart. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction to Human Physiology**	**15**
	Introduction to Human Physiology - ● Define anatomy and physiology, ● Basic life processes, ● Homeostasis and body fluid, ● Basic anatomical terminologies	
2	**Cells and Tissues**	**15**
	● Cell organelles, structure and function, ● Types of tissues , structure and function , ● Cytoplasm and its organelles, ● Nucleus, ● Functional system of cell digestion of cells, ● Function of cells extraction of energy from nutrients , ● Cell motility.	
3	**Blood**	**15**
	● Blood - functions and properties of blood, ● Blood components, ● Physical characteristics of blood, ● Formation of blood cells, ● Blood clotting, ● Blood groups and types, ● Structure	
4	**Heart**	**15**
	● Heart- physiology of heart, heart valves and circulation of blood, ● Arteries, ● Blood pressure and blood flow, ● Cardiac cycle, ● Circulatory system,	

Reference Books

1. Meyer B J, Meij H S and Meyer A C., Human Physiology, AITBS Publishers and Distributors.
2. Wilson, K.J.W and Waugh, A. (1996): Ross and Wilson, Anatomy and Physiology in Health and Illness, 8th Edition, Churchill Livingstone.
3. Ranganathan, T.S. (2004): A Textbook of Human Anatomy, Chand & Co. N. Delhi.
4. Jain, A.K., Textbook of Physiology, Vol. I and II, Avichal Publishing Co., New Delhi.
5. Chatterjee C.C. (1987): Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta.
6. Guyton, A.G. and Hall, J.B. (1996): Text Book of Medical Physiology, (9th Edition, W.B. Sanders Company, Prism Books (Pvt.) Ltd., Bangalore.

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7. Physiology-I Practicals

Modules at a Glance

Practicals

1. Histology of Tissues – Columnar, cubical, ciliated, squamous, stratified squamous. - d .
2. Histology of muscles – cardiac, striated, non – striated . - demonstration
3. Estimation of Haemoglobin, Bleeding time, Clotting time - demonstration
4. Measurement of Blood pressure – before and after exercise - demonstration
5. Demonstration of estimation of nitrogen
6. Demonstration of fibre estimation
7. Demonstration of acid and alkaline ash- its significance in meal planning

Course Objectives

1. To understand the basic tenets of human physiology
2. To understand the basics of cells & tissue
3. To provide students insight into normal physiology of the Cardiovascular System

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Demonstrate an understanding of the complex and diverse nature of life processes. (Level: Apply)

"References

1. Meyer B J, Meij H S and Meyer A C., Human Physiology, AITBS Publishers and Distributors.
2. Wilson, K.J.W and Waugh, A. (1996): Ross and Wilson, Anatomy and Physiology in Health and Illness, 8th Edition, Churchill Livingstone.
3. Ranganathan, T.S. (2004): A Textbook of Human Anatomy, Chand & Co. N. Delhi.
4. Jain, A.K., Textbook of Physiology, Vol. I and II, Avichal Publishing Co., New Delhi.
5. Chatterjee C.C. (1987): Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta.
6. Guyton, A.G. and Hall, J.B. (1996): Text Book of Medical Physiology, (9th Edition, W.B. Sanders Company, Prism Books (Pvt.) Ltd., Bangalo

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8. Communication and Counselling Skills - II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction and Concepts	7
Module 2	Transactional Analysis	7
Module 3	Personality Development	8
Module 4	Communication Skills	8
	Total	**30**

Course Objectives

1. To understand the concept of personality and its development
2. To identify the basic principles of communication
3. To develop written communication skills for everyday and professional communication
4. To develop oral communication skills to participate independently in conversations and discussions conducted in English at medical forums.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define attitude, goals, and values. (Level: Remember)
CO2: Explain the key concepts of transactional analysis. (Level: Understand)
CO3: Explain the basics of Personality development. (Level: Understand)
CO4: Demonstrate a better understanding of the communication process by using communication skills. (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction and Concepts**	**7**
	● Self- concepts, attitudes, goals and values.	
2	**Transactional Analysis**	**7**
	● Introduction to transactional analysis - ○ ego states, ○ types of transactions, ○ social time structuring, ○ games, stamps, ○ rackets, ○ strokes and scripts.	
3	**Personality Development**	**8**
	● Building self- esteem, ● Social skills, ● Assertiveness ● Training and leadership.	
4	**Communication Skills**	**8**
	● Definition, ● Listening, non-listening, verbal and non-verbal communication (body language) ● Barriers to communication.	

Reference Books

1. Bob Wright, Skills for Caring, Communication Skills, 1992, Churchill Livingston.
2. Prasad L.M.,Principles and practice of Management, Sultan Chand and sons, New Delhi, 1999.
3. Jee Curroie, Bare Foot Councellor, Bangalore.
4. Morgan and King – Introduction to Psychology
5. Briany Thomas (ed) Manual of Dietetic Practice. 1986, Published by British Dietetic Association.

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9. Environmental Studies

Modules at a Glance

Sr. No	Module	No of Lectures
Module 1	Components of Environment	6
Module 2	Energy , Resource Conservation and Pollution	6
Module 3	Climate Change and health management	6
Module 4	Environmental Management	6
Module 5	Practical Experiences	6
	Total	**30**

Course Objective

1. To create awareness among the students about the environment with respect to its processes, damages and effects of human intervention. It also aims at explaining the ways in which the environment can be managed so that it can be saved from the wrath of human beings.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the basic concepts of Environmental Science (Level: Remember)

CO2: Describe the types of Resources and Pollution. (Level: Understand)

CO3: Associate health risks with climate change. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Components of Environment**	6
	● Definition, nature and scope of environmental science ● Components of environment: atmosphere, biosphere, lithosphere, hydrosphere ● Man-environment relationship and concept of carrying capacity Biogeochemical cycle: carbon, nitrogen, phosphorus, water, energy flow	
2	**Energy , Resource Conservation and Pollution**	6
	● Energy: Definition, sources - Renewable and non-renewable, Sun as a source of energy ● Energy use patterns and future needs, Energy conservation policies ● Resources: Definition and types, conservation of resources with examples Pollution- definition, types, effects and management, plastic pollution	
3	**Climate Change and health management**	6
	● Climate Change: Meaning, impacts, examples ● Associated health risks and solutions, examples ● Climate Change and ecological imbalance, effects Policies related to climate change, health management in India.	
4	**Environmental Management**	6
	● Concept of sustainable development and it's application ● Meaning and process of Environmental impact assessment ● ISO: standards related to environmental management: ISO 14000 and ISO 14001 Waste management- Meaning, problems and case studies of Indian metro cities: Mumbai, Pune, Bangalore, Delhi, Chennai	
5	**Practical Exercises**	6
	● Project work ● Environmental Diary: Based on observation Field survey report: Visits to NGOs, Sanctuaries/ National Parks, ecotourism	

Reference Books

1. Singh, Y.K. (2006): Environmental Science, New Age International, New Delhi.
2. Kumar, A. (2008): A Textbook of Environmental Science, APH Publishing Corporation, New Delhi.
3. Chauhan, B. S. (2008): University Science Press, New Delhi.
4. Folio, W. (2016): Climate change and health: Improving resilience and reducing risks, Springer, Portugal.
5. Levy, B. (2015): Climate change and public health, Oxford University Press, London.
6. Mareddy, A. (2017): Environmental impact assessment: Theory and practice, BS Publications, United States.

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9. Introduction to Travel & Tourism

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction to Tourism	7
Module 2	Planning & Marketing of Tourism	7
Module 3	Travel Agencies	8
Module 4	Tourism Organisations	8
	Total	**30**

Course Objectives

1. To get thorough understanding of the components of the tourism industry.
2. To acquire knowledge and information pertaining to tourism industry

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the basic concepts related to Tourism (Level: Remember)
CO2: Recognise the role that marketing can play in managing the multiple dimensions of tourism. (Level: Understand)
O3: Explain the roles and responsibilities of a travel agencies and tourism organisations (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction to Tourism**	**7**
	● Concepts, Types and Significance of Tourism ● Scope and Motives of Tourism ● Risk in Tourism ● Tourism Development in India-Evolution, Social and Electronic Media and its impact on Tourism ● Growth of Tourism in India	
2	**Planning & Marketing of Tourism**	**7**
	● Planning- Concept, Need and Importance , Process, Approaches ● Organising- Concept, Need and Importance, Allocation of resources ● Marketing- Concept, Elements, Segmentation, Integrated Marketing Communications (IMC)	
3	**Travel Agencies**	**8**
	● Essentials, Need, Importance and Functions of Travel Agencies and Tour operators ● Procedures and Documentations-Need & Importance, Steps, Challenges, Types of documents and Itinerary making ● Customer Relationship Management-Concept, Need and Importance, Process, SQM	
4	**Tourism Organisations**	**8**
	● Role of State Tourism development Corporation & its regional offices, MTDC ● Role of Tourism Organisations-IATA, PATA, WTO, ITDC ● Social Responsibility and Ethical Concerns of Tourism	

Reference Books:

1. Travel & Tourism I by Thakkar & Others, Vipul Prakashan

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9. Basics of Financial Services

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Financial System	7
Module 2	Banks	7
Module 3	Insurance	8
Module 4	Mutual Funds	8
	Total	**30**

Course Objectives

1. To get acquainted with the basics of financial system and financial markets
2. To provide the basic objectives of Regulating Agencies.
3. To understand and acquire knowledge of basic concepts of Insurance and Mutual funds

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Outline the structure of financial system. (Level: Remember)
CO2: Explain the basic concepts of banks and mutual funds. (Level: Understand)
CO3: Interpret the key terminologies and functioning of Mutual funds (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Financial System**	**7**
	● Overview of Financial System, Financial Markets, Structure of Financial Market (Organised and Unorganised Market), Components of Financial system, Major financial intermediaries, Financial Products, Function of Financial System, Regulatory framework of Indian financial system	
2	**Banks**	**7**
	● Commercial Banks, RBI and Development Banks Concept of Commercial Banks; Reserve Bank of India; Development Banks	
3	**Insurance**	**8**
	● Concept, Basic Characteristics of Insurance, Insurance company operations, Principles of Insurance, Reinsurance, Purpose and need of Insurance, Different kinds of Life Insurance Products, Basic idea about fire and marine insurance and bancassurance	
4	**Mutual Funds**	**8**
	● Concept of Mutual Funds, Growth of Mutual funds in India, Features and Importance of Mutual Fund, Mutual fund schemes, money market mutual funds, private sector mutual funds, Evaluation of the performance of Mutual Funds, Functioning of Mutual funds in India	

Reference Books:

1. Basics of Financial Services by Jia Makhija, Vipul Prakashan

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9. Introduction to Design

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Elements of Design	7
Module 2	Colour Pattern	7
Module 3	Principles of Design	8
Module 4	Overview of Design Courses	8
	Total	**30**

Course Objectives

1. To understand elements & principles of design such as point, lines, shapes, colour, texture & forms, volume, spaces etc.
2. To get acquainted with the overview of various design courses

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Identify the elements and principles of design and their applications in the design process. (Level: Remember)
CO2: Explain colour concepts & theories (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Elements of Design**	**7**
	● Line, Form, Shape & Size ● Basic units of visual design, which forms its structure and convey visual messages	
2	**Colour Pattern**	**7**
	● Learning Colour theory through the colour wheel, study of various colour schemes as applied to Interior spaces, study of pattern & design textures	
3	**Principles of Design**	**8**
	● Understanding Principles of Design such as Balance, Rhythm, Harmony and their application in Design ● Representation of Principles of Design in 2D or sketch form only	
4	**Overview of Design Courses**	**8**
	● Fashion Design, Interior Design, Graphic Design, Web Design, Textile Design, Apparel Design, Jewellery Design, Industrial Design, Product Design, Furniture Design.	

Reference Books:

1. Gonnella, Rose (2014) - Design Fundamentals: Notes on Visual Elements and Principles of Composition.
2. Kaur, Surinderjit (2015)- Elements and Principles of Design.
3. Greene, Charlene (1982)- Masking the Color Wheel
4. Martha Gill - (2001) Color Harmony for Interior Design

9. Overview of Sports Management

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	History of Modern Sports and other Forms of Organized Physical Activity	7
Module 2	Sports Management Environment:	7
Module 3	Roles and Functions of National/International Sports Organsiations	8
Module 4	Financial evolution of Sport	8
	Total	**30**

Course Objectives

1. To understand and apply the fundamental concepts of Sports Management.
2. To understand the basics of Sports Administration
3. To understand the role and functions of various Sports Organizations.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the basic concept of history of sports organisation. (Level: Remember)
CO2: Describe the management of a sports organization (Level: Remember)
CO3: Identify various funding sources for Sport (Level: Remember)
CO4: Remember the role of various International and National Sports Organisations (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**History of Modern Sports and other Forms of Organized Physical Activity**	7
	● History of Modern Sports and other Forms of Organized Physical Activity ● A Historical Overview of Sports ● Evolutionary Processes of Modern Sports ● Relation between Physical Education and Sports, Exercise Physiology	
2	**Sports Management Environment**	7
	● Definition of Organization and Management; What is Sports Management; Unique features of Sports; Sports Management Environment; Three Sectors of Sports; What is different about Sports Management; Key Skills of a Sports Manager	
3	**Roles and Functions of National/International Sports Organsiations**	8
	● Roles Of IFA, FIFA, BCCI, ICC, CAB, Sports Authority Of India (SAI), National Hockey Association, Bengal Volleyball Association, Bengal Tennis Association, Their Functions and Importance in the Promotion and management of Sports	
4	**Financial evolution of Sport**	8
	● Financial evolution of Sport; Funding sources for sport; Understanding financial information; The Balance sheet; Profit and loss statements; Cash flow; Budgeting systems; ● Understanding sport marketing; The Sport marketing framework; Sport product innovation; Sport marketing and social media; Sport media relationship; Broadcast rights.	

Reference Books:

1. Fundamental of sports and exercise by Alan Kornspan- Human Kinetics Publishers (May 2009)
2. Sports & Society, 2nd edition by Grant Jarvie – Routledge (2012)
3. International Sports Management - Gonzalo Bravo

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1. Introduction to Food Planning

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction to Food planning	11
Module 2	Food exchange list	11
Module 3	Recommended Dietary Allowance (RDA)	11
Module 4	Meal planning	12
	Total	**45**

Course Objectives

1. To develop skills in preparation of various food items using five food groups for a day
2. To understand the basic concept of meal management, meal planning for all age groups

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Identify the steps in meal planning. (Level: Remember)
CO2: Discuss the practical application of food exchange list in planning. (Level: Understand)
CO3: Interpret the requirement of RDA across different stages of life including sources for the same. (Level: Understand)
CO4: Prepare a proper meal plan for adults. (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction to Food planning**	**11**
	● Introduction to Food planning ● Food pyramid and labels- reading of labels, ● Standardisation, portion size, mindful eating, ● Steps in meal planning	
2	**Food exchange list**	**11**
	● Food exchange list across all food groups- cereals, pulses, fruits, veggies, dairy, fats, nuts and seeds, . ● Coming up with own handy food exchange list to be used while planning, ● Practical application of food exchange list in planning	
3	**Recommended Dietary Allowance (RDA)**	**11**
	● RDA across age groups- for carbohydrates, proteins, fats, and micronutrients like Na, K, Iron, Vit C, B12. ● Looking at the requirements across different stages of life and including sources for the same , ● how to derive RDA, its impact in planning	
4	**Meal Planning**	**12**
	● Meal planning for adult male and female ● Planning using food exchange list, calorie and protein and carb counting	

Demonstration

1. Derivation of exchange list
2. Standardisation of different food groups
3. Standardisation of cooked foods
4. Meal planning for average Indian male and female
5. Cooking practicals for average Indian male and female

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2. Food Chemistry

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Physico-chemical properties of foods	11
Module 2	Chemistry of Starch and Sugars	11
Module 3	Chemistry of Proteins	11
Module 4	Chemistry of Fats and Oils, Pectic Substances, Plant Pigments, Spices and condiments	12
	Total	**45**

Course Objectives

1. To describe the basic principles and properties of starch proteins, fats and oils, pectic substances and spices and condiments.
2. To gain sufficient knowledge about chemistry of starch proteins, fats and oils, pectic substances
3. To develop products with minimum nutritional loss based on the knowledge of food chemistry

Course Outcome

After successful completion of the course the learner will be able to:

CO1: State the physico-chemical properties of foods. (Level: Remember)
CO2: Demonstrate an understanding on the chemistry pertaining to starch, sugars, and proteins. (Level: Understand)
CO3: List down the general properties of fat & oil and the factors affecting fat absorption in food. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Physico-chemical properties of foods**	**11**
	● Moisture in Foods, ● Hydrogen Bonding, ● Bound Water, Water Activity in Foods, ● Determination of Moisture Content in Foods ● True Solutions, ● Dispersions, Sols, Gels, Foams, Colloids and Emulsions	
2	**Chemistry of Starch and Sugars**	**11**
	● Components of Starch, ● Swelling of Starch Granules, ● Gel Formation, ● Retrogradation, ● Syneresis, ● Effect of Sugar, ● Acid, Alkali, Fat and Surface Active Agents on Starch, ● Stages of Sugar Cookery, ● Crystal Formation and factors affecting it. ● Types of Candies, ● Action of Acid, Alkali and Enzymes, ● Chemistry of Milk Sugar, ● Non Enzymatic Browning	
3	**Chemistry of Proteins**	**11**
	● Components of Wheat Proteins, Structure, ● Gluten Formation, ● Effect of Soaking, ● Fermentation and Germination on Pulse Proteins, ● Properties of Egg Protein, ● Chemistry of Milk Protein, ● Changes in Milk, Egg and Meat Proteins during Heating ● Action of Heat, Acid, Alkalis on Vegetables Proteins and Animal Proteins	
4	**Chemistry of Fats and Oils, Pectic Substances, Plant Pigments, Spices and condiments**	**12**
	● Physical and Chemical Properties of Fats and Oils, ● Rancidity, Hydrogenation, Winterization, Decomposition of Triglycerides, ● Shortening Power of Fats, ● Changes in Fats and Oils during Heating , ● Factors Affecting Fat Absorption in Foods, Pectins, Phenolic Components, Enzymatic Browning in Fruits	

	and Vegetables, Volatile Compounds from Cooked Vegetables, Different Types of Plant Pigments – Water and Fat Soluble Pigments. Properties and Active Principles of Spices and Condiments	

Reference Books

1. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
2. Chandrasekhar, U. Food Science and applications in Indian Cookery (2002) Phoenix Publishing House, New Delhi
3. Swaminathan, M. Food Science, (2005) Chemistry and Experimental Foods, Bappco Publishers, Bangalore.
4. Meyer, L.H, Food Chemistry, (2004) CBS Publishers and Distributors, 4th edition
5. Paul, P.C. and Palmer, H.H. Food Theory and Applications(2000) John Wiley and Sons, New York, (Revised Edition)
6. Chopra H.K, Panesar, P.S, Food Chemistry (2010) Narosa Publishing House, New Delhi

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3. Food Processing & Preservation - I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction to food processing and preservation	15
Module 2	Food Spoilage	15
Module 3	Processing of cereals and millets	15
Module 4	Processing of milk and milk products	15
	Total	**60**

Course Objectives

1. To gain knowledge in food processing and food conservation
2. To understand the principles of food processing
3. To understand the food processing techniques of various food groups
4. To learn the suitable methods of preservation with special reference to our country.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the basic concept of food processing & preservation. (Level: Remember)
CO2: Identify the types and principles of food spoilage. (Level: Understand)
CO3: Discuss the production and processing technology of different foods and milk products. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction to food processing and preservation**	15
	● Nature and properties of food, fluid and visco elastic behavior of foods, ● Principles of different food processing. ● Effect of food processing on nutritional properties of food. ● Importance of food processing	
2	**Food Spoilage**	15
	● Types of Spoilage and organisms causing food spoilage- ● The environment conducive for their growth, ● How to identify spoilage n prevention techniques, ● Basic Principles of Food Preservation, ● Preservation at high and low temperatures, ● Preservation- ○ Using Different natural preservatives like sugar,salt and oils, ○ Using osmotic pressure, ○ By dehydration	
3	**Processing of cereals and millets**	15
	● Milling products and by products of wheat, rice, corn, barley, oats, whole wheat atta, blended flour, fortified flour, flaked, puffed and popped cereals, malted cereals, ● Processed foods - bakery products, pasta products and value added products.	
4	**Processing of milk and milk products**	15
	● Milk – manufacture of different types of milk, drying of whole and skim milk, cream separation, churning of butter, processing of different types of cheese, ● Probiotic milk products - yoghurt, curd and ice-cream, ● Indigenous milk products - khoa, burfi, paneer, ghee ● Physical and Chemical Properties of Fats and Oils, ● Rancidity, Hydrogenation, Winterization, Decomposition of Triglycerides, ● Shortening Power of Fats, ● Changes in Fats and Oils during Heating , ● Factors Affecting Fat Absorption in Foods, Pectins, Phenolic Components, Enzymatic Browning in Fruits and Vegetables, Volatile Compounds from Cooked Vegetables,	

	• Different Types of Plant Pigments – Water and Fat Soluble Pigments. Properties and Active Principles of Spices and Condiments	

Demonstration –

1. Determination of adulterants in milk, chilli, coffee, ghee, wheat flour, coriander seed powder, turmeric, oil
2. Qualitative estimation of Carbohydrates
3. Qualitative estimation of Proteins
4. Qualitative estimation of Fats
5. Preservation using natural sources- salt, sugar, oil and techniques- heat, sundried, low temperature

Reference Books

1. Shakuntala Manay, N. and Shadaksharaswamy, M., Foods – Facts and Principles, New Age International (P) Limited Publishers, New Delhi, 2003.
2. Sivasankar B, Food Processing and Preservation, Prentice – Hall of India Private Ltd., New Delhi, 2002.
3. Bawa AS, Raju PS, Chauhan OP, Food Science, New India Publishing Agency, New Delhi, 2013.
4. Srilakshmi, N., Food Science, New Age International Private Ltd., New Delhi, 2002.
5. Swaminathan, M., Food Science, Chemistry and Experimental Foods, Bappco Publishers, Bangalore, 2004.
6. Chandrasekhar, U, Food Science and Applications in Indian Cookery, Phoenix Publishing House Private Ltd., New Delhi, 2002
7. Fellow, P., Food Processing Technology – Principles and Practices, 3rd Edition, CRC Press Woodland Publishers, England, 2009.
8. Adams, M.R. and Moss, M.O., Food Microbiology, New Age International (P) Ltd., New Delhi, 2005.

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4. Practical Training/Internship

During this semester the learner will have to undergo training outside the institute, in such offices / organizations which will give the learner the necessary opportunity to improve and consolidate his/her knowledge in the marketing profession. During the internship period the learner is expected to work in accordance with the discipline of the organization and will have to make progress which will be carefully monitored by the institution. The learner will have to submit the detailed report of the experience gained during the professional training.

Goals:

- To enable students to make a carefully guided transition into the world of work.
- To create an interface between learning and practice.
- To provide students with an environment that facilitates knowledge building and enhancing skills/competencies.
- To provide opportunities for experiential learning in varied areas of their disciplines and enhance their professional growth
- To enable students to identify their own strengths and skills needing improvement and upgrade them in line with their career goals.
- To enable students to strengthen their commitment towards becoming responsible, well trained, ethical professionals.

Objectives:

Internship is introduced with a cohesive plan of action to realise the following learning outcomes: After going through the Internship the student will be able to :

Facilitate cross- disciplinary learning and development of new skills.

Integrate knowledge obtained through in-class teaching with a hands-on approach and become familiar with Professional Practices and the world of work

Pursue responsible roles in an organization

Develop a road map for future career

Duration:

Each student shall undergo an Internship of few weeks approx. in relevant industry or any other business. The objective of this training is to make the students acquainted with the industrial / business working environment.

Report:

After completion of the training they will have to submit a training report.

Marks & Evaluation:

It will be evaluated by the examiner. It is to be submitted on or before the date fixed by the Institute. The students will also have to submit a performance certificate from the company where he/she undertook the training/internship. This report will also be considered while evaluating the training report by examiners. Alternatively, if it is not possible to do an industrial internship the students will prepare a project report on a topic assigned to him/ her by the Institute. This allows students to undertake experiential learning by working with organisations/ in the industry to critically examine a major aspect of their operation.

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5. Physiology - II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Respiratory System	15
Module 2	Reproductive System	15
Module 3	Urinary System	15
Module 4	Endocrine and Exocrine	15
	Total	**60**

Course Objectives

1. The various systems in the human body and their functioning
2. The mechanism and complications in various systems.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: List down the functions of respiratory, reproductive, urinary and Endocrine & Exocrine Systems. (Level: Remember)

CO2: Classify the physiological processes and functions as applicable to human nutrition. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Respiratory System**	**15**
	● Respiratory- anatomy, pulmonary ventilation, lung volume and capacity, exchange of gases, transport of gases, ● Control of respiration , ● Development of the respiratory system, ● Aging and Respiratory system	
2	**Reproductive System**	**15**
	● Male reproductive system - anatomy, spermatogenesis, hormonal control of testes , reproductive system ducts in males accessory sex gland , ● Female reproductive system - Anatomy , structure and function, female reproductive cycle, ● Development of reproductive system, ● Aging and Reproductive system	
3	**Urinary System**	**15**
	● Urinary System- anatomy and histology of kidneys , ● Overview of renal physiology, tubular reabsorption and tubular secretion, ● Production of dilute and concentrated urine, urine transportation, storage and elimination, ● Aging and Urinary system .	
4	**Endocrine and Exocrine**	**15**
	● Endocrine and Exocrine- Definition, difference , physiology, endocrine glands, role of hormone receptor, endocrine glands, hormonal activity, hypothalamus, pituitary, thyroid gland , parathyroid glands, adrenal glands, pancreatic islets	

Reference Books

1. Meyer B J, Meij H S and Meyer A C., Human Physiology, AITBS Publishers and Distributors.
2. Wilson, K.J.W and Waugh, A. (1996): Ross and Wilson, Anatomy and Physiology in Health and Illness, 8th Edition, Churchill Livingstone.
3. Ranganathan, T.S. (2004): A Textbook of Human Anatomy, Chand & Co. N. Delhi.
4. Jain, A.K., Textbook of Physiology, Vol. I and II, Avichal Publishing Co., New Delhi.
5. Chatterjee C.C. (1987): Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta.
6. Guyton, A.G. and Hall, J.B. (1996): Text Book of Medical Physiology, (9th Edition, W.B. Sanders Company, Prism Books (Pvt.) Ltd., Bangalore

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6. Communication and Counselling Skills - II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Nutrition Counselling	7
Module 2	Processes involved in dietary counselling	7
Module 3	Counseling through the lifespan	8
Module 4	Practical experience	8
	Total	**30**

Course Objectives

1. To understand the influence of counseling on disease management and identify components of counselling skills and to provide skills of counselling for specific disease conditions.
2. Able to provide nutrition counseling and education to individuals and groups using a variety of communication strategies.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the concept of Nutritional Counseling. (Level: Remember)
CO2: Discuss the process of dietary counseling. (Level: Understand)
CO3: List down the considerations for counselling plans (Level: Apply)
CO4: Draw out a complete counselling plan for personal and diet counselling. (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Nutrition Counselling**	**7**
	● Concept and importance of counseling in the nutrition care process ● Understanding dietary patterns and food choices and their impact on counseling ● Behaviour Change Communication and Models for behaviour change ● Counseling strategies ● Factors to be considered for counseling ● Conventional and non-conventional tools in counseling	
2	**Processes involved in dietary counselling**	**7**
	● Managing resources of the communicator/counselor ● Designing of counseling plans – goals & objectives, evaluation instruments. ● Implementation: facilitating self-management of disease condition ● Evaluation: evaluating adherence to dietary changes ● Counseling approaches after evaluation	
3	**Counseling through the lifespan**	**8**
	Considerations for counseling plans for: ● Prenatal and pregnant women ● Lactating women ● Childhood nutrition problems like - SAM, weight management, vitamin and mineral deficiencies ● School children, adolescents, young adults ● fitness, weight management, eating disorders ● Managing diet related chronic diseases in adults: ● Obesity & Diabetes ● Dyslipidemia & Hypertension ● Cancer risk prevention ● Renal disease & Liver disorders ● Geriatric counseling	
4	**Practical experience**	**8**
	Practical experience in personal counseling and diet counseling	

Reference Books

1. Mahan, L. K. and Escott Stump. S. (2016) Krause's Food & Nutrition Therapy 14th ed. Saunders-Elsevier
2. Snetselaar L. (2009). Nutrition Counseling Skills for the Nutrition Care Process. Fourth Ed. Sudbury, Massachusetts: Jones Bartlett Publishers.
3. Holli B Betsy and Beto A Judith. (2014). Nutrition Counseling and Education Skills for Dietetics Professionals. Sixth edition. USA: Lippincot Williams and Wilkins; Wolters Kluwer.
4. Gable J. (2016). Counseling Skills for dietitians. Florida, USA: JohnWiley and Sons.
5. Midwinter R and Dickson J.(2015). Embedding Counseling and Communication Skills. A Relational Skills Model. Routledge 2015
6. Devito Joseph A. (2015) Human Communication: The Basic Course. New York:Pearson
7. King K and Klawitter B.(2007). Nutrition Therapy. Advanced Counseling Skills. Third Edition. Philadelphia, USA: Lippincot Williams and Wilkins; Wolters Kluwer. 2007
8. http://www.fao.org/docrep/X2550E/X2550e04.htm

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7. Information & Communication Technology

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Office Automation using MS-Office – I	7
Module 2	Office Automation using MS-Office – II	8
Module 3	Email, Internet and its Applications -I	7
Module 4	Email, Internet and its Applications -II	8
	Total	**30**

Course Objectives

1. Analyze the importance of use of technology as a professional
2. Understand the utility of Ms Office, Email, Internet and its applications

Course Outcome

After successful completion of the course the learner will be able to:

CO1: State the utility and application of functions in MS Office I & II. (Level: Remember)
CO2: Explain basic concepts of Internet, Intranet and Extranet. (Level: Understand)
CO3: Draft an Email (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Office Automation using MS-Office - I**	**7**
	● Learn Word: ○ Creating/Saving of Document, ○ Editing and Formatting Features, ○ Designing a title page, ○ Preparing Index, ○ Use of SmartArt, Bookmark and Hyperlink. ○ Mail Merge Feature.	
2	**Office Automation using MS-Office - II**	**8**
	● Spreadsheet application (e.g. MS-Excel) ○ Creating/Saving and editing spreadsheets ○ Drawing charts. ○ Using Basic Functions: text, math & trig, statistical, date & time, database, financial, logical ● Using Advanced Functions: Use of VLookup/ HLookup, ● Data analysis – ○ Sorting data, filtering data (AutoFilter, Advanced Filter), ○ Data validation, ○ What-if analysis (using data tables/scenarios), creating sub-totals and grand totals, pivot table/chart, goal seek/solver	
3	**Email, Internet and its Applications -I**	**7**
	● Introduction to Email Writing, professional emails Creating digitally signed documents. ● Use of Outlook : Configuring Outlook, Creating and Managing profile in outlook, Sending and Receiving Emails through outlook ● Introduction to Bulk Email software	
4	**Email, Internet and its Applications -II**	**8**
	● Concepts of Internet, Intranet, Extranet ● Networking Basics, Different types of networks. ● Concepts (Hubs, Bridges, Routers, IP addresses) Study of LAN, MAN, WAN ● DNS Basics. Domain Name Registration, Hosting Basics.	

Reference Books

1. Information Technology for Management, 6TH ED (With CD) By Efraim Turban, Dorothy Leidner, Ephraim Mclean, James Wetherbe (Ch1, Ch2)

2. Microsoft Office Professional 2013 Step by Step By Beth Melton, Mark Dodge, Echo Swinford, Andrew Couch
3. Tata McGraw Hill Joseph, P.T. : E-commerce An Indian Perspective (Ch-13,Ch-14)
4. Computer Viruses and Related Threats: A Management Guide (Ch-2, Ch-3) By John P.Wack, Lisa J. Carnahan

Electronic Commerce - Technologies & Applications. Bharat, Bhaskar

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8. Sanskrit

Module at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Word Class	7
Module 2	Tenses, Concord, Voice	8
Module 3	Spelling and Punctuation	7
Module 4	Sentences	8
	Total	**30**

Course Objectives

- To familiarize students about compound constructions of Sanskrit words.

Course Outcome

After the successful completion of course, the learners will be able to:

- CO1: Compose long compound sentences with the sound knowledge of Sanskrit grammar. (Level: Create)

Detailed Syllabus

Sr. No.	Modules	No. of Lectures
Module 1	**Word Class**	**7**
	Articles, Prepositions, Verbs, Adverbs, Conjunctions, Interjections	
Module 2	**Tenses, Concord, Voice**	**8**
	Tense and Aspect, Subject and Verb Agreement, Person and Number, Active and Passive Voice	
Module 3	**Spelling and Punctuation**	**7**
	Rules of Punctuation, Basic Rules of Spelling	
Module 4	**Sentences**	**8**
	Types of Sentences, Conversion of Sentences	

8. Selling Skills

Module at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Sales Environment	7
Module 2	Sales Techniques & Process	8
Module 3	Sales Targets	7
Module 4	Sales Presentations, Demonstrations and Customer Service	8
	Total	**30**

Course Objective

- To teach customer interaction skills that enable students to lead mutually beneficial sales conversations with customers—even those who are indifferent or express concerns.

Course Outcome

After the successful completion of course, the learners will be able to:

- **CO1:** Explain the products and services in a way that is meaningful and compelling to customers. (Level: Remember)
- **CO2:** Discuss the sales calls in a positive and customer-focused manner. (Level: Understand)
- **CO3:** Explain the sales process. (Level: Understand)

Detailed Syllabus

Modules	Topics	No. of Lectures
Module 1	**The Sales Environment**	**7**
	Understand the sales market – Characteristics, Feautres & Benefits, Unique selling propositions, Organisations market position, Competitors Different types of business focus in sales and marketing - Product focus, Production focus, Sales focus, Customer focus, Barriers to customer focus Manage time in the sales environment - Importance of effective time management, Business objectives, Urgent tasks, Routine tasks, Time management tools and techniques Use of IT in sales IT systems, Sales-related data and information, Information searches, Data audits, Implication of inaccurate sales data, Sales-related data issues and trends, Confidentiality, and security requirements: Communicate information in a sales environment - Sales environment, Characteristics of communication, Importance and uses of non-verbal communication, Importance of checking understanding, Customer needs, Colleague needs, Different media used to communicate, Advantages, Disadvantages	
Module 2	**Sales Techniques & Process**	**8**
	The sales cycle - Characteristics of the sales cycle, Affecting the approach to the sale, Sales contacts The buyer-decision making process - Dealing with buyers, Achievement of targets, Consumer buyer decision making, Business-to-business decision making, Pressures on customers Generate and quality sales leads - Customer segmentation, target the market, source and gather market information, Qualifying the sales contact, Accurate record keeping: Sell by inbound telephone call - Characteristics, Advantages, Disadvantages, Characteristics of reactive selling, Manage customer behaviour Sell by outbound telephone call – Preparations, Characteristics, Advantages, Disadvantages	

	Selling face-to-face - Characteristics, Advantages, Disadvantages, Importance of preparing for the contact, Overcome barriers to closing the sale, Identify further potential add-on, up-selling or cross-selling opportunities, USP, Different methods of closing sales: Process sales orders - Ordering products and/or services, Payment methods Despatch function, Order completion service standards, Discounts and special offers, Importance of keeping the customer informed of developments relating to their order	
Module 3	**Sales Targets**	**7**
	How sales targets are calculated - Forecasting sales processes, Factors that affect the setting of sales targets, Volume and value of the sales, Products and/or services pricing structure, Formula for calculating sales values over a period of time Use of sales targets - Importance of sales targets for performance purposes, Past sales targets and future targets How to collect sales-related data - Potential sources of sales-related data, Collection methods for obtaining quantitative and qualitative information, How data can be used to support sales activities How to evaluate sales performance - Monitor sales performance against targets, evaluate performance against targets, Factors that can cause variances of performance from target, Actions to be taken if sales targets are not met	
Module 4	**Sales Presentations, Demonstrations and Customer Service**	**8**
	How to prepare for a sales presentation or demonstration - Organisational sales strategies, plans and activities, Meeting related to sales targets, Features and benefits of the products and/or services to be promoted, Setting up the venue and equipment, How to deliver a sales presentation or demonstration - Provide audience with opportunities to raise questions, How to gain sales commitment: Role of evaluating sales presentations/demonstrations: Evaluating effectiveness of presentation or demonstration, Using evaluative information to enhanced sales performance: Customer Service in Sales - build long term relationships with customers, approaches to managing customer accounts, importance of customer loyalty, importance of the brand and organisational reputation, how to meet the customers' after sales service needs.	

Reference Books:

1. Denny R — Selling to Win (Kogan Page, 2006) ISBN 8780749444341
2. Schiffman S — The 25 Sales Habits of Highly Successful Salespeople (Adams Media Corporation; 3rd Revised edition, 2008) ISBN 1598697579
3. Fleming P – Retail Selling, 2nd Edition (Mercury Business Books, 2007) ISBN 1852525541
4. Roberts L – Structured Selling: Sales Strategy and Tactics with a Target Marketing Purpose (Rogers Publishing and Consulting, 2009) ISBN 981744230
5. Miller S – How to Get the Most Out of Trade Shows (McGraw-Hill, September 2000) ISBN 065800939
6. Siskind B – Powerful Exhibit Marketing: The Complete Guide to Trade Shows, Exhibitions and Conferences (John Wiley & Sons, April 2005) ISBN 0470834692
7. Abrams R and Bozdech B – Trade Show in a Day: Get It Done Right, Get It Done Fast! (Planning Shop, November 2006) ISBN 0974080179

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1. Fundamentals of Biochemistry

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Different Types of Carbohydrate	11
Module 2	Building Blocks	11
Module 3	Fats	11
Module 4	Structure of Purine and pyrimidine nucleotides	12
	Total	**45**

Course Objectives

1. To understand the basic concepts of biochemistry
2. To gain knowledge on the metabolism of carbohydrate protein and lipids

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Identify different types of Carbohydrates. (Level: Understand)
CO2: State the classification, structure and properties of Amino Acids, Fats, Nucleotides. (Level: Understand)
CO3: Explain the concepts of Purine and pyrimidine nucleotides. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Different Types of Carbohydrate**	**11**
	● Monosaccharides: types, characteristics and properties; ● Disaccharides, oligosaccharides, polysaccharides – biological significance, ● Carbohydrate metabolism in Human body and different Metabolic Pathway ● Metabolic Pathway - Glycolysis, TCA cycle, HMP shunt, Glyoxylate cycle. ● Biosynthesis of carbs from fats and amino acids	
2	**Building Blocks**	**11**
	● Composition of proteins, protein formation, Different peptide bond, ● Amino acids: classification, structure, properties, ● Determination of N- and C- terminal amino acids, ● Protein functions. ● Metabolism – Synthesis of protein and metabolism of amino acids	
3	**Fats**	**11**
	● Classification, structure, properties; biological significance. ● Electron transport and oxidative phosphorylation, redox potential, ATP and significance, ● Lipid metabolism – metabolism of fatty acids, Biosynthesis of fatty acids .	
4	**Purine and pyrimidine nucleotides**	**12**
	● Types of nucleotides- Its structure and functions and its biosynthesis. Types of Nucleic acid its structure and function ● classification and function of enzymes, factors affecting enzyme activity,	

Reference Books

1. Varley, H., Gowenlak, A.H. and Hill, M. Practical Clinical Biochemistry, William Itinmaon Medical Books, London, 2000.
2. Oser, B.L., Harke's Physiological Chemistry XIV Edition Tata McGraw Hill Publishing Company Ltd., Bombay, 2001
3. Sadasivam, S. and Manickam, A. Biochemical Method, Second Edition, New Age International P. Ltd., Publishers, New Delhi, 2003.
4. Raghuramulu, N., Madhavannair, K. and Kalyana Sundaram, National Institute of Nutrition, 2003, A Manual of Laboratory Techniques, Hyderabad, 500007.

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2. Clinical Biochemistry

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Blood Sugar	15
Module 2	Blood Lipids & Plasma Protein	15
Module 3	Gastric Disorders	15
Module 4	Urine	15
	Total	**60**

Course Objectives

1. To study different tests for diseases.
2. To know the biochemical composition of blood and different parts of the body.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: State the principles of biochemistry. (Level: Remember)
CO2: Explain the biological processes and systems applicable to human nutrition. (Level: Understand)
CO3: Describe the analysis, diagnosis, and the methods to control the gastric disorders. (Level: Understand)
CO4: Explain the importance of urine examination in terms of health. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Blood Sugar**	**15**
	● Level of blood glucose – glucose in normal conditions, Maintenance of blood glucose level, ● Inborn errors of Carbohydrate metabolism – Ketosis, Diabetic Coma, pentosuria, Galactosemia, Glycosuria and glucose 6 – phosphate, ● Glycogen storage diseases	
2	**Blood Lipids & Plasma Protein**	**15**
	● Types and level of lipids in blood. Hyper and hypo lipidemia ● Inborn errors of fat metabolism, ● Determination of serum cholesterol, ● Plasma – Functions and determination of total plasma proteins, ● Inborn errors of amino acids metabolism – Phenyl ketonuria, Albiminism, Alkaptonuria and Maple syrup diseases.	
3	**Gastric Disorders**	**15**
	● Bile Salt – Functions, formations of bile acids and bile salts,bile pigments from haemoglobin. ● Test for liver function.	
4	**Urine**	**15**
	● Urine examination – their significance in health and disease, ● Test for kidney function, creatinine clearance test, urea clearance,insulin clearance, Dye test, dilution test, and dialysis.	

Practical

1. Estimation of blood glucose - GOD. POd method
2. Estimation of serum SGOT, SGPT
3. Estimation of Bilirubin
4. Estimation of sugar in blood
5. Estimation of ketones in urine

Reference Books

1. Lehninger,A.L,(2000) Biochemistry worth publishers INC New York.
2. Ambiga Shanmugam, (2002) Fundamentals of biochemistry for Medical students, Karthik printers.
3. Nutritional Biochemistry 2nd edition Tom Bridt, Academic press 2006.
4. Powar and Chatwal, Biochemistry, Himalaya publishing house,2000.
5. Rangantha Rao, K, Taxt book of Biochemistry, prentice Hall of India New Delhi, (2000)

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3. Food Processing And Preservation -II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Preservation by the Use of Low and High Temperature	11
Module 2	Preservation by Using Sugar Concentrates, preservatives and fermentation	11
Module 3	Food adulteration and packaging	11
Module 4	Food additives and fortification	12
	Total	**45**

Course Objectives

1. To examine the different preservation techniques used in the industry
2. To understand food adulteration and international standards
3. To understand different forms of food packaging

Course Outcome

After successful completion of the course the learner will be able to:

CO1: State the importance of food processing & preservation. (Level: Remember)
CO2: Describe the process that helps to preserve food by using sugar concentrates, preservatives, and fermentation. (Level: Understand)
CO3: Explain the concept of Food Adulteration and packaging. (Level: Remember)
CO4: Discuss the usage of Food Additives and fortification. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Preservation by the Use of Low and High Temperature**	**11**
	● Preservation by the Use of Low temperature- ○ Refrigeration, ○ freezing, ○ Refrigeration Advantages, ○ Methods of Freezing, ○ Freeze drying and freeze concentration, ● Preservation by the Use of High Temperature - ○ Drying, ○ Dehydration, ○ Sun Drying and Dehydration, ○ Mechanical Dehydration, ○ Spray drying, ○ Canning, ○ Pasteurization and Sterilization	
2	**Preservation by Using Sugar Concentrates, preservatives and fermentation**	**11**
	● Sugar Concentrates – Principles of Gel Formation, ● Chemical Preservatives – ○ Definition, ○ Role of Preservation ○ Types of preservatives, ○ Ill effects on the nutritional status of the body, ○ Ill effects on nerve conduction , ○ Its impact on hormone, ○ Permitted Preservatives, ● FPO Specification, ○ Types of Fermentation, ○ Common Fermented Foods, ○ Wine making	
3	**Food adulteration and packaging**	**11**
	● Food adulteration- ○ Types of adulterants- saw dust, starch, chicory, ○ Intentional adulteration- arsenic, chicory, ○ incidental adulterants- by pesticides, rodents etc,	

	○ Food loss, Food standardisation and regulation, ○ International standards, ● Food packaging- ○ Function, definition, ○ Classification, ○ Types of packaging, ○ Packaging of specific foods, ○ Points to be considered before deciding packaging system, ○ Materials used for packaging , ○ Pros and cons of the packaging materials, ○ Laws related to packaging	
4	**Food additives and fortification**	**12**
	● Food Additives - ○ Food colors, stabilisers, emulsifiers, flavouring agents, artificial sweeteners- ○ Along with its side effects and government regulations, ● Fortification- ○ Definition, ○ Pros and cons of fortification, ○ Different products which are fortified, ○ Guidelines on food fortification, ○ It's on gut and brain/ neurons	

Industrial Visits and report writing

1. Visit to Food processing unit
2. Visit to food industry

Reference Books

1. Shakuntala Manay, N. and Shadaksharaswamy, M., Foods – Facts and Principles, New Age International (P) Limited Publishers, New Delhi, 2003.
2. Sivasankar B, Food Processing and Preservation, Prentice – Hall of India Private Ltd., New Delhi, 2002.
3. Bawa AS, Raju PS, Chauhan OP, Food Science, New India Publishing Agency, New Delhi, 2013.
4. Srilakshmi, N., Food Science, New Age International Private Ltd., New Delhi, 2002.
5. Swaminathan, M., Food Science, Chemistry and Experimental Foods, Bappco Publishers, Bangalore, 2004.
6. Chandrasekhar, U, Food Science and Applications in Indian Cookery, Phoenix Publishing

House Private Ltd., New Delhi, 2002
7. Fellow, P., Food Processing Technology – Principles and Practices, 3rd Edition, CRC Press Woodland Publishers, England, 2009.
8. Adams, M.R. and Moss, M.O., Food Microbiology, New Age International (P) Ltd., New Delhi, 2005.

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4. Food Processing And Preservation -II Practicals

Modules at a Glance

Industrial Visits and report writing

1. Visit to Food processing unit
2. Visit to food industry

Course Objectives

1. To examine the different preservation techniques used in the industry
2. To understand food adulteration and international standards
3. To understand different forms of food packaging

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Apply the basic principles of food processing and food preservation. (Level: Apply)

Reference Books

1. Shakuntala Manay, N. and Shadaksharaswamy, M., Foods – Facts and Principles, New Age International (P) Limited Publishers, New Delhi, 2003.
2. Sivasankar B, Food Processing and Preservation, Prentice – Hall of India Private Ltd., New Delhi, 2002.
3. Bawa AS, Raju PS, Chauhan OP, Food Science, New India Publishing Agency, New Delhi, 2013.
4. Srilakshmi, N., Food Science, New Age International Private Ltd., New Delhi, 2002.
5. Swaminathan, M., Food Science, Chemistry and Experimental Foods, Bappco Publishers, Bangalore, 2004.
6. Chandrasekhar, U, Food Science and Applications in Indian Cookery, Phoenix Publishing House Private Ltd., New Delhi, 2002
7. Fellow, P., Food Processing Technology – Principles and Practices, 3rd Edition, CRC Press Woodland Publishers, England, 2009.

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5. Nutrition across Lifecycle

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Preconception and Pregnancy	15
Module 2	Infancy, childhood	15
Module 3	Adolescence	15
Module 4	Nutrition in Old Age	15
	Total	**60**

Course Objectives

1. To understand growth and development and nutritional requirements during pregnancy and lactation to promote healthy living in the community
2. To know about growth and development and nutritional requirement of school going children and adolescents
3. To acquire the knowledge on growth and development and nutritional requirement during infancy and preschool age
4. To understand the basics of Geriatrics, Physical and physiological changes

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the nutritional requirements of females during preconception and pregnancy. (Level: Remember)

CO2: Explain the nutritional needs and physiological changes of infants during infancy and childhood. (Level: Understand)

CO3: Demonstrate understanding of theoretical perspectives of adolescent development. (Level: Apply)

CO4: Identify the effects of ageing and life expectancy. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Preconception and Pregnancy**	**15**
	● Preconception and Pregnancy, lactation ● Challenges faced during preconception, ● Nutrients of importance during all 3 phases, ● Physiological changes occuring during pregnancy and lactation,	
2	**Infancy, childhood**	**15**
	Infancy, childhood ● RDA during these phases, ● Physiological changes, ● Nutrients of importance - calcium, iron, ● vitamins of interest- vit B, A, C, D during infancy and childhood	
3	**Adolescence**	**15**
	● Physiological changes, ● Anemia (during period), ● Hormonal changes, ● Development of sec sexual characters- boys and girls, ● Nutrients of importance- proteins , calcium , iron fats ● Vitamins of interest , like ADC, Bcomplex etc during these conditions	
4	**Nutrition in Old Age**	**15**
	● Geriatric nutrition - Physiological changes, RDA , ● Nutrients of importance, ● Common diseases during this phase- ● Introduction to Parkinsons and Alzheimers, ● Postural changes	

Exercises

1. Meal planning (2 hours weekly)
    - Preconception
    - Pregnancy- trimester I II and III
    - Lactation
    - Weaning and infants
    - Kids
    - Adolescent - both boys and girls
    - Meal planning for geriatrics

2. Cooking practicals - for all the meals planned

Reference Books

1. Rajammal P. Devadas and Jaya N.Muthu, (1996): A text book of Child Development,

Macmillan, N.Delhi.
2. Hurlock E.B., (1972): Child development, McGraw Hill Book Company.
3. Suriakanthi A., (1997): Child Development - An Introduction, Kavitha Publishers.
4. Hurlock,E.B., (1995): Developmental Psychology-A life span approach, 5th Edition, McGraw Hill Book Co., New York.
5. Nanda V.K., (1998): Principles of Child Development, Anmol Publications Pvt. Ltd., New Delhi.
6. Berk L.E., (2004): Child Development, Pearson Longman New Delhi.

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6. Nutrition across Lifecycle Practicals

Practicals

1. Meal planning (2 hours weekly)
    - Preconception
    - Pregnancy- trimester I II and III
    - Lactation
    - Weaning and infants
    - Kids
    - Adolescent - both boys and girls
    - Meal planning for geriatrics
2. Cooking practicals - for all the meals planned

Course Objectives

1. To understand growth and development and nutritional requirements during pregnancy and lactation to promote healthy living in the community
2. To know about growth and development and nutritional requirement of school going children and adolescents
3. To acquire the knowledge on growth and development and nutritional requirement during infancy and preschool age
4. To understand the basics of Geriatrics, Physical and physiological changes

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Apply the principles of meal planning for different health conditions. (Level: Apply)

Reference Books

1. Rajammal P. Devadas and Jaya N.Muthu, (1996): A text book of Child Development, Macmillan, N.Delhi.
2. Hurlock E.B., (1972): Child development, McGraw Hill Book Company.
3. Suriakanthi A., (1997): Child Development - An Introduction, Kavitha Publishers.
4. Hurlock,E.B., (1995): Developmental Psychology-A life span approach, 5th Edition, McGraw Hill Book Co., New York.
5. Nanda V.K., (1998): Principles of Child Development, Anmol Publications Pvt. Ltd., New Delhi.
6. Berk L.E., (2004): Child Development, Pearson Longman New Delhi

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7. Physiology-III

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Sensory Organs and Sensory System	15
Module 2	Fluid Electrolyte Balance	15
Module 3	Nervous System	15
Module 4	Brain and Spine	15
	Total	**60**

Course Objectives

1. Understand the various organ systems and their roles in the human body
2. Understand the disorders and the cause in various body parts.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the concept of sensory organs & sensory system. (Level: Remember)
CO2: Explain the role and functions of important systems in the human body. (Level: Understand)
CO3: Demonstrate an understanding of the major structures and function of nervous system. (Level: Apply)
CO4: Discuss source of balancing fluid electrolytes and its regulation. (Level: Understand)
CO5: Explain the anatomy of spinal cord and functional organisation of cerebral cortex. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Sensory Organs and Sensory System**	**15**
	● Sensory organs and sensory system- olfaction - ● Sense of smell: Anatomy, physiology , olfactory pathway, ● Gustation - sense of taste- anatomy of taste buds, physiology of gustation, ● Vision : hearing equilibrium, anatomy of the ear, structure function, physiology and equilibrium pathways , ● Ageing and special senses	
2	**Fluid Electrolyte Balance**	**15**
	● Fluid electrolyte balance- Fluid components and fluid balance, ● Source of body water gain and loss, its regulation ● Electrolytes in body fluid, concentrations, sodium potassium calcium magnesium, bicarbonates, acid base ● Balance action of buffer system,	
3	**Nervous System**	**15**
	● Nervous system- overview of nervous system , ● Structure and functions , ● Organisations of nervous system; ● Central and Peripheral Nervous system , ● Electrical signals in neurons, ● Signal transmission, ● Disorders	
4	**Brain and Spine**	**15**
	● Spinal cord ○ Anatomy, ○ Spinal nerves , ○ Spinal cord physiology, ● Brain ○ Brain organisation protection and blood supply ○ Cerebrospinal fluid, ○ Brain stem, ○ Cerebellum, ○ Functional organisation of cerebral cortex, ● Disorders	

Reference Books

1. Meyer B J, Meij H S and Meyer A C., Human Physiology, AITBS Publishers and Distributors.
2. Wilson, K.J.W and Waugh, A. (1996): Ross and Wilson, Anatomy and Physiology in Health and Illness, 8th Edition, Churchill Livingstone.
3. Ranganathan, T.S. (2004): A Textbook of Human Anatomy, Chand & Co. N. Delhi.
4. Jain, A.K., Textbook of Physiology, Vol. I and II, Avichal Publishing Co., New Delhi.
5. Chatterjee C.C. (1987): Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta.
6. Guyton, A.G. and Hall, J.B. (1996): Text Book of Medical Physiology, (9th Edition, W.B. Sanders Company, Prism Books (Pvt.) Ltd., Bangalore.

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8. Entrepreneurship & Management

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Foundations of Entrepreneurship Development	7
Module 2	Types and Classification of Entrepreneurs	7
Module 3	Entrepreneur Project Development & Business Plan	8
Module 4	Venture Development	8
	Total	**30**

Course Objectives

1. To understand the concepts of entrepreneurship development.
2. To recognize the theories of entrepreneurship.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Outline the concept of Entrepreneurship Development. (Level: Remember)
CO2: Classify the types of Entrepreneurs. (Level: Understand)
CO3: Identify stakeholders, and team members through networks to prioritize market in real-world projects (Level: Understand)
CO4: Identify the steps involved in starting a venture. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Foundations of Entrepreneurship Development**	**7**
	● Concept and Need of Entrepreneurship Development, ● Definition of Entrepreneur, Entrepreneurship, ● Importance and significance of growth of entrepreneurial activities ● Characteristics and qualities of an entrepreneur, ● Theories of Entrepreneurship : ○ Innovation Theory by Schumpeter & Imitating, ○ Theory of High Achievement by McClelland , ○ X - Efficiency Theory by Leibenstein, ○ Theory of Profit by Knight, ○ Theory of Social change by Everett Hagen, ● External Influences on Entrepreneurship Development : Socio-Cultural, Political, Economical, Personal. ● Role of Entrepreneurial Culture in Entrepreneurship Development	
2	**Types and Classification of Entrepreneurs**	**7**
	● Intrapreneur – Concept and Development of Intrapreneurship ● Women Entrepreneur – ○ Concept, development and problems faced by Women Entrepreneurs, ○ Development of Women Entrepreneurs with reference to Self Help Group, ● Social entrepreneurship – concept, development of Social entrepreneurship in India. ● Importance and Social responsibility of NGO's. ● Entrepreneurial development Program (EDP) – concept, factor influencing EDP. ● Option available to Entrepreneur. (Ancillarisation, BPO, Franchise, M&A)	
3	**Entrepreneur Project Development & Business Plan**	**8**
	● Innovation, Invention, Creativity, Business Idea, Opportunities through change, ● Idea generation - Sources - Development of product /idea, Environmental scanning and SWOT analysis ● Creating Entrepreneurial Venture - Entrepreneurship Development Cycle, ● Business Planning Process -	

	○ The business plan as an Entrepreneurial tool, ○ scope and value of Business plan ○ Elements of Business Plan, Objectives, ○ Market and Feasibility Analysis, ○ Marketing, Finance, Organization & Management, Ownership, ○ Critical Risk Contingencies of the proposal, Scheduling and milestones	
4	**Venture Development**	**8**
	● Steps involved in starting of Venture, ● Institutional support to an Entrepreneur, ● Venture funding, requirements of Capital (Fixed and working) ● Sources of finance, ● Problem of Venture set-up and prospects, ● Marketing : Methods, Channel of Marketing, Marketing Institutions and Assistance, ● New trends in entrepreneurship	

Reference Books

1. Entrepreneurial Development : S.S.Khanka
2. Entrepreneurial Development : C.B.Gupta & N.P. Srinivasan
3. Project Management : S.Choudhury
4. Project Management : Denis Lock
5. Stephen P. Robbins, Timothy A. Judge (Author) - Organizational behaviour (15th Edition), Prentice Hall Publication.
6. Niraj Kumar- Organisational Behaviour: A New Looks (Concept, Theory & Cases), Himalaya Publishing House
7. Strategic Leadership – Sahu & Bharati – Excel Books
8. Peter I. Dowling & Denice E. (2006). International HRM (1st ed.). New Delhi
9. French Wendell, Bell Cecil and Vohra Veena. (2004).
10. Organization Development, Behavioral Science Interventions for Organization Improvement. (6th ed.)

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9. Sanskrit

Module at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Word Class	7
Module 2	Tenses, Concord, Voice	8
Module 3	Spelling and Punctuation	7
Module 4	Sentences	8
	Total	**30**

Course Objectives

- To familiarize students about compound constructions of Sanskrit words.

Course Outcome

After the successful completion of course, the learners will be able to:

- CO1: Compose long compound sentences with the sound knowledge of Sanskrit grammar. (Level: Create)

Detailed Syllabus

Sr. No.	Modules	No. of Lectures
Module 1	**Word Class**	**7**
	Articles, Prepositions, Verbs, Adverbs, Conjunctions, Interjections	
Module 2	**Tenses, Concord, Voice**	**8**
	Tense and Aspect, Subject and Verb Agreement, Person and Number, Active and Passive Voice	
Module 3	**Spelling and Punctuation**	**7**
	Rules of Punctuation, Basic Rules of Spelling	
Module 4	**Sentences**	**8**
	Types of Sentences, Conversion of Sentences	

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9. Yoga & Ethics

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction to Yoga	6
Module 2	Yama and Niyama	6
Module 3	Asanas	6
Module 4	Breathing Exercising	6
Module 5	Yoga and Meditation	6
	Total	**30**

Course Objectives

1. To understand the fundamentals of Yoga.

Course Outcome

1. CO1: Describe the history and fundamentals of yoga. (Cognitive Level: Remember)
2. CO2: Summarise the General Guidelines for Yoga practice. (Cognitive Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction to Yoga**	**6**
	● What is Yoga? ● History and Development of Yoga ● Fundamentals of Yoga ● Traditional Schools of Yoga ● Yogic practices of Health and Wellness ● General Guidelines for Yoga practice ● Food for thought	
2	**Yama and Niyama**	**6**
	● Yama (Ahimsa, Satya, Asteya, Brahmacharya, Aparigraha) ● Niyama (Shauch, Santosh, Tapa, Swadhyaya, Ishwarpranidhan)	
3	**Asanas**	**6**
	● Standing (Tadasana, Vrikshasana, Pada-Harkasana, Ardha-Chakrasana, Trikonasana) ● Sitting (Bhadrasana, Vajrasana, Ushtrasana, Shashankasana, Vakrasana) ● Prone (Makarasana, Bhujangasana, Sulabhasana) ● Supine (Setu Bandhasana, Uttanapadasana, Pavanamuktasana)	
4	**Breathing Exercises**	**6**
	● Kapalabhati ● Pranayama—Anuloma-Viloma, Shitali, Bhramari	
5	**Yoga and Meditation**	**6**
	● Prayer ● Dhyana ● Yoga Geet	

Reference Books:

1. Module I, III, IV, V – (As per common yoga protocol for International Day of Yoga) Ministry of AYUSH
2. Module II – (As per Patanjala Yogasutra)
   a. Yoga Sutra with Bhashya (Marathi) – Shri Rele, Prasad Prakashan, Pune
   b. Yoga Sutra with Bhasgya (Hindi) – Darshan Mahavidyalaya, Parsodi, Gujarat
   c. Yogasutra (Marathi) – Shri Kolhatkar, Prasad Prakashan, Pune

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1. Clinical Nutrition-I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Type 1 and Type 2 Diabetes Mellitus	15
Module 2	Heart Disease	15
Module 3	Respiratory Disease	15
Module 4	Thyroid	15
	Total	**60**

Course Objectives

1. To understand the changes in nutritional requirements in various disease states.
2. To understand the evidence linking foods, nutrients and dietary patterns to the aetiology of major diet-related diseases.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Outline the clinical features and basis diagnosis of Type 1 and Type 2 Diabetes Mellitus. (Level: Remember)
CO2: Explain the causes and symptoms of heart and respiratory diseases. (Level: Understand)
CO3: Explain the basic concepts of Thyroid gland. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Type 1 and Type 2 Diabetes Mellitus**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management - Type 1 and Type 2 Diabetes Mellitus, ● Causes, symptoms, complications ,	
2	**Heart Disease**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of CVD - ● Causes, symptoms, diagnostic tests, nutritional management, complications for Hypertension, Hypotension Cholesterol and Coronary Heart Disease	
3	**Respiratory Disease**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of respiratory conditions Asthma, COPD, ARDS, Bronchitis, TB , ● Causes symptoms complications	
4	**Thyroid**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of Thyroid gland - ● Causes, symptoms, diagnostic tests, nutritional management, complications- Hypothyroid, Hyperthyroid,	

Reference Books

1. Joshi SA. (2010). Nutrition and Dietetics. 3rd Ed. New Delhi: McGraw Hill Education (India) Put Ltd.
2. Raut SK., Mitra K and Chowdhury P., AdhunikPustibigyan, Academic Publishers.
3. Srilakshmi B.(2018). Dietetics,. New Delhi: New Age International.
4. Sahoo S and Sahoo SK. (2016). Pustibigyan, Kolkata: ChayaPrakashani.
5. Sohi D. A Comprehensive Textbook of Nutrition & Therapeutic Diets, New Delhi: Jaypee Brothers Medical Publishers.
6. Mudambi SR and Rajagopal MV.(2012). Fundamentals of Foods, Nutrition and Diet Therapy. 6thed. New Delhi: New Age International.
7. Begum MR, A Textbook Of Foods- Nutrition And Dietetics. Sterling Publishers Pvt. Ltd.

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2. Clinical Nutrition-I Practicals

Modules at a Glance

Practicals-

1. Meal planning for Diabetes type 1 and 2
2. Meal planning for Hypertension, dyslipidemia, CHD
3. Meal planning for Asthma, TB, COPD, Bronchitis
4. Meal planning for Hypothyroid and Hyperthyroid
5. Meal planning for Metabolic syndrome

Cooking Practicals :

1. Diabetes type 1 and 2
2. Hypertension, dyslipidemia, CHD
3. Asthma, TB, COPD, Bronchitis
4. Hypothyroid and Hyperthyroid
5. Metabolic syndrome

Course Objectives

1. To understand the changes in nutritional requirements in various disease states.
2. To understand the evidence linking foods, nutrients and dietary patterns to the aetiology of major diet-related diseases..

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Apply Meal planning principles for different diets. (Level: Apply)
CO2: Assess food plans with Meal planning for Asthma, TB, COPD, Bronchitis (Level: Apply)

Reference Books

1. Joshi SA. (2010). Nutrition and Dietetics. 3rd Ed. New Delhi: McGraw Hill Education (India) Put Ltd.
2. Raut SK., Mitra K and Chowdhury P., AdhunikPustibigyan, Academic Publishers.
3. Srilakshmi B.(2018). Dietetics,. New Delhi: New Age International.
4. Sahoo S and Sahoo SK. (2016). Pustibigyan, Kolkata: ChayaPrakashani.
5. Sohi D. A Comprehensive Textbook of Nutrition & Therapeutic Diets, New Delhi: Jaypee Brothers Medical Publishers.

6. Mudambi SR and Rajagopal MV.(2012). Fundamentals of Foods, Nutrition and Diet Therapy. 6thed. New Delhi: New Age International.
7. Begum MR, A Textbook Of Foods- Nutrition And Dietetics. Sterling Publishers Pvt. Ltd.

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3. Diet Therapy- I

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Principles of nutrition care	15
Module 2	Etiology, clinical features and nutritional management of Infections and Fevers	15
Module 3	Etiology, clinical features and nutritional management	15
Module 4	Food Allergy and Food Intolerance	15
	Total	**60**

Course Objectives

1. To gain knowledge about causative factors and metabolic changes in various diseases/disorders and the associated principles of diet therapy.
2. To learn the principles of dietary counseling.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: List down the principles of nutrition care (Level: Remember)
CO2: Explain Etiology, clinical features and nutritional management of Infections and Fevers. (Level: Understand)
CO3: Explain Etiology, clinical features and nutritional management of Weight Imbalances. (Level: Understand)
CO4: Explain Etiology, clinical features and nutritional management of food allergies and intolerance. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Principles of nutrition care**	**15**
	● Nutrition Care Process, ● Therapeutic adaptations of the normal diet, ● Progressive diets – clear fluid, full fluid, soft and regular, meal planning for same , ● Nutrients of interest while planning as per clients medical condition	
2	**Etiology, clinical features and nutritional management of Infections and Fevers**	**15**
	● Typhoid ● Tuberculosis ● HIV ● GI Tract Disorders: ● Diarrhoea ● Constipation ● Acidity- medication- side effects. ● Liver: Infective Hepatitis	
3	**Etiology, clinical features and nutritional management**	**15**
	● Weight Imbalances-Overweight and obesity; Underweight, ● Eating disorder- anorexia nervosa and bulimia, causes, symptoms, ● Body composition analysis , ● Visceral fat, ● Subcutanoeous fat, WAT, BAT ● Complications of obesity ● BMI chart, waist:hip ratio	
4	**Food Allergy and Food Intolerance**	**15**
	● Etiology of allergies and food intolerance, ● Clinical features, diagnostic tests and nutritional management of food allergies and intolerance ● Lactose intolerance, ● Gluten intolerance, ● igG, igE with respect to gut	

Reference Books

1. Anderson L, Dibble MV, Turkki PR, Mitchall HS, and Rynbergin HJ(1983): Nutrition in Health and Disease, 17th Ed. J. B. Lipincott& Co. Philadelphia.
2. Anita FP and Abraham P: Clinical Dietetics and Nutrition, 4th Ed. Oxford University Press, Delhi.
3. Mahan LK and Escott-Stump S(2007): Krause's Food and Nutrition Therapy. 12th Ed. WB Saunders Company, London.
4. Robinson. CH, Lawler MR, Chenoweth WL and Garwick, AE(1986): Normal and Therapeutic Nutrition. 17th Ed.,Macmilian Publishing Co.
5. Williams SR (1989): Nutrition & Diet Therapy, 6th Ed. Times Mirror/Mosby College Publishing, St. Louis.
6. Begum RM (2009): A textbook of Food, Nutrition and Dietetics, 3rd Ed. Sterling Publishers, New Delhi.
7. Joshi SA(2017): Nutrition and Dietetics, 4th Ed. Tata McGraw Hill Publications, New Delhi.
8. Hutchison, R(2010)Food And The Principles Of Dietetics , Kessinger Publishing, LLC.

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4. Diet Therapy- I Practicals

1. Meal planning for clear fluid, full fluids, soft food, full diet
2. Meal planning for fever and typhoid
3. Meal planning for HIV
4. Meal planning for Acidity , Diarrhea and constipation
5. Meal planning for Hepatitis
6. Meal planning for weight loss and weight gain
7. Meal planning for lactose intolerance, gluten intolerance

Cooking practicals :

1. clear fluid, full fluids, soft food, full diet
2. fever and typhoid
3. HIV
4. fever and typhoid
5. Acidity , Diarrhea and constipation
6. Hepatitis
7. weight loss and weight gain
8. lactose intolerance, gluten intolerance

Course Objectives

1. To gain knowledge about causative factors and metabolic changes in various diseases/disorders and the associated principles of diet therapy.
2. To learn the principles of dietary counseling.

Course Outcome

After successful completion of the course the learner will be able to:
CO1: Apply Meal planning principles for clear fluid, full fluids, soft food, and full diet. (Level: Apply)
CO2: Assess food plans with meal planning of allergies and food intolerance. (Level: Apply)
CO3: Assess food plans with Meal planning for ever and typhoid
(Level: Apply)

Reference Books

1. Anderson L, Dibble MV, Turkki PR, Mitchall HS, and Rynbergin HJ(1983): Nutrition in Health and Disease, 17th Ed. J. B. Lipincott& Co. Philadelphia.
2. Anita FP and Abraham P: Clinical Dietetics and Nutrition, 4th Ed. Oxford University Press, Delhi.
3. Mahan LK and Escott-Stump S(2007): Krause's Food and Nutrition Therapy. 12th Ed. WB Saunders Company, London.
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5. Williams SR (1989): Nutrition & Diet Therapy, 6th Ed. Times Mirror/Mosby College Publishing, St. Louis.
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5. Nutrition, Exercise And Fitness

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction to Basic Nutrition	11
Module 2	Exercise physiology	11
Module 3	Hydration and electrolytes	11
Module 4	Fitness assessment	12
	Total	**45**

Course Objectives

1. Understand the knowledge related to physical fitness, health and nutrition
2. Develop the skill in practicing aerobics and anaerobic power to enhance the energy capacity

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the concept of nutrition and its relevance. (Level: Remember)

CO2: Interpret the diagnostic techniques associated with exercise physiology. (Level: Understand)

CO3: Identify the following terms - hydration and electrolytes and the role of water in energy metabolism. (Level: Understand)

CO4: Discuss methods of Fitness assessment and relevance of subcutaneous and visceral fat (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction to Basic Nutrition**	**11**
	● Introduction to Basic Nutrition : Role & importance of nutrition , ● Macronutrients - carbohydrates, proteins fats and water ● Micronutrients- zinc seleium chromium calcium magnesium iron iodine in detail with regards to exercise	
2	**Exercise physiology**	**11**
	● Exercise physiology: Musculoskeletal anatomy- strength, power, endurance, ● Overview of aerobic and anaerobic pathway, ● Effect of training on heart & lung performance, ● Importance of heart rate monitoring and how do you calculate it	
3	**Hydration and electrolytes**	**11**
	● Hydration and electrolytes- Role of water in energy metabolism, ● Impact of dehydartion on cells and hence activity , ● Importance of sodium, potasium, iron calcium and magnesium in exercising individuals ● Dehydration, heat injury, ● Sports drinks	
4	**Fitness assessment**	**12**
	● Fitness assessment- ○ Anthropometric measurements, ○ BMR, ○ factors, ○ measuring Resting Metabolic Rate, ○ Max Heart Rate, ○ Body Mass Index, ○ Body Fat composition, ○ Body composition Analysis, ● Endurance difference between subcutaneous and visceral fat , its significance	

Reference Books

1. Havley E. T. and Franks B . D. (1997) Health Fitness instructions handbook. Third edition . Human kinetics Champaign Illinois .
2. Carry Egger , Nigel champion and Allan Bolton compiled buy the fitness header's handbook A& C black London .
3. McArdle, W. D, Frank I. Katch, F. I and Victor L. Katch (1996) Exercise Nutrition: Energy Nutrition and Human Performance. William & Wilkin Publishing USA.
4. Mahan, K and Stump, E. S (1996) Krause Food and Nutrition and Diet Therapy W.B Saunders Company, USA.
5. Uppal . A.K. (2004) Physical Fitness and Wellness Friends publications India.
6. Werner W. K Hoejer (1989), Life time Physical Fitness and Wellness, Morton Publishing Company, Colorado.
7. Mishra, S. C (2005) Physiology in Sports. Sports Publication, New Delhi
8. Greenberg, S. J and Pargman, D (1989) Physical Fitness – A Wellness Approach Prentice Hall International (UK) Limited, London
9. Swaminathan T, (2008) Essentials of Food and Nutrition Bangalore Printing Publishing Co.

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6. Physiology-IV

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Immunity and Lymphatic system	11
Module 2	Upper GI	11
Module 3	Lower GI	11
Module 4	Musculoskeletal system	12
	Total	**45**

Course Objectives

1. To understand the advance muscle and the disorders associated with it.
2. To understand the basic functions of the lower and upper GI

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Describe the structure and function of immunity and lymphatic system. (Level: Remember)
CO2: State the basic concepts of lower and upper Gastrointestinal System. (Level: Understand)
CO3: Explain the role and functions of different tissues and systems in the human body. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Immunity and Lymphatic system**	**11**
	● Immunity and lymphatic system: Lymphatic system structure and function, ● Development of lymphatic tissues, ● Introduction to immunology, ● Types of immune system ● Self recognition and tolerance , ● Stress and immunity	
2	**Upper GI**	**11**
	● Upper GI: Overview of digestive system, ● Neural intervention of GI tract, ● Structure and function of - peritoneum, mouth, pharynx, esophagus, deglutition, stomach	
3	**Lower GI**	**11**
	● Lower GI: structure and function of - pancreas, liver and gall bladder, small intestine, large intestine, ● Phases of digestion, ● Homeostasis of imbalance	
4	**Musculoskeletal system**	**12**
	● Musculoskeletal system: Function of bone, skeletal system, ● Nerve supply of bone, ● Bone formation, ● Bones role in calcium homeostasis, exercise and bone tissues, ● Aging and bone tissues ● Disorders overview of muscular system, ● Muscle metabolism, ● Types of skeletal muscles, ● Development of muscles ● Cardiac muscle tissues ● Smooth muscle tissues	

Reference Books

1. Meyer B J, Meij H S and Meyer A C., Human Physiology, AITBS Publishers and Distributors.
2. Wilson, K.J.W and Waugh, A. (1996): Ross and Wilson, Anatomy and Physiology in Health and Illness, 8th Edition, Churchill Livingstone.
3. Ranganathan, T.S. (2004): A Textbook of Human Anatomy, Chand & Co. N. Delhi.
4. Jain, A.K., Textbook of Physiology, Vol. I and II, Avichal Publishing Co., New Delhi.
5. Chatterjee C.C. (1987): Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta.
6. Guyton, A.G. and Hall, J.B. (1996): Text Book of Medical Physiology, (9th Edition, W.B. Sanders Company, Prism Books (Pvt.) Ltd., Bangalore.

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7. Practical Training/Internship

Modules at a Glance

During this semester the learner will have to undergo training outside the institute, in such offices / organizations which will give the learner the necessary opportunity to improve and consolidate his/her knowledge in the marketing profession. During the internship period the learner is expected to work in accordance with the discipline of the organization and will have to make progress which will be carefully monitored by the institution. The learner will have to submit the detailed report of the experience gained during the professional training.

Goals:

- To enable students to make a carefully guided transition into the world of work.
- To create an interface between learning and practice.
- To provide students with an environment that facilitates knowledge building and enhancing skills/competencies.
- To provide opportunities for experiential learning in varied areas of their disciplines and enhance their professional growth
- To enable students to identify their own strengths and skills needing improvement and upgrade them in line with their career goals.
- To enable students to strengthen their commitment towards becoming responsible, well trained, ethical professionals.

Objectives:

Internship is introduced with a cohesive plan of action to realise the following learning outcomes: After going through the Internship the student will be able to :

Facilitate cross- disciplinary learning and development of new skills.

Integrate knowledge obtained through in-class teaching with a hands-on approach and become familiar with Professional Practices and the world of work

Pursue responsible roles in an organization

Develop a road map for future career

Duration:

Each student shall undergo an Internship of few weeks approx. in relevant industry or any other business. The objective of this training is to make the students acquainted with the industrial / business working environment.

Report:

After completion of the training they will have to submit a training report.

Marks & Evaluation:

It will be evaluated by the examiner. It is to be submitted on or before the date fixed by the Institute. The students will also have to submit a performance certificate from the company where he/she undertook the training/internship. This report will also be considered while evaluating the training report by examiners. Alternatively, if it is not possible to do an industrial internship the students will prepare a project report on a topic assigned to him/ her by the Institute. This allows students to undertake experiential learning by working with organisations/ in the industry to critically examine a major aspect of their operation.

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8. Sanskrit /

Module at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Selected portion from Taittiriyopanishad	4
Module 2	An extract from drama Pratima by Bhasa	3
Module 3	A story from Panchtantram	4
Module 4	An extract from Mricchakatikam by Shudraka	3
Module 5	A dialogue based on Meghadutam	4
Module 6	An extract from drama Malavikagnimitram	6
Module 7	Spy system in Kautiliya Arthashastra (5 types of stationary spies)	6
	Total	**30**

Course Objective

- To give holistic and comprehensive understanding of the subject.

Course Outcome

After the successful completion of course, the learners will be able to:

- CO1: Describe the cultural perspective on the language. (Level: Understand)

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8. Effective Presentation Skills

Module at a Glance

Sr. No.	Modules	No. of Lectures
Module 1	Planning Presentations	7
Module 2	Preparing Presentations	8
Module 3	Enhance to Engage and prepare for Q & A	7
Module 4	Craft to impact	8
	Total	**30**

Course Objective

- To provide comprehensive understanding for delivering effective presentations.

Course Outcome

After the successful completion of course, the learners will be able to:

- **CO1:** Explain the key elements of impactful presentations. (Level: Remember)
- **CO2:** Prepare the audience research to create targeted presentations. (Level: Understand)
- **CO3:** Demonstrate the best practices for designing visuals. (Level: Apply)
- **CO4:** Prepare a report through effective question and answer sessions with the audience. (Level: Apply)
- **CO5:** Develop a visual narrative. (Level: Create)

Detailed Syllabus

Modules	Topics	No. of Lectures
Module 1	**Planning Presentations**	**7**
	● Apply tools to analyze the audience and customize our delivery ● Understand the challenges associates with not knowing the audience ● List the 4 basic purposes of a presentation Introduce ourselves with confidence and credibility ● Identify strengths and opportunities for self-development	
Module 2	**Preparing for presentations**	**8**
	Increase effectiveness through appropriate voice techniques ● Leverage gestures and expressions to emphasize our message ● Capture and retain audience attention through the use of storytelling Understand the fundamental elements of impactful presentations ● Plan and prepare a roadmap for the presentation ● Structure presentations for logical, productive outcomes ● Prepare evidence to give presentations more impact	
Module 3	**Enhance to Engage and prepare for Q & A**	**7**
	Reinforce our information using visual impact ● Open and close sessions with impact ● Understand the variety of support tools that strengthen a Message Establish credibility with our audience through Q&A ● Handling and maintaining control of Q&A sessions ● Learn how to confidently facilitate Q&A sessions	
Module 4	**Craft to impact**	**8**
	Small groups to apply the learnings of the workshop and craft one presentation basis ● Audience ● Purpose ● Tools and Techniques Set Individual Action plans ● Feedback using recording of presentations	

Reference Books:

1. Effective Presentation Skills – Robert Dilts, Meta Publication
2. Business Communication Today - Bovee and Thill: Tata McGraw Hill,

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1. Lifestyle Pillars

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Sleep	11
Module 2	Stress/Emotional health	11
Module 3	Hydration and Basic lifestyle changes	11
Module 4	Exercise	12
	Total	**45**

Course Objectives

1. To understand the basic lifestyle changes in a human body
2. To understand the benefits and need for exercise in a human body

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the basic concepts of sleep. (Level: Remember)
CO2: Discuss the basics of hydration and maintaining a healthy life. (Level: Understand)
CO3: Explain the basic concept of 'stress' and mention the ways to handle it. (Level: Understand)
CO4: Demonstrate an understanding of exercise and its relevance in today's life. (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Sleep**	**11**
	● Sleep- cycle, brain waves, ● Conditions that impact sleep cycle, ● Sleep and bedtime routine, ● Importance of sleep and side effects of sleep deprivation - immunity, hormonal imbalance, gut etc ● Adrenal fatigue with respect to sleep	
2	**Stress/Emotional health**	**11**
	● Stress/ emotional health- how does stress affect, ● Sympathetic Nervous system and Parasympathetic Nervous system, ● Stress and inflammation, ● Stress-immunity, ● Ways to manage stress, ● Adrenal fatigue with respect to stress	
3	**Hydration and Basic lifestyle changes**	**11**
	● Hydration- Functions and importance- ● Adequate hydration ● Foods that dehydrate you, ● Side effects of dehydration, ● Concepts of Intermittent Fasting, - Self study Dry Fasting, Circardian Intermittent Fasting, ● Impact of fasting on human body, Fasting phase and building phase , ● Impact of nutrition deprivation on cell metabolism	
4	**Exercise**	**12**
	● Exercise- Benefits of exercise, ● Types- aerobic and anaerobic- and cover examples in detail, ● Side effects of over exercising, ● Impact of no/ over exercise on muscles- weight gain/loss and exercise/ muscle gain and loss with respect to exercise, ● Impact of exercise on BMR	

Reference Books

1. Joshi SA. (2010). Nutrition and Dietetics. 3rd Ed. New Delhi: McGraw Hill Education (India) Put Ltd.
2. Raut SK., Mitra K and Chowdhury P., AdhunikPustibigyan, Academic Publishers.
3. Srilakshmi B.(2018). Dietetics,. New Delhi: New Age International.
4. Sahoo S and Sahoo SK. (2016). Pustibigyan, Kolkata: ChayaPrakashani.
5. Sohi D. A Comprehensive Textbook of Nutrition & Therapeutic Diets, New Delhi: Jaypee Brothers Medical Publishers.
6. Mudambi SR and Rajagopal MV.(2012). Fundamentals of Foods, Nutrition and Diet Therapy. 6thed. New Delhi: New Age International.
7. Begum MR, A Textbook Of Foods- Nutrition And Dietetics. Sterling Publishers Pvt. Ltd.

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2. Clinical Nutrition- II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Osteopenia, Osteoporosis, Osteoarthritis	15
Module 2	PCOD, Pre menopause/ Menopause	15
Module 3	Kidney	15
Module 4	Phenylketonuria, Galactosemia & Nutritional care for the children with special needs	15
	Total	**60**

Course Objectives

1. To understand the importance of nutritional assessment in the care of patients.
2. To understand basic nutritional problems.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the changes in nutritional requirements in PCOD, Pre menopause/ Menopause. (Level: Remember)

CO2: Explain the term Osteopenia, Osteoporosis, Osteoarthritis and nutrition application to disease prevention and management. (Level: Understand)

CO3: Apply meal planning principles for different diets (Level: Apply)

CO4: Discuss the nutritional care given to the children with special needs. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Osteopenia, Osteoporosis, Osteoarthritis**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of bone health Osteopenia, osteoporosis, osteoarthritis	
2	**PCOD, Pre menopause/ Menopause**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of Women's health, PCOD, pre menopause/ menopause	
3	**Kidney**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of Renal conditions - Nephrotic syndrome, Nephritic, syndrome, Acute Renal Failure, Chronic Kidney Disease, ● Dialysis- Introduction to Dialysis - types of dialysis- hemodialysis n peritoneal dialysis,	
4	**Phenylketonuria, Galactosemia & Nutritional care for the children with special needs**	**15**
	● Etiology, clinical features, basic diagnosis and nutritional management of inborn errors of metabolism prognosis, symptoms, dietary management - phenylketonuria, galactosemia, ● Nutritional care for the children with special needs – overview of the disability, food and nutritional needs and their modification. ○ Attention deficit hyperactivity disorder ○ Autism ○ Cerebral palsy ○ Down's syndrome	

Reference Books

1. Joshi SA. (2010). Nutrition and Dietetics. 3rd Ed. New Delhi: McGraw Hill Education (India) Put Ltd.
2. Raut SK., Mitra K and Chowdhury P., AdhunikPustibigyan, Academic Publishers.
3. Srilakshmi B.(2018). Dietetics,. New Delhi: New Age International.
4. Sahoo S and Sahoo SK. (2016). Pustibigyan, Kolkata: ChayaPrakashani.
5. Sohi D. A Comprehensive Textbook of Nutrition & Therapeutic Diets, New Delhi: Jaypee Brothers Medical Publishers.
6. Mudambi SR and Rajagopal MV.(2012). Fundamentals of Foods, Nutrition and Diet Therapy. 6thed. New Delhi: New Age International.
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3. Diet Therapy - II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Introduction	15
Module 2	Special Feeding methods	15
Module 3	Diseases of the gastrointestinal tract	15
Module 4	Diseases of the liver, gall bladder and exocrine pancreas	15
	Total	**60**

Course Objectives

1. To comprehend the feeding techniques
2. To know the corrective measures in malnutrition.
3. To develop skills and techniques in the planning and preparation of therapeutic diets for febrile conditions and gastrointestinal disorders, liver and pancreas

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Explain the concepts of diet therapy and role of dieticians in todays' life. (Level: Remember)
CO2: Relate the disease conditions and disorders of the liver, gallbladder, and pancreas and nutrition care (Level: Remember)
CO3: Apply meal planning principles for Special Feeding methods (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Introduction**	**15**
	● Definition of Dietetics, dietitian, ● Goals of Diet Therapy, ● Types of dietitian, ● Role and responsibilities of dietitians, ● Qualification, qualities and professional ethics, code of conduct, ● Specially modified therapeutic diets, ● High calorie low calorie, high and low protein, bland, high and low residue diets.	
2	**Special Feeding methods**	**15**
	● Special Feeding methods- Enteral nutrition- methods- nasogastric, gastrostomy and jejunostomy types of food, infusion techniques. ● TPN(total parentral nutrition)- Types of infusion, TPN formula for adults., ● Dietary modification, diet planning, and preventive measures for- PEM(protein energy malnutrition), ● Iron deficiency anaemia and Vitamin A deficiency.	
3	**Diseases of the gastrointestinal tract**	**15**
	● Diseases of the gastrointestinal tract: Causes, pathogenesis, dietary modification and diet planning for ○ GERD (Gastro Esophageal Reflux Disease) and Gastritis ○ Peptic ulcer and hemorrhoids ○ Irritable Bowel Syndrome and Inflammatory Bowel Disease	
4	**Diseases of the liver, gall bladder and exocrine pancreas**	**15**
	● Diseases of the liver, gall bladder and exocrine pancreas – pathogenesis, causes, signs and symptoms, ● Dietary modification and diet planning for ○ Liver- fatty liver, hepatitis and cirrhosis, Non alcoholic fatty liver disease ○ Gall bladder – cholecystitis, cholelithiasis ○ Pancreas – pancreatitis	

4. Diet Therapy- II Practicals

Practicals-

I. Meal planning

- Gastroesophageal reflux disease (GERD)
- Peptic ulcers
- Sibo and Hpylori,
- Irritable bowel syndrome (IBS)
- Inflammatory Bowel Disease (IBD)
- Pancreatitis, liver cirrhosis, cholelithiasis , Osteoarthritis,
- PCOD endometriosis, AKD, CKD,
- ADHD autism , epilepsy

II. Cooking Demonstration for :

- Gastroesophageal reflux disease (GERD)
- Peptic ulcers
- Sibo and Hpylori,
- Irritable bowel syndrome (IBS)
- Inflammatory Bowel Disease (IBD)
- Pancreatitis, liver cirrhosis, cholelithiasis , Osteoarthritis,
- PCOD endometriosis, AKD, CKD,
- ADHD autism, epilepsy
- Low sodium and low potassium recipes

Course Objectives

1. To gain knowledge about causative factors and metabolic changes in various diseases/disorders and the associated principles of diet therapy.
2. To learn the principles of dietary counseling.

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Apply Meal planning principles for diseases of gastrointestinal tract, liver, gall bladder and exocrine pancreas. (Level: Apply)

Reference Books

1. Anderson L, Dibble MV, Turkki PR, Mitchall HS, and Rynbergin HJ(1983): Nutrition in Health and Disease, 17th Ed. J. B. Lipincott& Co. Philadelphia.
2. Anita FP and Abraham P: Clinical Dietetics and Nutrition, 4th Ed. Oxford University Press, Delhi.
3. Mahan LK and Escott-Stump S(2007): Krause's Food and Nutrition Therapy. 12th Ed. WB Saunders Company, London.
4. Robinson. CH, Lawler MR, Chenoweth WL and Garwick, AE(1986): Normal and Therapeutic Nutrition. 17th Ed.,Macmilian Publishing Co.
5. Williams SR (1989): Nutrition & Diet Therapy, 6th Ed. Times Mirror/Mosby College Publishing, St. Louis.
6. Begum RM (2009): A textbook of Food, Nutrition and Dietetics, 3rd Ed. Sterling Publishers, New Delhi.
7. Joshi SA(2017): Nutrition and Dietetics, 4th Ed. Tata McGraw Hill Publications, New Delhi.
8. Hutchison, R(2010)Food And The Principles Of Dietetics , Kessinger Publishing, LLC.

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5. Nutrition, Exercise And Fitness-II

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Supplements	11
Module 2	Antioxidants	11
Module 3	Diet planning in Sports	11
Module 4	Ergonomics and Injury Management	12
	Total	**45**

Course Objectives

1. To gain knowledge on the classification of antioxidants and their role in combating diseases
2. To update knowledge on advanced techniques and concept of diet planning for athletes

Course Outcome

After successful completion of the course the learner will be able to:

CO1: State the importance of intake of supplements & antioxidants. (Level: Remember)
CO2: Explain the importance and basics of diet planning in sports. (Level: Understand)
CO3: Identify and elaborate the supplements to be taken and avoided before an event. (Level: Understand)
CO4: Discuss the impact of exercise of physiology related to injury management. (Level: Understand)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Supplements**	**11**
	● Supplements - composition of supplements , How and when to use the supplements, ● Whey-whey protein concentrate, whey protein isolate casein - whey composition / proportion ● BCAA (Branch Chained Amino Acids), ● Glutamine, creatinine,Steroids, fat burners, NO boosters, - benefits, dosage, side effects	
2	**Antioxidants**	**11**
	● Antioxidants, natural and supplement form both- Vit C, CoQ10, colostrum, Vit B, D, E, ● Preparing for an event- carbo loading, resting, hydration, ● Supplements to take and avoid before an event	
3	**Diet planning in Sports**	**11**
	● Diet planning in Sports: Marathon Runs, Cricket etc. ● Strength Sports: Boxing, Weight Lifting etc., ● Athletes Diet and eating disorders, ● Weight maintenance plans	
4	**Ergonomics and Injury Management**	**12**
	● Ergonomics and Injury Management - lymphatic drainage, muscle development , impact of exercise on physiology, muscle injury ,different exercise	

Demonstration

1. Meal planning for ectomorphs, mesomorphs, endomorphs
2. Meal planning for sportsman
3. Meal planning for gym goer- depending on the intensity of workout- light, moderate, intense
4. Practical training for exercise
5. Different warm up and stretches
6. Planning and preparation of sports drink

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6. Yoga and Exercise

Modules at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Basic Concepts of Yoga	7
Module 2	Asanas	7
Module 3	Pranayama	8
Module 4	Mudra, Bandhas and Meditation	8
	Total	**30**

Course Objectives

1. To foster harmony in the body, mind, and environment.
2. To spiritually develop practices to train the body and mind to self observe and become aware of their own nature

Course Outcome

After successful completion of the course the learner will be able to:

CO1: Define the basic concept of Yoga. (Level: Remember)

CO2: Explain in depth knowledge about different asanas and pranayama. (Level: Understand)

CO3: Use the concept of logic of Mudra, Bandhas and Meditation in current Scenario. (Level: Apply)

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Basic Concepts of Yoga**	7
	● Meaning of Yoga; ● Definitions of Yoga, ● History and Development of Yoga in Buddhism, Jainism and Indian Philosophy.	
2	**Asanas**	7
	● Meaning, Definition, Aims, ● Objective of Hath Yoga and Ashtanga Yoga, ● Different types of Asanas with Reference to Hath Pradipika, Gherand Aamhita, Patanjali Yoga ● Sutras.- Indications, Contraindications	
3	**Pranayama**	8
	● Pranayama with Reference to Hath Pradipika, Gherand Aamhita, Patanjali Yoga ● Sutras- different types, indications, contraindications	
4	**Mudra, Bandhas and Meditation**	8
	● Concept, Meaning, Application of Mudra and Bandhas. ● Concept, Meaning and Various Techniques of Meditation.	

Demonstration

1. Mudras
2. Breathing exercises and Pranayama- anuloma viloma, bhastrika, kapal bhatti, deep breathing, left / right nostril breathing, etc
3. Asanas for different medical condition- hypothyroid, diabetes, weight loss, hypertension pcod , endometriosis etc
4. Meditation

Reference Books

1. Bases of Yoga- Shri Aurbindo
2. Patanjali Yoga Sutra – Gita Press Gorakhpur
3. Swami Niranjanananda Saraswati- Gherand Samhita, Bihar School of Yoga Munger.
4. Swami Digambar & Jha P – Hatha Pradipika kaivalydham Yoga Prakashan, Lonavala,Pune.
5. Saraswati Satyananda, Asana, Pranayama, Mudra Bandha- Bihar School of Yoga Munger.
6. Meditation Techniques of the Buddhist and Taoist Masters – Daniel Odier.
7. Techniques of Prekhadhyan- Acharyan Maha Pragaya.

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7. Practical Training/Internship

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To provide students with an environment that facilitates knowledge building and enhancing skills/competencies.

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Pursue responsible roles in an organization

Develop a road map for future career

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After completion of the training they will have to submit a training report.

Marks & Evaluation:

It will be evaluated by the examiner. It is to be submitted on or before the date fixed by the Institute. The students will also have to submit a performance certificate from the company where he/she undertook the training/internship. This report will also be considered while evaluating the training report by examiners. Alternatively, if it is not possible to do an industrial internship the students will prepare a project report on a topic assigned to him/ her by the Institute. This allows students to undertake experiential learning by working with organisations/ in the industry to critically examine a major aspect of their operation.

Syllabus of Courses of
B.Sc. (Hons.) in Integrative Nutrition & Dietetics
at Semester VI
(To be Implemented from Academic Year 2022-2023)

8. Human Rights & Indian Constitutions

Module at a Glance

Sr. No.	Modules	No. of lectures
Module 1	Indian Constitutional Philosophy and Union and State Executive, Legislature and Judiciary	15
Module 2	Concept and Development of Human Rights and Human Rights in India	15
	Total	**30**

Course Objectives

1. To understand the concepts and fundamentals of Human Rights in India.

Course Outcome

After successful completion of the course the learner will be able to:

1. Analyse the fundamental rights and duties.
2. Learn more about human rights.

Detailed Syllabus

Module	Topics	No. of Lectures
1	**Indian Constitutional Philosophy and Union and State Executive, Legislature and Judiciary**	**15**
	● Feature of the Constitution and Preamble ● Fundamental Rights and Fundamental Duties ● Directive Principles of State Policy ● Union Parliament and State Legislature: Power and Functions ● President, Prime Minister, and Council of Ministers ● State Governor, Chief Minister and Council of Ministers ● The Supreme Court and High Court: Power and Functions	
2	**Concept and Development of Human Rights and Human Rights in India**	**15**
	● Meaning Scope and Development of Human Rights ● United Nations and Human Rights- UNHCR ● UDHR 1948, ICCPR 1996 and ICESCR 1966 ● Protection of Human Rights Act, 1993 (NHRC and SHRC) ● First, Second and Third Generation of Human Rights ● Judicial Activism and Human Rights	

Reference Books:

1. Durga Das Basu, Introduction to the Constitution of India, Prentice—Hall of India Pvt. Ltd, New Delhi
2. Subash Kashyap, Indian Constitution, National Book Trust
3. J.A. Siwach, Dynamics of Indian Government and Politic
4. D.C. Gupta, Indian Government and Politics
5. H.M. Sreevai, Constitutional Law of India, 4th edition and 3 volumes (Universal Law Publication)
6. V.N. Shukla, Constitution of India (Eastern Books Co)
7. J.C. Johari, Indian Government and Politics
8. Hans. J. Raj, Indian Government and Politics
9. M.V. Pylee, Indian Constitution Durga Das Basu, Human Rights in Constitutional Law, Prentice—Hall of India Pvt. Ltd, New Delhi