FACULTY OF FOOD SCIENCE & TECHNOLOGY

SYLLABUS FOR THE BATCH FROM THE YEAR 2023 TO YEAR 2026

Programme Code: BVFP

Programme Name: BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING

(Semester I-VI)

Examinations (I - II): 2023-2026

Examinations (III - VI): 2023-2024

P.G. Department of Food Science and Technology

Khalsa College, Amritsar

.No.	PROGRAMME OBJECTIVES
1.	Students will be able to apply principles of Food Processing to identify and analyze complex problems originating in the food industry in food preparation and preservation.
2.	To prepare students to design system components or processes to meet the specific needs for public health and safety along with cultural societal and environmental considerations.
3.	To prepare students to manage multidisciplinary projects and manage finances for the running projects.
4.	To provide skills of food manufacturing and processing. The knowledge of various processes of food makes this as an ideal choice for a successful career.
5.	To make students aware of various advance technologies practiced in food industry

S.No.	PROGRAMME SPECIFIC OUTCOMES (PSOS)
PSO-1	To make students aware of food composition, analysis and technological aspects of food processing and preservation.
PSO-2	To understand post-harvest analysis of food that help them to build entrepreneurship techniques along with the environmental challenges.
PSO-3	To make students confident enough to handle various challenges that might come at technological and qualitative aspect in food industry.
PSO-4	To make students build their own careers and others also in food bussiness by managing various entrepreneurship ventures
PSO-5	To gain knowledge on the basic concepts of computer applications

ORDINANCES FOR THE BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING COURSE AS PER NEW EDUCATION POLICY

ELIGIBILITY FOR ADMISSION IN B.VOC.

A candidate will be eligible to join 1st semester of Bachelor of Vocation(B.Voc.) Food Processing course, if he/she has passed10+2 examination(any stream/ Arts/Science/Commerce) or any other examination recognized as equivalent thereto without reappear.

Bachelor of Vocation (B. Voc.) is launched under the scheme of University Grants Commission on skill development based higher education leading to Bachelor of Vocation (B. Voc.) Degree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification framework. The B.Voc. programme incorporate specific job roles and their National Occupational Standards along broad based general education. This course has been started in order to make education relevant and to create 'industry fit' skilled workforce. B. Voc. programme has been designed as per National Skill Qualification Framework emphasizing on skill based education.

NSQF LEVELS:

Name of the Course	NSQF Level Certificate	Cumulative Credits
Certificate	Level – 4	18 credits
Diploma	Level – 5	36 credits
Advanced Diploma	Level – 6	72 credits
B.Voc Degree	Level – 7	108 credits

Credit(C): A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week. Accordingly, one Credit would mean equivalent of 14-15 periods of 60 minutes each or 28 – 30 hrs of workshops / labs.

1. **Fee**

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

2. **Scheme of Instructions-Examination**

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

a) Of having attended at least 75% of the total number of lectures delivered in each theory and practical course separately. Deficiency in lectures may be condoned as per ordinances of college/University. If in a particular semester, a student falls short of attendance in a maximum of two courses, he/she would be permitted to appear in the semester examination of the papers in which he/she fulfils the attendance requirements. The course/s in which the student does not fulfill the minimum attendance requirements, he/she shall not be permitted to appear in the semester examination of such course/s, and shall be declared as having

failed in such course/s. A student who is falling short of attendance in maximum of two courses, he/she shall be required to attend the minimum number of lectures which were falling short, during next year when the course/s is/are offered.

b) Of having good moral character.

c) The syllabi, courses of reading and regulations for the courses shall be notified by the College from time to time, and shall be deemed to constitute integral part of the ordinances. Course evaluation under the semester system of evaluation shall be done on marks basis. If a course has both the theory and practical components, the student will be required to pass both the components, separately. However, if the student fails in theory, but is passing in practical of that course, he/she will be required to clear the theory paper only, and vice-versa.

3. Carry on system for various semester examinations.

I. Courses having two semester duration:

a. There shall be no condition for promoting a student from first semester to second semester.

b. **For certificate courses/UG/PG Diploma** - In case a student fails to pass all the courses/papers within a period of two semesters (One Year), he/she shall be given two consecutive semesters (one year) more to pass.

c. **For one year degree course-** In case a student fails to pass all the courses/papers within a period of two semesters (One Year), he/she shall be given two year more to pass.

II. Courses having four semester duration:

a. There shall be no condition for promoting a student from first semester to second semester.

b. However the student shall be promoted to the third semester only if he/she has passed at least 50% courses/papers of the first two semesters.

c. There shall be no condition for promoting a student from third semester to fourth semester.

d. In case a student fails to pass all the courses/papers within a period of four semesters (Two Years), he/ she shall be given four consecutive semesters (Two Years) more to pass.

III. Courses having six semester duration:

a. There shall be no condition for promoting a student from first semester to second semester

b. However, the student shall be promoted to the third semester only if he/she has passed atleast 50% courses/papers of the first two semesters.

c. There shall be no condition for promoting a student from third semester to fourth semester.

d. However a student shall be promoted to fifth semester only if he/she has passed atleast 50% courses/ papers of the first four semesters.

e. There shall be no condition for promoting a student from fifth semester to sixth semester. After a period of six semesters the student shall be given a period of two

consecutive years to pass.

IV. Courses having eight semester duration:

a. There shall be no condition for promoting a student from first semester to second semester.

b. A student shall be promoted to the third semester only if he/she has passed atleast 50% courses/papers of the first two semesters, but there will be no condition for promoting a student from third semester to fourth semester.

c. A student shall be promoted to fifth semester only if he/she has passed at least 50% courses/papers of the first four semesters.

d. There shall be no condition for promoting a student from fifth semester to sixth semester.

e. A student shall be promoted to seventh semester only if he/she has passed at least 50% courses/ papers of the first six semesters.

f. There will be no condition for promoting a student from seventh semester to eight semester and after a period of eight semesters, the student shall be given a period of two consecutive years to pass.

V. Courses having ten semester duration:

a. There shall be no condition for promoting a student from first semester to second semester

b. A student shall be promoted to the third semester only if he/she has passed atleast 50% courses/papers of the first two semesters, but there will be no condition for promoting a student from third semester to fourth semester.

c. A student shall be promoted to fifth semester only if he/she has passed at least 50% courses/papers of the first four semesters.

d. There shall be no condition for promoting a student from fifth semester to sixth semester.

e. A student shall be promoted to seventh semester only if he/she has passed at least 50% courses/ papers of the first six semesters.

f. There will be no condition for promoting the student from seventh semester to eighth semester.

However, a student shall be promoted to ninth semester only if he/she has passed at least 50% courses/papers of the first eight semesters.

g. There will be no condition for promoting the student from ninth semester to tenth semester.

h. After a period of ten semesters, the student will be given a period of two consecutive years more to pass.

***Note:*1.** No special chance or exemption shall be allowed beyond what is stated in the above Ordinances.

***Note:*2.** Failing students shall appear in the examination in the regular semester examinations next year i.e., reappear of examination for an odd semester shall be conducted along with the next odd semester, and even semester along with the next even semester and there shall be no special supplementary examinations.

Note:3. If 50% of the courses/papers required to pass involve a fraction, the fraction of the course/paper will be treated as a full course. For example, if in a year there are 13 courses in two semesters, the candidate will be required to pass minimum of 7 courses/papers.

VI. The medium of instructions shall be English.

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

Programme duration	***Maximum time to complete a degree***
Five years	Seven years
Four years	Six years
Three years	Five years
Two years	Four years
One year*	Three years

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

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

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

4. Course Credit

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

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

(1) **Lectures/Tutorials:** One lecture hour per week shall normally be assigned one credit. One hour of tutorial per week shall be assigned one credit. Theory courses shall be generally two to four credits, and tutorials one credit each. For determining the credits of a theory course, lectures and tutorials shall be added.

(2) **Practicals:** Two laboratory hours per week shall be assigned one credit. Courses other than Lectures /Tutorials shall be treated as practical courses.

The Course credits for each course shall be given as L-T-P. For example, 3-1-0 will mean that it is a lecture based course and has 3 lectures, 1 tutorial, and no practical assigned to it.

Similarly, a course with 0-0-2 means that it is a practical course with 4 hours of class work. Credit will be assigned to seminar, dissertation, project etc. under the practical component. Generally the course work per semester will be 20 to 30 credits. A student shall register for a minimum of 20 credits in a semester. Syllabi will be designed with minimum credits required to complete a degree as follows:

Duration of Degree Programme	Minimum Credits
One year	45
Two year	90
Three year	135
Four year	180
Five year	225

5. Grading System

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

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

'Course' means a paper.

'Credit' means weightage assigned to a course

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

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

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

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

Where G_i are the grade points obtained by a student in the i[th] registered course and C_i are the credits of the i[th] registered course and 'm' is the number of courses registered by a student in a particular semester.

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

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

Or

$$SGPA = [(G_1 x\, C_1) + (G_2 x\, C_2) + \cdots + (G_m x\, C_m)]/[C_1 + C_2 + \cdots + C_m]$$

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

CGPA = $\sum_{i=1}^{n}(G_i x\, C_i)/\sum_{i=1}^{n} C_i$

$= [(G_1 x\, C_1) + (G_2 x\, C_2) + \cdots + (G_n x\, C_n)]/[C_1 + C_2 + \cdots + C_n]$,

where G_i are the grade points obtained by a student in the i[th] registered course and C_i are the credits of the i[th] registered course, 'n' is the number of courses registered in all the semesters.

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

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

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

6. Assignments

In courses involving project report/ dissertation/thesis/case study/ status report/training report/term report or any other such assignment, the candidate shall be required to submit any such assignment, required in the partial fulfillment of the degree, by the 31st May of the last semester of the course, in which he/ she is registered. The Principal may, however, give an extension of one month after this date i.e., up to 30th June. Grant of further Extension/Condonation of delay in receipt of such an assignment will be made and governed as per the college rules. Assignments /dissertation/Thesis shall be evaluated by an examiner deputed by Head of department / Chairman board of Studies/Principal of the college.

7. Discipline

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

8. Minimum Credits and Minimum CGPA required for a degree

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

a) A student shall be required to maintain a minimum of 4 CGPA at the end of the final semester of his/her degree programme. If his/her CGPA falls below 4 at the end of final semester, the student will be declared as having failed in that particular year and will have to seek readmission in the odd semester of the particular year. For Example: In three year UG programme, the candidate having failed in the (final) 6th semester will have to seek readmission in the 5th semester.

b) A student getting 'F' grade in any course will be treated as having failed in that course. If he/she fails in a course, he/she will have to repeat the course and will have to obtain at least 'P' grade in that course within the maximum period defined above in Table VII to complete the degree for that programme.

c) A student who does not complete the programme of study within the minimum duration of the course of his/her study, or gets 'F' grade in any course shall not be eligible for any merit position/medal/award of the College.

Notes:

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

COMPULSORY TRAINING

Training of one **month in relevant sector for completion of Diploma** and **1and half month for completion of advance Diploma is** mandatory. Report based on satisfactory/unsatisfactory shall be sent by Head of the Department.

INDUSTRIAL/INSTITUTIONAL PROJECT

A candidate shall have to undertake an Industrial/Institutional Project in college in (2nd, 4th and 6thSemester) and submit the report for same by 31st May extendable to 30th June under special circumstances by the permission of the Head of concerned Department.

P.G. Department of Food Science and Technology
Khalsa College, Amritsar

SYLLABUS FOR THE BATCH FROM THE YEAR 2023 TO YEAR 2026

Programme Code: BVFP

Programme Name: BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING

(Semester I-II)

Examinations: 2023-2026

COURSE SCHEME											
SEMESTER-I											
Course Code	**Course Name**	**Hours/ Week**	**Credits**			**Total Credits**	**Marks**				**Page No.**
			L	T	P		Th	P	Int A.	Total	
Skill Component											
BVFP11-101	Food Processing & Preservation	3	2	1	-	3	45	-	15	60	13
BVFP11-102	Food and Nutrition	3	2	1	-	3	45	-	15	60	14
BVFP11-103	Fruits and Vegetable Processing	3	2	1	-	3	45	-	15	60	15
BVFP11-104	Experiments in Food Processing & Preservation	2	-	-	2	2	-	30	10	40	16
BVFP11-105	Experiments in Food and Nutrition	2	-	-	2	2	-	30	10	40	17
BVFP11-106	Experiments in Fruits and Vegetable Processing	2	-	-	2	2	-	30	10	40	18
General Component											
Ability Enhancement Courses											
BCSV-1129	Communication Skills in English-I	4	3	-	1	4	60	15	25	100	19
BHPB-1101 BPB1-1102 BPHC-1104	Punjabi Compulsory OR *Basic Punjabi *(Mudhli* Punjabi) *****Punjab History &Culture(From Earliest Times to C 320)	4	4	-	-	4	75	25	-	100	21
Value Added Courses											
ZDA111	******Drug Abuse: Problem, Management and Prevention PROBLEM OF DRUG ABUSE	2	2	-	-	2	50	-	-	50	25
	CURRENT AFFAIRS (NC)	1	1	-	-	1	-	-		-	

NSQF Level 4

***Paper in lieu of Punjabi Compulsory.**

****This paper marks will not be included in the total marks.(Qualifying paper)**

1 Credit = 1 hour/Theory OR 2 hour Practical class/week

SEMESTER-II											
Course Code	**Course Name**	**Hours/ Week**	**Credits**			**Total Credits**	**Marks**				**Page No.**
			L	T	P		Th	P	Int A.	Total	
Skill Component											
BVFP12-201	Food Chemistry	4	3	1	-	4	45	-	15	60	27
BVFP12-202	Food Hygiene & Sanitation	4	3	1	-	4	45	-	15	60	29
BVFP12-203	Cereal Milling Technology	4	3	1	-	4	45	-	15	60	30
BVFP12-204	Experiments in Food Chemistry	2	-	-	2	2	-	30	10	40	31
BVFP12-205	Experiments in Food Hygiene & Sanitation	2	-	-	2	2	-	30	10	40	32
BVFP12-206	Experiments in Cereal Milling Technology	2	-	-	2	2	-	30	10	40	33
BVFP12-207	**Industrial Training		-	-	2	2	-	-	**Grade**	**Satisfactory/ Unsatisfactory**	34
General Component											
Ability Enhancement Courses											
BCSV-1229	Communication Skills in English-II	4	3	-	1	4	60	15	25	100	35
BHPB-1201 BPB1-1202 BPHC-1204	Punjabi Compulsory OR *Basic Punjabi (*Mudhli* Punjabi) *Punjab History &Culture (C321TO1000A.D.)	4	4	-	-	4	75	-	25	100	37 38 39
Value Added Courses											
ZDA121	**Drug Abuse: Problem, Management And Prevention Drug Abuse: Management And Prevention	2	2	-	-	2	50	-	-	50	41
	CURRENT AFFAIRS (NC)	1	1	-	-	1	-	-		-	

NSQF Level 4

***Paper in lieu of Punjabi Compulsory.**

****This paper marks will not be included in the total marks.(Qualifying paper)**

1 Credit = 1 hour/Theory OR 2 hour Practical class/week

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I

COURSE CODE: BVFP11-101

COURSE TITLE: FOOD PROCESSING AND PRESERVATION

Credit Hours (Per Week): L-2, T-1 **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Discuss fundamental principles of food preservation
- Describe the principles of low temperature preservation by refrigeration, freezing and freeze drying
- Explain thermal processing and execute high temperature processing in food industry
- Explain the concept of water activity and preservation by Drying & Dehydration
- Implement the knowledge of preservatives and non-thermal technology in food preservation

COURSE CONTENTS:

THEORY:

UNIT-I

Definition, scope and benefit of industrial food preservation**,** sources of food, Causes of quality deterioration of foods**,** Principles of Food Processing and Preservation.

UNIT-II

Thermal Processing Methods of preservation – Principles of Pasteurization and sterilization, canning and aseptic processing – definition and flowsheet diagram.

Preservation by low temperature – Principle of Refrigeration and freezing, methods of freezing.

Preservation by drying and dehydration– Principle, importance and methods – cabinet drier, fluidized bed drier, spray drier, vacuum shelf drier, drum drier and freeze driers.

UNIT-III

Class-I and Class-II preservatives and their mode of action- Salt, sugar, acetic acid, sodium benzoate, potassium metabisulphite and potassium sorbate.

Microwave Processing– Properties, mechanism and working.

Irradiation: Sources, mechanism and effect on microorganisms.

Recent methods in Processing : Principle and effect on microorganism by Pulsed electric field processing, High pressure processing, Processing using ultrasound and ohmic heating.

BOOKS PRESCRIBED:

1. Food Processing Technology. Principles and Practice. P J Fellows. A volume in Woodhead Publishing Series in Food Science, Technology and Nutrition Book,2017 Fourth Edition.
2. *Food Science*. *Norman* N. *Potter*. Edition, 5. Publisher, 2007, CBS Publishers & Distributors.
3. Physical Principles of Food Preservation. Marcus Karel, Owen R. Fennema, Daryl B. Lund. M. Dekker,1975Dekker Inc. New York. Vol II.
4. The technology of food preservation by N.W. Desrosier and J.N. Desrosier, CBS publishing.

COURSE OUTCOMES:

On completion of the subject, the students will be able to:

CO1: Know about the basic concept of food preservation.

CO2: Understand factors affecting the shelf lives of commodities and different preservation techniques.

CO3: Be aware of the role of modern packaging techniques in food preservation.

CO4: Use Novel technologies for food preservation.

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(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I

COURSE CODE: BVFP11-102

COURSE TITLE: FOOD AND NUTRITION

Credit Hours (Per Week): L-2, T-1 **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Describe the basic concept of food, nutrients, nutrition and health.
- Elaborate the calculation of BMI and BMR.
- Interpret the role of macro & micro nutrients in human health
- Develop a dietary chart for different age groups of Indian considering RDA and interpret the effect processing on food component.
- Discuss the deficiency diseases and their prevention through diet.

COURSE CONTENTS:

THEORY:

UNIT I

Definitions: Food, Nutrition, Balanced diet and Malnutrition- Undernutrition & Overnutrition
Functions of Food, Five Food groups.
Functions of nutrients-Carbohydrates, Fats, Proteins, Vitamins, Minerals
Water & Electrolytes- Functions, sources and their balance; Acid-base balance
Dietary fibre- its functions and sources

UNIT II

Energy, Calorific value of food, Energy value of Carbohydrates, Fats & Proteins
Basal Metabolism Rate (BMR), Factors affecting BMR
RDA (Prescribed daily allowances) for infants, children, Adults and Pregnant women.
Meal Planning- Food Guide, Objectives in meal planning, Meal Planning process

UNIT III

Disorders of Nutrition: Protein-Energy Malnutrition (PEM), Marasmus & kwashiorkor Deficiency diseases of vitamins-Night blindness, Beri-Beri, Pellagra, Scurvy and Rickets.
Deficiency diseases of minerals-Anaemia and goitre
Diet therapy - Normal hospital diet, Liquid and soft diets, Tube feeding.
Definitions of Obesity and BMI, under-weight, over-weight. Factors Responsible for Obesity, Dietary management during obesity and under-weight, Fad Diets

BOOKS PRESCRIBED:

1. Handbook of Food and Nutrition: by M. Swami Nathan Vol. I, II.2012, Banglore Printing and Publishing.
2. Nutrition and Dietetics by Shubhangini A. Joshi. 1995, McGraw Hill Education (India) Pvt. Ltd, New Delhi.
3. Fundamentals of Foods, Nutrition and Diet Therapy by S.R. Mudambi& M.V. Rajagopal,2012 New Age International Pvt. Ltd. Publishers. New Delhi.

COURSE OUTCOMES:

On completion of the subject, the students will be able to:

CO1: Study various aspects of food and nutrition
CO2: Understand the functions of food and nutrients.
CO3: Understand the dietary requirements and fulfilling the consumption of food
CO4: Understand the concept behind the development of balance diet

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I

COURSE CODE: BVFP11-103

COURSE TITLE: FRUITS AND VEGETABLE PROCESSING

Credit Hours (Per Week): L-2, T-1 **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Describe the physic-chemical composition and nutritive value of fruits and vegetables.
- Explain the treatments provided to enhance the shelf life of fresh fruits and vegetables
- Elaborate various storage methods for fruits and vegetables
- Explain the processing, preservation & value- addition of Fruits & Vegetables.

COURSE CONTENTS:

THEORY:

UNIT-I

Chemical composition and nutritive value of fruits and vegetables,Storage practices: Modified & Controlled atmospheric storage, hypobaric storage, cool store.

concept of Primary processing: grading, sorting, cleaning, washing, peeling, slicing and blanching.

Processing of fruit juices and beverages - RTS, Squash, crush and fruit juice concentrates.

UNIT-II

Canning of fruits and vegetables – Basic requirements, process and machinery.

Processingof Jam, jelly, preserve, candied, glazed fruits and pickles- Basic requirements, process and machinery.

UNIT-III

Processing of potatoes – chips, wedges and dried flakes.

Processing techniques of tomatoes – Juice, puree, paste and ketchup.

Drying/Dehydration and freezing of fruits and vegetables: Principle and methods.

BOOKS PRESCRIBED:

1. Handbook of Analysis of Fruits and Vegetable Products by S. Rangana, Tata McGraw Hill, New Delhi, 1986.
2. Preservation of Fruits and Vegetables byLal G, Siddapa GS & Tandon GL.1986. ICAR.
3. Storage, Processing and Nutritional Quality of Fruits and Vegetables. Vol. I. Fruits and Vegetables by Salunkhe DK, Bolia HR & Reddy NR. 1991. CRC Press.
4. Post Harvest Technology of Fruits and Vegetables by Verma LR. & Joshi VK. 2000. Indus Publ.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study chemical composition and nutritive value of fruits and vegetables.

CO2: Understand the primary unit operations involved in the processing of fruits and vegetable products.

CO3: Understand the technology behind processing of fruits and vegetable products

CO4: Study the problems involved in processed fruits and vegetable products line and able to solve the associated problems.

(Signature)

BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING SEMESTER – I

COURSE CODE: BVFP11-104

COURSE TITLE: EXPERIMENTS IN FOOD PROCESSING AND PRESERVATION

Credit Hours (Per Week): P-2 **Max. Marks: 40**

Total Hours:45 **Practical Marks: 30**

Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:

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

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Explain the working of equipment used in processing of fruits and vegetables processing.
- Demonstrate the blanching and check the effect adequaacy of blanching on fruits and vegetables.
- Demonstrate the preservation of foods by various techniques.
- Demonstrate the tests to check the effectiveness of milk pasteurization.
- Elaborate the details about the cut-out analysis of canned foods

COURSE CONTENTS:

PRACTICALS:

1. Demonstration of various machineries used in food processing.
2. Demonstration of various perishable food items and degree of spoilage.
3. Blanching of selected food items.
4. To study the effectiveness of pasteurization.
5. To study the Pasteurization of milk by microwave technique.
6. To study the effect of browning on raw fruits & vegetables.
7. Preservation of food by concentration.
8. To perform cut out analysis of canned product.
9. Preservation of food by using chemical preservatives.
10. To study different methods of food processing i.e. by heat & drying in tray drier on a given food sample.
11. Demonstration of preserving foods under cold v/s freezing process.
12. Visit to any Food Processing Industry.

BOOKS PRESCRIBED:

1. Handbook of Analysis and Quality Control for Fruit and Vegetable Products by S Ranganna, 1986, Tata Mc Graw Hill Education.
2. Food Science Experiments and Applications by M. Sethi, 2019, CBS Publishers & Distributors.

COURSE OUTCOMES:

On completion of the subject, the students will be able to:

CO1: Demonstrate the use of various machineries used in food processing.

CO2: Study the blanching of selected food items and study the effect of browning on raw fruits & vegetables.

CO3: Understand about the preservation of food by concentration and chemical preservatives

CO4: Study different methods of food processing i.e. by heat & drying in tray drier on a given food sample.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I
COURSE CODE: BVFP11-105
COURSE TITLE: EXPERIMENTS IN FOOD AND NUTRITION

Credit Hours (Per Week): P-2 **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to impart knowledge about

- Classification of food groups and identify food sources.
- Demonstration of the calculation of BMI and BMR.
- Demonstration the diet planning of a normal adult obese, underweight and overweight people
- Evaluation of their own diet.
- Elaborate the details about measurement of calorific value of foods.

COURSE CONTENTS:
PRACTICALS:

1. Identification of food sources for various nutrients.
2. Identification of five-food groups
3. Calorific value of food
4. Calculation of BMI
5. Calculation of BMR
6. Evaluation of own diet.
7. Diet planning of a normal adult
8. Planning of diet for obese and overweight people
9. Planning of diet for Under-weight people.

BOOKS PRESCRIBED:

1. Fundamentals of Foods, Nutrition and Diet Therapy by S.R. Mudambi& M.V. Rajagopal, 2012 New Age International Pvt. Ltd. Publishers. New Delhi.
2.

COURSE OUTCOMES:
On completion of the subject, the students will be able to:
CO1: Get basic understanding about the identification of food sources and five-food groups.
CO2: Perform the calculation of BMI and BMR
CO3: Plan the diet planning of a normal adult obese, underweight and overweight people

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I

COURSE CODE: BVFP11-106

COURSE TITLE: EXPERIMENTS IN FRUITS AND VEGETABLE PROCESSING

Credit Hours (Per Week): P-2 **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:

Objective of this course is to:

- Understand basics of fruits and vegetables processing.
- Perform organoleptic evaluation of fruits and vegetables and their products.
- Prepare various products from fruits and vegetables.
- Perform physico-chemical analysis of fruits and vegetables and their products consumed in daily life.

COURSE CONTENTS:

PRACTICALS:

1. Extraction and preservation of Fruit Juices.
2. Preparation of fruit jam and jellies
3. Preparation of RTS and squash from fruit juices.
4. To prepare different types of pickles (sweet & sour).
5. Drying by different methods of fruits and vegetables.
6. Preparation of tomato ketchup, sauce & chutney.
7. Preparation of potato chips, finger chips.
8. Preparation of preserve and candied fruits and vegetables.
9. Organoleptic evaluation of fruit & vegetable products.
10. Determination of total soluble solids by refractometer.
11. Determination of Brix : Acid ratio of fruits and vegetable products.
12. To study the estimation of pigments in fruits and vegetables by using spectrophotometer.
13. Visit to a fruits and vegetable Processing Industry.

BOOKS PRESCRIBED:

1. Handbook of Analysis and Quality Control for Fruit and Vegetable Products by S Ranganna,1986 Tata Mc Graw Hill Education.

3. Food Science Experiments and Applications by M. Sethi, 2019, CBS Publishers & Distributors.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1 Determine the physico-chemical properties fruits and vegetables.

CO2 Develop various fruit and vegetable products with quality assurance and safety and demonstrate their quality evaluation

CO3 Understand principles and methods of preservation of fruits and vegetables

CO4 Elaborate the detailed information on canning and bottling of fruits and vegetables.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I

(Changed)

Session-2023-26

Bachelor of Vocation (B.Voc.)

(Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

Semester – I

COMMUNICATION SKILLS IN ENGLISH–I

Code: BCSV-1129

L	T	P	Credits
3	0	1	4

Time: 3 Hours **Max. Marks: 100**

Theory: 60

Practical: 15

Internal Assessment: 25

Instructions for the Paper Setters:-

Section A is compulsory. It will consist of Fifteen (15) questions of one mark each. The students will be required to attempt any Twelve (12). (12X1= 12 Marks)

Eight (8) questions of equal marks will be set from Section B-E, comprising 2 questions from the each above mentioned section. Candidates will be required to attempt Four (4) questions, selecting at least one question from each Section.

(4X12=48 Marks)

Course Objectives:

I: To develop competence in written communication.

II: To inculcate innovative and critical thinking among the students.

III: To enable them to grasp the application of communication theories.

IV: To acquire the knowledge of latest technology related with communication skills.

V: To provide knowledge of multifarious opportunities in the field of this programme.

The syllabus is divided in five sections as mentioned below:

Section- A

Grammar: Article, Conjunctions and Prepositions

Section–B

Reading Skills: Reading Tactics and strategies; Reading purposes–kinds of purposes and associated

comprehension.

Section–C
Reading for understanding concepts, details, coherence.
Activities:
Short comprehension questions based on content and development of ideas

Section–D
Writing Skills: Writing styles for application, personal letter, official/ business letter.
Activities*:*
Formatting personal and business letters.

Section–E
Resume, memo and notices; outline and revision.
Activities:
Converting a biographical note into a sequenced resume or vice-versa
Writing notices for circulation/boards

Recommended Books:
Oxford Guide to Effective Writing and Speaking by John Seely.
English Grammar in Use (Fourth Edition) by Raymond Murphy, CUP

Course Outcomes:
The completion of this course enables students to:
1. Identify common errors in language and rectify them.
2. Develop and expand writing skills through controlled and guided activities.
3. Develop coherence, cohesion and competence in written discourse through intelligible pronunciation.
4. Develop the ability to handle the interview process confidently and learn the subtle nuances of an effective group discourse.
5. Communicate contextually in specific and professional situations with courtesy.
Practical Marks: 15

Course Contents:-
1. Assignment on selected topics in about 700-1000 words.
2. Reading dialogues
3. Rapid reading

(Signature)

B. Sc. Hons. (Physics, Chemistry, Maths), B. Sc. Bio Tech./ IT/ Fashion Designing/ Food Sc., B. A. JMC, BCA, B.Sc. in Computational Statistics and Data Analytics, B.Sc. Artificial Intelligence and Data Science, Bachelor of Vocational (B.Voc.) (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology, Renewable Energy Technology)

Semester-I

Compulsory Course

ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

Credit & Marks Distribution, Eligibility and Pre-Requisites of the Course

Course title & Code	Total Teaching Hours	Total Credits/ Hours per week	Credit distribution			Total Marks 100		Time Allowed in Exam	Eligibility criteria	Pre-requisite of the course (if any)
			L	T	P	Theory	IA			
ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ BHPB-1101	60	4	4	0	0	75	25	3 Hours	Class 12th pass in any stream	Studied Punjabi up to 10th Standard

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective	**ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ Course Outcomes (COs)**
▪ ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਪੈਦਾ ਕਰਨਾ। ▪ ਆਲੋਚਨਾਤਮਕ ਰੁਚੀਆਂ ਵਿਕਸਤ ਕਰਨਾ। ▪ ਮਾਤ ਭਾਸ਼ਾ ਦੀ ਸਮਝ ਨੂੰ ਵਿਕਸਤ ਕਰਨਾ।	▪ ਉਸ ਵਿਚ ਸਾਹਿਤ ਰੁਚੀਆਂ ਵਿਕਸਤ ਹੋਣਗੀਆਂ। ▪ ਉਸ ਵਿਚ ਸਾਹਿਤ ਸਿਰਜਣਾ ਦੀ ਸੰਭਾਵਨਾ ਵਧੇਗੀ। ▪ ਉਸ ਵਿਚ ਕਿਸੇ ਵੀ ਵਿਸ਼ੇ ਦਾ ਗਹਿਨ ਅਧਿਐਨ ਕਰਨ ਦਾ ਬੋਧ ਹੋਵੇਗਾ। ▪ ਉਹ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ ਬਾਰੇ ਗਿਆਨ ਹਾਸਲ ਕਰਨਗੇ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ। ਪਹਿਲੇ ਭਾਗ ਵਿਚ 1.5-1.5 (ਡੇਢ-ਡੇਢ) ਅੰਕ ਦੇ ਅਤਿ-ਸੰਖੇਪ (Objective Type) 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਹੋਣਗੇ ਅਤੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹੋਣਗੇ। ਸਿਲੇਬਸ ਦੇ ਬਾਕੀ ਚਾਰ ਭਾਗਾਂ ਵਿਚ 02-02 ਲੇਖ ਨੁਮਾ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਭਾਗ ਵਿਚੋਂ 01-01 ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 15 ਅੰਕ ਹੋਣਗੇ। ਪੇਪਰ ਸੈੱਟਰ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 25 ਅੰਕਾਂ ਦੀ ਹੈ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 75+25=100 ਹਨ।

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਸਾਹਿਤ ਦੇ ਰੰਗ, ਡਾ. ਮਹਿਲ ਸਿੰਘ (ਸੰਪਾ.), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
ਭਾਗ ਪਹਿਲਾ - ਕਵਿਤਾ ਅਤੇ ਕਹਾਣੀ, ਡਾ. ਮਹਿਲ ਸਿੰਘ ਅਤੇ ਡਾ. ਆਤਮ ਰੰਧਾਵਾ (ਸਹਿ ਸੰਪਾ.)
(ਕਵਿਤਾ ਭਾਗ ਵਿਚੋਂ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ/ਵਿਸ਼ਾ-ਵਸਤੂ। ਕਹਾਣੀ ਭਾਗ ਵਿਚੋਂ ਸਾਰ/ਵਿਸ਼ਾ-ਵਸਤੂ)

ਭਾਗ-ਦੂਜਾ

ਪੰਜਾਬ ਦੇ ਮਹਾਨ ਕਲਾਕਾਰ (ਸੰਪਾ. ਬਲਵੰਤ ਗਾਰਗੀ)
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
(ਅੰਮ੍ਰਿਤਾ ਸ਼ੇਰਗਿੱਲ ਤੋਂ ਭਾਈ ਸਮੁੰਦ ਸਿੰਘ ਤਕ)
(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ/ਨਾਇਕ ਬਿੰਬ)

ਭਾਗ-ਤੀਜਾ

(ੳ) ਪੈਰ੍ਹਾ ਰਚਨਾ (ਤਿੰਨਾਂ ਵਿਚੋਂ ਇਕ)
(ਅ) ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ

ਭਾਗ-ਚੌਥਾ

(ੳ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ: ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ-ਭਾਸ਼ਾ ਵਿਚਲਾ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪ-ਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ-ਚਿੰਨ੍ਹ।
(ਅ) ਪੰਜਾਬੀ ਭਾਸ਼ਾ: ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ।

B. Sc. Hons. (Physics, Chemistry, Maths), B. Sc. Bio Tech./ IT/ Fashion Designing/ Food Sc., B. A. JMC, BCA, B.Sc. in Computational Statistics and Data Analytics, B.Sc. Artificial Intelligence and Data Science, Bachelor of Vocational (B.Voc.) (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology, Renewable Energy Technology)

Semester-I

Compulsory Course

ਮੁਢਲੀ ਪੰਜਾਬੀ

(In Lieu of Compulsory Punjabi)

Credit & Marks Distribution, Eligibility and Pre-Requisites of the Course

Course title &Code	Total Teaching Hours	Total Credits/ Hours per week	Credit distribution			Total Marks 100		Time Allowed in Exam	Eligibility criteria	Pre- requisite of the course (if any)
			L	T	P	Theory	IA			
ਮੁਢਲੀ ਪੰਜਾਬੀ BPBI-1102	60	4	4	0	0	75	25	3 Hours	Class 12th pass in any stream	NOT Studied Punjabi up to 10th Standard

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective	**ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ Course Outcomes (COs)**
• ਵਿਦਿਆਰਥੀ ਨੂੰ ਗੁਰਮੁਖੀ ਲਿਪੀ ਤੋਂ ਜਾਣੂ ਕਰਾਉਣਾ। • ਵਿਦਿਆਰਥੀ ਨੂੰ ਸ਼ੁੱਧ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ-ਲਿਖਣਾ ਸਿਖਾਉਣਾ। • ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀਆਂ ਵਿਆਕਰਨਕ ਬਾਰੀਕੀਆਂ ਤੋਂ ਜਾਣੂ ਕਰਾਉਣਾ। • ਸ਼ੁੱਧ ਸੰਚਾਰ ਨੂੰ ਵਿਕਸਤ ਕਰਨਾ।	• ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਤੇ ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀ ਸਿਖਲਾਈ ਵਿਚ ਮੁਹਾਰਤ ਹਾਸਲ ਕਰਨਗੇ। • ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਮੁਹਾਰਨੀ, ਲਗਾਂ-ਮਾਤਰਾਂ, ਸਵਰ ਅਤੇ ਵਿਅੰਜਨ ਅੱਖਰਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ਸੰਬੰਧੀ ਸਮਝ ਵਿਕਸਿਤ ਹੋਵੇਗੀ। • ਵਿਦਿਆਰਥੀ ਸ਼ੁੱਧ ਪੰਜਾਬੀ ਲਿਖਣ-ਪੜ੍ਹਨ ਦੇ ਸਮਰੱਥ ਹੋਣਗੇ। • ਉਹ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਸ਼ੁੱਧ ਰੂਪਾਂ ਦੀ ਜਾਣਕਾਰੀ ਹਾਸਲ ਕਰਨਗੇ।

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ। ਪਹਿਲੇ ਭਾਗ ਵਿਚ 01-01 ਅੰਕ ਦੇ ਅਤਿ-ਸੰਖੇਪ ਉੱਤਰ ਵਾਲੇ (Objective Type) 11 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਹੋਣਗੇ ਅਤੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹੋਣਗੇ। ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਦੂਸਰੇ ਭਾਗ ਵਿਚ, ਸਿਲੇਬਸ ਦੇ ਪਹਿਲੇ ਭਾਗ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 8-8 ਅੰਕ ਹੋਣਗੇ। ਇਸੇ ਤਰ੍ਹਾਂ ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਤੀਸਰੇ ਭਾਗ ਵਿਚ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 8-8 ਅੰਕ ਹੋਣਗੇ। ਭਾਗ ਚੌਥੇ ਵਿਚ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 4-4 ਅੰਕ ਹੋਣਗੇ। ਭਾਗ ਪੰਜਵੇਂ ਵਿਚ ਦਸ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ 8 ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹੋਣਗੇ। ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ 2-2 ਅੰਕ ਹੋਣਗੇ।
ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 25 ਅੰਕਾਂ ਦੀ ਹੈ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 75+25=100 ਹਨ।

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

(ੳ) ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੇ ਗੁਰਮੁਖੀ ਲਿਪੀ:
ਨਾਮਕਰਣ ਤੇ ਸੰਖੇਪ ਜਾਣ-ਪਛਾਣ: ਗੁਰਮੁਖੀ ਵਰਣਮਾਲਾ, ਅੱਖਰ ਕ੍ਰਮ, ਸਵਰ ਵਾਹਕ (ਓ, ਅ, ਏ), ਲਗਾਂ-ਮਾਤਰਾਂ, ਪੈਰ ਵਿਚ ਬਿੰਦੀ ਵਾਲੇ ਵਰਨ, ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਨ, ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ
(ਅ) ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ

ਭਾਗ-ਦੂਜਾ

ਗੁਰਮੁਖੀ ਆਰਥੋਗਰਾਫੀ ਅਤੇ ਉਚਾਰਨ:
ਸਵਰ, ਵਿਅੰਜਨ: ਮੁਢਲੀ ਜਾਣ-ਪਛਾਣ ਅਤੇ ਉਚਾਰਨ, ਮੁਹਾਰਨੀ, ਲਗਾਂ-ਮਾਤਰਾਂ ਦੀ ਪਛਾਣ

ਭਾਗ-ਤੀਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਜੋੜ: ਮੁਕਤਾ (ਦੋ ਅੱਖਰਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਤਿੰਨ ਅੱਖਰਾਂ ਵਾਲੇ ਸ਼ਬਦ), ਸਿਹਾਰੀ ਵਾਲੇ ਸ਼ਬਦ, ਬਿਹਾਰੀ ਵਾਲੇ ਸ਼ਬਦ, ਔਂਕੜ ਵਾਲੇ ਸ਼ਬਦ, ਦੁਲੈਂਕੜ ਵਾਲੇ ਸ਼ਬਦ, ਲਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਦੁਲਾਵਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਹੋੜੇ ਵਾਲੇ ਸ਼ਬਦ, ਕਨੌੜੇ ਵਾਲੇ ਸ਼ਬਦ, ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) ਵਾਲੇ ਸ਼ਬਦ

ਭਾਗ-ਚੌਥਾ

ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ ਸ਼ਬਦ

KHALSA COLLEGE AMRITSAR
(An Autonomous College)

BA, B.A. SS/ B. A. (Hons. – English), B. Com. (Hons., Regular, Account. & Finance), B. Sc. Bio-Tech./Comp. Sc./Eco./Fashion Designing/Food Science/IT/Med./Non Med., B.Sc. (Hons. –Botany, Chemistry, Mathematics, Physics, Zoology),i B. of Mult.; B. in Int. & Mob. Tech.; BBA; BCA; BJMC; B. Voc. (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER–I

PUNJAB HISTORY & CULTURE (From Earliest Times to C 320 BC)(Special Paper in lieu of Punjabi compulsory)

(For those students who are not domicile of Punjab)

Course Code: BPHC-1104

Credit: 04

L- T- P

04-0-0

Time: 3 Hours

Total Marks: 100

Theory: 75

Internal Assessment: 25

Instructions for the Paper Setters:

Question paper should consist of two sections—Section A and Section B. The paper setter must ensure that questions in Section–A do not cover more than one point, and questions in Section–B should cover at least 50 per cent of the theme.

Section–A: The examiner will set 15 objective type questions out of which the candidate shall attempt any 10 questions, each carrying 1½ marks. The total weightage of this section will be 15 marks. Answer to each question should be in approximately one to two sentences.

Section–B: The examiner will set 8 questions, two from each Unit. The candidate will attempt 4 questions selecting one from each Unit in about 1000 words. Each question will carry 15 marks. The total weightage of this section will be 60 marks.

Note: The examiner is to set the question paper in two languages: English & Hindi.

Course Objectives: The main objective of this course is to educate the history and culture of the Ancient Punjab to the students who are not domicile of the Punjab. It aims to familiarize these students with the physical features of ancient Punjab and its impact on its history and culture. It also provides them information about the different sources to construct the history and culture of the ancient Punjab. The course intends to provide knowledge of social, economic, religious life of the Harappan civilization, Indo-Aryans, teachings and impact of Jainism and Buddhism in the Punjab.

Unit-I

1. Physical features of the Punjab and impact on history.
2. Sources of the ancient history of Punjab.

Unit-II

3. Harappan Civilization: Town planning; social, economic and religious life of the Indus Valley People.
4. The Indo-Aryans: Original home and settlement in Punjab.

Unit-III

5. Social, Religious and Economic life during Rig Vedic Age.
6. Social, Religious and Economic life during later Vedic Age.

Unit-IV

7. Teachings and impact of Buddhism.
8. Jainism in the Punjab.

Suggested Readings:-

L. Joshi (ed), *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)

L.M. Joshi and Fauja Singh (ed*), History of Punjab*, Vol. I, Patiala 1977.

Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.

B.N. Sharma, *Life in Northern India*, Delhi. 1966.

Course Outcomes:

On Completing the Course, the Students will be able to:

CO-1 Learn the history and culture of the Ancient Punjab.

CO-2 Study the physical features of ancient Punjab.

CO-3 Understand about the sources of the history of the Punjab.

CO-4 Analyse the social, economic, religious life of the Harappan civilization and Vedic-Aryans.

CO-5 Learn the teachings and impact of Jainism and Buddhism in the Punjab.

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I

Course Code: ZDA111

Course Title- Drug Abuse: Problem, Management and Prevention

PROBLEM OF DRUG ABUSE

(Compulsory for all Under Graduate Classes)

Credit hrs./wk.:2

Time: 3 Hours Max. Marks: 50

Instructions for the Paper Setters:

1) There will be a total of 9 questions of which 5 are to be attempted.
2) Question 1 is compulsory and having 10 short answer type questions (1 mark each).
3) The remaining 8 questions (10 marks each) shall include 2 questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. Preferably, the question should not be split into more than two sub-parts.

Course Objectives- The course aims to:

CO-1.	Generate the awareness against drug abuse.
CO-2.	Describe a variety of models and theories of addiction and other problems related to substance abuse.
CO-3.	Describe the behavioral, psychological, physical health and social impact of psychoactive substances.
CO-4.	Provide culturally relevant formal and informal education programs that raise awareness and support for substance abuse prevention and the recovery process.
CO-5.	Describe factors that increase likelihood for an individual, community or group to be at risk of substance use disorders.

UNIT–I

- **Meaning of Drug Abuse**
  Meaning of drug abuse
  Nature and Extent of Drug Abuse: State and National Scenario

UNIT-II

- **Consequences of Drug Abuse for**
  Individual: Education, Employment, Income.
  Family : Violence.
  Society : Crime.
  Nation : Law and Order problem.

UNIT-III

- **Management of Drug Abuse**
  Medical Management: Medication for treatment of different types of drug abuses.
  Medication to reduce withdrawal effects.

UNIT-IV

- Psychiatric Management: Counseling, Behavioral and Cognitive therapy.
- Social Management: Family, Group therapy and Environmental Intervention.

References:

1. Ahuja, Ram (2003), Social Problems in India, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. The Drug Crime Connection. Beverly Hills: Sage Publications. 23
4. Jasjit Kaur Randhawa & Samreet Randhawa, "Drug Abuse-Problem, Management & Prevention", KLS, ISBN No. 978-81-936570-6-5, (2018).
5. Jasjit Kaur Randhawa & Samreet Randhawa, "Drug Abuse Problem, Management & Prevention", KLS, ISBN No. 978-81-936570-8-9, (2019).
6. Jasjit Kaur Randhawa & Samreet Randhawa, "ਡਰੱਗਜ਼ ਦੁਰਵਰਤੋਂ-(ਨਸ਼ਾਖੋਰੀ) ਸਮੱਸਿਆ, ਪ੍ਰਬੰਧਨ ਅਤੇਰੋਕਥਾਮ", KLS, ISBN No. 978-81-936570-7-1, (2018).
7. Jasjit Kaur Randhawa, "Drug Abuse -Management & Prevention", KLS, ISBN No. 978-93-81278-80-2, (2018).
8. Kapoor. T. (1985) Drug epidemic among Indian Youth, New Delhi: Mittal Pub.
9. Modi, Ishwar and Modi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: Rawat Publication.
10. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
11. Rama Gandotra & Jasjit Kaur Randhawa, "voZrI d[otos'A^(BPky'oh) gqpzXB ns/ o'eEkw", KLS, ISBN No. 978-93-81278-87-1, (2018).
12. Sain, Bhim 1991, Drug Addiction Alcoholism, Smoking obscenity New Delhi: Mittal Publications.
13. Sandhu, Ranvinder Singh, 2009, Drug Addiction in Punjab: A Sociological Study. Amritsar. Guru Nanak Dev University.
14. Singh, C. P. 2000. Alcohol and Dependence among Industrial Workers: Delhi: Shipra.
15. Sussman, S and Ames, S.L. (2008). Drug Abuse: Concepts, Prevention and Cessation, Cambridge University Press.
16. World Drug Report 2010, United Nations office of Drug and Crime.
17. World Drug Report 2011, United Nations office of Drug and Crime.

Course Outcomes:

The students will be able:

CO-1.	To describe issues of cultural identity, ethnic background, age and gender in prevention, treatment and recovery.
CO-2.	To describe warning sign, symptoms, and the course of substance use disorders.
CO-3.	To describe principles and philosophy of prevention, treatment and recovery.
CO-4.	To describe current and evidenced-based approaches practiced in the field of drug addiction.

(Signature)

BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-201

COURSE TITLE: FOOD CHEMISTRY

Credit Hours (Per Week): L-3, T-1 **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to :

- Explain the Classification the food components.
- Explain about chemical composition and structure of constituents of food and their functions in foods.
- Describe physicochemical aspects of food constituents and their interaction with food
- Evaluate the effect of processing on different food products.
- Define the role of enzymes in biological system and identify the application of enzymes in different food industry.

COURSE CONTENTS:

THEORY:

UNIT I

Introduction- Water in foods, structure and its properties. Water activity, free and bound moisture.

Carbohydrates: Introduction, sources, classification and structure.Functional properties of sugars and polysaccharides in foods, chemical reactions of carbohydrates-Hydrolysis, Enolization, Mutarotation, Dehydration, Browning reactions, Gelatinization and Retrogradation of starch.

Proteins: types-essential and non-essential amino acids, classification, common food proteins, Biological valence (BV) of some food proteins, Functional properties of proteins, Hydrolysis of proteins, Denaturation, renaturation and Gelation

UNIT – II

Lipids: Classification**,** Physical characteristics of lipids, chemical properties of fats -hydrolysis, oxidation and hydrogenation. Rancidity and its mechanism. Common edible fats, oils and emulsions. Lipids of biological importance like cholesterol and phospholipids, functional properties of lipids. Effect of processing on lipids.

UNIT – III

Enzymes: Nomenclature, Definition, mechanism of enzyme action, factors affecting enzyme action, Enzyme inhibition, importance of enzymes in food processing

BOOKS PRESCRIBED:

1. Food Chemistry by L. H. Mayer. 2004. CBS Publishers.
2.Handbook of Analysis and Quality Control for Fruit and Vegetable Products by S Ranganna, Tata McGraw Hill Education, 1986.
3. Food Chemistry by Fennemma. 2007. CRC Press.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:
CO1: Understand the chemistry underlying the properties and reactions of various food components.
CO2: Understand the structure, classification and functional properties of food components.
CO3: Understand the chemical changes that takes place with food components during processing and storage and their effects on sensory and nutritional quality and functional properties of foods.
CO4: Understand the chemistry underlying the properties and reactions of various food components

(Signature)

BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-202

COURSE TITLE: FOOD HYGIENE AND SANITATION

Credit Hours (Per Week): L-3. T-1 **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Understand the principle of hygiene and its relation to food preparation.
- Acquire knowledge regarding sanitation facilities and procedures in food plant operations.
- Basic knowledge of solid and liquid waste management and treatment
- Basic understanding of mode of action of detergents and sanitizers
- Discuss the concept of GMP, HACCP, quality culture etc.,
- The design of plant and processing equipment and the basics of contamination and sanitation in food plant.

COURSE CONTENTS:

THEORY:

UNIT-I

General principles of hygiene and its relation to food preparation, Personal hygiene, Food handling habits, General hygienic and sanitary practices to be followed by different food business operators - fruits and vegetable, milk and milk product, meat and meat product, catering etc.

UNIT-II

Good Manufacturing Practices, Good Laboratory Practices, Quality Circles and Quality Culture Concept. Introduction to FSSAI. Basic concept of HACCP.

Sanitation facilities and procedures in food plant operation.

Methods of cleaning and disinfection. Detergents and Sanitizer.

UNIT-III

Water quality - water standards and analysis of physical, chemical and microbiological characteristics of water. Waste treatment - fundamentals of physical, biological & chemical waste treatments.

BOOKS PRESCRIBED:

1. Guide to improving Food Hygiene - Ed Gaston and Tiffney.
2. Practical Food Microbiology and Technology (2nd edition) – J. Mountney and W.A. Gould, 1988. AVI Books.
3. Food Poisoning and Food Hygiene - Betty C. Hobbs (3rd Edition). Hodder & Stoughton Educational. UK.

COURSE OUTCOMES: : On successful completion of the subject, the students will be able to:

CO1: Understand the basic principles and types of cleaning and disinfection in food processing plant.
CO2: Understand the concept of waste product handling and its management.
CO3: Understand the basic principles of safe and hygienic storage of foods
CO4: Get the basic knowledge of solid and liquid waste management and treatment

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-203

COURSE TITLE: CEREAL MILLING TECHNOLOGY

Credit Hours (Per Week): L-3, T-1 **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Composition, structure and storage of food grains
- Technology of paddy processing and its products
- Traditional and modern milling operations of wheat and technology of bakery products
- Milling of pulses.
- Effect of antinutritional factors present in pulses

CONTENTS:

THEORY:

UNIT-I

Cereal grain definition and different types of grains.
Structure and chemical composition of wheat, rice and maize.

UNIT-II

Pre-processing of grains: Cleaning, conditioning and tempering of grains
Traditional and modern milling of wheat and flour extraction rate.
Wheat flour for various purposes- Bread flour, Biscuit or cookie flour, cake flour, self-raising flour, instantized or agglomerated flour. Improvers and Bleachers - their principle and action.
Traditional and modern milling of paddy.
Dry and wet milling of maize.

UNIT-III

Introduction and chemical composition of pulses.
Decortication and milling of pulses.
Anti-nutritional factors of pulses and their elimination.

BOOKS PRESCRIBED:

1. Technology of Cereals by Kent N. L. and Evers AD, 4th Ed., 1983, Woodhead Publishing Ltd., UK.
2. Principle of Cereal Science & Technology by Kent. NL, 1983, Pergamon Press, London, UK.
3. The Chemistry & Technology of Cereal as Food & Feed by Maiz S.A, 1996, CBS Publishers, New Delhi.
4. Food Science by Potter NN, 5th Ed., 2006, CBS Publisher, New Delhi.
5. Technology of cereal, legume and oil seeds by Chakrobrty S. Deor, IBH Publisher.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Study the structure and composition of cereals and pulses.
CO2: Understand the methods of milling for cereals and pulses
CO3: Understand the manufacturing of various products from cereals and pulses
CO4: Study the effect of anti-nutritional factors present in pulses.

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(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-204

COURSE TITLE: EXPERIMENTS IN FOOD CHEMISTRY

Credit Hours (Per Week): P-2 **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:

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

COURSE OBJECTIVES:

Objective of this course is to:

- Determine the various constituents of foods.
- Learn principles behind analytical techniques associated with food.
- Explain the role of enzymes in fruit juice industry.
- Estimate various food components such as fats, fatty acids etc.

Elaborate the qualitative analysis of sugars, proteins and lipids.

COURSE CONTENTS:

PRACTICALS:

1. Determination of moisture in a given sample.
2. Microstructure of starches
3. Determination of reducing sugar in the given food sample.
4. Nitrogen analysis by micro-kjeldahl or spectrophotometer method.
5. Estimation of fat by soxhlet method.
6. Estimation of free fatty acid of given sample.
7. Determination of salt in food products.
8. Qualitative analysis of sugars.
9. Qualitative analysis of proteins in given sample.
10. Qualitative analysis of lipids in the given sample.
11. Clarification of juices using enzymes

BOOKS PRESCRIBED:

1.Hand Book of Analysis of Fruits & Vegetables by S. Ranganna.
2.Food Chemistry by Fennemma.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Understand the analytical and experimental methods used in the study of the food components.
CO2: Study the applications of enzymes in fruit juice clarification.
CO3: Learn the quantitative analysis of various food components.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER II

COURSE CODE: BVFP12-205
COURSE TITLE: EXPERIMENTS IN FOOD HYGIENE AND SANITATION

Credit Hours (Per Week): P-2 **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES: Objective of this course is to:

- Determine the hardness, alkalinity, pH of water.
- Learn principles behind analytical techniques associated with water.
- Explain the swab and rinse technique for assessing surface contamination.
- Gain insight into complete analysis of water used in food industry.
- Elaborate the concept of GMP and GHP.

COURSE CONTENTS:
PRACTICAL:

1. Analysis of water used in food industries ¬ Determination of acidity of the given sample of water.
2. Determination of alkalinity of the given sample of water.
3. Determination of the total hardness of Water.
4. Determination of pH of the given sample of Water.
5. Determination of Total Solids of the given sample of Water.
6. Determination of Total Dissolved Solids of the given sample of Water.
7. Assessment of surface sterilization using swab and rinse method.
8. Rapid adulteration tests for foods.
9. Case Study of food hygiene and sanitation (GMP/GHP) of a food industry.

BOOKS PRESCRIBED:

1. Practical Food Microbiology and Technology (2nd edition) – J. Mountney and W.A. Gould, 1988.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Understand the analysis of water used in food industries
CO2: Study the rapid adulteration tests for foods.
CO3: Understand the case Study of food hygiene and sanitation (GMP/GHP) of a food industry.
CO4: Check the effectiveness of sterilisation

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-206

COURSE TITLE: EXPERIMENTS IN CEREAL MILLING TECHNOLOGY

Credit Hours (Per Week): P-2 **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:

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

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss the physical characteristics of cereals and pulses
- Describe the technology of wheat processing and its products
- Elaborate the traditional and modern milling operations of wheat.
- Explain the dry and wet milling of maize.
- Give insight into cooking quality of rice.

COURSE CONTENTS:

PRACTICALS:

1. Determination of physical characteristics of wheat.
2. Determination of physical characteristics of rice.
3. Determination of moisture, ash and crude fibre in cereal grains.
4. Milling of wheat into flour.
5. Milling of paddy to brown rice and white rice.
6. Cooking quality of rice.
7. Dry-milling of maize into grits
8. Wet-Milling of maize
9. Visit to flour mill, rice mill and pulse mill.

BOOKS PRESCRIBED:

10.
1.Technology of Cereals by Kent N. L. and Evers AD, 4th Ed., 1983, Woodhead Publishing Ltd., UK.
2.Principle of Cereal Science & Technology by Kent. NL, 1983, Pergamon Press, London, UK.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Study the physical characteristics of cereals and pulses.
CO2: Understand the methods of milling for cereals and pulses
CO3: Study the physic-chemical analysis of cereals and pulses
CO4: Understand the qualitative analysis of different cereals

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – II
COURSE CODE: BVFP12-207
COURSE TITLE: INDUSTRIAL / SKILL TRAINING

SATISFACTORY/UNSATISFACTORY

Note: Submission of report and certificate after completion of Training.

COURSE OBJECTIVES:
The student will be able to appreciate different processing and production technologies in various industrial settings. The student will be exposed to the diverse setting in food industries

A student will undergo 1 month compulsory training in any Food Processing Industry/ Institute concerned with processing and quality analysis of foods. After the completion of training the student will submit certificate issued by the industry/institute to the Head of concerned department. Student will have to submit training report within 2 weeks after the completion of training to the department. The report will be evaluated as satisfactory/Unsatisfactory.

COURSE OUTCOMES:

CO1: To provide students exposure to industrial set-up
CO2: To enable students observe, first hand, work flow and processes in food industries and associated enterprises

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – II
(Changed)
2023-26
SEMESTER–II
COMMUNICATION SKILLS IN ENGLISH
BCA/B.Sc IT/ Bio Tech/ BFST/BJMC/B.Sc(Fashion Designing)/ B.Mm /BIMT/B.Sc. (Artificial Intelligence and Data Science)
Code:BCSE-1222

L	T	P	Credits
3	0	1	4

Time: 3 Hours **Max. Marks: 100**
Theory: 60
Practical: 15
Internal Assessment: 25

Suggested Pattern of Question Paper:
The question paper will be divided into two sections. Section A will consist of Twelve(12) questions of One(1) mark each. Section B will consist of Six questions of Eight(8) marks each. There will be internal choice wherever possible.

Section A

1. Do as directed
Tenses and Change of voice

(12X1=12Marks)

Section B

1. **Listening Skills**: Barriers to listening; effective listening skills; feedback skills.
2. **Speaking and Conversational Skills:** Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics.
3. Drafting of a short speech on a given topic.
4. Transcoding (given dialogue to prose or given prose to dialogue).
5. Taking notes on a speech/lecture/telephonic conversations .
6. Translation from Vernacular (Punjabi/ Hindi) to English (Paragraph)

(6X8=48 Marks)

Course Objectives:
I: To develop competence in oral and visual communication.
II: To inculcate innovative and critical thinking among the students.
III: To enable them to grasp the application of communication theories.
IV: To acquire knowledge of the latest technology related to communication skills.
V: To provide knowledge of multifarious opportunities in the field of this programme.

Course Contents:
1. **Listening Skills:** Barriers to listening; effective listening skills; feedback skills, attending telephone calls; note taking.

Activities:

a) Listening exercises – Listening to conversation, speech/ lecture and taking notes.

2. **Speaking and Conversational Skills**: Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics, situation based Conversation in English; essentials of Spoken English

Activities:

a) Conversation; dialogue and speech
b) Oral description or explanation of a common object, situation or concept.
c) Interviews and group discussion

Recommended Books:

1. *Oxford Guide to Effective Writing and Speaking* by John Seely.
2. *The Written Word* by Vandana R Singh, Oxford University Press
3. *Murphy's English Grammar* (by Raymond Murphy) CUP

Course Outcomes:

The completion of this course enables students to:

1. Identify common errors in language and rectify them.
2. Develop and expand Oral skills through controlled and guided activities.
3. Develop coherence, cohesion and competence in oral discourse through intelligible pronunciation.
4. Develop the ability to handle the interview process confidently and learn the subtle nuances of an effective group discourse.
5. Communicate contextually in specific and professional situations with courtesy.

PRACTICAL (Marks: 15)

Course Contents:-

1. Oral Presentation. (5 Marks)
2. Group Discussion. (5 Marks)
3. Mock Interview (5 Marks)

(Signature)

B. Sc. Hons. (Physics, Chemistry, Maths), B. Sc. Bio Tech./ IT/ Fashion Designing/ Food Sc., B. A. JMC, BCA, B.Sc. in Computational Statistics and Data Analytics, B.Sc. Artificial Intelligence and Data Science, Bachelor of Vocational (B.Voc.) (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology, Renewable Energy Techology)

Semester-II

Compulsory Course

ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

Credit & Marks Distribution, Eligibility and Pre-Requisites of the Course

Course title & Code	Total Teaching Hours	Total Credits/ Hours per week	Credit distribution			Total Marks 100		Time Allowed in Exam
			L	T	P	Theory	IA	
ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ BHPB-1201	60	4	4	0	0	75	25	3 Hours

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective	**ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ Course Outcomes (COs)**
▪ ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਪੈਦਾ ਕਰਨਾ। ▪ ਆਲੋਚਨਾਤਮਕ ਰੁਚੀਆਂ ਨੂੰ ਵਿਕਸਤ ਕਰਨਾ। ▪ ਵਿਦਿਆਰਥੀ ਨੂੰ ਦਫ਼ਤਰੀ ਅਤੇ ਘਰੇਲੂ ਚਿੱਠੀ ਪੱਤਰ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ। ▪ ਭਾਸ਼ਾਈ ਗਿਆਨ ਵਿਚ ਵਾਧਾ ਕਰਨਾ।	▪ ਉਸ ਅੰਦਰ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਪ੍ਰਫੁਲਿੱਤ ਹੋਣਗੀਆਂ। ▪ ਉਸ ਅੰਦਰ ਸਾਹਿਤ ਸਿਰਜਣਾ ਦੀ ਸੰਭਾਵਨਾ ਵਧੇਗੀ। ▪ ਵਿਦਿਆਰਥੀ ਚਿੱਠੀ-ਪੱਤਰ ਦੀ ਲਿਖਣ ਸ਼ੈਲੀ ਤੋਂ ਜਾਣੂ ਹੋਵੇਗਾ। ▪ ਉਹ ਭਾਸ਼ਾਈ ਬਣਤਰ ਤੋਂ ਜਾਣੂ ਹੋਵੇਗਾ।

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ। ਪਹਿਲੇ ਭਾਗ ਵਿਚ 1.5-1.5 (ਡੇਢ-ਡੇਢ) ਅੰਕ ਦੇ ਅਤਿ-ਸੰਖੇਪ (Objective Type) 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਹੋਣਗੇ ਅਤੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹੋਣਗੇ। ਸਿਲੇਬਸ ਦੇ ਬਾਕੀ ਚਾਰ ਭਾਗਾਂ ਵਿਚ 02-02 ਲੇਖ ਨੁਮਾ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਭਾਗ ਵਿਚੋਂ 01-01 ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 15 ਅੰਕ ਹੋਣਗੇ। ਪੇਪਰ ਸੈੱਟਰ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 25 ਅੰਕਾਂ ਦੀ ਹੈ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 75+25=100 ਹਨ।

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਸਾਹਿਤ ਦੇ ਰੰਗ, ਡਾ. ਮਹਿਲ ਸਿੰਘ (ਸੰਪਾ.), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
ਭਾਗ ਦੂਜਾ - ਵਾਰਤਕ ਅਤੇ ਰੇਖਾ-ਚਿੱਤਰ, ਡਾ. ਪਰਮਿੰਦਰ ਸਿੰਘ, ਡਾ. ਭੁਪਿੰਦਰ ਸਿੰਘ ਅਤੇ ਡਾ.ਕੁਲਦੀਪ ਸਿੰਘ ਢਿੱਲੋਂ (ਸਹਿ ਸੰਪਾ.)
(ਵਾਰਤਕ ਭਾਗ ਵਿਚੋਂ ਸਾਰ/ਵਿਸ਼ਾ-ਵਸਤੂ। ਰੇਖਾ-ਚਿੱਤਰ ਭਾਗ ਵਿਚੋਂ ਸਾਰ/ਨਾਇਕ ਬਿੰਬ)

ਭਾਗ-ਦੂਜਾ

ਪੰਜਾਬ ਦੇ ਮਹਾਨ ਕਲਾਕਾਰ (ਸੰਪਾ. ਬਲਵੰਤ ਗਾਰਗੀ)
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
(ਸਤੀਸ਼ ਗੁਜਰਾਲ ਤੋਂ ਸੁਰਿੰਦਰ ਕੌਰ ਤਕ)
(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ/ਨਾਇਕ ਬਿੰਬ)

ਭਾਗ-ਤੀਜਾ

(ੳ) ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ
(ਅ) ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ

ਭਾਗ-ਚੌਥਾ

(ੳ) ਸ਼ਬਦ-ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ-ਰਚਨਾ - ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਮੁਢਲੇ ਸੰਕਲਪ
(ਅ) ਸ਼ਬਦ-ਸ਼੍ਰੇਣੀਆਂ

B. Sc. Hons. (Physics, Chemistry, Maths), B. Sc. Bio Tech./ IT/ Fashion Designing/ Food Sc., B. A. JMC, BCA, B.Sc. in Computational Statistics and Data Analytics, B.Sc. Artificial Intelligence and Data Science, Bachelor of Vocational (B.Voc.) (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology, Renewable Energy Techology)

Semester-II

Compulsory Course

ਮੁਢਲੀ ਪੰਜਾਬੀ

(In Lieu of Compulsory Punjabi)

Credit & Marks Distribution, Eligibility and Pre-Requisites of the Course

Course title & Code	Total Teaching Hours	Total Credits/ Hours per week	Credit distribution			Total Marks 100		Time Allowed in Exam
			L	T	P	Theory	IA	
ਮੁਢਲੀ ਪੰਜਾਬੀ BPBI-1202	60	4	4	0	0	75	25	3 Hours

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective	**ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ Course Outcomes (COs)**
• ਵਿਦਿਆਰਥੀ ਅੰਦਰ ਸ਼ਬਦ ਬਣਤਰ ਦੀ ਸਮਝ ਵਿਕਸਤ ਕਰਨਾ। • ਵਿਦਿਆਰਥੀ ਨੂੰ ਸ਼ਬਦ ਪ੍ਰਕਾਰ ਬਾਰੇ ਜਾਣਕਾਰੀ ਪ੍ਰਦਾਨ ਕਰਨਾ। • ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਵਿਆਕਰਨਕ ਪ੍ਰਬੰਧ ਸੰਬੰਧੀ ਗਿਆਨ ਕਰਾਉਣਾ। • ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ ਦੁਆਰਾ ਪੰਜਾਬੀ ਸ਼ਬਦ ਭੰਡਾਰ ਵਧਾਉਣਾ।	• ਉਹ ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ ਦੀ ਜਾਣਕਾਰੀ ਹਾਸਲ ਕਰਕੇ ਭਾਸ਼ਾਈ ਗਿਆਨ ਨੂੰ ਵਿਕਸਿਤ ਕਰਨਗੇ। • ਪੰਜਾਬੀ ਸ਼ਬਦ-ਰਚਨਾ ਸੰਬੰਧੀ ਮੁਹਾਰਤ ਹਾਸਲ ਕਰਨਗੇ। • ਵਿਦਿਆਰਥੀ ਸ਼ਬਦਾਂ ਦੀਆਂ ਭਿੰਨ-ਭਿੰਨ ਕਿਸਮਾਂ ਤੋਂ ਜਾਣੂ ਹੋਵੇਗਾ। • ਵਿਦਿਆਰਥੀਆਂ 'ਚ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਭੰਡਾਰ 'ਚ ਵਾਧਾ ਹੋਵੇਗਾ।

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ। ਪਹਿਲੇ ਭਾਗ ਵਿਚ 01-01 ਅੰਕ ਦੇ ਅਤਿ-ਸੰਖੇਪ ਉੱਤਰ ਵਾਲੇ (Objective Type) 11 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਹੋਣਗੇ ਅਤੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹੋਣਗੇ। ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਦੂਸਰੇ ਭਾਗ ਵਿਚ, ਸਿਲੇਬਸ ਦੇ ਪਹਿਲੇ ਭਾਗ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 8-8 ਅੰਕ ਹੋਣਗੇ। ਇਸੇ ਤਰ੍ਹਾਂ ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਤੀਸਰੇ ਭਾਗ ਵਿਚ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 8-8 ਅੰਕ ਹੋਣਗੇ। ਭਾਗ ਚੌਥੇ ਵਿਚ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 4-4 ਅੰਕ ਹੋਣਗੇ। ਭਾਗ ਪੰਜਵੇਂ ਵਿਚ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਜਿੰਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ 8-8 ਅੰਕ ਹੋਣਗੇ।

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 25 ਅੰਕਾਂ ਦੀ ਹੈ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 75+25=100 ਹਨ।

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ:

ਧਾਤੂ, ਵਧੇਤਰ (ਅਗੇਤਰ, ਮਧੇਤਰ, ਪਿਛੇਤਰ), ਪੰਜਾਬੀ ਕੋਸ਼ਗਤ ਸ਼ਬਦ ਅਤੇ ਵਿਆਕਰਨਕ ਸ਼ਬਦ

ਭਾਗ-ਦੂਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਪ੍ਰਕਾਰ:

(ੳ) ਸੰਯੁਕਤ ਸ਼ਬਦ, ਸਮਾਸੀ ਸ਼ਬਦ, ਦੋਜਾਤੀ ਸ਼ਬਦ, ਦੋਹਰੇ/ਦੁਹਰੁਕਤੀ ਸ਼ਬਦ ਅਤੇ ਮਿਸ਼ਰਤ ਸ਼ਬਦ

(ਅ) ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ

ਭਾਗ-ਤੀਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਰਚਨਾ:

ਇਕ-ਵਚਨ/ਬਹੁ-ਵਚਨ, ਲਿੰਗ-ਪੁਲਿੰਗ, ਬਹੁਅਰਥਕ ਸ਼ਬਦ, ਸਮਾਨਅਰਥਕ ਸ਼ਬਦ, ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਲਈ ਇਕ ਸ਼ਬਦ, ਸ਼ਬਦ ਜੁੱਟ, ਵਿਰੋਧਅਰਥਕ ਸ਼ਬਦ, ਸਮਨਾਮੀ ਸ਼ਬਦ

ਭਾਗ-ਚੌਥਾ

ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ

ਖਾਣ-ਪੀਣ, ਸਾਕਾਦਾਰੀ, ਰੁੱਤਾਂ, ਮਹੀਨਿਆਂ, ਗਿਣਤੀ, ਮੌਸਮ, ਬਜ਼ਾਰ, ਵਪਾਰ, ਧੰਦਿਆਂ ਨਾਲ ਸੰਬੰਧਿਤ

ਖਾਣ-ਪੀਣ, ਸਾਕਾਦਾਰੀ, ਰੁੱਤਾਂ, ਮਹੀਨਿਆਂ, ਗਿਣਤੀ, ਮੌਸਮ, ਬਜ਼ਾਰ, ਵਪਾਰ, ਧੰਦਿਆਂ ਨਾਲ ਸੰਬੰਧਿਤ

KHALSA COLLEGE AMRITSAR

(An Autonomous College)

B. A.; B.A. (SS); B. A. (Hons. – English); B. Com. (Hons., R, Ac. & Finance); B. Sc. Bio-Tech./Comp. Sc./Eco./FD/Food Sc./IT/Med./N.Med.; B.Sc. (Hons. –Botany, Chemistry, Mathematics, Physics, Zoology); B. of Mult.; B. in Int. & Mob. Tech.; BBA; BCA; BJMC; B. Voc. (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER–II

PUNJAB HISTORY & CULTURE (C 321 BC TO 1000 A.D.)

(Special Paper in lieu of Punjabi compulsory)

(For those students who are not domicile of Punjab)

Course Code: BPHC-1204

Credit: 04

L- T- P

04-0-0

Time: 3 Hours

Total Marks: 100

Theory: 75

Internal Assessment: 25

Instructions for the Paper Setters:

Question paper should consist of two sections—Section A and Section B. The paper setter must ensure that questions in Section–A do not cover more than one point, and questions in Section–B should cover at least 50 per cent of the theme.

Section–A: The examiner will set 15 objective type questions out of which the candidate shall attempt any 10 questions, each carrying 1½ marks. The total weightage of this section will be 15 marks. Answer to each question should be in approximately one to two sentences.

Section–B: The examiner will set 8 questions, two from each Unit. The candidate will attempt 4 questions selecting one from each Unit in about 1000 words. Each question will carry 15 marks. The total weightage of this section will be 60 marks.

Note: The examiner is to set the question paper in two languages: English & Hindi.

Course Objectives: The main objective of this course is to educate the students who are not domicile of the Punjab about the history and culture of the Ancient Punjab. It is to provide them knowledge about the social, economic, religious, cultural and political life of the peopleof the Punjab during the rule of various dynasties such as The Mauryans, The Khushans, The Guptas, The Vardhanas and other ancient ruling dynasties of the period under study.

Unit-I

1. The Punjab under Chandragupta Maurya and Ashoka.
2. The Kushans and their Contribution to the Punjab.

Unit-II

3. The Punjab under the Gupta Emperors.
4. The Punjab under the Vardhana Emperors

Unit-III

5. Political Developments 7th Century to 1000 A.D.
6. Socio-cultural History of Punjab from 7th Century to 1000 A.D.

Unit-IV

7. Development of languages and Literature.
8. Development of art & Architecture.

Suggested Readings:-

L. Joshi (ed.*), History and Culture of the Punjab*, Part-I, Patiala, 1989 (3rdedition).

L.M. Joshi and Fauja Singh (ed), *History of Punjab*, Vol.I, Patiala 1977.
Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
B.N. Sharma, *Life in Northern India*, Delhi. 1966.

Course Outcomes:

On completing the course, the students will be able to:

CO-1	Understand the history and culture of the Punjab in Ancient Period.
CO-2	Analyse social, economic, religious, cultural and political life of Ancient Indian dynasties.
CO-3	Study about the political developments from 7th century to 1000 AD.
CO-4	Understand socio-cultural history of the Punjab from 7th century to 1000 AD.
CO-5	Analyse language, literature, art and architecture of Ancient Punjab.

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – II

SEMESTER–II

Course Code: ZDA121

Course Title-DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTIONDRUG ABUSE: MANAGEMENT AND PREVENTION

(Compulsory for all Under Graduate Classes)

Credit hrs/wk.: 2

Time: 3 Hours Max. Marks: 50

Instructions for the Paper Setters:

1) There will be a total of 9 questions of which 5 are to be attempted.
2) Question 1 is compulsory and having 10 short answer type questions (1 mark each).
3) The remaining 8 questions (10 marks each) shall include 2 questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. Preferably, the question should not be split into more than two sub-parts.

Course Objectives:

The course aim is to

CO-1.	Describe the role of family in the prevention of drug abuse.
CO-2.	Describe the role of school and teachers in the prevention of drug abuse.
CO-3.	Emphasize the role of media and educational and awareness program.
CO-4.	Provide knowhow about various legislation and Acts against drug abuse.

UNIT-I

- **Prevention of Drug abuse**

  Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.

UNIT-II

- School: Counseling, Teacher as role-model.
- Parent-teacher-Health Professional Coordination, Random testing on students.

UNIT-III

- **Controlling Drug Abuse**

  Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program

UNIT-IV

- Legislation: NDPS act, Statutory warnings, Policing of Borders, Checking Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials.

References:

1. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
2. Gandotra, R. and Randhawa, J.K. 2018. ਡਰੱਗਜ਼ ਦੁਰਵਰਤੋਂ (ਨਸ਼ਾਖੋਰੀ) ਪ੍ਰਬੰਧਨ ਅਤ ਰੋਕਥਾਮ। Kasturi Lal & Sons, Educational Publishers, Amritsar- Jalandhar.
3. Inciardi, J.A. 1981. The Drug Crime Connection. Beverly Hills: Sage Publications.
4. Modi, Ishwar and Modi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: Rawat Publication.
5. Randhawa, J.K. and Randhawa, Samreet 2018. Drug Abuse-Management and Prevention. Kasturi Lal & Sons, Educational Publishers, Amritsar- Jalandhar.
6. Sain, Bhim 1991, Drug Addiction Alcoholism, Smoking obscenity New Delhi: Mittal Publications.
7. Sandhu, Ranvinder Singh, 2009, Drug Addiction in Punjab: A Sociological Study. Amritsar: Guru Nanak Dev University.
8. Singh, C. P. 2000. Alcohol and Dependence among Industrial Workers: Delhi: Shipra.
9. World Drug Report 2011, United Nations office of Drug and Crime.
10. World Drug Report 2010, United Nations office of Drug and Crime

Course Outcomes:

The students will be able to:

CO-1.	Understand the importance of family and its role in drug abuse prevention.
CO-2.	Understand the role of support system especially in schools and inter-relationships between students, parents and teachers.
CO-3.	Understand impact of media on substance abuse prevention.
CO-4.	Understand the role of awareness drives, campaigns etc. in drug abuse management.
CO-5	Learn about the Legislations and Acts governing drug trafficking and Abuse in India.

(Signature)

KHALSA COLLEGE AMRITSAR

-An Autonomous College

Affiliated to GNDU, Amritsar

SYLLABUS

FOR

BACHELOR OF VOCATION (B.Voc.)

FOOD PROCESSING

(Semester III - VI)

FOR

Session 2023-24

Post-Graduate Department of Food Science & Technology

BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING

(Semester III - VI) 2023-2024

ORDINANCES FOR THE BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING COURSE

ELIGIBILITY FOR ADMISSION IN B.VOC.

A candidate will be eligible to join 1st semester of Bachelor of Vocation(B.Voc.) Food Processing course, if he/she has passed10+2 examination(any stream/ Arts/Science/Commerce) or any other examination recognized as equivalent thereto without reappear.

Bachelor of Vocation (B. Voc.) is launched under the scheme of University Grants Commission on skill development based higher education leading to Bachelor of Vocation (B. Voc.) D

egree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification framework. The B.Voc. programme incorporate specific job roles and their National Occupational Standards along broad based general education. This course has been started in order to make education relevant and to create 'industry fit' skilled workforce. B. Voc. programme has been designed as per National Skill Qualification Framework emphasizing on skill based education.

NSQF LEVELS:

Name of the Course	NSQF Level Certificate	Cumulative Credits
Certificate	Level – 4	18 credits
Diploma	Level – 5	36 credits
Advanced Diploma	Level – 6	72 credits
B.Voc Degree	Level – 7	108 credits

Credit(C): A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week. Accordingly, one Credit would mean equivalent of 14-15 periods of 60 minutes each or 28 – 30 hrs of workshops / labs.

2. Scheme of Instructions-Examination

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

a) Of having attended at least 75% of the total number of lectures delivered in each theory and practical course separately. Deficiency in lectures may be condoned as per ordinances of college/University. If in particular semester, a student falls short of attendance in a maximum of two courses, he/she would be permitted to appear in the semester examination of the papers in which he/she fulfils the attendance requirements. The course/s in which the student does not fulfill the minimum attendance requirements, he/she shall not be permitted to appear in the semester examination of such course/s, and shall be declared as having failed in such course/s. A student who is falling short of attendance in maximum two courses,

he/she shall be required to attend the minimum number of lectures which were falling short, during next year when the course/s is/are offered.

b) Of having good moral character.

c) The syllabi, courses of reading and regulations for the courses shall be notified by thecollegefrom time to time, and shall be deemed to constitute an integral part of ordinances. Course evaluation under the semester system of evaluation shall be done on marks basis. If a course has both the theory and practical components, the student will be required to pass both the components, separately. However, if the student fails in theory, but is passing in practical examination of that course, he/she will be required to clear the theory paper only, and vice-versa.

d) Carry on system for various semester examinations.

I. Courses having six semester duration:

a. There shall be no condition for promoting a student from first semester to second semester

b. However, the student shall be promoted to the third semester only if he/she has passed at least 50% courses/papers of the first two semesters.

c. There shall be no condition for promoting a student from third semester to fourth semester.

d. However a student shall be promoted to fifth semester only if he/she has passed atleast 50% courses/ papers of the first four semesters.

e. There shall be no condition for promoting a student from fifth semester to sixth semester. After a period of six semesters the student shall be given a period of two consecutive years to pass.

Note 1: No special chance or exemption shall be allowed beyond what is stated in the above Ordinances.

Note 2: Failing students shall appear in the examination in the regular semester examinations next year i.e. reappear ofexamination for an odd semester shall be conducted along with the next odd semester, and even semester along with the next even semester and there shall be no special supplementary examinations.

Note 3: If 50% of the courses/papers required to pass involve a fraction, the fraction of the course/paper will be treatedas a full course. For example, if in a year there are 13 courses in two semesters, the candidate will be required to pass minimum of 7 courses/papers.

e) The pass marks for a course (paper) shall be 35% at Bachelor's Degree level. Pass marks in aggregate for all the courses shall be 40%. Re-evaluation shall be allowed as per ordinances.

If a candidate obtains less than 40% marks in aggregate at the end of final semester/year of his/her course but is pass in all individual papers, the result of such a candidate shall be declared as „fail", and he/she shall be required to improve

his/her score in one or more papers in any of the semesters/year so as to obtain a minimum of 40% marks in aggregate to pass the examination.

f) The medium of instructions shall be English.

g) Grace marks will be allowed as per college/University ordinances.

3. Discipline

Each student shall be under the control and discipline of the concerned institution. In case of any misconduct on the part of a student, the institution shall have a power to take disciplinary action against

the defaulter, to the extent of cancellation of admission of the defaulting student from the rolls of the institution.

4. Result-Division-Degree

The successful candidates shall be classified into the following divisions:

a) **First Division with distinction**-Those who obtain 75% or more marks at the end of their course.

b) **First Division**-Those who obtain 60% or more marks at the end of their course.

c) **Second Division**- Those who obtain 50% or more marks, but less than 60% marks at the end of their course.

d) **Third Division**- Those who obtain 40% or more marks, but less than 50% marks at the end of their course.

The successful candidate shall be awarded the degree in the subject of his/her study indicating the divisions obtained on the basis of the result of all the semester examinations. A student who does not complete the programme of study within the minimum duration of the course of his/her study, or fails in any course, shall not be eligible for any merit position/medal/award of the University.

COMPULSORY TRAINING

Training of one **month in relevant sector for completion of Diploma** and **1and half month for completion of advance Diploma is** mandatory. Report based on satisfactory/unsatisfactory shall be sent by Head of the Department.

INDUSTRIAL/INSTITUTIONAL PROJECT

A candidate shall have to undertake an Industrial/Institutional Project in college in (2^{nd}, 4^{th} and 6^{th}Semester) and submit the report for same by 30^{th} April extendable to 30^{th} May under special circumstances by the permission of the Head of concerned Department.

Programme Specific Outcomes (PSO)

PSO1:-To make students aware of food composition, analysis and technological aspects of food processing and preservation.

PSO2:- To understand post-harvest analysis of food that help them to build entrepreneurship techniques along with the environmental challenges.

PSO3: To make students confident enough to handle various challenges that might come at technological and qualitative aspect in food industry.

PSO4:- TO make students build their own careers and others also in food bussiness by managing various entrepreneurship ventures

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BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING SEMESTER – III-VI

SESSION 2023-24
PROGRAMME CODE: BVFP

Semester III

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
3	**CS-BVGC231**	Computer Applications	3	-	3	45	-	15	60
2	**CS-BVGC232**	Experiments in Computer Applications	3	--	3		30	10	40
3	**ESL–221**	**Environmental Studies–I (Compulsory)	3	-	3	50	-	-	-
SKILL COMPONENT									
4	**BVFP21-304**	Cereals And Pulses Technology	3	-	3	45	-	15	60
5	**BVFP21-305**	Food Microbiology	3	-	3	45	-	15	60
6	**BVFP21-306**	Dairy Technology-I	3	-	3	45	-	15	60
7	**BVFP21-307**	Experiments In Cereals And Pulses Technology	-	3	3	-	30	10	40
8	**BVFP21-308**	Experiments In FoodMicrobiology	-	3	3	-	30	10	40
9	**BVFP21-309**	Experiments In Dairy Technology-I	-	3	3	-	30	10	40
		TOTAL							**400**

****This paper marks will not be included in the total marks.(Qualifying paper)**
1 Credit = 1 hour/Theory OR Practical /week

Semester IV

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
1	**BVGC22-401**	Food safety and laws	3	-	3	45		15	60
2	**BVGC22-402**	Experiments in food safety and laws		3	3	30	-	10	40
3	**ESL–222**	**Environmental Studies–II (Compulsory)	3	-	3	50	-	-	-
SKILL COMPONENT									
4	**BVFP22-404**	Bakery And Confectionery Technology	3	-	3	45	-	15	60
5	**BVFP22-405**	Dairy Technology-II	3	-	3	45	-	15	60
6	**BVFP22-406**	Food Packaging	3	-	3	45	-	15	60
7	**BVFP22-407**	Experiments in Bakery And Confectionary Technology	-	3	3	-	30	10	40
8	**BVFP22-408**	Experiments in Dairy Technology-II	-	3	3	-	30	10	40
9	**BVFP22-409**	Experiments in food Packaging	-	3	3	-	30	10	40
10	**BVFP22-410**	Industrial/Skill Training							**Satisfactory/ Unsatisfactory**
		TOTAL							**400**

****This paper marks will not be included in the total marks.(Qualifying paper)**
1 Credit = 1 hour/Theory OR Practical /week

Semester V

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
1	**BVGC31-501**	Spices And Flavour Technology	3	-	3	37	-	13	50
2	**BVGC31-502**	General Food Processing Equipments	3	--	3	37	-	13	50
3	**BVGC31-503**	**Fundamental HACCP	-	3	-	-	30	10	-
SKILL COMPONENT									
3	**BVFP31-504**	Egg, Poultry And Meat Processing	3	-	3	45	-	15	60
4	**BVFP31-505**	Food Plant Layout	3	-	3	45	-	15	60
5	**BVFP31-506**	Quality Assurance	3	-	3	45	-	15	60
6	**BVFP31-507**	Experiments In Egg, Poultry And Meat Processing	-	3	3	-	30	10	40
7	**BVFP31-508**	Experiments In Food Plant Layout	-	3	3	-	30	10	40
8	**BVFP31-509**	Experiments In Quality Assurance	-	3	3	-	30	10	40
		TOTAL							**400**

1 Credit = 1 hour/Theory OR Practical /week

**** This paper marks will not be included in total marks (qualifying paper)**

Semester VI

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
1	**BVGC32-601**	Food Additives	3	-	3	37	-	13	50
2	**BVGC32-602**	Food Toxicology	3	-	-	37		13	50
2	**BVGC32-603**	**Seminar	-	3	3	-	50	-	S/US
SKILL COMPONENT									
3	**BVFP32-604**	Food Industry Waste Management	3	-	3	45	-	15	60
4	**BVFP32-605**	Food Analysis	3	-	3	45	-	15	60
5	**BVFP32-606**	Technology Of Fermented Foods	3	-	3	45	-	15	60
6	**BVFP32-607**	Experiments In Food Industry Waste Management	-	3	3	-	30	10	40
7	**BVFP32-608**	Experiments In Food Analysis	-	3	3	-	30	10	40
8	**BVFP32-609**	Experiments In Technology Of Fermented Foods	-	3	3	-	30	10	40
9	**BVFP32-610**	Industrial/Skill Training						**Grade**	**Satisfactory/ Unsatisfactory**
		TOTAL							**400**

NSQF LEVEL- 7

1 Credit = 1 hour/Theory OR Practical /week

**** This paper marks will not be included in total marks (qualifying paper)**

Bachelor of Vocation (B.Voc) Food Processing
Semester-III
CS-BVGC231: Computer Applications

Time: 3 Hours	**Total Marks: 60**
Credit Hours/week: 2	**Theory Marks: 45**
Total Hours: 30	**Internal Assessment: 15**

Note: 1. Medium of Examination is English Language.
Instructions for the Paper Setters:
Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no.1 will be objective type and compulsory.
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners at the spot.

Course Objectives:

1.	To familiarize the various parts of computer.
2.	To study application of computers in different fields.
3.	To recall the evolution of computers through various generation.
4.	To acquire the knowledge of working of input and output devices.
5.	To impart the knowledge of operating system and its types.
6.	Hands on practice of MS office software.

UNIT-I

Theory:
FUNDAMENTAL OF COMPUTER: Introduction to computer, Applications of computer, Components of computer, Primary and Secondary storage, Number systems.
INTERNET: Internet basics, Its uses and Applications.

UNIT-II

INTRODUCTION TO WINDOWS 10: Parts of window screen (Desktop, Window, Icons), Startmenu, Taskbar, settings, application & document window, anatomy of a window (Title bar, minimize, maximize button, control box, scroll bars, scroll buttons, scroll boxes), Window explorer (expansion, collapsing of directory free, copying, moving, deleting files, folder, creating folders), About desktop icons (recycle bin, my computer, network neighborhood, briefcase), folder, shortcut creation, setting of screen saver, color settings , wallpaper, changing window appearance.

UNIT-III

MS-WORD 10: Introduction to MS-word, Parts of window of word (Title bar, menu bar, statusbar, ruler), Creation of new document, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header, footer, deleting, moving replace, a filing text in document. Saving a document, spell checker, printing a document, creating a table, entering editing text in tables, changing format of table, height width of row or column Editing, deleting, rows, Columns in table. Borders, shading, Templates, Wizards Drawing objects, mail merge.

MS-POWER POINT 10: Introduction, elements of Power Point Package, starting Power Point, Exploring Power Point menus, starting a new slide, Adding Titles, Text and Art, Moving text area and resizing text box starting a slide show, saving a presentation, printing slides, opening an existing presentation, Inserting and deleting slides in a presentation, changing text and correcting error, checking spelling, adding header and footer, closing a presentation, To quit from Power Point views, slide setup, setting up slide show, setting transistors and slide timings, Automatic slide show, Formatting and Enhancing text, Slide with graph.

References:

1.Rajaraman, V. (2006)," Fundamental of Computers", 4thEdition , Prentice Hall India,New Delhi.

2. Alexis Leon and Matheus Leon (2001)," Introduction to Computers with MS office 2000",1st edition, Tata McGraw-Hill, New Delhi.

3. Srivastava, S.S(2002),"Ms-Office", Firewall Media, New Delhi.

4. Peter Norton(2010),"Introduction to Computers", 7th Edition, McGraw-Hill, New Delhi.

5. Sharma Anshuman,"A book of Fundamentals of Information Technology", Lakhanpal Publications.

6. MS Office BPB Publications.

Course Outcomes:

At the end of course students will be able to:

CO-1.	Gain insight of working of input and output devices.
CO-2.	Develop skills of working with MS-Word.
CO-3.	Developing skills of working with MS-PowerPoint.
CO-4.	Possess the knowledge of importance of operating system in computer.
CO-5.	Understand the concept of storing of data in memory and its types.
CO-6.	Applying transistors and slide timings.
CO-7.	Printing the Worksheet, Graphs.

Bachelor of Vocation (B. Voc)
Food Processing
Semester-III
CS-BVGC232: Experiments in Computer Applications

Credit Hours/week: 2 **Total Marks: 40**
Total Hours: 30 **Practical Marks: 30**
Practical Internal Assessment:10

PRACTICALS:

WINDOW 7:

01. Personalize the Windows 7 desktop
02. Add and remove gadgets
03. Add shortcuts
04. Move between windows and customize the taskbar
05. Use Windows Explorer and create folders
06. Move and rename folders and copy files
07. Move, rename, and delete files
08. Compress files and use the address bar
09. Describe and find files and folders
10. Resize, move, and scroll windows

MS-WORD 2010:

01. Create a document files, save it and print it.
02. Spell check the created document file.
03. Create a Table and sort the data within the table.
04. Mail Merge a invitation to your friends.
05. Apply border to a particular paragraph and shade it 10% with Background yellow colour.

MS-POWER POINT 2010:

01. Create a presentation, save it and print it.
02. Format a presentation with changing the fonts and size and selecting text style and colours.
03. Create a graph; add titles, axes and legends to a graph.
04. Add a Clipart picture to a chart.

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

Course code: ESL–221

Course Title: ENVIRONMENTAL STUDIES–I (COMPULSORY)

Credit Hours (Per Week): 2

Total Hours : 30 **Maximum Marks: 50**
Marks

Instructions for Paper Setters: The question paper will consist of three sections. Candidate will be required to attempt all the sections. Each unit of the syllabus should be given equal weightage of marks. Paper to be set in English, Punjabi and Hindi.
Section–A: (16 Marks): It will consist of five short answer type questions. Candidates will be required to attempt four questions, each question carrying four marks. Answer to any of the questions should not exceed two pages.

Section–B: (24 Marks): It will consist of five questions. Candidates will be required to attempt four questions, each question carrying six marks. Answer to any of the questions should not exceed four pages.

Section–C: (10 Marks): It will consist of two questions. Candidate will be required to attempt one question (carrying ten marks) only. Answer to the question should not exceed 5 pages.

Course Objectives

CO-1	The main goal of Environmental studies is to create the environmental awareness to create a safe, green and sustainable environment.
CO-2	To make students aware about the importance of ecosystem, types of ecosystem, energy flow in an ecosystem, ecological succession, food chain and food web.
CO-3	To make students aware of water conservation, global warming, consumerism and waste products. and, also about the environmental protection acts.
CO-4	Role of National Service Scheme (NSS). Health and hygiene.

Unit-I

The Multidisciplinary Nature of Environmental Studies:

- Definition, scope & its importance.
- Need for public awareness.

Natural Resources:

- Natural resources and associated problems:

a) Forest Resources: Use of over exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

b) Water Resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) Food Resources: World food problems, change caused by agriculture and overgrazing, effects or modern agriculture, fertilizer-pesticide problem, salinity, case studies.

e) Energy Resources: Growing of energy needs, renewable and non-renewable energy resources, use of alternate energy sources, case studies.

1. **f) Land Resources**: Land as a resource, land degradation, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Unit-II

Ecosystem:

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.

Introduction, types, characteristic features, structure and function of the following ecosystems:

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit-III

Social Issues and Environment:

From unsustainable to sustainable development.

Urban problems related to energy.

Water conservation, rain water harvesting, watershed management.

Resettlement and rehabilitation of people; its problems and concerns. Case studies.

Environmental ethics: Issues and possible solutions.

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocause. Case studies.

Wasteland reclamation.

Consumerism and waste products.

Environmental Protection Act:

- Air (prevention and Control of Pollution) Act.
- Water (prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.

Issues involved in enforcement of environmental legislation.

Public awareness.

Unit-IV

National Service Scheme

- **Introduction and Basic Concepts of NSS:** History, philosophy, aims & objectives of NSS; Emblem, flag, motto, song, badge etc.; Organizational structure, roles and responsibilities of various NSS functionaries.
- **Health, Hygiene & Sanitation:** Definition, needs and scope of health education; Food and Nutrition; Safe drinking water, water borne diseases and sanitation (Swachh Bharat Abhiyan); National Health Programme; Reproductive health.

References/Books:

1. Agarwal, K. C. 2001. Environmental Biology, Nidhi Publications Ltd. Bikaner.
2. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
3. Down to Earth, Centre for Science and Environment, New Delhi.
4. Jadhav, H. & Bhosale, V. M. 1995. Environmental Protection and Laws. Himalaya Pub.
5. Joseph, K. and Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
6. Kaushik, A. & Kaushik, C. P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
7. Miller, T. G. Jr. 2000. Environmental Science, Wadsworth Publishing Co.
8. Sharma, P. D. 2005. Ecology and Environment, Rastogi Publications, Meerut.
9. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar
10. Kanta, S., 2012. Essentials of Environmental Studies, ABS Publications, Jalandhar.

Course Outcomes

CO-1	To learn about the sustainable environment.
CO-2	To gain the knowledge ecosystem and its functioning.
CO-3	To know about the water conservation programs like rain water harvesting and water shedding. and, to gain knowledge of environmental (air, water and pollution) protections acts.
CO-4	To know about the role and importance of NSS– a volunteer organization, in making up a better environment and to maintain better health and hygiene.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

COURSE CODE: BVFP21- 304

COURSE TITLE: CEREALS AND PULSES TECHNOLOGY

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Describe the composition, structure and storage of food grains
- Give deep insight into the concept of parboiling.
- Elaborate the traditional and modern milling operations of wheat and technology of bakery and extruded products
- Discuss the principle and action of improvers and bleachers used in flour.
- Elaborate the processing of soybean into various products.

COURSE CONTENTS:

THEORY:

UNIT-I

Cereal grain definition, Structure and chemical composition of wheat, rice and maize.
Milling criteria and quality criteria for grains.
Wheat: Classification of wheat; cleaning and conditioning. Traditional and modern milling of wheat and flour extraction rate. Wheat flour- types and usage, Improvers and Bleachers - their principle and action.

UNIT-II

Parboiling of Paddy. Advantages and disadvantages of parboiling. Properties of parboiled rice.
Traditional and modern milling of paddy.
Dry and wet milling of maize.

UNIT-III

Introduction and chemical composition of pulses.
Decortication and polishing of pulses. Anti-nutritional factors of pulses and their elimination.
Soyabean-processing into soya flour, Soya Protein Concentrates and Isolates

BOOKS PRESCRIBED:

1. David Dendy A.V, etal; Cereals and Cereal Products: Technology and Chemistry, - 2000
2. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
3. Potter, N.N. and Hotchkiss J. H. Food Science. CBS publishers and distributors. 1996.
4. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003.
5.Subalakshmi, G and Udipi, S.A. Food processing and preservation. New Age International Publishers, New Delhi, 2001.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Gain basic understanding of cereals, pulses and oilseeds after harvesting.
CO2: Study various types of processing methods of cereals, pulses and oilseeds
CO3: Study various products and by-products of cereals, pulses and oilseeds
CO4: Gain knowledge on manufacturing technologies of cereals, pulses and oilseeds.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

COURSE CODE: BVFP21- 305

COURSE TITLE: FOOD MICROBIOLOGY

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Recognize and describe the characteristics of important pathogens and spoilage microorganisms in foods.
- Understand the role and significance of intrinsic and extrinsic factors on growth and response of microorganisms in foods.
- Identify ways to control microorganisms in foods
- Describe the beneficial role of microorganisms
- Gain deep insight about food infection and food intoxication.

COURSE CONTENTS:

THEORY:

UNIT-I

Introduction - Origin of food microbiology as science, Food as nutrient for various microorganisms,

Factor affecting the growth and survival of microorganisms in foods, General features and importance

of different groups of bacteria, yeasts and molds important in foods.

Methods for microbial examination of foods - Traditional, non-traditional and rapid methods for themicrobial examination of food and food products.

UNIT-II

Food Spoilage - Microbial and biochemical aspect of food spoilage, role of bacteria, yeast and molds infood spoilage, Spoilage of cereal and cereal products, fruits and vegetables, meat and meat products, milk and milk products, fish and fish products, spoilage of egg and poultry and heated canned foods.

UNIT-III

Food Borne Illness - Food intoxication and food infection, Bacterial food poisoning by*Staphylococcusaureus, Clostridium botulinum, Salmonella, E. coli, Clostridium perfringens, Listeria monocytogenes*, and *Campylobacter jejuni*, Food borne viruses, Aflatoxigenic molds, Investigation of food borne disease outbreak.

BOOKS PRESCRIBED:

1. Frazier WC and Westoff DC "Food Microbiology" 4th edition Tata Mcgraw-Hill Publishing
2. Jay JM "Modern Food Microbiology" 3rd edition CBS Publishers and distributors Delhi1987
3. Adams MR and Moss MO "Food microbiology" New Age International (P) Ltd. 1996
4. Gunasekaran P. "Laboratory Manual in Microbiology", New Age International (P) Ltd. 1996.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Study the important genera of microorganisms associated with food and their characteristics.
CO2: Study the role of microbes in fermentation, spoilage and food borne diseases.
CO3: Understand the importance of food quality control by avoiding pathogenic microbial attack.
CO4: Study factors affecting food spoilage

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

COURSE CODE: BVFP21- 306

COURSE TITLE: DAIRY TECHNOLOGY-I

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Elaborate the composition and factors affecting composition of milk.
- Discuss physico-chemical properties of milk
- Describe the techniques used for processing and preservation of milk.
- Elaborate the process for manufacturing of market milk.
- Understand the processing of milk by using various techniques such as pasteurization, standardization, homogenization etc.,

COURSE CONTENTS:

THEORY:

UNIT-I

Introduction Milk - Definition, sources, and composition of milk, factors effecting composition of milk, physiochemical properties of milk, collection and transportation of milk.

UNIT-II

Special milks: evaporated milk, condensed milk, standardized milk, toned milk, double toned milk, flavoured milk, reconstituted milk.

Processing of market milk Flowchart of milk processing, Reception, Different types of cooling systems. Clarification and filtration process, standardization- Pearson's square method.

UNIT-III

Pasteurization-LTLT, HTST and UHT process, continuous pasteuriser, Sterilisation and Homogenisation, Cream separation- centrifugal cream separator, bactofugation.

BOOKS PRESCRIBED:

1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.
3. Robinson, R. K., (2012), "Modern Dairy Technology: Volume 2 Advances in Milk Products", Springer Science & Business Media Publishers.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study the composition of milk and factors affecting composition.
CO2: Study the physicochemical properties of milk
CO3: Understand the specifications and processing of special milks.
CO4: Study the standardisation, pasteurization, homogenization, bactofugation etc. of milk

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

COURSE CODE: BVFP21- 307

COURSE TITLE: EXPERIMENTS IN CEREALS AND PULSES TECHNOLOGY

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Demonstrate the physical characteristics of grains.
- Evaluate the physico-chemical properties of cereals.
- Discuss the methods of milling of cereals.
- Understand the cooking quality of cerals and pulses.
- Gain deep insight into the working of flour mill, rice mill and pulse mill.

COURSE CONTENTS:

PRACTICALS:

1. Determination of physical characteristics of wheat.
2. Determination of physical characteristics of rice.
3. Determination of moisture content and ash content in cereals and pulses grains.
4. Determination of crude fiber content in cereals and pulses grains.
5. Milling of wheat into flour or meal
6. Milling of paddy to brown rice and white rice.
7. Cooking quality of pulses.
8. Visit to flour mill, rice mill and pulse mill.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Study the physical characteristics of cereals and pulses
CO2: Study the physic-chemical properties of cereals and pulses
CO3: Understand the milling of cereals
CO4: Understand the cooking quality evaluation of pulses.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

COURSE CODE: BVFP21- 308

COURSE TITLE: EXPERIMENTS IN FOOD MICROBIOLOGY

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:

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

COURSE OBJECTIVES:

Objective of this course is to:

- Elaborate the sterilization and disinfection of equipment used in food microbiology laboratory.
- Demonstrate different types of microorganism colony shapes on agar plates.
- Isolate the fungi from food materials.
- Demonstrate microbiological analysis of egg, cereal product and fruit product.
- Understand the direct microscopic count method for counting microbes.

COURSE CONTENTS:

PRACTICALS:

1. Sterilization and disinfection of equipment used in food microbiology laboratory.
2. Preparation of media, slant and broths required in the microbial analysis of foods.
3. To count the number of microorganisms by direct microscopic count method.
4. Study of different types of microorganism colony shapes on agar plates.
5. Study of the capsular and spore staining methods.
6. Isolation of fungi from food materials.
7. Study of incubation test of heated canned foods.
8. Study of Dye reduction test of milk.
9. Microbiological analysis of egg, cereal product and fruit product.

BOOKS PRESCRIBED:

1. Frazier WC and Westoff DC "Food Microbiology" 4th edition Tata Mcgraw-Hill Publishing
2. Jay JM "Modern Food Microbiology" 3rd edition CBS Publishers and distributors Delhi987
3. Adams MR and Moss MO "Food microbiology" New Age International (P) Ltd. 1996
4. Gunasekaran P. "Laboratory Manual in Microbiology", New Age International (P) Ltd. 1996.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study the growth of the microorganisms in different culture systems.
CO2: Understand the media formulation and sterilization techniques used.
CO3: Study the different microorganism.
CO4: Understand the different food born disease and spoilage of food.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – III

COURSE CODE: BVFP21- 309

COURSE TITLE:EXPERIMENTS IN DAIRY TECHNOLOGY-I

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Perform chemical analysis of milk sample
- Demonstrate platform tests of milk like organoleptic tests, clot on boiling test, alcohol test, pH and % acidity test- Alizarin Alcohol test
- To understand different processing equipment in dairy plant
- Detect the adulteration of milk.
- Make report on the quality of given milk sample.

COURSE CONTENTS:

PRACTICALS:

1. To prepare a chart of physico –chemical properties and microbiological standards of milk and milk products.
2. Determination of specific gravity, SNF % and TS% of milk.
3. Determination of milk fat percentage by Gerber's method.
4. Platform tests of milk like organoleptic tests, clot on boiling test, alcohol test, pH and % acidity test- Alizarin Alcohol test.
5. Detection of various adulterants and neutralizer in milk
6. Reporting on the quality of given sample of milk.
7. Visit to milk processing plants/NDRI, Karnal.

BOOKS PRESCRIBED:

1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to:
CO1: Understand the physico-chemical analysis of milk.
CO2: Understand the detection of adulterants and neutralizers in milk.
CO3: Study the organoleptic tests of milk
CO4: Understand the quality control of milk.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE:BVGC22- 401

COURSE TITLE: FOOD SAFETY AND LAWS

Credit Hours (Per Week): 03(T) **Max. Marks: 60**

Total Hours:45 **Theory Marks: 45**

Time: 3 Hours **Internal Assessment: 15**

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Know different food laws and their importance.
- Discuss different adulterants and hazards and their safety measures.
- Implement different safety tools and regulation in food industry to produce safe products
- Elaborate the factors affecting food safety
- Gain knowledge about new approaches of food safety.

COURSE CONTENTS:

THEORY:

UNIT-I

INTRODUCTION TO FOOD SAFETY

Definition, Factors affecting Food Safety, Importance of Safe Foods.

UNIT-II

FOOD HAZARDS OF PHYSICAL, CHEMICAL AND BIOLOGICAL ORIGIN

Introduction, Physical Hazards with common examples, Chemical Hazards (naturally occurring environmental and intentionally added and contaminants due to processing, Microbiological hazards (Bacterial and Fungal).

UNIT-III

FOOD SAFETY MANAGEMENT TOOLS

Prerequisites of food hygiene- GHPs ,GMPs, HACCP**,** TQM - concept and need for quality, Steps involved in implementation of food safety programme. Food safety laws and regulations (FSSAI).New approaches to food safety.

PRESCRIBED BOOKS:

1. Adam MR and Moss MO Food microbiology New Age International (P)Ltd.
2. ND Jay JM Modern Food Microbiology CBS publishers ND Potter NN Food Science CBS Publishers ND
3. Bhunia AK Food borne Microbial Pathogens (Mechanism and Pathogenesis) Food Science text series Springer Food Safety by Ian C Shaw: Publisher Wiley Blackwell

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Study the food quality, being affected from the adulterants, hazards etc and its safety.

CO2: Study food safety management tools: GHP, GMP etc.

CO3: Study different food laws and standards in India and their requirements and importance in controlling the quality

CO4: Study food safety regulations and their implementation in food industry to ensure the quality and safety of the foods.

(Signature)

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE:BVGC22- 402

COURSE TITLE: EXPERIMENTS IN FOOD SAFETY AND LAWS

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Discuss physical , chemical and microbiological hazards in food materials.
- Demonstrate the GHP and follow them during food preparations.
- Describe the cleaning and sanitizing agents used in pre and post operative processes in food industry.
- Describe the HACCP chart for different food industries.
- Inspect the intentionally added adulterants in milk and spices.

COURSE CONTENTS:
Practicals

1. Identification of different hazards in food material.
2.]Sensory evaluation of packed food products.
3. Demonstration of GHP follow during food preparations.
4. Study of cleaning and sanitizers used in pre and post operative processes in food industry.
5. Implementation of HACCP chart in food processing laboratory while cooking.
6. HACCP chart for different food industries.
7. Inspecting the intentionally added adulterants in spices.
8. Inspecting the intentionally added adulterants in milk.
9. Demonstration of different steps involved in implementation of food safety programme.

PRESCRIBED BOOKS:

1.Bhunia AK Food borne Microbial Pathogens (Mechanism and Pathogenesis) Food Science text series Springer Food Safety by Ian C Shaw: Publisher Wiley Blackwell

COURSE OUCOMES:
On successful completion of the subject, the students will be able to:

CO1: Understand the identification of different hazards in food material.
CO2: Study various factors affecting Food Safety.
CO3: Understand the implementation of HACCP chart in food processing laboratory while cooking.
CO4: Inspect the intentionally added adulterants in spices and milk

(Signature)

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

Course Code: ESL–222

Course Title: ENVIRONMENTAL STUDIES–II (COMPULSORY)

Credit Hours (Per Week): 2

Total Hours : 30 **Maximum Marks : 50 Marks**

Instructions for Paper Setters: The question paper will consist of three sections. Candidate will be required to attempt all the sections. Each unit of the syllabus should be given equal weightage of marks. Paper to be set in English, Punjabi and Hindi.

Section–A: (16 Marks): It will consist of five short answer type questions. Candidates will be required to attempt four questions, each question carrying four marks. Answer to any of the questions should not exceed two pages.

Section–B: (24 Marks): It will consist of five questions. Candidates will be required to attempt four questions, each question carrying six marks. Answer to any of the questions should not exceed four pages.

Section–C: (10 Marks): It will consist of two questions. Candidate will be required to attempt one question (carrying ten marks) only. Answer to the question should not exceed 5 pages.

Course Objectives

CO-1	To study the concept of Biodiversity – role, importance, values and its conservation. Hot spots and threats to biodiversity.
CO-2	To create awareness regarding environmental pollution, its causes and effects and preventive measure to control the different types of pollution.
CO-3	To make students aware of growing human population – causes and concern. Family welfare programs. Road safety (Traffic) rules.
CO-4	To know about entrepreneurship development and civil/self defense.

Unit-I

Biodiversity and its Conservation:

- Definition: Genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of Biodiversity: Consumptive use; productive use, social, ethical, aesthetic and option values.
- Biodiversity of global, National and local levels.
- India as mega-diversity nation.
- Hot-spots of biodiversity.
- Threats to Biodiversity: Habitat loss, poaching of wild life, man wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of Biodiversity: In situ and Ex-situ conservation of biodiversity.

Unit-II

Environmental Pollution:

- Definition, causes, effects and control measures of:
  a) Air Pollution
  b) Water Pollution
  c) Soil Pollution
  d) Marine Pollution
  e) Noise Pollution
  f) Thermal Pollution
  g) Nuclear Hazards
  h) Electronic Waste

- Solid Waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster Management: Floods, Earthquake, Cyclone and Landslides.

Unit-III

Human Population and the Environment

- Population growth, variation among nations.
- Population explosion-Family welfare programme.
- Environment and human health.
- Human rights.
- Value education.
- HIV/AIDS.
- Women and child welfare.
- Role of information technology in environment and human health.
- Case studies.
- Road Safety Rules & Regulations**:** Use of Safety Devices while Driving, Do's and Don'ts while Driving, Role of Citizens or Public Participation, Responsibilities of Public under Motor Vehicle Act, 1988, General Traffic Signs.
- Accident & First Aid**:** First Aid to Road Accident Victims, Calling Patrolling Police & Ambulance.

Unit-IV

National Service Scheme:

- **Entrepreneurship Development:** Definition & Meaning; Qualities of good entrepreneur; Steps/ ways in opening an enterprise; Role of financial and support service Institutions.
- **Civil/Self Defense:** Civil defense services, aims and objectives of civil defense; Needs for self-defense training.

Field Visits:

- Visit to a local area to document environmental assets–river/forest/grassland/hill/ mountain.
- Visit to a local polluted site–Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds.
- Study of simple ecosystems–pond, river, hill slopes etc.
- Contribution of the student to NSS/any other social cause for service of society.
- Visit to Museum/Science City

Note: In this section the students will be required to visit and write on the environment of an area/ ecosystem/vi1lage industry/disaster/mine/dam/agriculture field/waste management/hospital etc. with its salient features, limitations, their implications and suggestion for improvement.

References/Books:

1. Agarwal, K. C. 2001. Environmental Biology, Nidhi Publications Ltd. Bikaner.
2. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
3. Down to Earth, Centre for Science and Environment, New Delhi.
4. Jadhav, H. & Bhosale, V. M. 1995. Environmental Protection and Laws. Himalaya Pub.
5. Joseph, K. and Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
6. Kaushik, A. & Kaushik, C. P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
7. Miller, T. G. Jr. 2000. Environmental Science, Wadsworth Publishing Co.
8. Sharma, P. D. 2005. Ecology and Environment, Rastogi Publications, Meerut.
9. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar
10. Kanta, S., 2012. Essentials of Environmental Studies, ABS Publications, Jalandhar.

Course Outcomes

CO-1	To know about the meaning of Biodiversity and its role in environment.
CO-2	To know about the causes of different forms of pollution and their control measures.
CO-3	To know about the causes and challenges of growing human population. Women and child welfare programs.
CO-4	To know the development of entrepreneurship and techniques of civil/self defense.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE: BVFP22- 404

COURSE TITLE: BAKERY AND CONFECTIONERY TECHNOLOGY

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss the role of ingredients in baking and principles behind baking and confectionery technology.
- Explain the working principle of various dough testing equipments.
- Execute the knowledge for development of various bakery products and their quality determination.
- Describe the processing and preparation of confectionary products.
- Discuss the construction and working of various equipments involved in manufacturing of bakery and confectionary products.

COURSE CONTENTS:

THEORY:

UNIT-I

Quality analysis of wheat flour, physical dough testing instruments, major and minor ingredients used for bakery products, leavening agents. Role of ingredients in baking.

Principles of baking technology. Preparation methods of bread, cookies and cakes.

UNIT-II

Composition and characteristics of cane Juice, Cane Juice extraction. Manufacturing of sugar. Deterioration of sugars during storage & transportation and its prevention, By-products of sugar industry and their utilization.

UNIT-III

Classification of confectionary. Hard and soft boiled sugar confectionary: fondant, fudge, caramel, toffee butterscotch, Sugar panning, hard boiled candy.

BOOKS PRESCRIBED:

1. Chocolate, Cocoa and Confectionary: Science & Technology by Minife, 1997, AVI Publishing Co., New York.
2. Handbook of Cane Sugar Technology by Mathur RBL, 1986, Oxford & IBH Publishing Co., New Delhi.
3. The Science of Cookie & Cracker Production by Faridi H., 1994, Chapman & Hall, UK.
4. Technology of Cereals by Kent, N.L. Pergamon Press, Oxford, UK.
5. Modern Cereal Science and Technology, byPomeranz, Y. VCH Pub., New York.1987.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Study the role of ingredients in baking and principles of baking technology.
CO2: Study preparation methods of bakery and confectionery products.
CO3: Understand the basic steps involved in sugar manufacturing, its storage
CO4: Study utilization of its bi-products.

(Signature)

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE: BVFP22- 405

COURSE TITLE: DAIRY TECHNOLOGY-II

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss about specifications of different milk products.
- Implement the technology in manufacturing of butter and cheese.
- Interpret the technological aspects in manufacturing of ice cream, condensed and evaporated milk products.
- Use the technology to manufacture the fermented milk based and indigenous products.
- Explain the defects and their prevention in butter and ice-creams.

COURSE CONTENTS:

THEORY:

UNIT-I

Fat rich dairy products:Cream: Different types of cream with their respective fat content, composition of cream, productionmethods: gravity methods, mechanical method- by the use of cream separator.Neutralization of cream.

Butter: Types of butter, composition. Preparation of butter. Factors affecting the churn ability ofcream. Churning theories.Standards of butter and shelf life.

Ghee: Manufacturing methods of ghee. storage of ghee and shelf life.

UNIT-II

Cheese: Classification of cheese. Quality of milk for cheese making. Preparation method of cheddar cheese.

Condensed and evaporated milk: Definition, composition & standards. Condensing operations.

Ice Cream: Ingredients used in ice cream and their role in processing. Manufacturing process. Defects of ice cream, their causes and remedies.

UNIT-III

Indigenous milk products: Heat desiccated milk products: khoa, basundi etc.; Acid coagulated products|: chhana, chakka, shrikhand, etc.; Indigenous milk based sweets,Fermented products: dahi, lassi.

BOOKS PRESCRIBED:

1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.
3. Robinson, R. K., (2012), "Modern Dairy Technology: Volume 2 Advances in Milk Products", Springer Science & Business Media Publishers.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Study about milk composition and its various properties and different adulterants.
CO2: Understand the working of equipment and process technology for various milk products.
CO3: Study the process technology for condensed milk and fermented milk products
CO4: Gain knowledge on indigenous milk products their specifications and their manufacturing.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE: BVFP22- 406

COURSE TITLE: FOOD PACKAGING

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Describe the objectives, functions of packaging and select the packaging material based on requirement and properties of material.
- Discuss the manufacturing and characteristics of various packaging materials viz paper, glass, metal, and plastic.
- Predict shelf life of different food materials
- Discuss the packaging equipment and machinery and packaging systems for various types of food.
- Explain specialized techniques in food packaging such as Active, aseptic, controlled & modified atmospheric packaging etc.

COURSE CONTENTS:

THEORY:

UNIT-I

Packaging Technology: Definitions, functions of packaging and packaging materials.

Properties of materials such as tensile strength, bursting strength, tearing resistance, puncture resistance, impact strength and tear strength.

Barrier properties of packaging materials: Gas transmission rate (GTR), water vapour transmission rate (WVTR)

UNIT-II

Paper: Manufacturing of paper and types of papers

Glass: composition, properties, types of closures, methods of bottle making.

Metals: Manufacturing of Tinplate containers and tinning process

UNIT-III

Plastics: Types of plastic films, laminates, edible films, biodegradable plastics.

New trends in food packaging: Aseptic processing of food products, Vacuum packaging, Gas packaging

BOOKS PRESCRIBED:

1. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, New Delhi. 2003
2. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004
3. Gopal T.K.S. Seafood packaging, CIFT, Matsyapuri Cochin,2007
4. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
5. Sacharow, S., Griffin, R.C. Food Packaging. AVI Publishing Company, West Port, Connecticut. 2000
6. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003

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COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study the functions of packaging and familiarize them with different types of food packaging materials and their properties.

CO2: Study different food packaging equipment and machinery.

CO3: Select and finalize different types of packaging materials based on the composition and requirements of foods.

CO4: Gain knowledge on new technology involved in food packaging

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE: BVFP22- 407

COURSE TITLE: EXPERIMENTS IN BAKERY AND CONFECTIONARY TECHNOLOGY

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:

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

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss the raw material of bakery industry, relate the rheological properties to the quality of baked product.
- Demonstrate the manufacturing of cookies, jaggery etc.
- Execute the knowledge for development of various bakery products and their quality determination.
- Describe the processing and preparation of confectionary products.
- Discuss the construction and working of various equipments involved in manufacturing of bakery and confectionary products.

COURSE CONTENTS:

PRACTICALS:

1. Preparation of different types of Bread.
2. Principle and preparation of cakes.
3. Preparation of cookies
4. Quality and sensory evaluation of baked products.
5. Preparation of Hard and soft ball candy
6. Preparation of Caramel.
7. Preparation of fondant
8. Preparation of jaggery and jaggery products

BOOKS PRESCRIBED:

1. Durbey, S.C. Basic Baking: Science and Craft. Gujarat Agricultural University, Anand (Gujrat).1979
2. Kent, N.L. 1. Technology of Cereals.3rd edn.Pergamon Press, Oxford, UK 1983.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Understand the selection of the raw material used for preparation of various bakery and confectionary products.

CO2: Study basics principles behind baking.

CO3: Study the basic steps and operation involved in the preparation of bread, Biscuits and cakes

CO4: Understand the baking process of different confectionary products

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE: BVFP22- 408

COURSE TITLE: EXPERIMENTS IN DAIRY TECHNOLOGY-II

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Explain the construction and working of dairy equipments.
- Demonstrate the manufacturing process of indigenous milk products.
- Handle various equipments involved in milk products processing.
- Examine the quality of milk products.
- Elaborate the technology behind manufacturing of different milk products.

COURSE CONTENTS:
PRACTICALS:

1. To study the construction and working of a cream separator.
2. Cream separation.
3. Preparation of Butter.
4. Preparation of ghee from butter.
5. Preparation of ice-cream and kulfi,
6. Preparation of milk sweets: burfi, gulabjamun,
7. Judging and grading of condensed milk products
8. Visit to N.D.R.I., Karnal.

BOOKS PRESCRIBED:
1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.
3. Robinson, R. K., (2012), "Modern Dairy Technology: Volume 2 Advances in Milk Products", Springer Science & Business Media Publishers.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Study the various physico-chemical analysis milk products.
CO2: Understand the unit operation/working of different milk processing equipment.
CO3: Understand the preparation of various milk products.
CO4: Learn the working of cream separator

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

COURSE CODE: BVFP22- 409

COURSE TITLE: EXPERIMENTS IN FOOD PACKAGING

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Identify various packaging materials used in food packaging
- Suitability of packaging materials with various chemicals
- Use testing methodology to determine the characteristics of tin plates, aluminium, glass, paper and plastic used for making packages.
- Explain the working and construction of different package filling and testing machinery
- Concludes the data of experiments and present clearly in reports.

COURSE CONTENTS:
PRACTICALS:

1. Identification and testing of packaging materials.
2. Determination of wax from wax paper.
3. Testing of lacquered tin plate sheets.
4. Measurement of tin coating weight by Clarke's method.
5. To determine grease resistance of packaging materials.
6. To determine chemical resistance of packaging materials.
7. Determination of water vapour transmission rate of packaging material.
8. Packaging the food material in seal and shrink packaging machine and study its shelf life.
9. Testing the strength of glass containers by thermal shock test.
10. Determination of COBB's value of paper board.

BOOKS PRESCRIBED:

1. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, New Delhi. 2003
2. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004
3. Gopal T.K.S. Seafood packaging, CIFT, Matsyapuri Cochin,2007

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Understand the identification of packaging materials used in food packaging.
CO2: Study different tests performed on packaging materials and filled packages.
CO3: Calculate the shelf life of foods inside packaging materials
CO4: Understand the selection of suitable packaging materials.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – IV

SESSION 2022-23

COURSE CODE: BVFP22- 410

COURSE TITLE: INDUSTRIAL/ SKILL TRAINING

SATISFACTORY/UNSATISFACTORY

Note: Submission of report and certificate after completion of Training.

COURSE OBJECTIVES:

The student will be able to appreciate different processing and production technologies in various industrial settings and will be exposed to the diverse setting in food industries

A student will undergo 1 month compulsory training in any Food Processing Industry/ Institute concerned with processing and quality analysis of foods. After the completion of training the student will submit certificate issued by the industry/institute to the Head of concerned department. Student will have to submit training report within 2 weeks after the completion of training to the department. The report will be evaluated as satisfactory/Unsatisfactory.

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

CO1: Get exposure to industrial set-up

CO2: Observe, first hand, work flow and processes in food industries and associated enterprises

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE TITLE: BVGC31-501

COURSE CODE: SPICES & FLAVOUR TECHNOLOGY

Credit Hours (Per Week): 03(T) **Max. Marks: 50**
Total Hours:45 **Theory Marks: 37**
Time: 3 Hours **Internal Marks: 13**

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Students shall understand about Classification, composition, processing of white pepper, cryomilling of spices, spice oleoresin, emulsions, flavoring components, Processing of coffee from cocoa beans, stability of flavor.

COURSE CONTENTS:

Theory:

UNIT-I

Classification & use of spices, Chemical constituents of spices.
Processing of white pepper.Dehydration products of onion, garlic.

UNIT-II

Cryomilling of spices.Spice oleoresins and spice emulsion.Packaging of spices and spice products.Microbial contamination and insect infestation in spices and its control.

UNIT-III

Classification of flavouring compounds.Processing of Cocoa and Coffee.Stability of flavourings.

BOOKS PRESCRIBED:

1. Handbook of Spices by Peter K.V.2001, Woodhead Publishers, UK.
2. Spices and Condiments by Pruthi, J.S., 1976, NBT India.
3. Spice Statistics by Spices Board 2007, GOI, Cochin.

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

CO1: Know about various spices, their classification, chemistry involved and processing methods
CO2: Handle the microbial infestation during storage of spices
CO3: Be aware about various food flavorings and their stability against processing conditions
CO4: Know the manufacture of coffee from cocoa beans

(Signature)

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVGC31-502
COURSE TITLE: GENERAL FOOD PROCESSING EQUIPMENTS

CREDIT HOURS (per week): 03(T) **Max. Marks: 50**
TOTAL HOURS:45 **Theory Marks: 37**
Time: 3 Hours **Internal Marks: 13**

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Develop an insight into different types of equipments
- Understand the basics principles of various equipments
- Develop insight for different types of equipments.
- Understand the working of equipments used in various food processes.
- Gain knowledge and acquired skills for selection of equipments for different processing

COURSE CONTENTS:

THEORY:

UNIT-I

Transport equipments: Fluid food transport equipment,mechanical conveyors.
Processing equipments: Size reduction, homogenization and mixing equipments.
Separation equipments: Grading and sorting

UNIT-II

Heat exchangers, dryers and evaporators: Heat transfer equipments: Heat exchangers. Food evaporation equipments: food evaporators, evaporator components.
Food dehydration equipments – Food dehydration principle, food dryers

UNIT-III

Refrigeration and freezing equipments: Refrigerants and type of freezers
Thermal processing equipments: sterilizers and pasteurizers (Batch type and continuous type)

PRESCRIBED BOOKS:

- Food Processing Technology. Principles and Practice. P J Fellows. A volume in Woodhead Publishing Series in Food Science, Technology and Nutrition Book,2017 Fourth Edition.
- *Food Science*. *Norman* N. *Potter*. Edition, 5. Publisher, 2007, CBS Publishers & Distributors.
- Physical Principles of Food Preservation.MarcusKarel, Owen R. Fennema, Daryl B. Lund. M. Dekker,1975Dekker Inc. New York. Vol II.
- The technology of food preservation by N.W. Desrosier and J.N. Desrosier, CBS publishing.

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

CO1: Study various equipments used in food industries.
CO2: Understand working and principles of equipments used in prcessing, drying freezing etc.
CO3: Gain knowledge on equipments used for drying of foods
CO4: Understand the working of different heat exchangers

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVGC31-503
COURSE TITLE: FUNDAMENTAL HACCP

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to

- Discuss the quality standards of various products.
- Explain the working principle of instruments which are used to measure the physical characteristics of food such as fruit pressure, color etc
- Determine the quality attributes of raw and processed foods
- Estimate the shelf life of various food products.
- Describe sensorial evaluation by using different methods of sensory evaluation.

PRACTICALS:

1. To study principles of the HACCP system
2. To demonstrate Codex guidelines for the application of the HACCP system.
3. To study critical control points in the food industry.
4. Preparation of HACCP charts for the meat industry.
5. Preparation of HACCP charts for the dairy industry.
6. Preparation of HACCP charts for the fruits and vegetable industry.
7. Preparation of HACCP charts for the cereal industry.
8. Estimation of aflatoxins in cereals.
9. Estimation of additives and adulterants in a different food product.
10. Brief project report on HACCP.

BOOKS PRESCRIBED:

- Quality Control for Food Industry by Kramer A, Twigg BA, 1970, AVI Publishers, USA.
- Quality Assurance : Principles and Practices by Inteaz Ali, 2004, CRC Press, USA.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Study the quality, quality control and their applications in food industry.
CO2: Study the instrumental aspects of color and texture measuring instruments.
CO3: Study the sensory quality of fruits and vegetables.
CO4: DO quality evaluation of fresh produce, milk and milk products.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVFP31-504

COURSE TITLE: EGG, POULTRY AND MEAT TECHNOLOGY

Credit Hours (Per Week): 03(T) **Max. Marks: 60**

Total Hours:45 **Theory Marks: 45**

Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Elaborate the structure, composition and nutritional quality of animal products
- Discuss slaughter techniques and hygienic handling of raw meat
- Explain the processing and preservation of egg, poultry and meat.
- Discuss the technology behind preparation of various animal food products and by product utilization
- Describe the role of various compositional components in the development of various meat, poultry products.

COURSE CONTENTS:

Theory:

UNIT-I

Structure and composition of egg. Nutritive value, interior qualities, grading, handling, packaging, storage, transportation, freezing, pasteurization, de-sugarization, dehydration,

UNIT-II

Types of Poultry –Hen, Turkey, Ducks, Geese. Slaughtering of hen. Postmortem changes in meat: Rigor mortis, biochemical changes associated with rigor-mortis, conversion of muscle to meat.

Methods of tenderization

UNIT-III

Structure, composition & nutritive value of meat,Classification of meat - Mutton, Pork & Sheep, Meat quality parameters- Meat color, water holding capacity, Marbling, firmness, Ante-mortem examination of meat animal, their slaughtering & dressing.

BOOKS PRESCRIBED:

- Egg Science and Technology by Stadelman WJ, and Cotterill OJ, 2002, CBS Publishers, New Delhi.
- Poultry Meat and Egg Production by Parkhurst C. and Mountney GJ, 2002, CBS Publishers, New Delhi.
- Meat Science & Applications by Y.H.Hui, Wai-Kit Nip, Robert W. RogersanOwenA. Young.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Understand the technology for handling, processing, preservationof egg, poultry and meat.

CO2: Study the important biochemical and ultra structural changes that take place during post-mortem during conversion of muscle to meat.

CO3: Study the factors that affect the safety and quality of meat products.

CO4: Learn various slaughtering techniques.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVFP31-505

COURSE TITLE: FOOD PLANT LAYOU

Time: 3 Hrs.
CREDIT HOURS (per week): 03(T)
Credit Hours (Per Week): 03(P) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Execute the concepts, principles and theories for the location of food processing plant.
- Demonstrate plant layout problems by using different tools and techniques
- Execute techniques to prepare food plant layout.
- Implement the knowledge of materials applied for construction of food equipment and hygienic construction for food plant
- Design and setting up of new food processing plant as entrepreneur and/or consultant

COURSE CONTENTS:
THEORY:

Unit-I

Introduction to plant design, General design consideration – food processing unit operations, prevention of contamination, sanitation, deterioration, seasonal production.

Importance of plant layout, objectives and advantages of layout. Importance of plant layout selection of site and layout of different food industries.

Unit-II

Factors involved in plant location decision, Techniques used in location decision. Selection of building material, selection and planning of manufacturing process and service facilities.

Unit -III

Process selection – selection of equipment and machinery, maintenance and replacement and depreciation of machinery. Plant management. Plant symbols.

BOOKS PRESCRIBED:

1. Principle of Food Sanitation by Marriott, 5th Ed., 2006, CBS Publishers, New Delhi.
2. Food Processing Waste Management by Green JH and Kramer A, 1979, AVI Publishers, USA.
3. Food Science by Potter NN, 5th Ed., 2006, CBS Publishers, New Delhi.
4. Plant layout and material handling by Sharma S.C.
5. Plant layout & design by James Moore

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:
CO1: Study the various factors involved in the site selection and design of food plant.
CO2: Understand the processes involved in layout design.
CO3: Understand the concept of preparing cost estimate and economics
CO4: Understand the development and design consideration in preparing layout of different food industries.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVFP31-506
COURSE TITLE: QUALITY ASSURANCE

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Discuss about the quality control and its significance in processing.
- Execute the knowledge of physical characteristics of food in food industries
- Explain the working principle of instruments which are used to measure the physical characteristics of food such as Food Texture, fruit pressure, color etc
- Describe principle and working of non-destructive techniques and techniques used for food analysis and quality control.
- Execute the knowledge of food safety and standards, role of food regulations and their implementation in food industry

COURSE CONTENTS:

THEORY:

UNIT 1

Definition and Concept: Quality and Quality Assurance, PDCA cycle.
Implementation of quality assurance in food processing
Qualilty attributes: Size, Texture, Color and methods of their determination

Unit II

Quality Analysis: Fruits and Vegetables, Cereals, Meat, Egg amd Milk
Accredition of Food Labs
Sensory Analysis of food

Unit III

Role of FSSAI in quality assurance
Concept of ISO in food industry

BOOKS PRESCRIBED:

- Quality Control for Food Industry by Kramer A, Twigg BA, 1970, AVI Publishers, USA.
- Quality Assurance : Principles and Practices by Inteaz Ali, 2004, CRC Press, USA.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Study the quality, quality control and their applications in food industry.
CO2: Study the instrumental aspects of color and texture measuring instruments.
CO3: Study the non-destructive methods to check the quality of food.
CO4: Study Various food standards and regulations in food industry as quality control.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVFP31-507

COURSE TITLE: EXPERIMENTS IN EGG, POULTRY AND MEAT TECHNOLOGY

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to impart knowledge about

- Principles behind the different preservation methods used for egg, poultry and meat.
- The process for preserving eggs.
- Manufacturing processes for various poultry and meat products.
- Estimation of the physic-chemical quality of eggs, poultry and meat
- The sensory parameters of products.

COURSE CONTENTS:

PRACTICALS:

1. Slaughtering of hen.
2. Determination of egg components.
3. Grading and quality evaluation of eggs.
4. Preservation of shell eggs.
5. Preparation of egg products, boiled, fried, poached, scrambled, omellette.
6. Determination of egg density
7. Preservation of meat by pickling method.
8. Preparation of meat kabab, meat balls, meat patties.
9. Visit to industry.

BOOKS PRESCRIBED:

- Egg Science and Technology by Stadelman WJ, and Cotterill OJ, 2002, CBS Publishers, New Delhi.
- Poultry Meat and Egg Production by Parkhurst C. and Mountney GJ, 2002, CBS Publishers, New Delhi.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Understand the preservation methods of eggs.
CO2: Study the processing of egg into different products.
CO3: Study the principle behind preservation techniques used for poultry and meat preservation.
CO4: Study the development of various meat products.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVFP31-508

COURSE TITLE: EXPERIMENTS IN FOOD PLANT LAYOUT

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to impart knowledge about

- Factors affecting site of food industry.
- Requirements for preparation of layout of milk processing plant.
- Layout preparation for fruits and vegetable plant.
- Principles behind the design and layout of food factory.
- Common problems in designing a layout.

COURSE CONTENTS:
Practical:

1. Preparation of layout and process diagram of potato crisp manufacturing plant.
2. Preparation of layout and process diagram of Jam/Marmalade manufacturing plant.
3. Preparation of layout and process diagram of bread making plant.
4. Preparation of layout and process diagram of dairy industry.
5. Preparation of layout and process diagram of wine manufacturing plant.
6. Preparation of layout and process diagram of confectionary unit.
7. Preparation of layout and process diagram of modern slaughter house.

BOOKS PRESCRIBED:

- Principle of Food Sanitation by Marriott, 5th Ed., 2006, CBS Publishers, New Delhi.
- Food Processing Waste Management by Green JH and Kramer A, 1979, AVI Publishers, USA.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to

CO1: Understand the Layout and design of cold storage
CO2: Understand the Layout of milk and milk product plant
CO3: Understand the Layout and design of bakery and related product plant
CO4: Layout and design of fruits and vegetables processing plant

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V

COURSE CODE: BVFP31-509

COURSE TITLE: EXPERIMENTS IN QUALITY ASSURANCE

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to impart knowledge about

- Discuss the quality standards of various products.
- Explain the working principle of instruments which are used to measure the physical characteristics of food such as fruit pressure, color etc
- Determine the quality attributes of raw and processed foods
- Estimate the shelf life of various food products.
- Describe sensorial evaluation by using different methods of sensory evaluation.

COURSE CONTENTS:
PRACTICALS

- Determination of physcial properties of different cereals grains
- Adulteration of various food products
- Candling of eggs
- Sensory analysis of given food samples
- Working of FSSAI

BOOKS RECOMMENDED:

- Quality Control for Food Industry by Kramer A, Twigg BA, 1970, AVI Publishers, USA.
- Quality Assurance : Principles and Practices by Inteaz Ali, 2004, CRC Press, USA.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to
CO1: Study the quality, quality control and their applications in food industry.
CO2: Understand the instrumental aspects of color and texture measuring instruments.
CO3: Understand the quality of fruits and vegetables.
CO4: Do quality evaluation of milk and milk products.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE:BVGC32-601
COURSE TITLE: FOOD ADDITIVES

CREDIT HOURS (per week): 03(T) **Max. Marks: 50**
TOTAL HOURS:45 **Theory Marks: 37**
Time: 3 Hours **Internal Marks: 13**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Students shall understand the Classification of food additives and their use in food processing as well as their functions

COURSE CONTENTS:
THEORY:

UNIT-I

Definitions, nutritional and non-nutritional food additives, uses and functions of Acid, Base, Buffer systems, Salts and chelating/sequestering agents.Low calorie and non nutritive sweeteners.

UNIT-II

Antioxidants, Emulsifying and stabilizing agents, Anti-caking agents, Humectants, thickeners, firming agents. Flour bleaching agents and Bread improvers.

UNIT-III

Anti microbial agents / Class I and Class II preservatives, Food colour, pigments, their importance and utilization, Flavoring agents and related substances, Clarifying agents.

BOOKS PRESCRIBED:

1. Food Chemistry, O.R.Fennema
2. Food Chemistry, Belitz, Grosch
3. Food Facts & Principles by ShakuntalaManay N &Shadoksharaswamy N, 1996, New Age, World Publishers.

COURSE OUTCOMES: On successful completion of the subject, the students will be able to

CO1: Gain knowledge on the types of food additives currently used in the food industry and the function(s) of these chemical compounds.

CO2: Study the types, classifications, functions, chemical structures, physicochemical characteristics of different additives

CO3: Study the mechanisms of reactions of different food additives.

CO4: Study the applications of food additives and processing aids in food processing

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE:BVGC32-601

COURSE TITLE: FOOD TOXICOLOGY

CREDIT HOURS (per week): 03(T) **Max. Marks: 50**
TOTAL HOURS:45 **Theory Marks: 37**
Time: 3 Hours **Internal Marks: 13**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Difference between the various types of toxicants.
- Elaborate the chemistry of toxicants and their mode of action.
- Explain the significance, food sources and possible detoxification methods.
- Demonstrate qualitative and quantitative analysis for toxicants in food
- Determine the different toxicity levels.

COURSE CONTENTS:

THEORY:

Unit - I

Introduction and significance of food toxicology. Classification and sources of toxicants, Determinants of toxicants in foods (general); naturally occurring toxins from plants, animals, bacterial and fungal and sea food sources.

Unit - II

Biological Hazards–Infections and Infestations, Overview of Foodborne borne infections. Chemical carcinogenesis and its phases (general). Food contaminants from industrial wastes: Chlorinated hydrocarbons, Heavy metals such as Arsenic, Lead, Mercury and Cadmium.

Unit - III

Pesticides residues in foods: insecticides, herbicides and naturally occurring pesticides, Different types of food additives as toxicants, Toxicants formed during food processing, Food factors and Health: Role of probiotics, prebiotics, antioxidants and functional components in preventing disease.

BOOKS PRESCRIBED:

1. *Handbook of Food Toxicology*, Marcel Dekker, Inc, 2002
2. Shibamoto, T., and Bjeldanes, L., *Introduction to Food Toxicology*; 2nd edition, Academic Press, 2009.
3. Duffus, J.H. and Worth, H.G. J., *Fundamental Toxicology*; The Royal Society of Chemistry, 2006 .
4. Stine, K.E. and Brown, T.M., *Principles of Toxicology* CRC Press, 2nd edition, 2006.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Gain knowledge on toxicants that are associated with both plant and animal
CO2: Study foodstuffs that occur as natural constituents and contaminants
CO3: understand various methods for evaluating different levels of toxicity in foodstuffs.
CO4: Understand the use of food as medicine

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE:BVGC32-603

COURSE TITLE:SEMINAR

Credit Hours (Per Week): 03(P) **Max. Marks: 50**

Total Hours:45 **(S/Us)**

Time : 3 Hours

COURSE OBJECTIVES:

The objectives of this course to improve scientific aptitude and presentation skills of students, they have to present credited seminars on a relevant subject specific topic.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Develop scientific aptitude and presentation skills which are needed to present credited seminars on a relevant subject specific topic.

CO2: Make presentation and understand data arrangement

CO3: Improve communication skill

CO4: Build confidence to deliver in front of audience

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI
COURSE CODE: BVFP32-604
COURSE TITLE: FOOD INDUSTRY WASTE MANAGEMENT

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Identify types of wastes in food industry
- Develop a working knowledge in plant and equipment design and materials, cleaners and cleaning techniques, sanitizers, monitoring cleanliness, pests and their control, HACCP and personal hygiene
- Gain knowledge in different effluent treatment methods
- Utilize the byproduct in the food industry
- Implement water and solid waste management in food industry.

COURSE CONTENTS:
THEORY:

UNIT-I

Introduction: Classification and characterization of food industrial wastes from Fruit and Vegetable processing industry, Beverage industry; Fish, Meat & Poultry industryand Dairy industry.

UNIT-II

Waste disposal methods – Physical, Chemical &Biological.

Treatment methods for liquid wastes from food process industries; Design of Activated Sludge Process, Rotating Biological Contactors, Trickling Filters.

UNIT-III

Treatment methods of solid wastes: Biological composting, drying and incineration, Design of Solid Waste Management System: Landfill Digester, Vermi composting.

BOOKS PRESCRIBED:

- V. Oreopoulou, W. Russ, (ed), 2007, "Utilization ofby-products and treatment of waste in thefood industry" Vol, 3.,Springer.
- K. Waldron, 2007, "Handbook of waste management and co-product recovery in foodprocessing".CRC.
- R. Smith, J. Klemes, J-K Kim 2008, "Handbook of water and energy management in food processing.", CRC.
- C. Yapijakis, L.Wang, Yung Tse- Hung,2005, . Waste treatment in the food processing industry, H. LO, CRC,
- Herzka A & Booth RG; 1981, Applied Science Pub Ltd, Food Industry Wastes: Disposal and Recovery
- Bartlett RE; . Water & Wastewater Engineering; Applied Science Pub Ltd.
- Green JH & Kramer A; 1979, Food Processing Waste Management; AVI.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Understand the basics of Waste water treatment and solid waste disposal and management.

CO2: Understand cleaning and sanitation procedure in dairy and meat industry.

CO3: Understand how to monitor food plant sanitation and HACCP.

CO4: Understand the ways for effective utilization of the byproducts obtained after food processing.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE: BVFP32-605

COURSE TITLE: FOOD ANALYSIS

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Define key terms related to qualitative and quantitative physical and chemical analysis.
- Describe the basic principles underlying analytical techniques associated with food analysis.
- Demonstrate practical proficiency in a food analysis laboratory and critique the advantages and disadvantages of one method of food analysis versus another and select the appropriate instrumental procedure and course of action for a food analysis problem.
- Handle the testing equipment efficiently.
- Gain deep insight into the working principles of food testing equipments..

COURSE CONTENTS:

THEORY:

UNIT I

Definition and importance of food analysis.
Role of food composition: pH, Moisture, water activity, protein content and crude fat content

UNIT II

Instrumentation: Principle and working
pH meter, UV-Vis spectrophotometer, Refractometer, Membranes separation

UNIT III

Paper Chromatography and HPLC
Texture Profile Analysis

BOOKS PRESCRIBED:

- Ranganna S. 2001. Handbook of Analysis and Quality Control for Fruit and Vegetable Products.2nd Ed. Tata-McGraw-Hill.
- Nielsen S. (Eds.). 1994. Introduction to Chemical Analysis of Foods. Jones & Bartlett.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:
CO1: Know the instrumental aspects of color and texture measuring instruments.
CO2: Study the non-destructive methods applied as quality control.
CO3: Study various food standards and regulations in food industry as quality control.
CO4: Study the textural analysis of different foods.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE: BVFP32-606

COURSE TITLE: TECHNOLOGY OF FERMENTED FOODS

Credit Hours (Per Week): 03(T) **Max. Marks: 60**
Total Hours:45 **Theory Marks: 45**
Time: 3 Hours **Internal Assessment: 15**

INSTRUCTIONS FOR THE PAPER SETTERS:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

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

COURSE OBJECTIVES:

Students shall understand the manufacture of various fermented products from different types of food-Milk, Legume, Fresh produce, meat. Alcoholic beverages.

COURSE CONTENTS:

THEORY:

UNIT -I

Introduction: Concept of fermented foods, Scope & development in fermented foods & beverage industry. Benefits of fermented foods,

Fermented milk products :

Curd, Yoghurt, Acidophilic milk, Bulgarian milk, Koumiss and Kefir

UNIT-II

Legume products :

soy sauce, miso, tempeh, idli,

Fruit and Vegetable products:

Sauerkraut, Kimchi, Cucumber pickles,

UNIT-III

Meat products:

Fermented meat sausages.

Alcoholic beverages:

Beer, wine, vinegar.

BOOKS PRESCRIBED:

1. Industrial-Microbiology by Prescott & Dunn
2. Indigenous fermented foods by Steinkraus

COURSE OUTCOMES:

On completing of the subject, the students will be able to:

CO1: Study about the different growing conditions of microrganisms in preparation of different fermented products

CO2: Study the manufacturing process of different fermented products

CO3: Know various changes take place during manufacture of different fermented products

CO4: Know about the microbiology of different fermented products

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE: BVFP32-607

COURSE TITLE: EXPERIMENTS IN FOOD INDUSTRY WASTE MANAGEMENT

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:

- Objective of this course is to impart knowledge about quality testing of water.

COURSE CONTENTS:
Practicals:
1. To find BOD of water sample.
2. To find COD of waste sample.
3. To find the total dissolved solids (TDS) and its volatile and non-volatile components.
4. To find the total suspended solids (TSS) and its volatile and non-volatile components.
5. Flow process chart of food plant Waste utilization processes
6. To find the phenol content of water sample and evolution of parameters.

BOOKS PRESCRIBED:

- V. Oreopoulou, W. Russ, (ed), 2007, "Utilization ofby-products and treatment of waste in thefood industry" Vol, 3.,Springer.
- K. Waldron, 2007, "Handbook of waste management and co-product recovery in foodprocessing".CRC

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:
CO1 Understand the testing of water
CO2 Study quality parameters for water
CO3 Study methods to utilize waste from food industry
CO4 Understand the presence of solids present in water

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE: BVFP32-608

COURSE TITLE: EXPERIMENTS IN FOOD ANALYSIS

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES:
Objective of this course is to impart knowledge about
• Carrying out proximate and physico-chemical analysis of different types of raw and processed foods.

COURSE CONTENTS:

PRACTICALS:

- Demonstration of Paper Chromatography
- Determination of pigments present in different foods
- Determination of Moisture content in a given food sample
- Determination of Fat content in a given food sample
- Determining pH of various food samples

BOOKS PRESCRIBED:

- Ranganna S. 2001. Handbook of Analysis and Quality Control for Fruit and Vegetable Products.2nd Ed. Tata-McGraw-Hill.
- Nielsen S. (Eds.). 1994. Introduction to Chemical Analysis of Foods. Jones & Bartlett.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1 Determine the proximate composition of raw and processed foods
CO2 Demonstrate the estimation of different pigments, metals and other compounds present in foods.

(Signature)

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE: BVFP32-609

COURSE TITLE: EXPERIMENTS IN TECHNOLOGY OF FERMENTED FOODS

Credit Hours (Per Week): 03(P) **Max. Marks: 40**
Total Hours:45 **Practical Marks: 30**
Time: 3 Hours **Internal Assessment: 10**

INSTRUCTIONS FOR THE PAPER SETTERS:

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

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about Manufacture of various fermented products from different types of food-Milk, Legume, Fresh produce, meat. Alcoholic beverages

COURSE CONTENTS:

PRACTICALS :

1. Preparation of Dahi.
2. Preparation of yogurt
3. Preparation of Sauerkraut.
4. Preparation of Idli
5. Preparation of pickles
6. Preparation of Dosa.
7. Screening of microorganisms from fermented foods
8. To study the wine production by fermentation activity of yeast cells.

BOOKS PRESCRIBED:

1. Industrial-Microbiology by Prescott & Dunn
2. Indigenous fermented foods by Steinkraus

COURSE OUTCOMES:

On successful completion the students will be able to

CO1: Study the manufacturing process of different fermented products

CO2: Know various changes take place during manufacture of different fermented products

CO3: Know about the microbiology of different fermented products

CO4: Undertsand the preparation of different fermented products

(Signature)

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BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – VI

COURSE CODE: BVFP32-610

COURSE TITLE: INDUSTRIAL/ SKILL TRAINING

SATISFACTORY/UNSATISFACTORY

Note: Submission of report and certificate after completion of Training.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Appreciate different processing and production technologies in various industrial settings
- Exposed to the diverse setting in food industries

A student will undergo 1 month compulsory training in any Food Processing Industry/ Institute concerned with processing and quality analysis of foods. After the completion of training the student will submit certificate issued by the industry/institute to the Head of concerned department. Student will have to submit training report within 2 weeks after the completion of training to the department. The report will be evaluated as satisfactory/Unsatisfactory.

COURSE OUTCOMES:

On successful completion the students will be able to

CO1: Get exposure to industrial set-up

CO2: Observe the work flow and processes in food industries and associated enterprises

(Signature)