

FACULTY OF Food Science & Technology
SYLLABUS FOR THE BATCH FROM THE YEAR 2022 TO
YEAR 2025

Programme Code: BVFP

Programme Name: B.Voc. Food Processing

(Semester I- VI)

Examinations: 2022-2025



Department of Food Science & Technology

Khalsa College, Amritsar

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

S.No.	PROGRAMME OBJECTIVES
1.	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

SEMESTER - I

Course Code	Course Name	Hours/Week	Marks				Page No.
			Th	Pr	IA	Total	
GENERAL EDUCATION COMPONENT							
BCSV-1129	Communication Skills in English-I	6	25	12	13	50	11
BHPB-1101	Punjabi Compulsory	6	37	-	13	50	12
BPB1-1102	*Basic Punjabi (<i>Mudhli</i> Punjabi)						13
BPHC-1104	*Punjab History & Culture (From Earliest Times to C 320)						14
ZDA111	**Drug Abuse: Problem, Management and Prevention PROBLEM OF DRUG ABUSE	3	50	-	-	-	15
SKILL COMPONENT							
BVFP11-104	Food Processing & Preservation	3	45	-	15	60	18
BVFP11-105	Food and Nutrition	3	45	-	15	60	20
BVFP11-106	Fruits and Vegetable Processing	3	45	-	15	60	22
BVFP11-107	Experiments in Food Processing & Preservation	-	-	30	10	40	23
BVFP11-108	Experiments in Food and Nutrition	-	-	30	10	40	25
BVFP11-109	Experiments in Fruits and Vegetable Processing	-	-	30	10	40	26

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 Practical /week

SEMESTER – II							
Course Code	Course Name	Hours/Week	Marks				Page No.
			Th	Pr	IA	Total	
GENERAL EDUCATION COMPONENT							
BCSV-1229	Communication Skills in English-II	6	25	12	13	50	27
BHPB-1201	Punjabi Compulsory OR	6	37	-	13	50	29
BPB1-1202	*Basic Punjabi (<i>Mudhli</i> Punjabi)						30
BPHC-1204	*Punjab History & Culture (C321TO1000A.D.)						31
ZDA121	**Drug Abuse: Problem, Management And Prevention Drug Abuse: Management And Prevention	3	50	-	-	-	33
SKILL COMPONENT							
BVFP12-204	Food Chemistry	3	45	-	15	60	35
BVFP12-205	Food Hygiene & Sanitation	3	45	-	15	60	37
BVFP12-206	Cereal Milling Technology	3	45	-	15	60	38
BVFP12-207	Experiments in Food Chemistry	3	-	30	10	40	39
BVFP12-208	Experiments in Food Hygiene & Sanitation	3	-	30	10	40	40
BVFP12-209	Experiments in Cereal Milling Technology	3	-	30	10	40	41
BVFP12-210	Industrial Training				Grade	Satisfactory/Unsatisfactory	42

NSQF Level 5

*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 Practical /week

SEMESTER - III

Course Code	Course Name	Hours/Week	Marks				Page No.
			Th	Pr	IA	Total	
GENERAL EDUCATION COMPONENT							
CS-BVGC231	Computer Applications	3	45	-	15	60	43
CS-BVGC232	Experiments in Computer Applications	3	-	30	10	40	45
ESL-221	**Environmental Studies-I (Compulsory)	3	50	-	-	-	46
SKILL COMPONENT							
BVFP21-304	Cereals And Pulses Technology	3	45	-	15	60	49
BVFP21-305	Food Microbiology	3	45	-	15	60	51
BVFP21-306	Dairy Technology-I	3	45	-	15	60	53
BVFP21-307	Experiments In Cereals And Pulses Technology	3	-	30	10	40	55
BVFP21-308	Experiments In FoodMicrobiology	3	-	30	10	40	55
BVFP21-309	Experiments In Dairy Technology-I	3	-	30	10	40	56

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

SEMESTER - IV

Course Code	Course Name	Hours/Week			Marks		Page No.
			Th	Pr	IA	Total	
GENERAL EDUCATION COMPONENT							
BVGC22-401	Food safety and laws	3	45		15	60	57
BVGC22-402	Experiments in food safety and laws	3	30	-	10	40	59
ESL-222	**Environmental Studies-II (Compulsory)	3	50	-	-	-	60
SKILL COMPONENT							
BVFP22-404	Bakery And Confectionery Technology	3	45	-	15	60	63
BVFP22-405	Dairy Technology-II	3	45	-	15	60	64
BVFP22-406	Food Packaging	3	45	-	15	60	66
BVFP22-407	Experiments In Bakery And Confectionary Technology	3	-	30	10	40	68
BVFP22-408	Experiments In Dairy Technology-II	3	-	30	10	40	69
BVFP22-409	Experiments In food Packaging	3	-	30	10	40	70
BVFP22-410	Industrial/Skill Training					Satisfactory/Unsatisfactory	71

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

SEMESTER - V							Page No.
Course Code	Course Name	Hours/Week			Marks		
			Th	Pr	IA	Total	
GENERAL EDUCATION COMPONENT							
BVGC31-501	Spices And Flavour Technology	3	37	-	13	50	72
BVGC31-502	General Food Processing Equipments	3	37	-	13	50	73
BVGC31-503	**Fundamental HACCP	-	-	30	10	40	75
SKILL COMPONENT							
BVFP31-504	Egg, Poultry And Meat Processing	3	45	-	15	60	76
BVFP31-505	Food Plant Layout	3	45	-	15	60	78
BVFP31-506	Quality Assurance	3	45	-	15	60	80
BVFP31-507	Experiments In Egg, Poultry And Meat Processing	3	-	30	10	40	81
BVFP31-508	Experiments In Food Plant Layout	3	-	30	10	40	82
BVFP31-509	Experiments In Quality Assurance	3	-	30	10	40	83

1 Credit = 1 hour/Theory OR Practical /week

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

SEMESTER - VI								Page No.
Course Code	Course Name	Hours/Week			Marks			
			Th	Pr	IA	Total		
GENERAL EDUCATION COMPONENT								
	BVGC32-601	Food Additives	3	37	-	13	50	84
	BVGC32-602	Food Toxicology	-	37		13	50	85
	BVGC32-603	**Seminar	3	-	50	-	50	86
SKILL COMPONENT								
	BVFP32-604	Food Industry Waste Management	3	45	-	15	60	87
	BVFP32-605	Food Analysis	3	45	-	15	60	89
	BVFP32-606	Technology Of Fermented Foods	3	45	-	15	60	90
	BVFP32-607	Experiments In Food Industry Waste Management	3	-	30	10	40	91
	BVFP32-608	Experiments In Food Analysis	3	-	30	10	40	92
	BVFP32-609	Experiments In Technology Of Fermented Foods	3	-	30	10	40	93
	BVFP32-610	Industrial/Skill Training				Grade	Satisfactory/Unsatisfactory	94

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 – I

(No Change)

**COMMUNICATION SKILLS IN
ENGLISH–I**

Code: BCSV-1129

Credit Hours (Per Week): 4

Total Hours: 60

Time : 3 Hours

Max. Marks: 50

Theory Marks: 25

Practical Marks: 12

Assessment: 13

INSTRUCTIONS FOR THE PAPER SETTERS:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

(5X5=25 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 four sections as mentioned below:

Section–A

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

Section–B

Reading for understanding concepts, details, coherence.

Activities:

Short comprehension questions based on content and development of ideas

Section–C

Writing Skills: Writing styles for application, personal letter, official/ business letter.

Activities:

Formatting personal and business letters.

Section–D

Resume, memo and notices; outline and revision.

Activities:

Converting a biographical note into a sequenced resume or vice-versa

Writing notices for circulation/boards

Prescribed Books:

Oxford Guide to Effective Writing and Speaking by John Seely.

English Grammar in Use (Fourth Edition) by Raymond Murphy, CUP146

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 subtleties of an effective group discourse.

5. Communicate contextually in specific and professional situations with courtesy.

Practical Marks: 12

Course Contents:-

1. Assignment on selected topics in about 700-1000 words.

2. Comprehension passage

Questions:-

1. Handwritten Assignment should be submitted to the concerned teachers in a stick file.

2. Short comprehension questions based on unseen passage.

Note: Oral test will be conducted by external examiner with the help of internal examiner.

Bachelor of ocation (B.Voc.) FOOD PROCESSING SEMESTER – I

BHPB-1101

ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

ਸਮਾਂ : 3 ਘੰਟੇ

ਕੁੱਲ ਘੰਟੇ : 60

ਕ੍ਰੈਡਿਟ ਪ੍ਰਤੀ ਹਫ਼ਤਾ : 04

ਥਿਊਰੀ ਅੰਕ : 37, ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ : 13, ਕੁੱਲ ਅੰਕ : 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

- ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ। ਪਹਿਲੇ ਚਾਰ ਭਾਗਾਂ ਵਿਚ 02-02 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਭਾਗ ਵਿਚੋਂ 01-01 ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ (08) ਅੰਕ ਹੋਣਗੇ। ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਪੰਜਵੇਂ ਭਾਗ ਵਿਚ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ 01-01 ਅੰਕ ਦੇ ਛੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ 05 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਥਿਊਰੀ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ $37+13 = 50$ ਹਨ।

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective

- ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਪੈਦਾ ਕਰਨਾ।
- ਆਲੋਚਨਾਤਮਕ ਰੁਚੀਆਂ ਵਿਕਸਤ ਕਰਨਾ।
- ਮਾਤ ਭਾਸ਼ਾ ਦੀ ਸਮਝ ਨੂੰ ਵਿਕਸਤ ਕਰਨਾ

ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ Course Outcomes (COs)

- ਵਿਦਿਆਰਥੀ ਦੀ ਸਾਹਿਤਕ ਸੋਚ-ਸਮਝ ਵਿਕਸਤ ਹੋਵੇਗੀ।
- ਉਸ ਵਿਚ ਸਾਹਿਤ ਰੁਚੀਆਂ ਵਿਕਸਤ ਹੋਣਗੀਆਂ।
- ਉਸ ਵਿਚ ਸਾਹਿਤ ਸਿਰਜਣਾ ਦੀ ਸੰਭਾਵਨਾ ਵਧੇਗੀ।
- ਉਹ ਕਿਸੇ ਵੀ ਵਿਸ਼ੇ ਦਾ ਗਹਿਨ ਅਧਿਐਨ ਕਰਨ ਦੇ ਕਾਬਲ ਹੋਵੇਗਾ।
- ਉਹ ਮਾਤ ਭਾਸ਼ਾ ਦੇ ਵਿਕਾਸ ਵਿਚ ਵਿਸ਼ੇਸ਼ ਯੋਗਦਾਨ ਪਾਉਣਗੇ।

ਪਾਠ-ਕ੍ਰਮਭਾਗ-

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

ਇਤਿਹਾਸਿਕ ਯਾਦਾਂ

ਸ. ਸ. ਅਮੋਲ (ਸੰਪਾ.), ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ। (ਨਿਬੰਧ 1 ਤੋਂ 6 ਤਕ ਸਾਰ/ ਵਿਸ਼ਾ-ਵਸਤੂ/ਸ਼ੈਲੀ)

ਭਾਗ-ਤੀਜਾ

(a) ਪੈਰ੍ਹਾ ਰਚਨਾ (ਤਿੰਨਾਂ ਵਿਚੋਂ ਇਕ)

(A) ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ

ਭਾਗ-ਚੌਥ

ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ : ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ-ਭਾਸ਼ਾ ਵਿਚਲਾ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪ-ਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ-ਚਿੰਨ੍ਹ

(A) ਪੰਜਾਬੀ ਭਾਸ਼ਾ : ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER -I

BPBI-1102

ਮੁਢਲੀ ਪੰਜਾਬੀ

(In Lieu of Compulsory Punjabi)

ਸਮਾਂ : 3 ਘੰਟੇ
ਕੁੱਲ ਘੰਟੇ : 60

ਕ੍ਰੈਡਿਟ ਪ੍ਰਤੀ ਹਫਤਾ : 04
ਥਿਊਰੀ ਅੰਕ : 37, ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ : 13, ਕੁੱਲ ਅੰਕ : 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

- ਪਹਿਲੇ ਭਾਗ ਵਿਚੋਂ ਚਾਰ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੈ। ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਚਾਰ-ਚਾਰ ਅੰਕ ਹਨ। ਭਾਗ ਦੂਸਰਾ ਵਿਚੋਂ ਦੋ-ਦੋ ਅੰਕ ਦੇ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਭਾਗ ਤੀਸਰਾ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ ਜਿਨ੍ਹਾਂ ਦੇ ਪੰਜ-ਪੰਜ ਅੰਕ ਹਨ। ਭਾਗ ਚੌਥਾ ਵਿਚ ਪੰਜ ਅਸ਼ੁੱਧ ਸ਼ਬਦਾਂ ਨੂੰ ਸ਼ੁੱਧ ਕਰਕੇ ਲਿਖਣਾ ਹੋਵੇਗਾ।
ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਥਿਊਰੀ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ $37+13 = 50$ ਹਨ।

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective

- ਵਿਦਿਆਰਥੀ ਨੂੰ ਸ਼ੁੱਧ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ-ਲਿਖਣਾ ਸਿਖਾਉਣਾ।
- ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀਆਂ ਵਿਆਕਰਨਕ ਬਾਰੀਕੀਆਂ ਤੋਂ ਜਾਣੂ ਕਰਾਉਣਾ।
- ਸ਼ੁੱਧ ਸੰਚਾਰ ਨੂੰ ਵਿਕਸਤ ਕਰਨਾ।

ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ Course Outcomes (COs)

- ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਤੇ ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀ ਸਿਖਲਾਈ ਵਿਚ ਮੁਹਾਰਤ ਹਾਸਿਲ ਕਰਨਗੇ।
- ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਮੁਹਾਰਨੀ, ਲਗਾਂ-ਮਾਤਰਾਂ, ਸਵਰ ਅਤੇ ਵਿਅੰਜਨ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ਦੁਆਰਾ ਉਨ੍ਹਾਂ ਦੀ ਸਮਝ ਨੂੰ ਵਿਕਸਿਤ ਹੋਵੇਗੀ।
- ਪੰਜਾਬੀ ਸ਼ਬਦ-ਜੋੜਾਂ ਦੀ ਜਾਣਕਾਰੀ ਹਾਸਿਲ ਕਰਕੇ ਉਹ ਸ਼ੁੱਧ ਪੰਜਾਬੀ ਲਿਖਣ-ਪੜ੍ਹਨ ਦੇ ਸਮਰੱਥ ਹੋਣਗੇ।
- ਉਹ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਵਿਆਕਰਨ ਪ੍ਰਬੰਧ ਦੀ ਜਾਣਕਾਰੀ ਹਾਸਿਲ ਕਰਨਗੇ।

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

(a) 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

(A) 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

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I

KHALSA COLLEGE AMRITSAR

(An Autonomous College)

Course Code: BPHC-1104

PUNJAB HISTORY & CULTURE (From Earliest Times to C 320) (Special Paper in lieu of Punjab compulsory)
(For those students who are not domicile of Punjab)

Credit Hours (per week): 04

Total Marks: 50

Total Hours: 60

Theory: 37

Time: 3 Hours

Internal Assessment: 13

Instructions for the Paper Setters:

The question paper consists of five units: I, II, III, IV and V. Units I, II, III and IV will have two questions each. Each question carries 8 marks. The students are to attempt one question from each unit approximately in 800 words. Unit-V consists of 7 short answer type questions to be set from the entire syllabus. Students are to attempt any 5 questions in about 20 words each. Each question carries 1 mark.

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:-

1. L. Joshi (ed), *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed), *History of Punjab*, Vol. I, Patiala 1977.
3. Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma, *Life in Northern India*, Delhi, 1966.

Course Outcomes:

After completion of the course, the students will be able to learn:

- CO-1The history and culture of the Ancient Punjab.
- CO-2PhysicalfeaturesofancientPunjab.
- CO-3The sourcesofthe historyofthe Punjab.
- CO-4Social, economic, religious life of the Harrapan civilization and Vedic-Aryans.CO-
- 5TeachingsandimpactofJainismandBuddhisminthePunjab.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER –I

SEMESTER–I

Course Code: ZDA111

Course Title-Drug Abuse: Problem, Management and Prevention

PROBLEM OF DRUG ABUSE

(Compulsory for all Under Graduate Classes)

Credit Hours (per week): 1.5 hrs.

Total Hours: 22.5 hrs.

Max. Marks: 50

Instructions for the Paper Setters:

Section–A: (15 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying 05 marks. Answer to any of the questions should not exceed two pages.

Section–B: (20 Marks) It will consist of four essay type questions. Candidates will be required to attempt two questions, each question carrying 10 marks. Answer to any of the questions should not exceed four pages.

Section–C: (15 Marks) It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages.

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, Nature and Extent of Drug Abuse in India and Punjab.

UNIT–II

- **Consequences of Drug Abuse for:**

Individual: Education, Employment and Income.

Family : Violence.

Society : Crime.

Nation : Law and Order problem.

UNIT–III

- **Management of Drug Abuse**

Medical Management: Medication for treatment and 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, "voZrId[otos'A^(BPky'oh) ;wZf;nk, gqpzXB ns/ o'eEkw", 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, "voZrId[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, Chandra Paul 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 addictions.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – I
COURSE CODE: BVFP11-104

COURSE TITLE: FOOD PROCESSING AND PRESERVATION

Credit Hours (Per Week): 03(T)
Total Hours:45
Time: 3 Hours

Max. Marks: 60
Theory Marks: 45
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, 1975 Dekker Inc. New York. Vol II.
4. The technology of food preservation by N.W. Desrosier and J.N. Desrosier, CBS publishing.

COURSE OUTCOMES: On successful 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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Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – I

COURSE CODE: BVFP11-105

COURSE TITLE: FOOD AND NUTRITION

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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, Bangalore 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 successful 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

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

COURSE CODE: BVFP11-106

COURSE TITLE: FRUITS AND VEGETABLE PROCESSING

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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.
- Students shall be able to understand Industrial Processes for Commercial Production of Jams, Jellies, Marmalade, Fruit Juices, Concentrates, Fruit Juice Powder, Dehydrated Fruits, and Canning 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.
Processing of 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 by Lal 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.

BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING SEMESTER – I
COURSE CODE: BVFP11-107

COURSE TITLE: EXPERIMENTS IN FOOD PROCESSING AND PRESERVATION

Credit Hours (Per Week): 03(P)
Total Hours:45
Time: 3 Hours

Max. Marks: 40
Practical Marks: 30
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 adequacy 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 successful completion of the subject, the students will be able to:

CO1: Demonstration 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.

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – I
COURSE CODE: BVFP11-108

COURSE TITLE: EXPERIMENTS IN FOOD AND NUTRITION

Credit Hours (Per Week): 03(P)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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 classify food groups and identify food sources.
- Demonstrate the calculation of BMI and BMR.
- Demonstrate the diet planning of a normal adult obese, underweight and overweight people
- Evaluate 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.

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

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER –
COURSE CODE: BVFP11-109

COURSE TITLE: EXPERIMENTS IN FRUITS AND VEGETABLE PROCESSING

Credit Hours (Per Week): 03(P)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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

- Get the basic understanding of fruits and vegetables processing.
- To perform organoleptic evaluation of fruits and vegetables and their products.
- To prepare various products from fruits and vegetables.
- To 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.
2. 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.

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

(No Change)

Bachelor of Vocation (B. Voc.)

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

COMMUNICATIONS SKILLS IN ENGLISH – II

BCSV-1229

Credit Hours (Per Week): 4

Total Hours: 60

Time : 3 Hours

Max. Marks: 50

Theory Marks: 25

Practical Marks: 12

Assessment: 13

INSTRUCTIONS FOR THE PAPER SETTERS:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. (5X5=25 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 the knowledge of latest technology related with communication

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

Course Contents:

SECTION – A

Listening Skills: Barriers to listening; effective listening skills.

Activities: Listening exercises- News and TV reports

SECTION – B

Attending telephone calls; note making.

Activities: Taking notes on a speech/lecture

SECTION – C

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.

Activities: 1) Making conversation and taking turns

2) Oral description or explanation of a common object, situation or concept

SECTION – D

Situation based Conversation in English, Essentials of Spoken English

Activities: Giving Interviews

Prescribed Books:

└ *Oxford Guide to Effective Writing and Speaking* by John Seely.

└ *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP 147

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 oral discourse through intelligible pronunciation.
4. Develop the ability to handle the interview process confidently and learn the subtleties of an effective group discourse.
5. Communicate contextually in specific and professional situations with courtesy.

Practical Marks: 12

Course Contents:-

3. Oral Presentation with/without audio visual aids.
4. Group Discussion.
5. Listening to any recorded or live material and asking oral questions for listening comprehension.

Questions:-

3. Oral Presentation will be of 5 to 10 minutes duration (Topic can be given in advance or it can be student's own choice). Use of audio visual aids is desirable.
4. Group discussion comprising 8 to 10 students on a familiar topic. Time for each group will be 15 to 20 minutes.

Note: Oral test will be conducted by external examiner with the help of internal examiner.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

BHPB-1201

ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

ਸਮਾਂ : 3 ਘੰਟੇ

ਕੁੱਲ ਘੰਟੇ : 60

ਕ੍ਰੈਡਿਟ ਪ੍ਰਤੀ ਹਫ਼ਤਾ : 04

ਥਿਊਰੀ ਅੰਕ : 37, ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ : 13, ਕੁੱਲ ਅੰਕ : 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

- ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ। ਪਹਿਲੇ ਚਾਰ ਭਾਗਾਂ ਵਿਚ 02-02 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਭਾਗ ਵਿਚੋਂ 01-01 ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ (08) ਅੰਕ ਹੋਣਗੇ। ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਪੰਜਵੇਂ ਭਾਗ ਵਿਚ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ 01-01 ਅੰਕ ਦੇ ਛੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ 05 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਥਿਊਰੀ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ $37+13 = 50$ ਹਨ।

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ ਫ਼ੋਰਸਟੋਬਜ਼ਟਵਿਓ

- ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਪੈਦਾ ਕਰਨਾ।
- ਆਲੋਚਨਾਤਮਕ ਰੁਚੀਆਂ ਨੂੰ ਵਿਕਸਤ ਕਰਨਾ।
- ਭਾਸ਼ਾਈ ਗਿਆਨ ਵਿਚ ਵਾਧਾ ਕਰਨਾ।

ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ ਫ਼ੋਰਸਟੋਰੋਮੇਸ (ਫ਼ੋਸ)

- ਵਿਦਿਆਰਥੀ ਦੀ ਸੋਚ-ਸਮਝ ਵਿਕਸਤ ਹੋਵੇਗੀ।
- ਉਸ ਅੰਦਰ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਪ੍ਰਫਲਿੱਤ ਹੋਣਗੀਆਂ।
- ਉਸ ਅੰਦਰ ਸਾਹਿਤ ਸਿਰਜਣਾ ਦੀ ਸੰਭਾਵਨਾ ਵਧੇਗੀ।
- ਉਹ ਸੰਬੰਧਿਤ ਵਿਸ਼ੇ ਦਾ ਗਹਿਨ ਅਧਿਐਨ ਕਰਨ ਦੇ ਸੁਯੋਗ ਹੋਵੇਗਾ।
- ਉਹ ਭਾਸ਼ਾਈ ਬਣਤਰ ਤੋਂ ਜਾਣੂ ਹੋਵੇਗਾ।

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 ਵਿੱਲੋਂ (ਸਹਿ ਸੰਪਾ.)

(ਵਾਰਤਕ ਭਾਗ ਵਿਚੋਂ ਸਾਰ/ਵਿਸ਼ਾ-ਵਸਤੂ। ਰੇਖਾ-ਚਿੱਤਰ ਭਾਗ ਵਿਚੋਂ ਸਾਰ/ਨਾਇਕ ਬਿੰਬ)

ਭਾਗ-ਦੂਜਾ

ਇਤਿਹਾਸਿਕ ਯਾਦਾਂ

ਸ. ਸ. ਅਮੋਲ (ਸੰਪਾ.), ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

(ਨਿਬੰਧ 7 ਤੋਂ 12 ਤਕ ਸਾਰ/ ਵਿਸ਼ਾ-ਵਸਤੂ/ਸ਼ੈਲੀ)

ਭਾਗ-ਤੀਜਾ

(a) ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ

(A) ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ

ਭਾਗ-ਚੌਥਾ

(a)

ਸ਼ਬਦ-ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ-ਰਚਨਾ - ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਮੁੱਢਲੇ ਸੰਕਲਪ

ਸ਼ਬਦ-ਸ਼੍ਰੇਣੀਆਂ

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

BPBI-1202

ਮੁਢਲੀ ਪੰਜਾਬੀ

In Lieu of Compulsory Punjabi)

ਸਮਾਂ : 3 ਘੰਟੇ
ਕੁੱਲ ਘੰਟੇ : 60

ਕ੍ਰੈਡਿਟ ਪ੍ਰਤੀ ਹਫ਼ਤਾ : 04
ਥਿਊਰੀ ਅੰਕ : 37, ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ : 13, ਕੁੱਲ ਅੰਕ : 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

- ਭਾਗ ਪਹਿਲਾ ਵਿਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੈ। ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਚਾਰ-ਚਾਰ ਅੰਕ ਹਨ। ਭਾਗ ਦੂਸਰਾ ਵਿਚੋਂ ਦੋ-ਦੋ ਅੰਕ ਦੇ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਭਾਗ ਤੀਸਰਾ ਵਿਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ। ਭਾਗ ਚੌਥਾ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ।
ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਥਿਊਰੀ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 37+13 = 50 ਹਨ।

ਕੋਰਸ ਦਾ ਉਦੇਸ਼ Course Objective

- ਵਿਦਿਆਰਥੀ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਸਮਝ ਵਿਕਸਤ ਕਰਨਾ।
- ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਵਿਆਕਰਨਕ ਪ੍ਰਬੰਧ ਸੰਬੰਧੀ ਗਿਆਨ ਕਰਾਉਣਾ।
- ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ ਦੁਆਰਾ ਪੰਜਾਬੀ ਭਾਸ਼ਾ 'ਤੇ ਪਕੜ ਵਧਾਉਣਾ।

ਪਾਠ-ਕ੍ਰਮ ਨਤੀਜੇ ਫ਼ੋਰਸਟ Outcomes (COs)

- ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਬਾਰੇ ਸਮਝ ਹੋਰ ਵਿਕਸਿਤ ਹੋਵੇਗੀ।
- ਉਹ ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ ਦੀ ਜਾਣਕਾਰੀ ਹਾਸਿਲ ਕਰਕੇ ਭਾਸ਼ਾਈ ਗਿਆਨ ਨੂੰ ਵਿਕਸਿਤ ਕਰਨਗੇ।
- ਪੰਜਾਬੀ ਸ਼ਬਦ-ਰਚਨਾ ਸੰਬੰਧੀ ਜਾਣਕਾਰੀ ਉਨ੍ਹਾਂ ਦੇ ਗਿਆਨ ਵਿਚ ਵਾਧਾ ਕਰੇਗੀ।

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ :

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

ਭਾਗ-ਦੂਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਪ੍ਰਕਾਰ :

(a) ਸੰਯੁਕਤ ਸ਼ਬਦ, ਸਮਾਸੀ ਸ਼ਬਦ, ਦੇਜਾਤੀ ਸ਼ਬਦ, ਦੇਹਰੇ/ਦੁਹਰੁਕਤੀ ਸ਼ਬਦ ਅਤੇ ਮਿਸ਼ਰਤ ਸ਼ਬਦ
(A) 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, ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਧੰਦਿਆਂ ਨਾਲ ਸੰਬੰਧਿਤ

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
KHALSACOLLEGEAMRITSAR
(AnAutonomousCollege)
CourseCode:BPHC-1204
PUNJABHISTORY&CULTURE(C321TO1000A.D.)

**(Special Paper in lieu of Punjabi
compulsory)(ForthosestudentswhoarenotdomicileofPunjab)**

CreditHours (per week):04

Total.Marks:50

TotalHours: 60

Theory:37

Time: 3Hours

InternalAssessment:13

InstructionsforthePaperSetters:

The question paper consists of five units: I, II, III, IV and V. Units I, II, III and IV will have two questions each. Each question carries 8 marks. The students are to attempt one question from each unit approximately in 800 words. Unit-V consists of 7 short answer type questions to be set from the entire syllabus. Students are to attempt any 5 questions in about 20 words each. Each question carries 1 mark.

Note:Theexamineristosetthequestionpaperin twolanguages: 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 people of the Punjab during the rule of various dynasties such as The Mauryans, The Kushans, 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:-

1. L. Joshi (ed), *History and Culture of the Punjab*, Part-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed), *History of Punjab*, Vol.I, Patiala 1977.
3. Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma, *Life in Northern India*, Delhi. 1966.

Course Outcomes:

After completion of the course, the students will be able to learn:

- CO-1 The history and culture of the Punjab in Ancient Period.
- CO-2 Social, economic, religious, cultural and political life of Ancient Indian dynasties. CO-3 Political developments from 7th century to 1000 AD.
- CO-4 Socio-cultural history of the Punjab from 7th century to 1000 AD. CO-5 Language, literature, art and architecture of Ancient Punjab.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
SESSION 2022-2023

SEMESTER–II

Course Code: ZDA121

Course Title-DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION

DRUG ABUSE: MANAGEMENT AND PREVENTION

(Compulsory for all Under Graduate Classes)

Credit Hours (per week): 1.5 hrs.

Total Hours: 22.5 hrs.

Max. Marks: 50

Instructions for the Paper Setters:

Section–A: (15 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying 05 marks. Answer to any of the questions should not exceed two pages.

Section–B: (20 Marks) It will consist of four essay type questions. Candidates will be required to attempt two questions, each question carrying 10 marks. Answer to any of the questions should not exceed four pages.

Section–C: (15 Marks) It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages.

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. *voZrI d[otos'A (BPky'oh) gqpzXB ns o'eEkw*. 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, Chandra Paul 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.

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

COURSE CODE: BVFP12-204

COURSE TITLE: FOOD CHEMISTRY

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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

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

COURSE CODE: BVFP12-205

COURSE TITLE: FOOD HYGIENE AND SANITATION

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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. Mounthey 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

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-206

COURSE TITLE: CEREAL MILLING TECHNOLOGY

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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 Chakrobarty 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.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

COURSE CODE: BVFP12-207

COURSE TITLE: EXPERIMENTS IN FOOD CHEMISTRY

Credit Hours (Per Week): 03(P)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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 Fennema.

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.

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

COURSE CODE: BVFP12-208

COURSE TITLE: EXPERIMENTS IN FOOD HYGIENE AND SANITATION

Credit Hours (Per Week): 03(P)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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

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

COURSE CODE: BVFP12-209

COURSE TITLE: EXPERIMENTS IN CEREAL MILLING TECHNOLOGY

Credit Hours (Per Week): 03(P)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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:

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 physico-chemical analysis of cereals and pulses

CO4: Understand the qualitative analysis of different cereals

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

COURSE CODE: BVFP12-210

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

BACHELOR OF VOCATION (B. VOC) FOOD PROCESSING

COURSE CODE:CS-BVGC231

COURSE TITLE: COMPUTER APPLICATIONS

CREDIT HOURS (per week): 02(T)

TOTAL HOURS:30

Time: 3 Hours

Max. Marks: 60

Theory Marks:45

InternalAssessment:15

Instructions for the Paper Setters:

Note: 1. Medium of Examination is English Language.

Theory: – Question paper will contain seven questions in all and students will be asked to attempt any four questions. All questions will carry equal marks.

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.

COURSE CONTENTS:

Theory:

UNIT-I

FUNDAMENTAL OF COMPUTER: Introduction to computer, Applications of computer.Components of computer. Primary and Secondary storage. Number systems.

INTRODUCTION TO WINDOWS 10: Parts of window screen (Desktop, Window, Icons), Smartmenu, 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.

INTERNETInternet basics, Its uses and Applications.

UNIT-II

MS-WORD: 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 : 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.

Books Prescribed:

1. Rajaraman, V. (2006), "Fundamental of Computers", 4th Edition , 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 (COS):

At the end of course students will be able to:

- CO-1.** Acquire the computer terminology
- CO-2.** Gain insight of working of input and output devices.
- CO-3.** Develop skills of working with MS-Word, 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.

BACHELOR OF VOCATION (B. VOC) FOOD PROCESSING

SEMESTER-III

CS-BVGC232: Experiments In Computer Applications

CREDIT HOURS (per week): 02(P)

TOTAL HOURS:30

Time: 3 Hours

Max Marks: 40

Practical Marks: 30

Internal Assessment:10

COURSE CONTENTS:

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 of 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 holocaust.

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.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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.

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

COURSE CODE: BVFP21- 305

COURSE TITLE: FOOD MICROBIOLOGY

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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 the microbial examination of food and food products.

UNIT-II

Food Spoilage - Microbial and biochemical aspect of food spoilage, role of bacteria, yeast and molds in food 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 *Staphylococcus aureus*, *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 Delhi 1987
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

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

COURSE CODE: BVFP21- 306

COURSE TITLE: DAIRY TECHNOLOGY-I

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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 cereals 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 physico-chemical properties of cereals and pulses

CO3: Understand the milling of cereals

CO4: Understand the cooking quality evaluation of pulses.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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.

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)

Total Hours: 45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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
2. 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.

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)

Total Hours: 45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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 OUTCOMES:

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

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/village 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.

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.

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

COURSE CODE: BVFP22- 405

COURSE TITLE: DAIRY TECHNOLOGY-II

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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, production methods: 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 of cream. 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.

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

COURSE CODE: BVFP22- 406

COURSE TITLE: FOOD PACKAGING

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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

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

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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.

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

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V
COURSE TITLE: BVGC31-501
COURSE CODE: SPICES & FLAVOUR TECHNOLOGY

Credit Hours (Per Week): 03(T)
Total Hours: 45
Time: 3 Hours

Max. Marks: 50
Theory Marks: 37
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: 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

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)

TOTAL HOURS: 45

Time: 3 Hours

Max. Marks: 50

Theory Marks: 37

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. Marcus Karel, Owen R. Fennema, Daryl B. Lund. M. Dekker, 1975 Dekker 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 processing, drying freezing etc.

CO3: Gain knowledge on equipments used for drying of foods

CO4: Understand the working of different heat exchangers

BACHELOR OF VOCATION (B.VOC.) FOOD PROCESSING SEMESTER – V
COURSE CODE: BVGC31-503
COURSE TITLE: FUNDAMENTAL HACCP

Credit Hours (Per Week): 03(P)
Total Hours: 45
Time: 3 Hours

Max. Marks: 40
Practical Marks: 30
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.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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, preservation of 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.

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

COURSE CODE: BVFP31-505

COURSE TITLE: FOOD PLANT LAYOUT

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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.
- Creating

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.

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

COURSE CODE: BVFP31-506

COURSE TITLE: QUALITY ASSURANCE

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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

Quality attributes: Size, Texture, Color and methods of their determination

Unit II

Quality Analysis: Fruits and Vegetables, Cereals, Meat, Egg and Milk

Accreditation 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.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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

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)
Total Hours:45
Time: 3 Hours

Max. Marks: 40
Practical Marks: 30
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 physical 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.

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

COURSE CODE: BVGC32-601

COURSE TITLE: FOOD ADDITIVES

CREDIT HOURS (per week): 03(T)

TOTAL HOURS: 45

Time: 3 Hours

Max. Marks: 50

Theory Marks: 37

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:

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 Shakuntala Manay N & Shadoksharaswamy N, 1996, New Age, World Publishers.

COURSE OUTCOMES:

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

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

COURSE CODE: BVGC32-602

COURSE TITLE: FOOD TOXICOLOGY

CREDIT HOURS (per week): 03(T)

TOTAL HOURS: 45

Time: 3 Hours

Max. Marks: 50

Theory Marks: 37

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

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

COURSE CODE: BVGC32-603

COURSE TITLE: SEMINAR

Credit Hours (Per Week): 03(P)

Total Hours: 45

Time : 3 Hours

Max. Marks: 50

(S/Us)

COURSE OBJECTIVES:

The objectives of this course to improve scientific aptitude and presentation skills .

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

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)
Total Hours:45
Time: 3 Hours

Max. Marks: 60
Theory Marks: 45
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 industry and 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 of by-products and treatment of waste in the food industry” Vol, 3., Springer.
- K. Waldron, 2007, “Handbook of waste management and co-product recovery in food processing”. 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.

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

COURSE CODE: BVFP32-605

COURSE TITLE: FOOD ANALYSIS

Credit Hours (Per Week): 03(T)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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.

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 60

Theory Marks: 45

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 microorganisms 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

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)
Total Hours:45
Time: 3 Hours

Max. Marks: 40
Practical Marks: 30
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 of by-products and treatment of waste in the food industry” Vol, 3., Springer.
- K. Waldron, 2007, “Handbook of waste management and co-product recovery in food processing”. 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

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)

Total Hours:45

Time: 3 Hours

Max. Marks: 40

Practical Marks: 30

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.

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)
Total Hours:45
Time: 3 Hours

Max. Marks: 40
Practical Marks: 30
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: Undersand the preparation of different fermented products

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