ORDINANCES

FOR

BACHELOR OF VOCATION

(FOOD PROCESSING)

PART I (Semester I&II)

PART II (Semester III &IV)

PART III (Semester V & VI)

FOR

Session 2019-20, 2020-21, 2021-22

Under

CHOICE BASED CREDIT SYSTEM

Scheme of

B. Voc. of UGC

ORDINANCES
FOR THE BACHELOR OF VOCATION
(FOOD PROCESSING) COURSE

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

B. Voc. programme has been designed as per National Skill Qualification Framework emphasizing on skill based education.

1. IMPORTANT TERMINOLOGY/ CONCEPTSRELATED TO THE COURSE

1.1 National Skills Qualification Framework (NSQF): B. Voc. Programme has been designedas per National Skill Qualification Framework (NSQF) emphasizing on skill based education. The NationalSkills Qualification Framework organizes qualifications according to a series of levels of knowledge, skills and aptitudes. It is a nationally integrated education and competency based skill framework that will provide horizontal and vertical mobility within vocational programme.There are four levels of NSQF in the B.Voc. programme such as Level 4 is certificate, Level 5 is Diploma, Level 6 is Advanced Diploma and Level 7 is B.Voc. degree. This will enable a person to acquire desired competency levels, transit to job market and an opportune time return for acquiring additional skills to further upgrade their competencies.

The NSQF is anchored at the National Skill Development Agency (NSDA) and is being implemented through the National Skills Qualifications Committee (NSQC)

1.2 National Skill Development Corporation India (NSDC): NSDC was set up as part of a national skill development mission to fulfil the growing need in India for skilled manpower across sectors and narrow the existing gap between the demand and supply of skills. NSDC has various Sector Skill Councils

1.3 Sector Skill Council (SSC): One of the mandates of Sector Skill Councils is to develop National Occupational Standards (NOSs) for various job roles in their respective industries. SSC embeds the competencies required for specific job roles in the higher education system for creating employable graduates

1.4FICSI: Food Industry Capacity & Skill Initiative (FICSI)—widely known as Food Processing Sector Skill Council. It's one of the main function is to assess the students as accordance with NSQF for Qualification Pack/National Occupational Standards as determined by NSQC.

1.5 National Occupational Standards (NOS): National Occupational Standards (NOS)are national standards that specify the standard of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Essentially NOS are benchmarks of good practice. National Occupational Standards (NOS) or Occupational Standards (OS) defines one key function in a job role.These Occupational Standards are combined to a set, which is called Qualification Pack (QP).

1.6Qualification Pack (QP): Qualification Pack certifies a person for a specific job role. Each Qualification Pack also contains NSQF Level. These packs are marked with a NSQF level, such as level 4,5,6 and 7. The Qualification Packs help in both the creation of curriculum and assessments.

1.7Skill Development Component: Skill component of the programme /course is employment oriented. The skilled development component curriculum is aligned to Qualification Packs (QPs) / National Occupational Standards (NOSs) of selected job role(s) within the industry sector(s) and it will enable the students to meet the OBJECTIVES specified in the NOSs.

1.8General Education Component: The general education component includes the course(s), which are supportive to core trade in addition to soft skills, IT skills, and language proficiency and literature. It emphasizes on holistic development.

1.9Credit Based Semester System (CBSS): Under the CBSS, the requirement for awarding adegree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.

1.10 Credit(C): A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial)

or two hours of practical work/field work per week. Accordingly, one Credit would mean equivalent of 14-15 periods of 60 minutes each or 28 – 30 hrs of workshops / labs.

1.11 Grade Point (G): It is a numerical weight allotted to each letter grade on a 10 point scale.

1.12 Credit Point (CP): The numerical value obtained by multiplying the grade point (GP) bythe no. of credit(C) of the respective course i.e. CP= G X C.

1.13 Semester Grade point Average (SGPA): It is a measure of performance of work done in a semester.The SGPA is the ratio of sum of the product of the number of credits with the grade points Scored by a student in all the course components taken by a studentand the sum of the number of credits of all the courses undergone by a student in a semester, *i.e***SGPA** (Si) = Σ(Ci x Gi) / ΣCiwhere Ci'is the number of credits of the ith course component and 'Gi' is the grade point scored by the student in the ith course component.

1.14 Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all semesters. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, *i.e.*

CGPA = Σ(Ci x Si) / Σ Ci

where 'Si' is the SGPA of the 'i'th semester and Ci is the total number of credits in that semester. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.**1.15 Letter Grade:** It is an index of the performance of students in a said course. Grades aredenoted by letters O, A+, A, B+, B, C, P ,F and Ab

2. LEVELS OF AWARD

The certification levels shall lead to Diploma/Advanced Diploma/B.Voc. Degree in Food Processing. Entry and Exit to various awards as per NSQF UGC Guidelines.

Award	Duration	Core LevelCorrespondingNSQF Level
CERTIFICATE	6 MONTHS	4
DIPLOMA	1 YEAR	5
ADVANCED DIPLOMA	2 YEAR	6
B. VOC. DEGREE	3 YEAR	7

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3. **NSQF LEVELS:**

NSQF Level	Skill Component Credits	General Education Credits	Normal Calendar Duration	Exit Point /Awards
Year 1	36	24	Two Semesters	Diploma in Food Processing
Year 2	36	24	Two Semesters	Advanced Diploma in Food Processing
Year 3	36	24	Two Semesters	Degree in Food Processing
Total	**108**	**72**		

4. CREDIT CALCULATIONS

The following formula should be used for conversion of time into credit hours.

4.1 One Credit would mean equivalent of 15 periods of 60 minutes each for theory, workshops/ labs and tutorials.

4.2 For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops.

4.3 For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

5. ELIGIBILITY FOR ADMISSION IN B.VOC.

A candidate will be eligible to join 1st semester of B.Voc Food Processingcourse, if he/she has passed 10+2 examination (any stream/ Arts/Science/Commerce) or 10+2 vocational stream related to food processingof recognized Board/ university or any other examination recognized as equivalent thereto without reappear.

5.1 The course of study of B.Voc. shall be divided in to six semesters and university examination will be held at the end of every semester in the months of November/December

(for semester I, III & V) and May/June (for semester II, IV & VI) oras fixed by the Vice Chancellor.

5.2Semester examination will be open to regular candidates who have been on the rolls of a College affiliated to this University and meet the attendance and other requirements. Subject to fulfillment of requirement of House examinations, the attendance requirement and these ordinances there will be no condition of passing papers for promotion from odd semester to even semester in an Academic Session.

5.3To qualify for admission to 3rd semester of the Course, the candidate must have passed50% of total papers of the two semesters of the 1st year. In case, the result of 2nd Semester is not declared at the time of admission to 3rd Semester, the student may beadmitted provisionally and will be allowed to take examination of 3rd semester if he/shehas passed in 50 % of the total papers of first year (i.e. Ist and 2nd Semesters). Similarly, to qualify for admission to 5th semester of the course, the student may be admittedprovisionally if the result of previous semester has not been declared and will be allowedto take examination of 5th semester, if he/she has passed 50% of the total papers of previous semesters.

5.4 A candidate placed under reappear in any paper, will be allowed two chances to clear thereappear, which should be availed within consecutive two years/chances i.e. to pass in apaper the candidate will have a total of three chances, one as regular student and two asreappear candidate. The examination of reappear papers of odd semesters will be held with regular examination of the odd semester and reappear examination of the even semester will be held with regular examination of even semester. But if a candidate is placed under reappear in the last semester of the course, he will be provided chance to pass the reappear with the examination of the next semester, provided his reappear of lower semester does not go beyond next semester.

6. ACADEMIC EQUIVALENCE:

6.1 Bachelor of Vocation (B.Voc.), a Bachelor level degree specified by UGC under section 22(3) of UGC Act, 1956 and notified in official Gazette of India dated 19th January, 2013 is recognized at par with the other Bachelor level degrees for competitive exams conducted by

Union/State Public Service Commission, Staff Selection Commission or other such bodies where the eligibility criteria is "Bachelor Degree in any discipline".

6.2. Students with B.Voc. Degree is considered eligible for the trans disciplinary vertical mobility into such courses where entry qualification is a Bachelor Degree without specific requirement in a particular discipline.

6.3. Students qualifying B.Voc.in Food Processing can take admission in M.Sc.(Food Technology/Food Processing/Microbial Food Technology etc.)

7.ATTENDANCE AND UNIVERSITY EXAMINATION SYSTEM

7.1Every candidate will be required to attend a minimum of 75% lectures delivered to that class in each paper as well as 75% of the laboratory work, seminars etc. separately. Provided that a deficiency in attendance may be condoned for special reasons as per the relevant ordinances on the subject.

7.2 To be eligible to appear in the semester examination, a candidate must have obtained in the house examination at least 25% marks in each paper, 25% marks in the aggregate of all subjects of the semester. The Principal at his discretion may allow a special test to a candidate who could not appear in the House examination owing to unavoidable reason,or fails to secure the minimum marks as prescribed above.

7.3 Amount of examination fee to be paid by a candidate for each semester will be as fixed by the University from time to time.

7.4. Applications for admission to the examination will be made on the prescribed form attested by the competent authority as per University rules. The last date by which admission forms and fees must reach the Registrar shall be as follows:

Semester	Without late fee	With late fee of Rs. 800/-	With late fee ofRs. 1200/-	With late fee ofRs. 5000/-	With late fee ofRs. 10000/-*
Semester Exam (Nov/Dec)	Sept. 30	Oct. 15	Oct. 21	Oct. 31	Nov. 16
Semester Exam (May/June)	Feb. 28	Mar.15	Mar. 21	Mar.31	April 15
* No Examination Form will be accepted after this date.					

7.5**University medal** will be awarded to a candidate who secured first position in the University on the basis of the marks of all the six semesters taken together. The general rules and conditions of the University for the Award of Medal/Prizes etc. will be applicable in the award of University medal to the topper of this examination.

7.6.The Candidate will also be entitled to grace marks as admissible under the ordinances, relating to the **'Grace Marks.'**

7.7.The minimum number of marks required to pass the examination in each Part shall be 35% in each subject of theory paper, practical examination and internal assessment separately.

7.8Except Qualification pack/Skill Component other papers shall be taken by university. .Result of skill component shall be communicated by respective college after evaluation by respective sectors skill councils to university in time for final awarding Diploma/Advance Diploma/Degree.

8. **INTERNAL ASSESSMENT AND ITS COMPONENTS**:

Internal Assessment, in each subject, shall be 25% of the total marks in each paper and shall be uniformly applicable to all the Subjects/Papers. The four Components for Internal Assessment shall be as follows (to be divided equally, as per the credit (100/150/200) of the paper):

(i)	Attendance: The students with 85%-100% attendance will be given full attendance marks. Whereas students with 80%-84.9% attendance shall be given 80% marks of attendance and students with 75%-80% shall get 60% of attendance marks.	20%	% of theTotal Marks of the internal Assessment
(ii)	Written Assignment/Project :	40%	
(iii)	Two Mid-Semester Tests/Internal Examination (Average of both Mid-Semester Tests/Internal Examination)	40%	

In each Theory Paper 25% of the total marks are assigned to the internal assessment and 75 marks to the University examination.

9. MEDIUM OF INSTRUCTIONS

The **medium of instruction** and examination will be **English/Punjabi** except for the language subjects whose medium of instruction and examination will be that of the language subject.

10. **A CANDIDATE WILL BE ALLOWED TO JOIN:**

(i)**First Semester:**

Provided that he/she has qualified 10+2 examination or equivalent without reappears.

(ii)**Second Semester:**

Provided that he/she has undergone a regular course of studies of first semester.

(iii)**Third Semester:**

Provided that he/she has undergone a regular course of studies of First and Second semesters as provided under the regulations in sequential order and fulfils the conditions as aid in ordinance 5(a) & 5(b).

(iv**) Fourth Semester:**

Provided that he/she has undergone a regular course of studies of First, Second and Third semesters as provided under the regulations in sequential order and has passed the First Semester Examination as a whole, and fulfils the conditions as laid in ordinance 5(a) & 5(b).

(v)***Fifth Semester:**

Provided that he/she has undergone a regular course of studies of First, Second, Third and Fourth semesters as provided under the regulations in sequential order and fulfils the conditions as laid in ordinance 5(a) & 5(b).

(vi**)*Sixth Semester:**

Provided that he/she has undergone a regular course of studies of First, Second, Third, Fourth and Fifth semesters as provided under the regulations in sequential order and has passed 50 % of the total papers of previous semesters and fulfils the other conditions as laid in ordinances.

*Evaluation of third year (fifth and sixth semester) shall be conducted only on the basis of general component part as there are no qualification packs for third year available till date.

11. **GRADES AND GRADE POINTS**

The Successful candidates shall be classified on the basis of 10-point grade following letter grades.

Letter Grade	**Grade Points**
O (Outstanding) 10	**10**
A+ (Excellent) 9	**9**
A (Very Good) 8	**8**
B+ (Good) 7	**7**
B (Above Average) 6	**6**
C (Average) 5	**5**
P (Pass) 4	**4**
F(Fail) 0	**0**

12. **IMPROVEMENT IN EXAMINATION**

A candidate who has passed B. Voc. examination from this University shall have one chance within a period of two years after passing the examination to improve division or 55% marks. Improvement shall be allowed in not more than three theory papers offered in each semester. However, previous marks of Practical/Project will be carried forward in the paper(s) in which he/she appears for improvement and be awarded one percent of grace marks on the basis of

given papers, out of the papers taken up, the candidate will be given benefit of increase in marks, where the marks have increased in paper/papers.

13.**RE-EVALUATION**

Re-evaluation of scripts shall be admissible in B.Voc. Examination Semester I, II, III, IV, V, VI examination except practical examination. The re evaluation shall be allowed in not more than two theory papers provided candidate has scored not less than 25% marks in the relevant paper. The candidate shall submit his/her application on specified form along with prescribed fee, for re-evaluation within 14 days from the date of declaration of the result.

14. **DISTRIBUTION OF MARKS FOR PRACTICALS**

Each practical paper consists of 45 marks in each semester .It includes:

25 marks for Performance

10 marks for write-up

10 marks for file and viva voce

15.**INDUSTRIAL VISIT**

Industrial Visit is mandatory as part of the curriculum with the submission of report to Head of the department .Total marks assigned are 20. Evaluation criteria will include 10 marks for report, 5 marks for presentationand 5 marks for viva voce.

16.**COMPULSORY TRAINING**

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

17. **INDUSTRIAL/INSTITUTIONAL PROJECT**

A candidate shall have to undertake an Industrial/Institutional Project in Final year (6thSemester). The project report shall be presented in front of external examiner, Supervisor &

two faculty members (nominated by the principal). The report must be signed by concerned authority. Project work will be of 200 marks based on three categories:

100 marks Performance and Practical

50 marks Project Report

50 marks Viva Voce

SYLLABUS
BACHELOR OF VOCATION
FOOD PROCESSING
OUTLINE OF PAPERS AND TESTS
FOR
B. Voc. FOOD PROCESSING PART –I (Semester I)
Session: 2019-20, 2020-21& 2021-22

CODE	SUBJECTS	L	T	P	TOTAL CREDITS** one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-111	Punjabi –I (Qualifying)	3	1	0	4	75	25		100 (Satisfactory/Unsatisfactory) *
B.VFP-112	Introduction to computers	3	1	0	4	74	26		100
B.VFP-113	Documentation in food processing	3	0	0	3	74	26		100
B.VFP 114	Basics of Food processing	3	0	0	3	74	26		100
B.VFP-115	Dairy Processing	3	0	0	3	74	26		100
B.VFP-116	Practical Paper I pertaining to(B.VFP-112)			3	3			45	45
B.VFP-117	Practical Paper I pertaining to(B.VFP-113)			3	3			45	45
B.VFP-118	Practical Paper III pertaining to(B.VFP-114)			3	3			45	45
B.VFP-119	Practical Paper IV pertaining to(B.VFP-115)			3	3			45	45
B.VFP-120	Industrial visit			1	1				20
	Total General Education Component				12				600
QP- FIC/Q2002 (SPECIFIC JOB ROLE)	**Dairy Processing Equipment Operator Level-4/or any other qualification pack of level 4**				18			Evaluation Shall be done by FICSI Result will be communicated to the university by college	

Note: * marks are not included in total marks.(qualifying paper)

B. Voc. FOOD PROCESSING PART –I (Semester II)

SYLLABUS
BACHELOR OF VOCATION
FOOD PROCESSING
OUTLINE OF PAPERS AND TESTS
FOR
B. Voc. FOOD PROCESSING PART –I (Semester II)
Session: 2019-20, 2020-21 & 2012-22

CODE	SUBJECTS	L	T	P	TOTAL CREDITS* *one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-211	Punjabi-II (Qualifying) *	1	1	0	4	75	25		100*
B.VFP-212	Holistic Development I:Personality Development	3	1	0	4	74	26		100
B.VFP-213	Basics of food packaging	3	0	0	3	74	26		100
B.VFP-214	Introductory Food Microbiology	3	0	0	3	74	26		100
B.VFP-215	Food products Packaging Technology	3	0	0	3	74	26		100
B.VFP-216	Practical Paper V pertaining toB.VFP-212			3	3			45	45
B.VFP-217	Practical Paper V pertaining toB.VFP-213		0	3	3			45	45
B.VFP-218	Practical Paper V pertaining toB.VFP-214			3	3			45	45
B.VFP-219	Practical Paper VII: pertaining toB.VFP-215			3	3			45	45
B.VFP-220	Industrial Visit			1	1				20
B.VFP-221	Drug Abuse: problem, Management and Prevention*(Qualifying)	2				70	30		100*
	Total General Education Component				12				600
QPFIC/Q7001 (SPECIFIC JOB ROLE)	**Food Products Packaging Technician Level-5/or any other qualification pack of level 5**				18			Evaluation "ll be done by FICSI Result will be communicated to the university by college	

* marks are not included in total marks. (**Qualifying paper)**

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BACHELOR OF VOCATION
FOOD PROCESSING
OUTLINE OF PAPERS AND TESTS
FOR
B. Voc. FOOD PROCESSING PART –II (Semester III)
Session: 2019-20, 2020-21 & 2021-22

CODE	SUBJECTS	L	T	P	TOTAL CREDITS** *one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-311	Communication skills	3	1	0	4	75	25		100
B.VFP-312	Introduction to Grain Milling and Machineries	3	1	0	4	74	26		100
B.VFP-313	Fundamentals of Food Biochemistry	3	0	0	3	74	26		100
B.VFP 314	Introduction to Cereal and Legume Processing	3	0	0	3	74	26		100
B.VFP 315	Fundamentals of food and nutrition	3	0	0	3	74	26		100
B.VFP-316	Practical paper IX pertaining to B.VFP-312			3	3			45	45
B.VFP-317	Practical paper X pertaining to B.VFP-313		0	3	3			45	45
B.VFP-318	Practical Paper XI pertaining to (B.VFP-314)			3	3			45	45
B.VFP-319	Practical Paper XII : pertaining to(B.VFP-315)			3	3			45	45
B.VFP-320	Industrial Visit			1	1				20
	Total General Education Component				12				700
QP-FIC/Q1001(SPECIFIC JOB ROLE)	**Chief Miller Level-6/or any other qualification pack of level 6** (Level 6 is of two semesters therefore evaluation shall be done after IV semester)				18		Evaluation "ll be doneat the end of IV Semester by FICSI Result "ll be communicated to the university by college		

B. Voc. FOOD PROCESSING PART –II (Semester IV)
Session: 2019-20, 2020-21 & 2021-22

CODE	SUBJECTS	L	T	P	TOTAL CREDITS* *one credit =15 hrs./1 lecture of 1 hr	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-411	Environmental & Road Safety Awareness (Qualifying/ as per universityrules) (Now Shift to Sem. III)	3	1	0	4	70	30		100*
B.VFP-412	Holistic Development II: Physical Training	3	1	0	4	74	26		100
B.VFP-413	Food Spoilage and Control	3	0	0	3	74	26		100
B.VFP-414	Quality Controland Regulations	3	0	0	3	74	26		100
B.VFP 415	Fruits and vegetables processing	3	0	0	3	74	26		100
B.VFP 416	Practical Paper XIII pertaining toB.VFP-412			3	3			45	45
B.VFP-417	Practical Paper XIII pertaining toB.VFP-413		0	3	3			45	45
B.VFP-418	Practical Paper XIV pertaining toB.VFP-414			3	3			45	45
B.VFP-419	Practical Paper XV: pertaining toB.VFP-415			3	3			45	45
B.VFP-420	Industrial Visit			1	1				20
B.VFP-411	Total General Education Component				12				600
QPFIC/Q1001 (SPECIFIC JOB ROLE)	**Chief Miller/Food microbiologist/ Quality Assurance Manger/ Level-6/or any other qualification pack of level 6**				18			Evaluation“ll be done by FICSI Result “ll be communicated to the university by college	

* marks are not included in total marks. (**Qualifying paper)**

SYLLABUS
BACHELOR OF VOCATION
FOOD PROCESSING
OUTLINE OF PAPERS AND TESTS
FOR
B. Voc. FOOD PROCESSING PART –III (Semester V)
Session: 2019-20, 2020-21& 2021-22

CODE	SUBJECTS	L	T	P	TOTAL CREDITS** one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-511	Communication Skills II	3	1	0	4	75	25		100
B.VFP-512	Marketing and Retail Management	3	1	0	4	74	26		100
B.VFP-513	Sugar Processing technology	3	0	0	3	74	26		100
B.VFP-514	Food industry Waste Management	3	0	0	3	74	26		100
B.VFP-515	Entrepreneurship Developmentin Food Processing	3	0	0	3	74	26		100
B.VFP-516	Practical paper XVIIpertaining to B.VFP-512			3	3			45	45
B.VFP-517	Practical Paper XVIII pertaining to(B.VFP-513)		0	3	3			45	45
B.VFP-518	Practical Paper XIX pertaining to: (B.VFP-514)			3	3			45	45
B.VFP-519	Practical Paper XX pertaining to: (B.VFP-515)			3	3			45	45
B.VFP-520	Industrial Visit			1	1				20
B.VFP-511	Total				30				700

SYLLABUS
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OUTLINE OF PAPERS AND TESTS
FOR
B. Voc. FOOD PROCESSING PART –III (Semester VI)
Session: 2019-2020, 2020-21 & 2021-22

CODE	SUBJECTS	L	T	P	TOTAL CREDITS * *one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-611	Industrial Training/Institutional Project			12	30	-----	------	------	200
QP7	QP Production Manager/or any QP of level 7			18		Evaluation'll be done by FICSI Result 'll be communicated to the university by college			
	Total				30				200

- **Distribution of marks will be according to ordinance no. 18**
  Project work will be of 200 marks based on three categories:

  100 marks Performance and Practical

  50 marks Project Report

  50 marks Viva Voce

B.VFP-111

PUNJABI-I

To download the Syllabus go to :

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B.VFP-112

INTRODUCTION TO COMPUTERS

OBJECTIVES

- Students will learn aboutoperating system MS window.
- Students will gain the information about MS word, MS excel and MS power point.
- Students will evaluate implementation and applications of computers in different food industries.
- Students will practice documentation using MS word.
- Students will practice creation of tables, forms, sheets and queries using MS ACCESS.
- Students will be able to demonstrate working and applications of internet using many browsers.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. **Operating system MS Window** -Definition & functions, Basic components of windows, types of icons, taskbar, using desktop, title bar, running applications, exploring computer,managing files and folders, copying and moving files and folders. Control panel -adding and removing software and hardware, setting date and time, screen saver and appearance.

   Introduction to concept of Internet: Internet applications, www, Email, ftp, web browsers(Internet explorer, Google Chrome, Mozilla).
2. **MS-Word** –Documentation, Introduction to Office Automation,Creating & Editing Document, Formatting Document, Auto-text, Autocorrect,Spelling and Grammar Tool, Document

Dictionary, Page Formatting, Bookmark, Advanced features of MS-Word-Mail Merge, Macros, Tables, FileManagement, Printing, Styles, linking and embedding object, Template.

SECTION-B

3. **MS-Excel** - Introduction to MS-Excel, Creating& Editing Worksheet, Formatting and Essential Operations, Formulas andFunctions, Charts, Advance features of MS-Excel-Pivot table & Pivot Chart,Linking and Consolidation.Database Management using Excel-Sorting, Filtering, Table, Validation, Goal Seek, Scenario.
4. **MS-PowerPoint:** Presentations, Creating, Manipulating &Enhancing Slides, Organizational Charts, Excel Charts, Word Art, Layeringart Objects, Animations and Sounds and insertion, Inserting Animated Pictures

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9.V. Rajaraman, Fundamental of Computers – (Prentice Hall)
10. P. K. Sinha, Fundamental of Computers –(B.P.B publication)
11. ALEXIS LEON, Introduction to Information Systems.
12. Dr. S. Chand,Courter, G Marquis (1999). Microsoft Office 2000, Computer Fundamentals &Its Business Applications, Professional Edition. BPB.

Practical (B.VFP-112)

M.M. 45

1. MS-Windows: features
2. Documentation Using MS-Word
3. Electronic Spread Sheet using MS-Excel
4. Database Management using Excel
5. Presentation using MS-PowerPoint
6. Creating tables in MS ACCESS using different ways.
7. Import and export data from MS ACCESS.
8. Creating queries in MS ACCESS
9. Creating forms in MS ACCESS
10. Working of Internet with Different Browsers (Internet Explorer, Google Chrome, Mozzila).
11. Applications of Internet. (Handling Email accounts.
12. Student Have to Do Following Activities:
    a. How to create Email?
    b. How to send email?
    c. How to Download the Data?
    d. How to attach files with email?

BVFP-113DOCUMENTATION IN FOOD PROCESSING

OBJECTIVES

- Students will learn about documentation in food industry.
- Students will gain the information about programs needed to inspect raw materials in different food industries.
- Learners will come to know about applications of computer in different food industries.
- Students will learn and practice implementation, life cycle and applications of Enterprise resource planning (ERP).
- Learners will have information about primary, secondary and tertiary packaging.
- Students will perform analysis of data usingstatistical packages.
- Learners will practice various software used in food industry.
- Students will analyze quality of food products using ERP.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

Section-A

1. Introduction to documentation in food industry, documentation and inspection of raw material in food industry. Methods of documentation for raw material to finished product.
2. Familiarization with the application of computer in some common food industries: milk plant & fruits vegetable plants, starting from the receiving of raw material up to the storage & dispatch of finished product. Statistical analysis in food industry- application of mean, median and standard deviation in food industry.

Section-B

3. Introduction and implementation of ERP, application of ERP in food industry, Essential guidelines of ERP in food processing industries.
4. Documentation of finished product detail- name of the product, batch number, time of packing, date of manufacture, date of expiry, other label detail, primary ,secondary and tertiary packing material for finished product, storage conditions.

REFERENCES

1.K.T.Patel and N.P Chotai,Apr-jun,2011,Documentation and record:Harmonized GMP requirement, v(3).

2.P.J Lovett,A Ingram, C.N Bancrot, 22 november 2000,Knowledge-based engineering for SMEs- a methodology,Vol.107(1):384-389

3.TufanKoc, 7 May 2007, The impact of ISO 9000 quality management system on manufacturing, Vol.186(1):207-213,

4. Inka Heidi Vilpola, 20 feb 2008, page 47-76, A Method for improving ERP implementation success by the principle and process of usercentred design.

5.A Rockley, 1987, Proceedings of the 34th International Technicalonline documentation: from proposal to finished product.

Practical(B.VFP-113)

MM.: 45

1. Problem solving using spread sheet and word.
2. Use of statistical package for analysis of data
3. Application of ERP demonstrated with suitable food product.
4. Familiarization with software related to food industry.
5. Visit to industries and Knowledge of computer application in food industry.
6. Actual presentation of report in seminar.
7. Documentation of any food product along with relevant labeling.

B.VFP-114BASICS OF FOOD PROCESSING

OBJECTIVES

- Students will learn about the basics and requirements for processing of food.
- Learners willidentify and perform different kinds of food processes such as Milling, Cooking, Boiling, Frying, Baking, Fermentation etc.
- Learners will gain knowledge about various physical food preservation methods such as High and Low temperature, Drying, Radiation.
- Students will evaluate various chemical food preservation methods such as Fermentation, Smoking and use of chemical preservatives.
- Learners will perform blanching and evaluate effects of browning on seasonal fruits and vegetables.
- Learners will demonstrate effects of heat and acidity on proteins.
- Students will perform sterilization of milk by pasteurization and its effectiveness.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Introduction toFood Processing:Definition, Objectives, scope of food processing industries, Introduction to Different processes employed in food processing viz. Milling, Cooking, Boiling, Steaming, Braising, Stewing, Roasting, Frying, Grilling, Baking, Fermentation, Pickling, Refining.

2. Food Preservation I:Heat:Evaporation, boiling, paraboiling, steam under pressure, pasteurization, blanching, canning).Low Temperature: (Thawing, refrigeration, cold storage, de-hydro freezing):Drying (Methods of drying – dehydration by Air drying, sun drying and freeze drying) Radiations: (Ultraviolet and ionizing irradiations).

SECTION-B

3. Food Preservation II: Preservation by fermentation – Curing and Pickling; Smoking Chemical preservatives-(Objectives, principles, types of preservatives, Different types of chemical preservatives,Safety in use and certification levels,Preservation by high osmotic pressure(Pickling, salting, curing – principles)
4. Methods in Food Processing - Microwave processing, Extrusion cooking, Ohmic Heating, Reverse Osmosis, Electro dialysis, Ultra-filtration, High Pressure Processing,Super critical fluid extraction

REFERENCES

1. Jood, Sudesh, 2002, Food Preservation, Agrotech Publisher Academy, Udaipur.
2. Potter, N.N., 2002, Food Science, CBS Publishers, ND.
3. Sethi, Mohini, 2001, Food Science, CBS Publishers, ND.
4. Srilakshmi, B., 2001, Food Science, New Age International Pvt. Ltd., ND.
5. Mahendru, S.N., 2000, Food Additives, Tata McGraw Hills, ND.
6. Manay, N.S., 2001, Foods: Facts & Principles, Wiley Eastern Ltd., ND.
7.Fellows, P., 2005, Food Processing Technology: Principles & Practices, CRC Press, Woodhead Publishing Ltd., England.
8. Chakraverty, A., 2000, Postharvest Technology of Cereals, Pulses & Oilseeds, Oxford & IBH Publishing Co. Pvt. Ltd.,
9. Wildey, R.C. Ed. 1994. Minimally Processed Refrigerated Fruits and Vegetables. Chapman and Hall, London.
10. Lewis, M.J. 1990. Physical Properties of Food and Food Processing Systems.Woodhead, UK.
11. Jelen, P. 1985. Introduction to Food Processing.Prentice Hall, Reston Virginia, USA.

12. Arsdel W.B., Copley, M.J. and Morgen, A.I. 1973. Food Dehydration, 2nd Edn.(2 vol. Set). AVI, Westport.

13.Bender, A.E. 1978. Food Processing and Nutrition. Academic Press, London.

Practical (B.VFP-214)

M.M. 45

1. To blanch a seasonal fruit or vegetable & assess quality of blanching process.
2. To study the effect of browning on raw fruits & vegetables.
3. To study effect of heat and acidity on milk proteins.
4. To study the effectiveness of pasteurization.
5. To study Pasteurization of milk using microwave technique.
6. To study different methods of food processing i.e. by heat, low temperature & drying on a given food sample.
7. To check the shelf life of a given food at ambient temperature and under refrigeration.
8. Bacteriological estimation of milk by MBRT.

B.VFP-115

DAIRY PROCESSING

OBJECTIVES

- Students will learn about the basics of dairy processing.
- Students will evaluate composition of milk, principles & methods of milk processing.
- Learners will gain awareness about microbiology of milk & milk products.
- Students will learn about processed milk products such as toned milk, flavored milk, etc.
- Students will get the knowledge about the preparation & principles of paneer, cheese, curd, ice-cream etc.
- Students will develop understanding about the importance of dairy industries, and roles & responsibilities of a dairy product processor in a dairy plant.
- Learners will perform experiments to determine SNF%, fat content, specific gravity, TS% and casein content of milk.
- Learners will prepare various food products made from milk such as curd, cream, buttermilk, ice cream and paneer and check their quality.
- Learners will perform experiments to check sterility of milk and study various physiochemical properties and microbiological standards of milk.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Definition of milk; Chemical composition of milk Principle and methods of milk processing (Filtration, Clarification, Pasteurization, Homogenization, Sterilization) Microbiology of milk & milk products. The process of testing milk for accepted quality standards;organoleptic testing of milk
2. Types of processed milk: pasteurized, toned, flavored & fermented milk, infant milk, milk powder,Preparation methods and principles of Paneer, cheddar Cheese, Curd, Yoghurt Process for producing dairy products: lassi, flavoured drink, kalakand, ice-cream, butter, cooking butter, ghee, fermented milk, condensed milk

SECTION-B

3. Importance of dairy industry. Various units within a dairy processing plant. Need for processing milk. Handling and operating of machineries used in a dairy processing plant: Homogenizer, pasteurizer, sterilizer, spray drier, drum drier, plate heat exchanger, evaporators, cream separator, ice cream-freezer, Gerber centrifuge, form fill seal machine, cheese making machine and equipments
4. Roles and responsibilities of a dairy products processor in a dairy processing plant. Trends in cleaning and sanitization of dairy equipment: biological; detergents; Automation; Ultrasonic techniques in cleaning; bio-detergents, development of sanitizers- heat; chemical; radiation, mechanism of fouling and soil removal; Bio-films, assessing the effectiveness of cleaning and sanitization of dairy products.

REFERENCES

1. De, Sukumar, 1991, Outlines of Dairy Technology, Oxford Univ. Press, ND
2. Walstra, P., 2005, Dairy Technology, Oxford Univ. Press, ND. Milk & Milk Products by Eckles, Combs, Henery C, and Willes C, 1997,Tata McGraw Hill Publishers, USA.
3. Warner JN, 1976, Principles of Dairy Processing, Wiley Science Publishers, USA.
4. Herrington BL; 1948, Milk & Milk Processing; McGraw-Hill Book Company.
5. Lampert LH; 1970, Modern Dairy Products, Chemical Publishing Company.
6. Developments in Dairy Chemistry – Vol 1 & 2; Fox PF; Applied Science Pub Ltd.

7. Outlines of Dairy Chemistry, De S; Oxford.
8. Richardson and Mead. 1999. Poultry meat science.
9. Pearson and Tauber. 1989. Muscle and meat biochemistry.
10. Pearson and Dutson. 1994. Quality attributes and their measurement in meat poultry
11. Romans. JR and Costllo WJ, Carlson WC, Greaser ML and Jones KW, 2004, The Meat We Eat, Interstate Publishers, USA

Practical (B.VFP-115)

M.M.45

1. Determination of specific gravity, SNF % and TS% of milk.
2. Estimate the milk fat by Gerber method.
3. To determine the Casein content of the milk.
4. To check the sterility of milk by Turbidity test.
5. To prepare a chart of physico–chemical properties and microbiological standards of milk and milk products.
6. Preparation of dahi, cream, buttermilk and paneer.
7. To prepare ice cream, testing of its quality
8. Phosphatasetest to check pasteurization of milk.
9. Platform tests of milk like organoleptic tests, clot on boiling test, alcohol test, pH and % acidity test- Alizarin Alcohol test.
10. Detection of various adulterants and neutralizer in milk
11. To determine percentage of overrun of ice-cream.
12. Analysis of ice cream for fat, % acidity, total solids, foreign fat
13. Demonstration on form fill seal machine
14. To study various parts of cream separator
15. To analyz quality of butter and ghee sample
16. Preparation and quality valuation of spray dried milk
17. Bacteriological estimation of milk by MBRT

B.VFP-211

PUNJABI-II

(QUALIFYING)

To download the Syllabus go to :

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B.VFP-212

HOLISTIC DEVELOPMENT-PERSONALITY DEVELOPMENT

OBJECTIVES

- Student will identify the Personality Patterns, Personal Effectiveness and Personality Determinants.
- Students will evaluate Interpersonal Relations, Analysis of Relations of different ego states and Analysis of Strokes.
- Student will learn the importance of stress management and time management.
- Learners will perform individual and group activities to combat stress and anger.
- Learners will practice collaborative learning and undergo interactive sessions for time management.
- Students will experience empirical learning for personality traits and perform various tests of personality.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Personality: Meaning & Concept, Personality Patterns, Symbols of Self, Moulding the Personality Pattern. Personality & Personal Effectiveness. Personality Determinants: An overview of Personality determinants. Evaluation of Personality: Sick Personalities and Healthy Personalities.

2. Introduction to Interpersonal Relations, Analysisof Relations of different ego states, Analysis of Strokes, Analysis of Life position, Introduction to Motivation, Relevance andtypes of Motivation, Motivating others

SECTION-B

3. Stress Management: Introduction to Stress, Causes of Stress, Impact of Stress, Managing Stress, Conflict Management: Introduction to Conflict, Causes of Conflict, Managing Conflict
4. Time Management: Time as a Resource, Identify Important Time Management Wasters, Individual Time Management Styles, Techniques for better TimeManagement.

REFERNCES

1. Lall& Sharma – Personal Growth Trainning& Development (Excel Books)
2. Janakiraman- Trainning& Development (Biztantra)
3. Hurlock., Elizabeth B - Personality Development (Tata McGraw Hill, 1st Ed.)
4. Sahu R..K. - Training for Development (Excel Books, 1st Ed.)
5. Prof. Achhru Singh & Dr. Dharminder Singh Ubha, Personality Development and Soft Skills.
6. Petri, H.L. and Govern, J.M., 2013, Motivation: Theory, Research, and Applications, (sixth edition) Wadsworth Cengage Learning: Belmont CA.
7. Stephen Robbins,OrganisationalBehaviour .
8.Keith & Davis, OrganisationalBehaviour.
9.Fred and Luthans, OrganisationalBehaviour.
10. K.A. Ashwatthapa, OrganisationalBehaviour.

Practical (BVFP-212)

M.M.45

1. Group activities + individual activities to resolve stress and conflict.
2. Collaborative learning for time management.
3. Interactive sessions based on time management.
4. Ensure Participation for personality development
5. Empirical Learning for personality traits.
6. To perform different personality tests
7. Personality Inventory administration.
8. Adjustment Inventory administration.

B.VFP- 213

BASICS OF FOOD PACKAGING

OBJECTIVES

- Students will learn about the basics of food packaging and designing of packages for various foods.
- Students will evaluate various packaging materials such as cellulose films, plastic films, aluminum foils and laminations.
- Students will develop knowledge of food packages bags, pouches, carton boxes, metal cans, and plastic & glass containers.
- Student will have understanding of packaging methods such as vacuum, gas, shrink and retort pouches, polyvinylchloride, polystyrene and inert gas packaging.
- Student will learn and practice packaging of cereals, fruits, vegetables, milk and milk products.
- Learners will conduct experiments to determine grease resistance and chemical resistance, water paper transmission rate and porosity of different packaging materials.
- Learners will evaluate the shelf life of packaged food.

Time Allowed 3hrs;MM: 74; Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

Section-A

1. Packaging - Introduction, Food Protection, functions of package, design of packages for various foods. Development of protective packaging- paper and paper boards.

2. Regenerated cellulose film, plastic films, Aluminium foils and laminations. Edible packaging, Food packages bags, pouches, carton boxes, metal cans, plastic containers, glass containers.

Section-B

3. Special packaging methods- vacuum and gas packaging, shrink package, retort pouches, Biodegradable packages.Flexible packaging materials: polyethylene, cellophone, PVC, Polystyrene, Inert gas packaging.
4. Packaging of cereals, fruits and vegetables, milk and milk products and meat and meat products.

REFERENCES

1. Sachrow& Griffin, "Food packaging".
2. Heiss R., "Principles of food packaging".
3. Paine E.A, "Fundamentals of packaging".
4. Day P.T., "Packaging of food beverages".
5. Brody AL, "Flexible packaging of Foods".
6. Gordon L. Robertson. Marcel Dekker. 1993, Food Packaging: Principles and Practice.
7.M. T. Crospy ,Food Packaging Materials.
8. M. Mahadevish R.V. Gowramma, Food Packaging Materials.
9. Stanley Sacharow, Food Packaging.

PRACTICAL (B.VFP-213)

M.M: 45

1. To determine grease resistance of packaging materials.
2. Determination of water vapour transmission rate of various packaging materials.
3. To find out the porosity of tin plate.
4. To find out the tin coating weight.
5. To find out the uniformity and amount of wax on wax paper.
6. To see the chemical resistance of packaging material.
7. Shelf life studies of packaging foods.
8. Puncture resistance of corrugated boxes.
9. Visit to various industries, dealing with food packaging materials like / paper, board and m

B.VFP-214 INTRODUCTORY FOOD MICROBIOLOGY

OBJECTIVES

- Students will learn the uses of microorganisms for preparation of various types of foods such as bread, curd etc.
- Students will gain awareness about the interaction between microorganism and the food environment and factors influencing the growth and survival.
- Students will develop knowledge about the characteristics of food borne, waterborne spoilage microorganism and methods for their isolation, detection and identification.
- Students will evaluate the effects of fermentation in food production and its influences on the quality and status of food.
- Students will practice different standard methods and procedures for the microbiological analysis of food.
- Students will be able to demonstrate the working of autoclave, laminar airflow and microscope.
- Students will perform cleaning and sterilization of plastic ware and glassware.
- Students will prepare and sterilize nutrient media.
- Students will perform culturing of microbes on media and identify their morphological features using various staining methods.

Time Allowed 3hrs;MM: 74; Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Introduction to Food Microbiology ,Important terms related to Food Microbiology , physical, chemical and microbiological parameters for hygienic production of food, Safety Regulations for the Food Microbiology Laboratory

2. Types of microorganisms, Classification and Nomenclature ,Morphology and Structure and their importance in foodbacteria, fungi, viruses,molds,yeast), Microscopy, use of compound microscope,

SECTION-B

3. Microbial Growth in Food , Microbial Growth Characteristics- Bacterial growth curve Factors affecting the growth of micro organisms, Sources of Microorganisms in foods,list of Some important food spoilage bacteriaChanges caused by micro-organisms
4. Cultivation of Micro-organisms : Methods of isolation and cultivation, Pure culture techniques (Streak plate, spread plate and serial dilution method), Hygienic handling of Food

PRACTICALS (B.VFP-214)

M.M. 45

1. Introduction to Food Microbiology and Laboratory Safety

2. Use of autocalve, Laminar air flow/ Functioning and use of compound microscope

3. Cleaning and sterilization of glassware

4. Preparation and sterilization of nutrient broth

5. Cultivation and sub-culturing of microbes

6. Preparation of slant, stab and plates using nutrient agar

7. Morphological study of bacteria and fungi using permanent slides

8. Simple staining,GramStaining,Negative staining

9. Standard Plate Count of Milk and Foods

10. Heat, Cold and Other Stress Factors Affecting Microbial Growth

11. Isolation and Identification of *Escherichia coli*

REFERENCES

1) Frazier William C and Westhoff, Dennis C. Food Microbiology, TMH, New Delhi, 2004

2) Jay, James M. Modern Food Microbiology, CBS Publication, New Delhi, 2000

3) Garbutt, John. Essentials of Food Microbiology, Arnold, London, 1997

4) Pelczar MJ, Chan E.C.S and Krieg, Noel R. Microbiology, 5th Ed., TMH, New Delhi, 1993 FOOD QUALITY

5)Essentials of Microbiology; K. S. Bilgrami; CBS Publishers, Delhi

6) Basic Food Microbiology; Bannett, Chapman and Hall

7) Food Microbiology; M. R. Adams 7. Hand Book of Microbiology; Bisen

B.VFP-215

FOOD PRODUCTS PACKAGING TECHNOLOGY

OBJECTIVES

- Students will identify different types and categories of packaging material.
- Students will gain the information about packaging requirements for various food products.
- Students will acquire knowledge about evaluation of quality and safety of packaging materials.
- Students will learnabout Food Safety Standards and Regulations.
- Students will have the knowledge about developments in food packaging materials.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Types of packaging material and categories of packaging material, Types of packaging material used for packing various food products, Packaging requirements and their selection for raw and processed foods : Meat, fish, poultry, eggs : Milk and dairy products : Fruits and vegetables : Cereal grains and baked food products : Beverages : Snacks
2. Forms of packaging – box, bottle, tetra, pouch, shrink, vacuum, gas, CAP, MAP, asceptic etc. process parameters for all categories of packaging for each product,Selection of packaging material and design, Evaluation of quality and safety of packaging materials – different testing procedures. Brief Introduction to WVTR, GTR, bursting strength, tensile strength, tearing strength, drop test, puncture test, impact test

SECTION-B

3. Packaging Machinery: Bottling, can former, form fill and seal machines, bags – their manufacturing and closing, vacuum packs unit, shrink pack unit, tetra pack unit , Package labeling – functions and regulations,
4. Newer packaging technologies- CAP/MAP packaging, aseptic processing and packaging, irradiated packaging, retort pouch, microwaveable packaging, packaging standards and legislation in food packaging materials, knowledge on Food Safety Standards and Regulations (as per FSSAI),recent developments in food packaging materials.

REFERENCES

1. Gordon L. Robertson. Marcel Dekker. 1993 Food Packaging: Principles and Practice.
2. Potter, N.N. Food Science, 2006, CBS Publishers 5th Ed., SBS Publishers, New Delhi.
3. Sethi, M. 2001, Food Science CBS Publishers, ND.
4. Crospy, M. T. Food Packaging Materials.
5. M. Mahadevish,M.,Gowramma. R.V. Food Packaging Materials
6. Stanley Sacharow. Food Packagin
7..E.A. Paine, Fundamentals of packaging.
8. P.T. Day, Packaging of food beverages.
9. A.L. Brody, Flexible packaging of Foods.

PRACTICAL (B.VFP-218)

M.M: 45

1. Identification of different types of packaging and packaging materials
2. Identification of different types of packaging and packaging materials.
3. To perform different destructive and non- destructive test for glass containers.
4. Determination of tensile strength of given material.
5. Determination of tearing strength of paper

6. Determination of water vapour transmission rate.
7. Determination of drop test of food package.
8. Visit to food packaging industries.
9. To demonstrate vacuum and shrink packaging.
10. Demonstrate the intelligent packaging.
11. Measurement of thickness of packaging materials
12. Determination of wax weight
13. To perform grease-resistance test in plastic pouches
14. Determination of bursting strength of packaging material
15. Demonstration of can-seaming operation
16. Testing of chemical resistance of packaging materials
17. Show videos of latest trends in packaging consulting websites.

B.VFP-221

DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION

COMMON FOR ALL UNDERGRADUATE DEGREE COURSES PART-I(SEMESTER-II)
QUALIFYING SUBJECT-DRUG ABUSE:PROBLEM, MANAGEMENT AND PREVENTION

B.VFP-311

COMMUNICATION SKILLS-I

Max. Marks:75 , Total lectures: 60 hrs.

English communication Skills has been designed to develop the student's communicative competence in English. Therefore, content selection is determined by the student's present and future academic, social and professional needs.

Texts Prescribed:

1. Literary Skills: Flights of Fancy (Poems 1-15)– Bakhshish Singh (editor)
2. Writing Skills: The Written Word- Vandhana R. Singh

Section –A (Literary)

Attempt Any Two

1. One essay type question based on main ideas/summary of poems from "FLIGHTS OF FANCY" in about 250 words.(15 marks)
2. Short answer questions .Five to be attempted out of the given eight questions in about 50-60 words each.(5 x 3=15 marks)
3. Use of 15 words out of given 20 words in sentences after giving their meanings. (15 x 1=15 marks)
4. Explain two stanzas with reference to the context. (7.5 x 2 = 15 marks)

Section- B (Writing Skills)

Attempt Any Two

5. Letter writing (personal)(15 marks)
6. Developing one short story on the basis of hints provided.(15 marks)
7. Writing two short passages on the given topics (Current Economic, Political and Sports Affairs). (15 marks)
8. Make 15 dialogues from a given prose passage. (15 marks)

Section- C

Attempt All

9. This section will cover the entire syllabus. All ten very short questions to be attempted in one sentence each.(10 x1.5 = 15 marks)

BVFP-312: INTRODUCTION TO GRAIN MILLING & MACHINERIES

OBJECTIVES

- Students will gain information about the general principles and working of grain milling machinery.
- Students will learn and evaluate various properties of different flours such as moisture content, gluten content, protein content, alcoholic acidity, water absorption capacity and ash content.
- Students will identify the traditional and latest pretreatment methods in this area.
- Students will acquire knowledge about the modern and improved milling machinery utilized in the milling industries.
- Learners will undergo visit to flour and rice mills for hands on experience.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Milling of Wheat: milling preconditioning, cleaning, washing and drying, operation flow charts of domestic and commercial attachakies, mini flour mills and roller flour mills. Modern flour mill: General Principles and machine operations – break system, reduction system, sifting, purification, flour bagging and storage and flour treatment
2. Types of maize. Milling of corn. Methods of cleaning, grading, milling. Standards for wheat flour. Production of different wheat and corn product. adulteration in flour

SECTION-B

3. Dal milling: pre milling treatments of pulses, pulse milling and recent development. Principle of dal milling. Pulses suitable for milling. different methods of dal milling. working and principle of dal mill, pre-treatment in dal milling
4. Working with grain milling machinery: hammer mill, Groundnut decorticator hand operated, mini dal mill, mini rice mill, mini oil expeller, grain cleaner, mini grain mill, wheat flour mill, micro pulverizer and destoner

REFERENCES:

1. Kent, N.L. and Evers, A.D. 4th Edition. 1983, Technology of Cereals, Woodhead Publishing Limited, U.K.
2. Maiz, S.A. 1996, The Chemistry and Technology of Cereals as Food and Feed, CBS Publishers, New Delhi.
3. Potter, N.N. 5th Ed. 2006, Food Science, SBS Publishers, New Delhi.
4. Durbey, S.C. 1979. Basic Baking: Science and Craft Gujrat Agricultural University, Anand (Gujrat).
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7. Chapman and Hall(1992).The chemistry and technology of cereals as food and feed.

PRACTICAL(B.VFP-312)

M.M. 45

1. Milling of Wheat flour.
2. Determination of Gluten content in wheat/corn flour sample.
3. To determine water absorption capacity of wheat flour/maida
4. Determination of adulterant ($NaHCO_3$) in wheat flour/maida

5. Determination of alcoholic acidity of the sample of wheat flour/maida.
6. Visit to a working modern roller flour mill and FCI godowns.
7. Determination of wet and dry gluten of a given flour sample
8. Visit to working rice mill, collection of samples at various steps of milling and analysis for efficiency of cleaning, shelling, paddy separator and degree of polish
9. Traditional and improved pretreatments and its effect on dehusking of some legumes
10. Estimation of moisture content of different flour using hot air oven method
11. Determination of ash content of flour

B.VFP-313 FUNDAMENTALS OF FOOD BIOCHEMISTRY

OBJECTIVES

- Students will learn about the biochemistry of carbohydrates and proteins.
- Students will develop knowledge about enzymes: classification, features, activity, inhibition and application of enzymes in food industry.
- Students will acquire knowledge about lipid peroxidation and its mechanism, and antioxidants types and functions.
- Students will gain awareness about food additives and their importance in food industry.
- Learners will perform experiments to determine TSS, acidity, pH, acid value, vitamin C content, protein content, fat content and ash content of given food sample.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION –A

1 **Carbohydrates**: Changes in carbohydrates on cooking, browning and Maillard reaction, metabolic pathways (Glycolysis). Proteins: Sources of proteins; Enzymatic and non enzymatic browning, Texturization- spin and extrusion process.

2. **Enzymes:**Enzymes classification, Enzyme specificity, coenzymes, cofactors, factors affecting enzyme activity, Enzyme kinetics, Lineweaver-Burk plot, Enzyme inhibition and application of enzymes in food technology.

SECTION- B

3. **Lipid peroxidation**: Mechanism and inhibition-enzymatic and non-enzymatic, antioxidants in foods; Types and function.

4. **Food additives:**Flavor enhancers (monosodium glutamate, 5-nucleotides and maltol).Pigments: Introduction and significance of natural pigments in food - Chlorophylls, Carotenoids, Anthocyanins, Flavonoids, Tannins.

REFERENCES

1. G.A. Tucker and L.F.J. Woods, 1995, Enzymes in Food Processing, Blackie Academic & Professional, USA.

2. H.D. Belitz, W. Grosch and P. Schieberle, Springer Verlag, Berlin (2004), Food Chemistry.

3. D.D. Miller, Wiley-Blackwell, 2014, Food Chemistry: A Laboratory Manual, USA .

4. L.W. Aurand, A.E. Woods and M.R. Wells, 1987, Food Composition and Analysis, AVI Publishers, USA .

5. D.W.S. Wong, Chapman & Hall, UK (1995), Food Enzymes: Structure & Mechanism.

6. N.N. Potter and J.H. Hotchkiss, Springer, Netherlands 1999, Food Science.

7. M.I. Gurr, J.L. Harwood and K.N. Frayn,2002, Lipid Biochemistry: An Introduction, Blackwell Science Ltd., UK.

8. J.M. de Man, 1999, Principles of Food Chemistry, AN ASPEAN Publication, USA.

PRACTICAL (B.VFP-313)

M.M. 45

1. Determination of TSS value of given food product.
2. Determination of acidity of food products.
3. Determination of pH of food product.

4. Determination of acid value in given oil.
5. Estimation of salt content in given food stuff.
6. Determination of vitamin C by titration method.
7. Determination of Protein by kjeldhal method.
8. Determination of fat by soxhlet apparatus.
9. Qualitative estimation of sugars.
10. Determination of ash content.

B.VFP-314INTRODUCTION TO CEREAL & LEGUME PROCESSING

OBJECTIVES

- Students will learn about the structure and chemical composition of cereals such as wheat and rice.
- Students will gain knowledge about role of wheat flour milling, extraction rate and milling systems.
- Students will develop knowledge about structure and chemical composition of pulses and pre-treatments of pulses before milling.
- Student will experience working of machinery and equipments employed in milling industry and traditional milling process.
- Learners will perform milling of wheat flour and determination of its gluten content.
- Learners will prepare chapattis, bread, cakes, biscuits and fried snacks.
- Students will identify different pulses and prepare germinated foods.
- Students will practice parboiling of rice and malting of barley.

Time Allowed 3hrs;MM: 74; Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Structure and chemical composition of cereals – Wheat and Rice
2. Wheat flour milling, extraction rate and milling systems. Improvers and bleaching used in flour. Milling and preparation of Paddy, Rice Bran Oil. Parboiling of rice

SECTION-B

3. Introduction and brief description of pulses, Structure and chemical composition of pulses (moong, mash, lentil, gram beans, cowpea), Pretreatments given to pulses before milling.
4. Working of machinery and equipments employed in milling industry, Traditional milling process- merits and demerits, Drying of legumes- sundrying, precleaning, oil application, conditioning, dehusking and splitting. Grinding of split pulses, pulse flour products and their applications.

REFERENCES

1. Kent, N.L. and Evers, A.D. 4th Edition. 1983, Technology of Cereals, Woodhead Publishing Limited, U.K.
2. Maiz, S.A. 1996, The Chemistry and Technology of Cereals as Food and Feed, CBS Publishers, New Delhi.
3. Potter, N.N. 5th Ed. 2006, Food Science, SBS Publishers, New Delhi.
4. Durbey, S.C. 1979. Basic Baking: Science and Craft Gujrat Agricultural University, Anand (Gujrat).
5. Chakraverty, A. 1988. Post Harvest Technology of Cereals. Pulses and Oilsedds, Oxford and IBH, New Delhi.
6. Ruth H. Mattlews (1989). Pulses- Chemistry, Technology and Nutrition, Mercel Dekker Inc. USA
7. Chapman and Hall, 1992, The chemistry and technology of cereals as food and feed.

PRACTICAL (B.VFP-314)

M.M. 45

1. Milling of Wheat flour.
2. Determination of Gluten.
3. Preparation of chapattis, bread, biscuits and cakes.
4. Parboiling of Rice.

5. Determination of crude fiber, ash, protein and fat.
6. Study of malting of Barley.
7. Identification and description of common pulses.
8. Preparation offried snacks and baked goods
9. Preparation of germinated foods.
10. Visit to food industry

BVFP-315 FUNDAMENTALS OF FOOD & NUTRITION

OBJECTIVES

- Students will learn definition and classification of food.
- Students will develop understanding about carbohydrates, proteins, fats, vitamins and minerals.
- Students will have information about nutritive value of different food groups.
- Students will gain knowledge about effects of deficiency & overconsumption of different nutrients.
- Learners will interpret nutritional information in different packed foods available in the market.
- Learners will conduct experiments to determine iodine value, acid value, saponification value and lipid composition of wheat grain.
- Students will perform qualitative and quantitative determination of carbohydrates and proteins in food.
- Students will evaluate and prepare diet chart for normal physiological conditions.
- Students will identifyDietary allowances and standards for adult man/woman, pre-school children, adolescents, old age people and athletes

Time Allowed 3hrs; MM: 74; Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Introduction to Food: Definition, classification and constituents of food: Carbohydrates, Fats, Proteins,Fat soluble vitamins- (A,D,E and K) Water soluble vitamins – (Thiamin, Riboflavin,

Niacin, Pyridoxine, Folate,Vitamin B12 and Vitamin C) Minerals – (Calcium, Iron, Zinc, Iodine and Flourine).

2. Nutritional Concept in Food Design: Nutritive values of cereals, pulses, oil seeds, fruits vegetables, fish, meat and eggs

SECTION-B

3. Functions of food, Effect of deficiency & overconsumption of dietary sources on health, Basic food groups,Recommended Dietary Allowance (RDA), Food guide pyramid, Dietary fibers, Functions of water in body. . Balanced Diet: Definition, food groups used in planning balanced diets.

4. Nutrition: Basic terms used in nutrition, relationship between food, health and nutrition, bioavailability of nutrients. Basal Metabolic Rate (BMR). Protein quality, Dietary allowances and standards for different age groups: adult man/woman, pre-school children, adolescent children, pregnant woman. geriatric nutrition, nutrition for athletes

REFERENCES

1. N. ShakuntalaManay& M. Shadaksharaswamy Food Facts and Principles by, NewAge International (P) Ltd. Publishers.
2. N. Potter & J. Hotchkiss, Food Science CBS Publisher and Distributors.
3. ManoranjanKalia and SagitaSood, Food Preservation and Processing by KalyaniPublishers.
4. Shubhangini Joshi, Nutrition and DieteticsTata Mcgraw Hill Co. Ltd.
5.M. Swaminathan, Vol-I Food and Nutrition , Bangalore Printing and PublishingCo.
6. Gopalan C, Rama Sastri BV, Balasubramanian SC .1989. Nutritive Value of Indian Foods. National Institute of Nutrition, ICMR, Hyderabad.
7. Wardlaw and Insel MG, Insel PM. 2004. Perspectives in Nutrition.Sixth Edition, McGraw Hill.
8.Srilakshmi B2012. Nutrition Science. 4th Revised Edition, New Age Interntional Publishers.
9. Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, PuriS .Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.

10. ICMR.2010. Recommended Dietary Allowances for Indians. Published by National Institute of Nutrition, Hyderabad
11. Antia, F.P. and Abraham, P. 2011: Clinical Dietetics and Nutrition, Fourth Edition, Oxford University Press.
12. Joshi, V.D. 2005: Handbook of Nutrition and Dietetics, Vora Medical Publications, Mumbai.
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14. Sharma, R. 2011: Diet Management, Fourth Edition, Elsevier, A Division of Reed Elsevier India Private Limited.

Practical BVFP-315

M.M. 45

1. To study nutritional information in different packed foods available in the market.
2. Estimation of iodine value of fats and oils.
3. Determination of acid value of fat.
4. Estimation of saponification value of fat.
5. Lipid composition of wheat grain.
6. Qualitative and quantitative determination of carbohydrates in food
7. Qualitative and quantitative determination of proteins in food
8. Planning of diet chart for normal physiological conditions.
9. Preparation of scrap files showing overconsumption and deficiency of different food components.

B.VFP-411ENVIRONMENTAL&ROAD SAFETY AWARENESS

(Now Shift to Part-II (Sem. III)

COMMON FOR ALL UNDERGRADUATE DEGREE COURSES PART-II (SEMESTER-IV)
QUALIFYING SUBJECT- ENVIRONMENTAL&ROAD SAFE

B.VFP-412

HOLISTIC DEVELOPMENT-II PHYSICAL TRAINING

OBJECTIVES

- Studentswill develop understanding about sports relationships and sports performance in India.
- Students will gain knowledge about sports injuries and first aid, sports psychology and anxiety.
- Learners will identify and evaluate rules and regulations of different games such as badminton, discuss throw and high jump.
- Learners will perform the measurement and preparation of the field.
- Students will identify different requirements for game such as equipment's, materials and technique.
- Students will be able to demonstrate duties of officials, knowledge of score sheet and signals of officiating.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION -A

1. **Sports relationship:** Role and importance of sports and economy, sports and politics.
2. **Sports performance:** Causes and remedial measures of India's poor performance in Sports.
3. **Sports injuries: -** Causes symptoms, first aid, treatment and prevention of (Sprain, Strain, contusion, dislocation & fracture).
4. **First Aid:-**Meaning, principles and qualities of first aider. First aid for dislocation, burns, electric shock, drowning and heat stroke**.**

SECTION -B

5. **Sports Psychology: -**Meaning andImportance in Physical education and sports and competition. Psychological factors affecting physical performance.
6. **Anxiety and Aggression:** Meaning and remedial measure of anxiety and aggression in sports.
7. **Badminton:** History, layout, General rules and regulation, officials, Major tournaments and Arjuna awardees.
8. **Discuss Throw:**Rules and regulations, Layout and Technique.
9. **High Jump**: Rules and regulations, Layout and Technique.

REFERENCES

1. Kang G.S. Deol N.S, 2008,An introduction to Health and Physical Education 21st century Patiala.
2. Blair,jones,and Simpson; 1962, Educational Phychology,The Macmillan Co.,New York,
3. Lindgren.H.E., 1962,Educational Phychology in the class Room,newdelhi,johnwiley& sons,
4. Whiting HTA; 1972, Reading in sports Phycholgy,HenryKimptonPublihser London.
5. Dhaliwal,A.S.VidyakManovidyan,Patiala.Punjabi University.
6. Puni,A.T. 1980, Sports Psychology:An abridged translation by G.S.Sandhu,NIS Patiala.
7. Suin,R.M, 1982., Psychology in Sports,Mehtods and applications,surjit publications ,new delhi.
8. Ajmer Singh and Jagtar Singh, 2004,Gill;Essentail of Physical education and Olympic movement KalyaniPublishers,Ludhiana..
9. Swami Siranander: 1978, The Science of Paranayama,published by the Divine life society P.O. ShivanandaNagar.Distt. TehriGarhgwal,U.P.Himalayas Ind.
10. Yogendra,1975, Facts about,KuvalayaDhama,Lonavala Bombay.

11. Bucher Olsen and Willgoose; 1976, The Foundation of Health,prentice Hall inc.EnglewoodFliffs,New Jersey.
12. Turner Sellery and Smith, 1961, School Healthand HealthEducation.The C.V. Mos by Company St.Loius.
13. Ajmer Singh and Jagtar Gill, 2004, Essentialof Physical Education and Olympic Movement.KalyaniPublihsers,Ludhiana.
14. G.S.Kang:-Anatomy,physilgoy and Helath Education ,Published by Publication Bureau,PunjabiUniversity,Patiala.

PRACTICAL (B.VFP-412)

M.M. 45

BADMINTON, DISCUSS THROW and HIGH JUMP

Evaluation will be based on skill test, performance &viva voce.

Contents to be covered during the practical sessions:

1 Measurement of the field and preparation of the field.
2 Equipments and Materials of the game/ Event.
3 Fundamental skill and lead up game.
4 Techniques.
5 Rules and Regulations of the game/ Event.
6 Officiating:
   (i) Duties of officials.
   (ii) Knowledge of score sheet.
   (iii) Signals of officiating

B.VFP-413FOOD SPOILAGE AND CONTROL

OBJECTIVES

- Students will learn about various components of microscope and its principle.
- Students will gain information about spoilage of food by various microorganisms.
- Students will have knowledge about food adulteration.
- Students will evaluate major causes of food spoilage such as various physical, chemical and microbiological.
- Students will develop knowledge about bacterial and non-bacterial food born diseases.
- Learners will develop understanding about laboratory orientation and familiarization with various laboratory instruments.
- Learners will perform various techniques to isolate and identify microorganisms from food samples.
- Students will practice drying /Freezing of given food material.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Microscope and microscopy -Principles and types of different microscopes, staining and staining techniques; Control of microorganisms, Control ofenzymes & other factors

2. Food preservation; Principles and methods of food preservations(Physical;Drying,Freezing, Irradiation&Chemicals;Nitrites,NitratesSulphites,Sulphates and Antibiotics);Food adulteration,methods of evaluation of food adulterants

SECTION- B

3. Food Contamination and spoilage:Major Causes of food spoilage(Physical,Chemical and Microbiological) Spoilage of fruits and vegetables, meat and meat products, fish, eggs, milk and milk products and canned foods.

4. Food borne Diseases: Bacterial food borne diseases (*Salmonella, Enterohemorrhagic E. coli, Listeria monocytogenes, Staphylococcus aureus, Clostridium botulinum, Clostridium perfringens, Bacillus cereus*), Non bacterial Food borne diseases (Mycotoxin, Aflatoxin, Patulin,Ochratoxin).

REFERENCES

1. James M Jay, Modern Food Microbiology ,CBS Publishers New Delhi
2. Pelczar, Chan & Krieg; Microbiology,Tata-McGrawHill Pub
3. Stanier, R.Y. Adelberg, E.A. and Ingraham, J.L. (1984), General Microbiology, IV edn Mac Millan Press.
4. Prescott. L.M. Harley J.P. and L. Kreig D.A. (1990). Microbiology, WCB Publishers.

PRACTICAL (B.VFP-413)

M.M : 45

1. Laboratory orientation and familiarization with Laminar air flow, analytical balance, oven, incubator, colony counter, autoclave, laboratory shaker
2. Demonstration of compound microscope
3. To performsimple, negative, grams staining techniques
4. To perform streak plate andspread plate techniques
5. Isolation of microorganism from food samples.
6. To perform drying /Freezingof given food material.
7. To analyze adulterants in given food material.

B.VFP-414 QUALITY CONTROL & REGULATIONS

OBJECTIVES

- Students will learn about Good laboratory practices and Good manufacturing practices.
- Students will have knowledge about role and importance of different food regulatory authorities in India.
- Students will evaluate the need, scope and limitations of labeling and its components, regulations of labeling of irradiated products and organic foods, legal issues involved in labeling, and basics of Indian drug and cosmetics Act.
- Student will gain knowledge about biosafety guidelines for research.
- Learners will identify and evaluate ISO 22000 certified Indian companies.
- Learners will gain awareness about concept of HACCP, FSSAI-2006 and GMP.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Good laboratory practices and good manufacturing practices. Safety practices in the production areas.
2. Role of regulatory authorities in India - functioning, legal acts and their enforcements Concept of HACCP - Hazard assessment, ISO 22000 regulations. FSSAI-2006,BIS,AGMARK& FDA

SECTION-B

3. Need, scope and limitations of labelling - components of labelling and regulationsoflabelling of irradiated products, organic foods, Legal issues involved, Indian drug and cosmetics Act.

4. Biosafety guidelines for research, environmental aspects of GMOs, handling and disposal of laboratory organisms.

REFERENCES

1. Bare Act, Indian Patent Act 1970 Acts & Rules, Universal Law Pubs. Ltd., 2007.
2. Kankanala C., Genetic Patent Law & Strategy, 1st Edition, Manupatra Information Solution Pvt. Ltd., 2007.
3. G.C. Mclauyjlin, Total Quality in Research and Development.
4. Ralph Early, Guide to Total Quality Management.
5. Feighan Baum.,Total Quality Management.
6.Duncan, Total Quality Management.
7. J. Woodali, Total Quality in Information Systems and Technology.
8. R Early, BlackieAcademic, NY, 1995, Guide to Quality Management Systems for the Food Industry.

PRACTICAL (B.VFP-414)

M.M. 45

1. A brief about ISO 22000 certified Indian companies.
2. To study the concept of HACCP.
3. To study the essential elements of GMP.
4. To study biosafety guidelines.
5. To study the safety practices in production area.
6. Study of FSSAI-2006.

B.VFP-415FRUIT AND VEGETABLE PROCESSING

OBJECTIVES

- Students will identify and classify various types and classification of fruits and vegetables.
- Students will understand the physiological changes occurring in fruit and vegetables during harvesting and storage.
- Students will familiarize with processing techniques used for fruits and vegetables.
- Students will establish the quality specification for the processing of fruit and vegetables.
- Students will develop a detailed understanding of the different fruits and vegetables techniques like canning, freezing, drying, pickling and squash making.
- Learners will prepare jams, jellies, juices, pickles, tomato ketch-up, sauce, chutney, potato chips and finger chips from fruits and vegetables.
- Students will evaluate organoleptic properties of fruits & vegetables.
- Learners will determine firmness, moisture content, starch content, TSS and viscosity of different fruits and vegetables.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Chemical composition, post harvest changes, Preparing fruits and vegetables for processing.
2. Natural, Ventilated and controlled atmosphere storage, Low temperature storage, Fruit & Vegetable processing plant layout and processing line, Fruit &Vegetable product quality standards & quality control measures.

SECTION-B

3. Canning of fruits and vegetables: basic requirements, process, machinery, operation. Effect on food. Drying/Dehydration of fruits and vegetables: types, process, machinery, operation, Problems related to storage of dehydrated products
4. Definitions, formulation and preparation of fruit juices, Jams, jelly, pickles, tomato products (sauce), potato chips: principle, processing techniques.

REFERENCES

1. Srivastava, R.P. and Kumar, S. 1998. Fruit and Vegetable preservation: Principles and Practices. 2nd Ed. International Book Distributing Co. Lucknow.
2. Salunkhe, D. K. and Kadam, S.S. Ed. 1995. Handbook of vegetable Science and Technology, Production, Composition, Storage and Processing. Marcel Dekker, New York.
3. Dauthy, M.E. 1997. Fruit and Vegetable processing. International book Distributing Co. Lucknow, India.
4. Lai. G. Siddappa, G. and Tondon, G. L. 1986. Preservation of Fruit and Vegetables, Indian Council of Agricultural Research, New Delhi.

PRACTICAL(B.VFP 415)

MM.45

1. Preparation of jams and jellies from different fruits.
2. Extraction and preservation of Fruit Juices.
3. To prepare different types of pickles (sweet & sour).
4. Organoleptic evaluation of fruit & vegetable products.
5. Estimation of Ascorbic Acid content spectrophotometrically.
6. Determination ofBrix : Acid ratio of fruits and vegetable products
7. Testing Pectin in fruit juices and pulp.
8. Drying by different methods of fruits and vegetables.
9. Preparation of tomato ketch-up, sauce & chutney.
10. Preparation of potato chips, finger chips.

11. Utilization of waste for preparation of different products like vinegar, starch, pectin.
12. Determination of firmness of seasonal fruit by penetrometer.
13. Determination of moisture content of processed fruit/vegetable product.
14. Determination of starch content of apples/potatoes.
15. Determination of total soluble solids by refractometer.
16. Determination of viscosity of different food products.

B.VFP 511

COMMUNICATION SKILLS II

Max. Marks: 75Lectures to be delivered: 75

COURSE CONTENT

The course content shall compromise the following books:

1. *Perspectives: Selections from Modern English Prose and Fiction*, edited by S.A. Vasudevan and M. SathyaBabu, Published by Orient Longman.

2. *Six One-Act Plays*, edited by Maurice Standford. Published by Orient Longman.

TESTING

The paper shall have two sections. Section-A shall comprise testing from *Perspectives: Selections from Modern English Prose and Fiction* while Section-B from *Six One-Act Plays*.

SECTION-A: PERSPECTIVES

Q. 1Based on the section entitled "Prose", comprising chapters 1 to VI.

1. One essay-type question with internal alternative. The answer should not exceed 250 words. 10 Marks

2. Five short-answer questions to be attempted out of seven. Each answer shouldbe written in 25 to 30 words. 5X2=10 Marks

Q. 2 Based on the section entitled "Fiction", comprising chapters VII to IX.

(a) One essay-type question with internal alternative on character/theme and incident/episode. The answer should not exceed 250 words. 10 Marks

(b) There will be one short answer question from each of the three stories. The candidate shall be required to attempt any two. Each answer should be written in 25 to 30 words.$2X2^{1}/_{2}$ =5 Marks

Q. 3Based on the section entitled "Biographies", comprising chapters X to XII.

(a) One essay-type question with internal alternative. The answer should not exceed 250 words. 10 Marks

(b) There will be one short answer question from each chapter. The candidate shall be required to attempt any two. Each answer should be written in 25 to 30 words.
$2X2^{1}/_{2}$ =5 Marks

SECTION–B: SIX ONE-ACT PLAYS

Q. 4(a) One essay-type question on character, incident/episode and theme, withinternal alternative. The answer should not exceed 250 words.15 Marks

(b) Five short-answer question to be attempted out of seven. Each answer should be written in 25-30 words. 5X2=10 Marks

B.VFP-512

MARKETING AND RETAIL MANAGEMENT

OBJECTIVES

- Students will learn about the marketing process and strategic planning of food processing industries in the world.
- Students will gain information about the marketing environment, consumer markets, consumer buyer behaviour, rural and urban industrial marketing.
- Students will gain knowledge about role of advertising, promotion, product and service strategies.
- Student will develop understanding about product, brand and sales management.
- Students will identify trends in retailing, communication and customer relations.
- Learners will identify different branded food items and determine their qualitative and quantitative comparison.
- Learners will conduct survey and prepare a report on consumer behavior with respect to a particular product.
- Learners will identify parameters of customer satisfaction.
- Students will prepare industrial unit set up for a product.

Time Allowed 3hrs;MM: 74; Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Marketing in FPI inthe global world, strategic planning and the marketing process, themarketing environment, consumer markets and consumer buyer behavior Rural Marketing,industrial Marketing
2. Marketing strategy – Overview, advertising and promotion, Product and services strategy, Pricing products, Distribution and supply chain management channels,Direct and onlinemarketing, competitive strategies

SECTION-B

3. Product and Brand Management, consumer buying behavior, Sales Management and sales promotion,, Food product handling and transportation
4. Place of Retailing in the Marketing Mix, Trends in retailing, Communication and Customer Relations, Managing People at Work - Recruitment and Motivation,Total Quality Management, product development, globalization in food industries

REFERENCES

1.Robert Reeder, Edward G, Industrial Marketing – Analysis, Planning and Control.
2. Krishna K. Havaldar, Industrial Marketing ,Tata McGraw Hill
3. JagdishSheth& G shainesh, Customer Relationship Management,
4. Michael Levy, Retailing Management.
5.SwapnaPradhan, Retailing Management – Text & Cases.
6. Gibson Vedamani, Retail Management.
7. Walker and Larreche, Marketing Strategy – Boyd,McGraw Hill Irwin
8. David Aaker, Strategic Market management, John wiley& sons
9. George Belch, San Diego University Michael Belch, Advertising and Promotion: An Integrated Marketing Communications Perspective, San Diego University
10. Rajeev Batra, John G. Myers, David A. Aaker, Advertising Management.

11.Schiffman&Kanuk, Consumer Behavior, 6th edition Prentice Hall India

12. Loudon & Della Bitta, Consumer Behavior, 4th edition Tata McGraw Hill

13.Suja R Nair, Consumer Behaviour in Indian Context, Himalaya Pub. House.

14. Hawkins Best & Coney, Consumer Behavior building marketing strategy, 7TH editionMcGraw Hill International edition

15. SatishBatra& S. H. H. Kazmi: Consumer Behavior Text & Cases (Excel)

16.Cundiff&Govani Prentice, Sales management – Still, Hall India

17. Lehmann, Product Management.

PRACTICAL(B.VFP-512)

M.M.45

1. To collect different branded food items and their qualitative and quantitative comparison.
2. To conduct survey and prepare a report on consumer behavior with respect to a particular product.
3. To study parameters of customer satisfaction.
4. To plan for industrial unit set up for a product.
5. To study advantages & disadvantages of on line shop

B.VFP-513

SUGAR PROCESSING TECHNOLOGY

OBJECTIVES

- Students will learn about the properties of sugarcane and sugar beet.
- Students will gain information about different sugar production processes.
- Students will develop understanding about the techniques and instruments involved in preparation of different confectionary products.
- Students will prepare or manufacture different sugar products such as coffee, fudge, chewing gum etc.
- Learners will conduct experiments to determine acidity, ash content, and moisture content of sugar products.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION A

1. **Introduction**Sugarcane and sugar beet as sugar raw materials. Flow charts for manufacture of Granulatedsugar and Liquid sugars. Properties of Granulated sucrose and Liquid Sugars. Invert sugarand their characteristics. Specialty products of Sugar Industry. Back strap Molasses and itsuses. Applications in animal feed.

2. **Sugar production processes:** Extraction of juice, extraction yields, drying and uses of Bagasse, Purification of juices-Juicefiltration and chemical purification, Clarification stages, Lime addition, pH control,Treatment of clarified juice, evaporation –multiple effect evaporators, Vacuum pans,Crystallization, Washing of sugar crystals and centrifugal separation/dewatering of sugarandother related processes. Sugar Refining, Sugar analysis, Sugar recovery – improvement,Sugar balance, energy conservation, Sugar plant sanitation.

SECTION B

3. **Technology of Confectionery manufacture:** General technical aspects of industrial sugar confectionery manufacture, Manufacture of highboiled sweets – Ingredients, Methods of manufacture – Types – Center – filled, lollipops,coextruded products. Manufacture of gums and jellies – Quality aspects
4. **Technology of Chocolate manufacturing and Miscellaneous Products:** Chocolate manufacturing ingredients and their role as food additives. Machineriesinvolved in the process of manufacturing chocolates. Caramel,Toffee and fudge-Licorice paste and aerated confectionary,Lozenges,sugar panning and chewing gum

TEXT BOOKS

1. E.B. Jackson, 1999, Sugar Confectionery Manufacture, Second edition, Aspen publishers Inc., Great Britain

2. Guilford L Spencer and George P. Made, 1993, Cane Sugar Hand Book, John Wiley and sons Inc. London

3. P. ManoharaRao: Industrial Utilization of Sugar Cane and its co-productsP.J.International Consultants, New Delhi

REFERENCES

1. Maurice Shachman, Soft Drinks Companion: (2005). A Technical Handbook for the BeverageIndustry, CRC press, Florida, USA.

2. W.Ray, Junk & Harry M. Pancost: (1973), Hand Book of Sugars – for Processors, Chemists and Technologists: AVI Puvblishing, West port.

3. Oliver Lyle: (1950), Technology of Sugar for Refinery Workers Chapman and Hall Ltd.,

PRACTICAL (B.VFP-513)

M.M. 45

1. Determination of sugar content in juice.
2. Determination of reducing and non reducing sugars in sugar product.
3. To prepare chocolate
4. To prepare candy and jelly from fruit sources.
5. To study the equipments related to sugar manufacturing.
6. To determine ash content of sugar product.
7. To determine moisture content of sugar product.
8. To estimate acidity and TSS of sugar products.

B.VFP-514

FOOD INDUSTRY WASTE MANAGEMENT

OBJECTIVES

- Student will learn about classification & characterization of food industrial waste from dairy, fruit & vegetable processing etc.
- Students will gain information about waste disposal method, economical aspects of waste treatment etc.
- Students will evaluate different treatment methods for liquid waste etc.
- Student will acquire knowledge about treatment methods for solid waste, biogas and effluent waste treatment method.
- Learners will conduct experiments to determine BOD and COD of water sample.
- Learners will conduct experiments to find the TDS and TSS.
- Students will prepareflow process chart of food plant waste utilization processes

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Introduction: Classification and characterization of food industrial wastes from Fruitand Vegetable processing industry, Beverage industry; Fish, Meat & Poultry industry,Sugar industry and Dairy industry; Waste disposal methods – Physical, Chemical &Biological; Economical aspects of waste treatment and disposal.

2.Treatment methods for liquid wastes from food process industries; Design ofActivated Sludge Process, Rotating Biological Contactors, Trickling Filters, UASB,Biogas Plant.

SECTION-B

3. Treatment methods of solid wastes: Biological composting, drying and incineration, Design of Solid Waste Management System: Landfill Digester, Vermicomposting Pit.Biofilters and Bioclarifiers, Ion exchange treatment of waste water, Drinking-Watertreatment, Recovery of useful materials from effluents by different methods.

4.Utilization from rice mill - Thermal and biotechnological uses of rice husk - pyrolysis and gasification of rice, utilization of rice bran, citric acid production from fruit waste,Coconutprocessing – by-product utilization – fuel briquette .

REFERENCES:

1. V. Oreopoulou, W. Russ, (ed), 2007, "Utilization ofby-products and treatment of waste in thefood industry" Vol, 3.,Springer.

2. K. Waldron, 2007, "Handbook of waste management and co-product recovery in foodprocessing".CRC.

3. R. Smith, J. Klemes, J-K Kim 2008, "Handbook of water and energy management in food processing.", CRC.

4. C. Yapijakis, L.Wang, Yung Tse- Hung,2005, . Waste treatment in the food processing industry, H. LO, CRC,

5.Herzka A & Booth RG; 1981, Applied Science Pub Ltd, Food Industry Wastes: Disposal and Recovery

6.Fair GM, Geyer JC &Okun DA; 1986, JohnWiley & Sons, Inc.

7. Bartlett RE; . Water & Wastewater Engineering; Applied Science Pub Ltd.

8. Green JH & Kramer A; 1979, Food Processing Waste Management; AVI.

9. RittmannBE&McCarty PL; 2001, Environmental Biotechnology: Principles and Applications, Mc-Grow-Hill International editions.

10. Bhattacharyya B C & Banerjee R; Environmental Biotechnology, OxfordUniversity Press.

11. P. N. Chereminoff& A.C Morresi, 1976, "Energy from Solid Wastes"

12 .A. Chakravarthy& De, "Agricultural Waste and By Product Utilisation".

13. Bor S. Luli (ed), "Rice Production and Utilisation"

14. E. Beagle, "Rice Husk Conversion to Energy"

PRACTICAL(B.VFP-514)

M.M.45

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.
7. To operate the electrodialysis apparatus.
8. To find the biodegradation constant (K) and the effect of timing on it.
9. To use the membrane separation techniques for salt brine and reverse osmosis process for sugar.

B.VFP-515

ENTREPRENEURSHIP DEVELOPMENT IN FOOD PROCESSING

OBJECTIVES

- Students will learn about definition and requirements to be an entrepreneur.
- Students will identify competencies of entrepreneurs.
- Students will get the information about NABARD, NSIC, SIDBI, DIC, DIO, SFC, TCO and other governmental organizations that promote entrepreneurship.
- Students will evaluate about planning a small scale unit.
- Students will gain knowledge about project identification and requirements to start a business.

Time Allowed 3hrs;MM: 74;Pass Percentage: 35 %

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and carry 11 marks each. Section C will consist of 15 short answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

1. Entrepreneurship: definition, requirements to be an entrepreneur, entrepreneur and intrapreneur, entrepreneur and manager, growth of entrepreneurship in India, women entrepreneurship, rural and urban entrepreneurship, competencies of entrepreneurs-(1) Decision Making (2) Problem Solving (3) Risk Taking (4) Leadership(5) Communication(5) Dealing with customers.

2. Entrepreneurial Support System: National Bank for Agriculture and Rural Development(NABARD), National Small Industries Corporation (NSIC), Small Industries Development Bank of India (SIDBI) Role of District Industries Centre, Directorate /Commissioner of Industries Office, State Financial Corporation, Technical Consultancy Organization.

SECTION-B

3. **F**ood processing Sector in India: An overview,Make In India: (Sector Food Processing Policy, Financial Support, Investment Opportunities), MOFPI: (Schemes), FICSI: (Overview) , MSME:(Schemes and Entrepreneurship development programs)
4. Planning a small scale unit: Whom to approach for what, Project Identification, requirements to start a business, SSi registration, obtaining NOC from state pollution control board,The National Institute for Entrepreneurship and Small Business Development (NIESBUD)- Entrepreneurship Development Institute of India (EDII) Science and Technology Entrepreneurship Parks (STEPS) -Use of IT enabled services in entrepreneurship - E Licensing, E filing.

REFERENCES

1.P. C. Jain Handbook For NewEntrepreneurOxford Latest Edition

2. S. S. Khanka Entrepreneurial Development S. Chand Latest Edition

3.Thomas W.Zimmerer&NormanM. Scarborough Essentials ofEntrepreneurship and small business management 4th Edition

4.Dr. VidyaHattangadi2007, Entrepreneurship Himalaya.

5. Vasant Desai 2008, Small Scale Industries and Entrepreneurship Himalaya.

6. Dr. v. B. Angadi, Dr. H. S. Cheema&Dr.M. R. Das, 2009,Entrepreneurship, Growth,and Economic Integration-A linkage Himalaya.

6. Roy Rajeev, Entrepreneurship Oxford Latest Edition

7.E. Gordon &K.Natarajan, 2008,Entrepreneurship DevelopmentHimalaya.

8. Coulter Entrepreneurship inaction PHI 2nd Edition

PRACTICAL (B.VFP-515) **M.M.45**

1. Test to assess the Entrepreneurial spirit of learner through questionnaire (Entrepreneurial Self Assessment Tool)

2. Demonstrate and practice five core life skills

(A) Managing self and others

(B) Positive Attitude

(C) Creativity

(D)Team building

(E) Motivation

3. A SWOT analysis of entrepreneurial opportunity in your locality with reference to the vocational course.

4. Show videos of successful entrepreneurs.