Syllabus for

M. Sc. Part - I

Food Science and Technology

Semester I and II

(Syllabus to be implemented from June 2019)
## Course Structure:

<table>
<thead>
<tr>
<th>SEMESTER –I</th>
<th>Credits</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FST 101: Principles of food processing &amp; preservation (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 102: Food Microbiology (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 103: Food Chemistry (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 104: Biochemistry and Nutrition (Optional Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 105: Laboratory Course I</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 106: Laboratory Course II</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td><strong>---------</strong></td>
<td><strong>-------</strong></td>
<td><strong>-------</strong></td>
</tr>
<tr>
<td><strong>24</strong></td>
<td><strong>600</strong></td>
<td><strong>-------</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER-II</th>
<th>Credits</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FST 201: Principles of food engineering (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 202: Cereal and legume technology (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 203: Fruit and vegetable technology (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 204: Fermentation technology (Optional Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 205: Laboratory Course III</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 206: Laboratory Course IV</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td><strong>---------</strong></td>
<td><strong>-------</strong></td>
<td><strong>-------</strong></td>
</tr>
<tr>
<td><strong>24</strong></td>
<td><strong>600</strong></td>
<td><strong>-------</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER-III</th>
<th>Credits</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FST 301: Technology of meat, fish and poultry products (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 302: Technology of milk and milk products (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 303: Food quality and safety management (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 304: Food additives, contaminants and toxicology (Optional Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 305: Laboratory Course V</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 306: Laboratory Course VI</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td><strong>---------</strong></td>
<td><strong>-------</strong></td>
<td><strong>-------</strong></td>
</tr>
<tr>
<td><strong>24</strong></td>
<td><strong>600</strong></td>
<td><strong>-------</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER-IV</th>
<th>Credits</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FST 401: Post-harvest technology of Plantation crops (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 402: Technology of oilseeds and fats. (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 403: Food Packaging (Core Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 404: Food Biotechnology (Optional Course)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 405: Laboratory Course VII</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>FST 406: Project and Seminar</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td><strong>---------</strong></td>
<td><strong>-------</strong></td>
<td><strong>-------</strong></td>
</tr>
<tr>
<td><strong>24</strong></td>
<td><strong>600</strong></td>
<td><strong>-------</strong></td>
</tr>
</tbody>
</table>
## SCHEME OF TEACHING AND EXAMINATION

### M. Sc. I (Semester I)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Paper</th>
<th>Teaching Scheme (Hrs./Week)</th>
<th>Examination Scheme (Marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Practical</td>
</tr>
<tr>
<td>1</td>
<td>FST 101: Principles of food processing &amp; preservation</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>FST 102: Food Microbiology</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>FST 103: Food Chemistry</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>FST 104: Biochemistry and Nutrition</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>FST 105: Laboratory Course I</td>
<td>---</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>FST 106: Laboratory Course II</td>
<td>---</td>
<td>6</td>
</tr>
</tbody>
</table>

### M. Sc. I (Semester II)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Paper</th>
<th>Teaching Scheme (Hrs./Week)</th>
<th>Examination Scheme (Marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Practical</td>
</tr>
<tr>
<td>1</td>
<td>FST 201: Principles of food engineering</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>FST 202: Cereal and legume technology</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>FST 203: Fruit and vegetable technology</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>FST 204: Fermentation technology</td>
<td>4</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>FST 205: Laboratory Course III</td>
<td>---</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>FST 206: Laboratory Course IV</td>
<td>---</td>
<td>6</td>
</tr>
</tbody>
</table>
## M. Sc. II (Semester III)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Paper</th>
<th>Teaching Scheme (Hrs./Week)</th>
<th>Examination Scheme (Marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Practical</td>
</tr>
<tr>
<td>1</td>
<td>FST 301: Technology of meat, fish and poultry products</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FST 302: Technology of milk and milk products</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>FST 303: Food quality and safety management</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FST 304: Food additives, contaminants and toxicology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>FST 305: Laboratory Course V</td>
<td>---</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>FST 306: Laboratory Course VI</td>
<td>---</td>
<td>6</td>
</tr>
</tbody>
</table>

## M. Sc. II (Semester III)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Paper</th>
<th>Teaching Scheme (Hrs./Week)</th>
<th>Examination Scheme (Marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Practical</td>
</tr>
<tr>
<td>1</td>
<td>FST 401: Post-harvest technology of Plantation crops</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FST 402: Technology of oilseeds and fats</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>FST 403: Food Packaging</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FST 404: Food Biotechnology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>FST 405: Laboratory Course VII</td>
<td>---</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>FST 406: Project and Seminar</td>
<td>---</td>
<td>6</td>
</tr>
</tbody>
</table>
SCHEME OF EXAMINATION

1. The examination shall be conducted at the end of each semester.
2. The theory paper shall carry 80 marks.
3. The theory paper (internal) shall carry 20 marks.
4. The evaluation of the performance of the students in theory papers shall be on the basis of semester examination of 80+20 marks (both theory and practical).
5. Question Paper will be set in the view of / in accordance with the entire Syllabus and preferably covering each unit of syllabi.

The Scheme of semester examination is as follows:
Total marks per theory paper =100 marks
(80 marks external exam + 20 marks internal exam.)

M. Sc. I (Semester - I and II) Theory Examination (For each semester)
External examination (4 Theory papers) 80 x 4 = 320 marks
Internal examination (4 Theory papers) 20 x 4 = 80 marks

M. Sc. I (Semester - I and II) Practical Examination
Lab Course I: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Viva voce 20
Lab Course II: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Seminar 20
Lab Course III: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Viva voce 20
Lab Course IV: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Seminar 20

M. Sc. II (Semester - III and IV) Theory Examination (For each semester)
External examination (4 Theory papers) 80 x 4 = 320 marks
Internal examination (4 Theory papers) 20 x 4 = 80 marks

M. Sc. II (Semester - III and IV) Practical Examination
Lab Course V: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Viva voce 20
Lab Course VI: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Seminar 20
Lab Course VII: 100 marks
Experiments 50 + Journal 20 + Note Book 10 + Viva voce 20
Lab Course VIII: 100 marks
Project Work 40 + Project Report 30 + Seminar 20 + Viva-voce 10

Total Marks (600 x 4 semesters) = 2400 marks
STANDARD OF PASSING:
As prescribed under rules and regulation for each degree.

NATURE OF QUESTION PAPER AND SCHEME OF MARKING :
- (Unit wise weightage of marks should also be mentioned)

Theory Examination

Section – I
Q.No.1 is compulsory and contains fill in the blanks, definitions, objective and multiple choice type 16 sub questions. Each sub question carries one mark.

Section – II
Q. No.2 to Q. No. 7 are descriptive type question carries 16 marks each.
Candidate is asked to slove 4 questions out of six

Q. No. 6 and Q. No.7. are devoted to short notes.
Candidate is asked to solve four short notes out of five.
Each short note carries 4 marks.

Practical Examination
Q. No. 1. Principle writing (20 Marks)
Q. No. 2 and Q. No. 3 Performing Experiment (30 Marks)
Q. No. 4 Journal (20 Marks)
Q. No. 5 Note Book (10 Marks)
Q. No. 6 Viva-voce or Seminar (20 Marks)

Grades, grade point and average grade point’s calculations
Table showing the grades, grade points and marks scored by a student

<table>
<thead>
<tr>
<th>Grades</th>
<th>Grade points</th>
<th>Marks out of 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>9</td>
<td>91 to 100</td>
</tr>
<tr>
<td>A</td>
<td>8</td>
<td>81 to 90</td>
</tr>
<tr>
<td>A-</td>
<td>7</td>
<td>71 to 80</td>
</tr>
<tr>
<td>B+</td>
<td>6</td>
<td>61 to 70</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>51 to 60</td>
</tr>
<tr>
<td>B-</td>
<td>4</td>
<td>41 to 50</td>
</tr>
<tr>
<td>C+</td>
<td>3</td>
<td>31 to 40</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>21 to 30</td>
</tr>
<tr>
<td>C-</td>
<td>1</td>
<td>11 to 20</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>0 to 10</td>
</tr>
</tbody>
</table>
COURSE CONTENT

FST 101: Principles of food processing and preservation (4 credits, 60 lectures)

Unit-1 (1 credit, 15 lectures)
Scope and importance of food processing: national and international perspectives.
Food processing techniques and types of processed products
(Minimally Processed, Intermediate Processed and Highly Processed Food Products)
Principles of preservation methods.
Chemical preservation of foods.

Unit-2 (1 credit, 15 lectures)
Food preservation by low-temp: Cold Storage, Chilling and super chilling, Refrigeration, Freezing and Freeze-drying, Cryogenic preservation. Advantages and disadvantages of low temperature preservation techniques.

Unit-3 (1 credit, 15 lectures)
Food preservation by heating: Drying, Dehydration, Osmotic Dehydration, Blanching, Cooking, Canning, Pasteurization, Sterilization, Baking and Extrusion cooking.

Unit-4 (1 credit, 15 lectures)
Non-thermal preservation: Hydrostatic pressure, Dielectric heating, Ohmic Heating, Radiofrequency heating, Microwave processing, Irradiation, Membrane technology and Hurdle technology.

Suggested Readings


Jelen, P. 1985. Introduction to Food Processing. Prentice Hall, Reston Virginia, USA.


FST 102 Food microbiology (4 credits, 60 lectures)

Unit-1 (1 credit, 15 lectures)


Unit-2 (1 credit, 15 lectures)

Micro-organisms in natural food products and their control. Biochemical changes caused by micro-organisms, deterioration and spoilage of various types of food products, microbial food fermentation. Contaminants of foods-stuffs, vegetables, cereals, pulses, oilseeds, milk and meat during handling and processing.

Unit-3 (1 credit, 15 lectures)


Unit-4 (1 credit, 15 lectures)


Suggested Readings


FST 103 Food chemistry (4 credits, 60 lectures)

Unit-1 (1 credit, 15 lectures)
Food chemistry-definition and importance. Water in food.
Structure of water and ice. Phase diagram of water.
Sorption isotherm. Water activity and shelf life of food.

Chemistry and classification of Lipids. Nomenclature of fatty acids.
Physical and chemical properties of lipids.
Use of lipids in foods and effects of processing on functional properties.

Unit-2 (1 credit, 15 lectures)
Chemistry and classification of Carbohydrates.
Structure and nomenclature of carbohydrates.
Chemical reactions of carbohydrates.
Functional properties and preparation of sugars, polysaccharides and modified

Chemistry and classification of Protein and amino acids. Structure of protein.
Protein concentrates, isolates and hydrolyzates.

Unit-3 (1 credit, 15 lectures)
Structure and solubility of Vitamins and Minerals. Acid/Base chemistry for minerals.
Chemical and functional stability of vitamins and minerals.
Effect of processing on vitamins and minerals.
Antinutritional factors in food and methods of inactivation.

Unit-4 (1 credit, 15 lectures)
Food flavour and colours.
Natural food flavours and taste compounds.
Pigments in animal and plant tissue.
Changes in food flavours and colours due to processing.

Suggested Readings


FST 104 Biochemistry and Nutrition (4 credits, 60 lectures)

Unit-1
(1 credit, 15 lectures)
Concept and scope of Nutrition and Health.
Metabolic Rate, Nutritional Requirement and RDA.
Human Physiology: Respiratory System, Gastrointestinal System and Excretory System.
Blood and blood composition.
Nutritional assessment of human: nutritional anthropometry and biochemical tests

Unit-2
(1 credit, 15 lectures)
Nutritional Biochemistry.
Carbohydrate Metabolism: Digestion and absorption of carbohydrates.
Glycolysis, TCA cycle & energy generation, gluconeogenesis, glycogenesis, glycogenolysis.
Lipid Metabolism: triacylglycerol, adipose tissue, ketone bodies, cholesterol
Oxidation and biosynthesis of fatty acids. Lipid storage disorders and metabolic syndromes.

Unit-3
(1 credit, 15 lectures)
Protein Metabolism: Digestion and absorption of Protein. Urea cycle.
Biosynthesis of nonessential amino acids.
Biochemical role of Vitamins and Minerals. Deficiency disorders.

Unit-4
(1 credit, 15 lectures)
Nutrition of dietary fibres.
Energy value of foods. Protein quality: PER, NPU and BV.
Formulation of diets and food products for specific needs.
Nutraceuticals and functional foods.

Suggested Readings


FST 105: Laboratory Course I (4 credits, 60 hours)

Study of laboratory instruments/equipments
Determination of moisture content of given food sample
Determination of fat content by soxhlet method
Determination of protein by kjeldahl’s method
Determination of ash content from given food sample
Determination of crude fibre by weende’s method
Determination of Iron
Determination of Calcium
Isolation and characterization of starch
Isolation and characterization of casein
Estimation of starch by using anthrones method
Estimation of reducing sugar by fehlings method
Estimation of non-reducing sugar by fehling solution method
Estimation of fructose by using resorcinol method
Estimation of protein by using lowry,s method
Estimation of protein by biuret method
Estimation of Ascorbic Acid by using 2, 6 dichlorophenol indophenols
Anthropometric Assessment of Body
Determination of energy value of food
Determination of BMR
Determination of Haemoglobin
Determination of Daily energy requirement of body
Study of Balanced Diet Plan

Visit to Analytical Lab/Pathological Lab/Processing Industry
FST 106: Laboratory Course II  
(4 credits, 60 hours)

Study of Microscope
Preparation of nutrient media
Sterilization of media and utensils
Determination of Total Plate Count
Determination of Yeast and Mold Count
Determination of Most Probable Number
Isolation of pure culture by Streak plate technique
Isolation of pure culture by Spread plate technique
Isolation of pure culture by Pour plate technique
Isolation of Halophilic Bacteria
Isolation of Antibiotic producers
Study of Gram staining techniques
Study of Monochrome staining techniques
Study of Negative staining techniques
Study of IMViC test

Visit to Analytical Lab/Pathological Lab/Processing Industry
FST 201 Principles of food engineering (4 credits, 60 lectures)

Unit-1 (1 credit, 15 lectures)
Heat transfer-modes of heat transfer, conduction, convection and radiation.
Heat exchangers and their designs.
Heat processing of foods: Evaporation and Concentration, Dehydration and Drying, Boiling and Condensation, Blanching, Pasteurization, Sterilization and crystallization.

Unit-2 (1 credit, 15 lectures)
Mass and energy balance. Fick’s law of diffusion.
Theories and unit operations of mass transfer.
Freezing operations and Planck’s Equation. Freezing curve.

Unit-3 (1 credit, 15 lectures)
Mechanical separation-filtration, membrane concentration, sieving, centrifugation, sedimentation, Mechanical handling-conveying and elevation.
Size reduction and classification-mixing, kneading, blending.

Unit-4 (1 credit, 15 lectures)
Applied mathematics, numerical analysis, computational mathematics.
Statistics, mean, mode, median, variance and standard deviation
Statistical tools for data analysis: MS Excel, Matlab, Minitab.
Statistical approach for new product development: Response Surface Methodology.

Suggested Readings


FST 202 Cereal and legume technology (4 credits, 60 lectures)

Unit-1 (1 credits, 15 lectures)
Introduction to cereals, production trends, structure and nutrient distribution in cereals.
Wheat types, milling of wheat, quality of flour and flour treatment.
Technology of bread, biscuits, cakes, durum wheat, breakfast cereals and extruded products.

Unit-2 (1 credit, 15 lectures)
Corn - wet milling and dry milling. Corn starch and its hydrolyzed syrups.
Corn flakes and Popcorn.
Rice milling, milling machines, effect of different factors on milling yield and rice quality, parboiling of rice, and rice products.
Minor cereals processing.

Unit-3 (1 credit, 15 lectures)
Introduction to legumes, production trends, structure and nutrient distribution in legumes.
Dhal milling and processing of pulses.
Post harvest processing of legume and pulses. Types of milling. Pre milling treatments.
Milling of individual pulses: Pigeonpea, Chickpea, Urdbean, Mungbean, Lentils etc.

Unit-4 (1 credit, 15 lectures)
Technology of cereal and legume based products.
Traditional fermented cereal and legume based food products: Milk Substitute, Meat Analogue, Tofu, Miso, Temphe, Soy sauce, idli and dosa, dhokala.
Instant food and premix.

Suggested Readings


FST 203 Fruit and vegetable technology  
(4 credits, 60 lectures)

Unit-1  
(1 credit, 15 lectures)
Introduction to fruits and vegetable processing industry and market statistics.  
Structure, cellular components and composition of fruits and vegetables.  
Post harvest technology of fruits and vegetables: Harvesting, Handling, Processing.  
Principles and methods of fruit and vegetable preservation.  
Principles and methods of storage: natural, ventilated, low temperature storage, MAP, CAP.

Unit-2  
(1 credit, 15 lectures)
Freezing and freeze-drying of fruits and vegetables.  
Drying and dehydration of fruits and vegetables.  
Irradiation of fruits and vegetables.  
Commercial canning of fruits and vegetables.

Unit-3  
(1 credits, 15 lectures)
Fruit and Vegetable Juices, Fruit Syrups, Cordials and Nectars.  
Fruit preserve, Candies, Crystallized fruits and vegetables.  
Pectin and related compounds.

Unit-4  
(1 credits, 15 lectures)
Beverage technology: Alcoholic, Non-alcoholic and carbonated beverages.  
Utilization of fruits and vegetable waste.  
Processing of mineral water and water standards for food processing plants.  
Fruit product order and quality control.

Suggested Readings


FST 204 Fermentation technology (4 credits, 60 lectures)

Unit-1 (1 credits, 15 lectures)
Origin and history of food fermentation.
Range of fermentation process: biomass, enzymes, metabolites, colours and flavours
Microbial growth kinetics: Batch Culture, Continuous Culture and Fedbatch Culture
Types of fermentation sub-merged/solid state, Batch /continuous fermentation.

Unit-2 (1 credits, 15 lectures)
Fermenter design.
Body construction, Ports, Sensor Probe, Valves
Aeration and agitation system. Impellers, Baffels and Spargers.
Sterilization of Fermenter, Air, Media and Exhaust gas.

Unit - 3 (1 credits, 15 lectures)
Operational measurement and quality control.
Principles of downstream processes and product recovery.
Effluent treatment.

Unit -4 (1 credits, 15 lectures)
Commercial production process for beer, wine and vinegar. Traditional fermented foods.
Production of alcohols, organic acids, enzymes, colours and flavours.
Fermentation economics.

Suggested Readings


Determination of Bulk Density
Determination of Angle of Repose
Determination of Water Absorption Capacity
Determination of Alcoholic Acidity of Flour
Determination of Gluten content
Determination of Dough Raising Capacity
Determination of Particle size of flour
Determination of thermal process time
Preparation and analysis of Bread
Preparation and analysis of Biscuits
Preparation and analysis of Cookies
Preparation and analysis of Cake
Preparation and analysis of Soymilk
Preparation and analysis of Tofu
Preparation and analysis of Corn Syrup
Preparation and analysis of Idli
Preparation and analysis of Dhokala
Preparation and analysis of Popped Cereals
Preparation and analysis of Protein concentrate and Isolate
Preparation and analysis of Extruded products
Study of germination/sprouting process
Study of heat exchangers
Study of dryers
Study of flour mill

Visit to food processing plants: Flour Mill/Bakery Unit/Rice Mill/Starch Industry
Determination of Browning intensity
Blanching of Fruits and Vegetables
Dehydration of Fruits and Vegetables
Determination of Drying Rate Curve
Preparation and analysis of Fruit Juice
Preparation and analysis of RTS
Preparation and analysis of Squash
Preparation and analysis of Jam
Preparation and analysis of Jelly
Preparation and analysis of Marmalade
Preparation and analysis of Tomato Sauce
Preparation and analysis of Tomato Ketchup
Preparation and analysis of Tutti fruity
Preparation and analysis of Amla Candy
Preparation and analysis of Hard Boiled Candy
Preparation and analysis of Fruit syrup
Preparation and analysis of Synthetic syrup
Preparation and analysis of Pickle
Preparation and analysis of Wine
Preparation and analysis of Sauerkraut
Measurement of B.O.D.
Measurement of C.O.D.
Study of food processing equipments

Visit to food processing plants: Fruit Processing/Vegetable Processing/Brewery/Winery