GUJARAT VIDYAPEETH : AHMEDABAD
M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar
Faculty of Science and Applied Science
Bachelor of Vocational (Food Processing Technology)
Semester-I
(In Force from June-2017)

FPT-101: Basic Principle of Food Processing

(Syllabus of theoretical portion)(In Force from June-2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

Objectives

To deliver a sequence of steps to produce an acceptable and quality food product from raw materials.

Study of scientific and technological advancements in food processing.

Unit-1 Classification of Food and Fundamentals of Food Processing

Definition of food, classification of foods- based on origin, pH, nutritive value, functions of food, Health food, ethnic food, organic food, functional food, nutraceuticals, fabricated foods, convenience foods, GM food and space foods.

Unit-3 Post Harvest Management

Steps involved in converting a raw harvested food materials to a preserved product with sound quality- harvesting, storage, manufacturing, preservation, packaging, distribution and marketing. Chemical of enzymatic, physical and biological deterioration, implications and prevention

Text Books:

1. Brian E. Grimwood, Coconut Palm Products: Their Processing in Developing Countries, 1979.
2. Hui, Y H and Associate Editors; Hand Book of Food Products Manufacturing Vol I, Wiley- Interscience, New Jersey 2007.
3. Hui, Y H and Associate Editors; Hand Book of Food Products Manufacturing Vol II, wiley- Interscince, New Jersey 2007.
4. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
5. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
6. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003.

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Semester-I
(In Force from June-2017)

FPT-101: Basic Principle of Food Processing (Practical)

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

To deliver a sequence of steps to produce an acceptable and quality food product from raw materials.

Study of scientific and technological advancements in food processing.

(1) Grouping of Food – Discussion on Nutritive Values.
(2) Techniques in measurements of Food Staff use of standard we raring caps and spoons, wrights volume, relationships.
(3) Survey locally available foods and identify and find the cost of food staff.
(4) Find the edible and non edible portions of Food.
(5) Give the energy and protein value per 100 gm of food selecting from all food groups.
(6) Prepair the following food and its processing.
    (1) Ethnic food – Banana Products.
    (2) Mordern Food – Pasta Marconi
    (3) Tapioca Food

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(In Force from June-2017)

FPT-102: Basic Principal of Food Preservation

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 +00)

Objectives

To enable the students to acquire knowledge on different preservation techniques used to enhance the shelf span of food product.

To study the different mode of spoilage in foods and minimize the contamination by different preservation technology.

Unit-1 Food Spoilage, Basic Principles of Food Preservation

Food spoilage- definition, types of spoilage- physical, chemical and biological. Definition, principles and importance of food preservation, general classification on the methods of food preservation, class I and class II preservatives, combination of preservatives, preservation by irradiation and fermentation.

Unit-2 Preservation by use of High, Low Temperature and Preservation by Removal of Moisture

Pasteurization, sterilization, canning- history and steps involved, types of cans and bottles. Spoilage encountered. Refrigeration- Advantages, mechanism of refrigeration factors to be considered during chilling, difference between refrigeration and freezing, methods of freezing, steps involved in freezing, types of freezing, common spoilage during freezing

Text Books:

1. Subalakshmi, G and Udipi, S.A. Food processing and preservation. New Age International Publishers, New Delhi, 2001.
2. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003.
3. Potter, N.N. and Hotchkiss J. H. Food Science. CBS publishers and distributors. 1996.
4. Srivastava, R.PO and Kumar, S. Fruit and vegetable preservation, International Book distribution Company, Lucknow, 1994.
5. MC.Williams, M and Paine, H. Modern Food preservation. Surjeet Publications, Delhi, 1984.
6. Cruess, W.V. Commercial fruits and vegetable products, Anees Offset press, New Delhi.

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(In Force from June-2017)

FPT-102: Basic Principal of Food Preservation (Practical)

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

To enable the students to acquire knowledge on different preservation techniques used to enhance the shelf span of food product.
To study the different mode of spoilage in foods and minimize the contamination by different preservation technology.

(1) Prepare Following recipes.
- Jam, Jellies
- Tomato Ketchup and tomato Sauce.
- Mango Pickle, Lime Pickle, Mixed Vegetable Pickle.
- Crushes, Squashes and Syrups.
- Papad, Dehydrated Vegetables.

(2) Food Spoilage : Find the properties Physical, Chemical, Biological

(3) Give the Irradiation, Fermentation.

(4) Preservation by High Temperature.
- Sterilization
- Canning
- Bottles

(5) Preservation by Low Temperature.

Refrigeration.

Types of Freezing.

(6) Preservation of Food Samples arising humectants

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(In Force from June-2017)

FPT-103: Food Chemistry

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

Objectives

To acquaint various functional chemical constituents of food.
To build a relationship between the dynamic forces of food and the dynamic forces of digestion and growth.

Unit 1 Introduction to food chemistry and carbohydrates (15 hrs)

Introduction to chemistry of foods composition and factors affecting foods, Chemistry of water, Water activity, Moisture determination, Definition, classification and function of carbohydrates, Properties of simple and complex carbohydrates (glucose, sucrose, maltose, lactose, starch, cellulose and pectic substances), Enzymes and its use in foods, Gel formation and starch degradation, Dextriniation, Browning reactions – Enzymatic & Non-enzymatic browning

Unit 2 Vitamins, minerals and proteins (15 hrs)

Vitamins

Classification – Fat soluble and water soluble, Structure, Sources, Functions, Causes for losses of vitamins in foods, Bioavailability

Minerals

Classification, Sources, Functions of minerals in foods

Proteins

Classification, Physical and chemical properties of proteins and amino acids, Confirmation, Functional properties, Hydrolysis of proteins, Changes of proteins during processing

Text books:

1. Campbell, M K S O-Biochemistry 5th edition-international student, 2006
2. Damodaran,S., Parkin , K L.,Fennema, O R., Fennema's Food Chemistry- 4th edition, CRC press Taylor and Francis Group, New York 2008.
3. Fennema, O R. -Food Chemistry 3rd edition, Marcel Dekker Inc, New York., 1996.
4. Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002
5. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003.

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FPT-103: Food Chemistry (Practical)

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

To test the presence of carbohydrates and proteins in food samples.
To estimate the nutrients in different food samples.

1. **Standardization of Solutions**
   - ✓ Standardization of Fehling's solution.
   - ✓ Standardization of Sodium hydroxide with standard oxalic acid.
2. **Estimation of Sugar Solutions**
   - ✓ Estimation of Glucose by Lane and Eynon's method.
   - ✓ Estimation of Sucrose by Lane and Eynon's method.
   - ✓ Estimation of Aldose by Willstalter's Iodometric titration
   - ✓ Estimation of starch.
3. **Estimation of Protein**
   - ✓ Kjeldhal method.
   - ✓ Biuret method
   - ✓ Lowry's method
4. **Estimation of Vitamin.**
   - ✓ Estimation of vitamin C
5. **Qualitative Test**
   - ✓ Qualitative tests for carbohydrates
   - ✓ Qualitative tests for proteins.

Text books:

1. Nielsen, S.S. Introduction to the chemical analysis of foods. Jones and Bartlett Publishers, Boston, London. 2003
2. Sadasivam,S. Manickam, A. Biochemical Methods, 2nd edition. New Age International (P) Limited, New Delhi. 2001

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(In Force from June-2017)

FPT-104: Internship/Field Work (Practical)

(Syllabus of Practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 90, Credit = 00 + 04)

- Students will go for the 15 days filed work or internship any food industries related organization during the semester.
- Students will be given a case study during the internship and they have to submit a report thereon at the end of the semester, on dates announced by the department. The guidelines for training will be provided by the department.
- A team consisting of internal & external experts will evaluate the record and conduct the viva-voice at the end of semester.

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ENG-101: English

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

Objectives:

1 To read simple passages to find out information contained it.

2 To familiarize students with vocabulary used in the passages.

3 To familiarize students with the functions of tenses generally used in daily life.

4 To help students in writing short descriptive paragraphs based on pictures.

5 To develop among students the academic skill of referencing.

Unit 1: Comprehension (Weightage – 40%) **12 Hours**

1 The Kite Maker by Ruskin Bond

2 The Portrait of a Lady by Khushwant Singh

3 Print Advertisement – Admission Announcement

4 Print Advertisement – Sales Advertisement

Comprehension Pattern:

1. Short questions

2. Fill in the blanks

3. Multiple choice questions based on the text

NB: Short questions as well as other exercises should be informative in nature.

Unit 2: Vocabulary (Based on the text only) (Weightage – 10%) **2 Hours**

1 Antonyms/Synonyms

2 Match words with their meanings

Unit 3: Grammar (Weightage – 20%) 6 Hours

Noun: Number and Gender

Articles

Simple Present Tense

Present Continuous Tense

Simple Past Tense

Past Continuous Tense

Subject-Verb Agreement

NB: Unit 3 should be done along with Unit 1 so that students can see how these grammatical categories actually work to produce meaning.

Unit 4: Writing Skills (Weightage – 20%) 3 Hours

1 Picture Reading (Use of Simple Present Tense and Present Continuous Tense)

NB: Use at least five pictures in the classroom for demonstration as well as practice.

Unit 5: Academic Skills: Reference Skills (Weightage – 10%) 2 Hours

Types of dictionaries

Functions of a dictionary

How to use a dictionary?

Optimum utilization of dictionary

Dictionary and pronunciation

How to use a thesaurus?

Online dictionaries and thesaurus

Inbuilt dictionaries in Word Processors

Mobile dictionaries

Guessing meaning from the context

NB: This unit is not to be asked in the examination.

Seminar/Presentation 5 Hours

Reference :-

1 Achar, Deeptha et al. Eds. *English for Academic Purposes Book – 1*. Gandhinagar:University Granthnirman Board, 2011.

2 Achar, Deeptha et al. Eds. *English for Academic Purposes Book – 1*. Hyderabad: Orient BlackSwan, 2012.

3 Achar, Deeptha et al. Eds. *English for Academic Purposes Book – 2*. Gandhinagar:University Granthnirman Board, 2011.

4 Achar, Deeptha et al. Eds. *English for Academic Purposes Book – 2*. Hyderabad: Orient BlackSwan, 2013.

5 Tickoo, M. L. et al. Eds. *I Am The People: English Reader*. Delhi: CBSE, 1996.

6 Wren, P. C. and H. Martin. *High School English Grammar and Composition. (Gujarati). Trans.* Dr. Usha Upadhyay and Jegeesha Upadhyay. New Delhi: S. Chand, 2013.

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FC-101: Gandhian Thought

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours=30, Credit = 02 +00)

એકમ ૧	મંગલપ્રભાત	૪ કલાક
	1.1 વ્રત એટલે શું? વ્રતની આવશ્યકતા	
	1.2 એકાદશ વ્રત	
	શાશ્વત વ્રત - યમ: સત્ય, અહિંસા, અસ્તેય, બ્રહ્મચર્ય, અપરિગ્રહ	
	દેશકાળની પરિસ્થિતિ પ્રમાણે ઉમેરેલા વ્રતો - નિયમ: અસ્વાદ,	
	સર્વધર્મસમભાવ, જાતમહેનત, અભય, અસ્પૃશ્યતા નિવારણ,	
	સ્વદેશી	
	1.3 જીવનમાં વ્રતનું મહત્વ	
એકમ ૨	રચનાત્મક કાર્યક્રમ	૧૧ કલાક
	2.1 રચનાત્મક કાર્યક્રમ એટલે શું?	
	2.2 રચનાત્મક કાર્યક્રમની પ્રસ્તુતતા	
	2.3 ખાદી:	
	ખાદીનો ઈતિહાસ	
	ચરવડાચક્ર અને અંબર ચરખાનો પરિચય,	
	ખાદીનું મહત્વ (શ્રમનું ગૌરવ, ગરીબો અને ખેડૂતોની જીવાદોરી,	
	ગ્રામોધ્ધાર માટે ખાદી, ખાદી અને પર્યાવરણ, ખાદી અને આરોગ્ય)	
	2.4 વ્યસનમુક્તિ	
	વ્યસન એટલે શું? વ્યસનના પ્રકાર, વ્યસનની આરોગ્ય પર	
	અસર, વ્યસનની સામાજિક અસર	
	વ્યસન મુક્તિના કાર્યક્રમો	
એકમ ૩	આચારની કેળવણી	૪ કલાક
	3.1 આચારની કેળવણી અને તેનું મહત્વ	
	3.2 કુટુંબમાં સમૂહજીવનનો આચાર	
	3.3 શૈક્ષણિક સંસ્થાઓમાં સમૂહજીવનનો આચાર	
	3.4 જાહેર સ્થળોના રખ-રખાવ અને સ્વચ્છતા	

3.5 સામાન્ય વિવેક

એકમ ૪ ઉર્જા અને તેનું મહત્વ: ૮ કલાક

4.1 ઉર્જા એટલે શું?

4.2 ઉર્જા ના સ્વરૂપ: યાંત્રિક ઉર્જા, ઉષ્મા ઉર્જા, રાસાયણિક ઉર્જા, ગુરુત્વાકર્ષણીય ઉર્જા, નાભીય ઉર્જા, સૌર ઉર્જા, વિદ્યુત ઉર્જા

4.3 ઉર્જા ના સ્ત્રોત: પુનઃપ્રાપ્ય અને પુનઃઅપ્રાપ્ય ઉર્જા સ્ત્રોત

4.4 ઉર્જા બચત અને ગાંધીવિચાર

4.5 બિનપરંપરાગત ઉર્જાના સાધનો: સૂર્યકુકર, સોલાર હીટર, સોલાર ડ્રાયવર, પવનચક્કી, સૌર તળાવ, સૌરલાઈટ, બાયોગેસ, બાયોમાસ વગેરે

4.6 ઉર્જા સંરક્ષણ

References :

1 સમૂહ જીવનનો આચાર, બબલભાઈ મહેતા

2 આરોગ્યની ચાવી, ગાંધીજી

3 ખાદી શા માટે?, ગાંધીજી

4 સમયનો તકાદો: પુનઃપ્રાપ્ય ઉર્જા, પાંચમી આવૃત્તિ, જેડા, વડોદરા.

5 મંગલપ્રભાત - ગાંધીજી

6 રચનાત્મક કાર્યક્રમો આજના સંદર્ભમાં- દશરથલાલ શાહ

7 રચનાત્મક કાર્યક્રમો: તેનું રહસ્ય અને સ્થાન – ગાંધીજી

8 પર્યાવરણ સાથી- રમેશ સાવલિયા, CEE

9 ગાંધીના પાવન પ્રસંગો- લલ્લુભાઈ મકનજી દેસાઈ

10 "ચુપ નહિ રહેવાય" (ટોલ્સટોય ના નિબંધોનો અનુવાદ) નવજીવન પ્રકાશન મંદિર, અમદાવાદ

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FC-102: Environmental Study

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

એકમ ૧ પર્યાવરણ નો પરિચય ૧૦ કલાક

(અ) પર્યાવરણ: પર્યાવરણ એટલે શું? પર્યાવરણના પ્રકારો: ભૌતિક પર્યાવરણ, જૈવિક પર્યાવરણ, સામાજિક કે સંસ્કૃતિક પર્યાવરણ, જૈવાવરણ, જૈવાવારના વિવિધ વિભાગો, જૈવમંડળ: સ્થાલીય જૈવમંડળ, જલીય જૈવમંડળ.

(બ) પરિસ્થિતિ વિજ્ઞાન: પરિસ્થિતિ તંત્ર, પરિસ્થિતિ તંત્રના નિયમો, પરિસ્થિતિ તંત્રના લક્ષણો: વહનક્ષમતા, નિવાસસ્થાન, ક્રિયાકલાપ, પરિસ્થિતિ તંત્રમાં ઉર્જા પ્રવાહ અને પોષક તત્વોનું વહન, પોષણકડી, પરિસ્થિતિકીય પિરામિડો: સંખ્યાના પિરામિડો, જૈવીકભારના પિરામિડો, ઉર્જાના પિરામિડો, પરિસ્થિતિ તંત્ર જીવનનું માધ્યમ.

(ક) પરિસ્થિતિ તંત્રના ઘટકો: અજૈવિક ઘટકો, જૈવિક ઘટકો, પરિસ્થિતિ તંત્રના સજીવોમાં આંતરસંબધો: સહજીવન, પ્રતિરોધક

એકમ ૨ પર્યાવરણ ના સિધ્ધાંતો અને સંરક્ષણ ૧૦ કલાક

(અ) પર્યાવરણીય સમસ્યાઓ: પર્યાવરણની મુખ્ય સમસ્યાઓ, પર્યાવરણ સંરક્ષણ પરિયોજનાઓ: વાઘ પરિયોજના, સિંહ પરિયોજના, રાષ્ટ્રીય વન્યજીવ કાર્ય આયોજન, અનામત જૈવાવરણ ક્ષેત્ર, રામસર વેટલેન્ડ રાઈટ્સ, રક્ષિત વિસ્તારો.

(બ) સહભાગી વન વ્યવસ્થા, સામાજિક વનીકરણ, ચીપકો આંદોલન, પૃથ્વી શિખર સંમેલન, એજન્ડા ૨૧, ટકાઉ વિકાસ અંગે વિશ્વ શિખર સંમેલન

એકમ ૩ કુદરતી સ્ત્રોતો: જળ અને હવા ૧૦ કલાક

(અ) જળ: જળનું મહત્વ, પાણીના ગુણધર્મો, પાણીના સ્ત્રોતો: જમીનમાં રહેલ પાણીનું વર્ગીકરણ, ભૂગર્ભ જળસપાટીની અસરો, લભ્ય

પાણી, શુદ્ધ પાણી, જૈવિક ધોરણો, ઘરમાં પીવાનું પાણી શુદ્ધ રાખવાની સામાન્ય રીતો, પાણી અને રોગો, ગુજરાતની નદીઓ, ગુજરાતમાં સિંચાઈ, ગુજરામાં પાણીની સમસ્યા: ખારાશનું વધતું પ્રમાણ, પીવાના પાણીમાં ફ્લોરાઇનું પ્રમાણ, ભૂગર્ભ જળનો વેપાર, પીવાના પાણીનો વેપાર,જળ પ્રદુષણ, પાણીની સમસ્યાના સંભવિત ઉપાયો

(બ) હવા: હવાનું મહત્વ, વાતાવરણ, વાતાવરનું બંધારણ, વાતાવરણની સ્તર રચના, વાતાવરનું મહત્વ, આબોહવા અને હવામાન, વાતાવરનું દબાણ, પવન અને તેના પ્રકારો, પ્રાણવાયું, હવાની વિશિષ્ટતાઓ, જમીન અને હવાનો સંબંધ, વાયુ પ્રદુષણ, ઓઝોન સ્તર, ગ્રીનહાઉસ અસર અને તેની પર્યાવરણ પર અસરો, વાયુ પ્રદુષણ અટકાવવાના ઉપાયો.

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2 પર્યાવરણ અધ્યયન (પર્યાવરણના અભ્યાસનું બહુવિદ્યાશાખીય સ્વરૂપ) – એ.જે.ભરૂચા

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(Syllabus of Practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

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૧. પર્યાવરણ શિક્ષણ વિષયનું પ્રાયોગિક કાર્ય ફિલ્ડ વર્ક/ પાણી, ઉર્જા તથા જમીન સંદર્ભે સર્વે / પ્રોજેક્ટ વર્ક દ્વારા કરાવવામાં આવશે.

૨. પાણીનું પૃથકરણ

૩. પ્લવક (Planton) કલેક્શન પધ્ધત

૪. સ્ટડી ટૂર