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

FPT-201: Basic Principle of Food Engineering

(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

Students will be able to apply material balances and energy balances to the field of food engineering.

Students will be able to understand equipment used in the food industry.

Unit-1. Engineering Units, Heat Transfer in Food Processing

Dimensions – Primary, secondary, engineering units- Base units, derived and supplementary units System – state of system, extensive properties, intensive properties. Modes of heat transfer -conductive heat transfer, convective heat transfer, radiation heat transfer Systems for heating and cooling food products, plate heat exchanger, tubular heat exchanger, scraped surface heat exchanger, steam infusion heat exchanger.

Unit-2. Mechanical Operations and Separation, Irradiation

Mixing-different type of mixers used in food in industry, Clarification and concentration process- evaporation, diffusion concentration. Sedimentation, centrifugation, distillation, Filtration- batch filtration, continuous filtration, ultra filtration, reverse osmosis.Definition, principle, advantages and disadvantages, application of radiation in food industry, doses, effect of radiation in food- direct and indirect.

Text books:

1. Dincer, I. Heat Transfer Food Cooling Applications. Taylor and Francis Publishers, USA. 1997.
2. Heldman, D. R. and Lund, D.B. Handbook of Food Engineering 2nd edition. CRC press, Newyork. 2007.
3. Singh, R.P. Introduction to Food Engineering 3rd edition. Academic Press, London. 2004

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(In Force from June-2017)

FPT-201: Basic Principle of Food Engineering (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

Students will be able to apply material balances and energy balances to the field of food engineering.

Students will be able to understand equipment used in the food industry.

1. Heat transfer through composite wall.
2. Measurement of Thermal conductivity of metal rod.
3. Measurement of surface emissivity.
4. Determination of coefficient of discharge for venture meter.
5. Determination of friction factor of a given pipe of circular cross section.
6. Determination of type of flow by Reynold's number.
7. Measurement of fluid viscosity.

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Semester-II
(In Force from June-2017)

FPT-202: Food Additives

(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 attain knowledge regarding the use of additives in the food industry, laws related to food additives and to prevent the involuntary infringement of analytical procedures.

Unit-1. Introduction, Major Food Additives

Food additives, definition, objectives, functional classification, natural and synthetic additives, health and safety aspects of food additives.food colours- natural and artificial, Food flavours – natural and artificial, Stabilizers and thickeners Minor Food Additives. Aerating agents, Antistaling agents, Bodying agents, Clouding agents, Curing agents, Emulsifiers, Enzymes, , Leavening agents, Surfactants, Tenderizers, Viscosity modifiers, Whipping agents

Unit-2. Food Laws and Standards

Food standards - Voluntary and mandatory food laws and Food Safety and Standards Act of India, 2006. Permitted level of food additives, present status of various food additives, controversial food additives, GRAS

Text books:

1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
2. Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002.
3. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
4. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003.

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FPT-202: Food Additives (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 attain knowledge regarding the use of additives in the food industry, laws related to food additives and to prevent the involuntary infringement of analytical procedures.

1.Evaluation GRAS aspect of Good Additives.

2.Estimation of Chemical Preservative by TLC (Organic or Inorganic)

3.Identification Food Color by TLC.

3.Quantitative estimation of added dyes.

4.Isolation of naturally occurring food pigments by paper and TLC.

5.Role and mode of action of Chelating agent in Fruit Juice.

6.Role of Mode of Action of Stabilizer and thickener in frozen dairy products (Ice Cream)

-Role and mode of antioxidant in Food

-Role of Leaving Agent in backed food product.

(1)Visit to Various Food and Laws Standards

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Semester-II
(In Force from June-2017)

FPT-203: Food Microbiology

(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

Acquire an elementary knowledge about micro organisms.
Develop an understanding of industry and in maintenance of health.

Unit-1. Introduction to microbiology & Microbial Growth, Beneficial microorganisms

Microbiology in daily life, Characteristics and morphology of bacteria, fungi, virus, protozoa & algae. SCP- Microorganisms used, raw materials used as substrate, condition for growth and production, nutritive value and use of SCP Micro organisms of industrial importance, biomass, fermentation, enzymes & hormones, Antibiotics & vaccines, Microorganisms & effluent treatment

Unit-2. Cultures and Media, Food Borne Diseases

Growth curve, Effect of pH, Water activity, O2 availability & temperature on the growth of microorganisms. Different type of media- Selective media and differential media; Preparation of media- PDA media, Nutrient agar, Mac Conkey agar, Culturing techniques- Spread plate and streak plate, pour plate. Food intoxication- Staphylococcal intoxication, botulism, Food infection- Salmonellosis, Clostridium perfringens, Bacillus cereus gastroenteritis, E. coli infection and others

Text books:

1. Frazier, W.C. Food Microbiology. 4th edition. Mc Graw Hill. New York, 2008
2. Khetarpaul, N. Food microbiology, Daya publishing house, New Delhi, 2009
3. Narayanan, L.M. and Mani,L. Microbiology.Saras Publications, Nagercoil.
4. Pelzar, H.J. and Rober, D. Microbiology 5th edition Mc Graw Hill. NewYork, 2009
5. Prescott, L.M., Harley, J.P. and Klein, D.A. Microbiology. 4th edition McGraw-Hill, NewYork. 1999.

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Semester-II
(In Force from June-2017)

FPT-203: Food Microbiology (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 study the basic rules and requirements of a microbiology laboratory.
Give emphasis towards the preparation of biological stains, reagents, media and their composition.
To get thorough different methods for staining of microorganisms.

1. Microbiology laboratory basic rules and requirements

Laboratory rules- basic rules of a microbiology lab, basic requirements of a microbiological lab- common glass ware; test tube, culture tube and screw capped tubes, Petri dish, pipette, Pasteur pipette, glass spreader, inoculation needle, Bunsen burner, water bath, autoclave, laminar air flow, incubator, hot air oven, Quebec colony counter, centrifuge, microscope. Disposal of laboratory waste and culture.

2. Staining of microorganisms and Demonstration of techniques for pure culture of microorganisms, Composition, preparation and sterilization of media
Methods for detection of specific bacteria: wet mount preparation for motile bacteria, hanging drop mount method, Methods for staining of micro organism: Simple staining (Monochrome staining) Gram staining for differentiation of bacteria Negative staining of bacteria Endospore staining. Streak plate method, Pour plate method, Serial dilution agar plate method. PDA media Nutrient agar media Mac-Conkey agar media

3. Microbiology of milk:
Enzymatic test of milk by methylene blue reductase test, quality testing of milk by resazurin test, determination of phosphatase activity of milk, detection of mastitis through milk test.
Micribniology of Fruit, Vegetable, Canned Food, Spiees, Baverages,

Text Books:

1. Dubey, R.C. and Maheshwari, D.K. Practical microbiology. S.Chand and Company Limited, Ramnagar. New Delhi 2002.

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Semester-II
(In Force from June-2017)

FPT-204: 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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Semester-II
(In Force from June-2017)

ENG-201: 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)

Adopted from Microbiology Department

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Bachelor of Vocational (Food Processing Technology)
Semester-I
(In Force from June-2017)

FC-201: Nutrition Health Communication

(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)

Unit I:

1. **Evaluation of some common diets ,protien-spreing modified high protein diets**
2. **Preventive health dimenstion**
3. **Nutritional Point of View Basic Changes of Adolescence Stage**
4. **Malnutrional-Prevalence of malnutrional in India**

Unit II:

1. **International, national and state level agencies & programmes for improving nutritional status of community**

Text book:

1. Field guide to designing communication strategy, WHO publication-2007. Behaviour change consortium summary(1999-2003) wwwl.od.nih.gov.behaviourchange • Communication strategy to conserve/improve Public Health., John Hopkins University-Centre for Communication programmes.
2. Michael Favin and Marcia Griffiths 1999, Nutrition tool kit-09-Communication for Behaviour change in Nutrition projects. Human Development Network-The World Bank-1999
3. Harvard Institute of International Development (198 1) Nutrition Education in Developing Countries, New York: Oelgeschlager Gunn and Hain Publishers Inc.
4. Hubley J (1993) Communicating Health. London: Teaching Aids at Low Cost,London, UK.
5. Academy for Educational Development (1988). Communication for Child Survival,
6. AED,USA.
7. Facts for Life (1990). A Communication Challenge. UNICEF / WHO / UNESCO / UNFPA, UK.

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Semester-I
(In Force from June-2017)

FC-201: Nutrition Health Communication

(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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1. **Preperation of nutritional rich diets**
   1) Carbohydrate rich diets
   2) Calories rich
   3) Proitens rich
   4) Minerales rich
2. **Ready to Recipe Vitamin-A,D,E,K&C**

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Semester-I
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FC-202: 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)

Adopted from Microbiology Department

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Semester-I
(In Force from June-2017)

FC-201: Environmental Study (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)

Adopted from Microbiology Department