

Department of Food Science and Technology
Chaudhary Devi Lal University, Sirsa
M.Sc. Food Science and Technology (Four Semester Programme)
Scheme and Syllabi w.e.f. Session 2016-17

Semester I

| Type of course | Course code | Title of course | Teaching hours per week | Credits | Internal Assessment/ Evaluation | End term examination | Total | Duration of exam (Hrs. Theory/ Practical) |
|---------------------|-------------|-----------------------------------|-------------------------|-----------|---------------------------------|----------------------|------------|---|
| Core | FST- 101 | Principles of Food Preservation | 4 | 4 | 30 | 70 | 100 | 3 |
| Core | FST- 102 | Basic Food Microbiology | 4 | 4 | 30 | 70 | 100 | 3 |
| Core | FST-103 | Basic Food Engineering | 4 | 4 | 30 | 70 | 100 | 3 |
| Core | FST- 104 | (Laboratory- I) Food Microbiology | 8 | 4 | - | 100 | 100 | 6 |
| Core | FST- 105 | (Laboratory-II) Food Analysis | 6 | 3 | - | 75 | 75 | 6 |
| Elective Discipline | FST-106 | Food Chemistry | 4 | 4 | 30 | 70 | 100 | 3 |
| | FST-107 | Food Analysis | 4 | 4 | 30 | 70 | 100 | 3 |
| Total | | | | 23 | | | 575 | |

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Food Analysis
Paper code: FST 107

Credits: 4
Periods per week: 4 Hrs.

Max. Marks: 70
Duration of Exam.: 3Hrs

Note: There are **nine** questions in all. Question No. 1 is compulsory, it consists of 5 short questions of 2 marks each. Students have to attempt **five** questions in all, selecting one question from each unit.

UNIT I

Introduction to food analysis, types of samples and sampling techniques, storage and preservation of samples, expression of results.

Various analytical methods for food samples such as, pH value, turbidity, moisture content etc. Analysis of principal food constituents such as carbohydrates, proteins, fat, vitamins and minerals by various methods.

UNIT II

Instrumentation in food analysis: Principles, working and application of spectroscopy, UV, visible and fluorescence spectroscopy.

Electrophoresis: Principle, types of electrophoresis, basic and advanced instrumentation and their applications in food analysis.

UNIT III

Chromatography: Types of chromatography, principle, basic instrumentation and their applications in food analysis.

Basic instrumentation in textural analysis: texture analyzer, penetrometer.

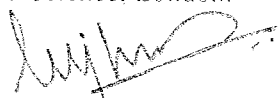
UNIT IV

Methods for measuring rheological and viscoamylographic properties of foods - viscoamylograph, extensograph, arelographic instruments.

Sensory evaluation: Introduction, methods, panel screening, selection methods, Sensory and instrumental analysis in quality control, hedonic scale testing of flavor, aroma, taste, texture, and overall acceptability of food products.

Text and Reference Books:

1. Ronald S. Kirk, Ronald Sawyer (1991), *Pearson's Composition & Analysis of foods*, 9th Edition Longman scientific & Technical, U.K.
2. Pomeranz, Y. & Merlan (1978), *Food Analysis: Theory and Practice*, Westport, Connecticut: Amerine, M.A., Pangborn, R.M., and Rosseler, E.B. 1965. Principles of Sensory Evaluation of Food, Academic Press, New York.
3. Birk, G.G., Herman, J.G. and Parker, K.J. Ed. -1977. Sensory Properties of Foods, Applied Science, London.



Open Elective Course: For the Student of other department of the university

The Department of Food science and Technology offer the following open elective course for the Ph.D. students of other departments of the university.

| Type of course | Course Code | Title of Course | Teaching Hours per week | Credits | Internal Assessment / Evaluation | End term Examination | Total | Duration of Exam. (Hrs.) |
|----------------|-------------|-----------------------------------|-------------------------|---------|----------------------------------|----------------------|-------|--------------------------|
| Open elective | OEC-FST-700 | Basic concepts in Food Technology | 2 | 2 | 20 | 30 | 50 | 3 |

Total Credits & Marks

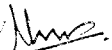
| Semester | Credits | Marks |
|---------------------------|-----------|------------|
| Core and Elective Courses | 12 | 300 |
| Open Elective Course | 2 | 50 |
| Grand Total | 14 | 350 |

General instructions:

1. Each student will submit one assignment and present one presentation to the concerned teacher of the subject.
2. The ordinance (Choice Based Credit System) of the university shall be followed by the department.

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Open Elective Course

Basic concepts in Food Technology 

Paper code: OEC-FST-~~605~~ 700



Credits: 2

Periods per week: 2 Hrs.

Max. Marks: 50 (Ext-30+Int-20)

Duration of Exam.: 3Hrs

Note: There are **nine** questions in all. Question No. 1 is compulsory, it consists of 5 short questions of 2 marks each. Students have to attempt **five** questions in all, selecting one question from each unit.

UNIT I

Importance & scope of Food Science

Nutraceuticals and functional foods: classification, sources, properties, functions, scope & future prospectus. Probiotics & probiotics.

UNIT II

Food Poisoning: Infection and intoxication

Phytochemicals and proactive compounds in fruits and vegetables-health benefits

UNIT III

Introduction and concept: Food Adulteration – Definition, concept, classification of adulterants, Food Contaminants, difference between adulterants and contaminants, foods commonly adulterated, harmful effects of adulterants, Household techniques for detection of adulteration.

UNIT IV

Food packaging: types, factors affecting selection of a food package, functions.

Active food packaging. Aseptic packaging.

TEXT / REFERENCE BOOKS:

1. Mazza, G (1988). Functional foods–biochemical and processing aspects, Technomic Publ. Lancaster, USA.
2. Wildman, REC (2007) Handbook of nutraceuticals and functional foods.
3. Pomeranz, Y. & Milon (1978), *Food Analysis: Theory and Practice*, Westport, Connecticut.
4. Birk, G.G., Herman, J.G. and Parker, K.J. Ed. -1977. Sensory Properties of Foods, Applied Science, London.
5. Sacharow, S. and Griffin, R. C. (1980) *Principles of food packaging*, 2nd Ed., Avi,Publication Co.Westport, Connecticut, USA.
6. Rooney, M.L (1995) *Active Food Packaging*, Blackie Academic & Professional, Glasgow, UK.
7. Bakker, M. (1986) *The Wiley Encyclopaedia of Packaging Technology*, John Wiley Sons,inc; New York.



