

SCHEME OF STUDIES

for

B.Sc. (Hons.) Food Science and Technology

(4 Years Degree Program)



National Institute of Food Science and Technology (NIFSAT)
Faculty of Food, Nutrition & Home Sciences
University of Agriculture
Faisalabad

B.Sc. (Hons.) Food Science and Technology

VISION

The vision of the National Institute of Food Science & Technology is to be recognized as an excellent institution playing a key role in the transformation of food and nutrition disciplines to be competitive nationally and internationally.

MISSION

The aim of the National Institute of Food Science & Technology is to make nation prosperous, and food secure with better health. This will be achieved with the following mission:

- Gain scientific and technical knowledge to solve the problems in the food industries regarding the processing of different food products
- Create and develop new food products, and therapeutic recipes by adopting novel and innovative technologies for different stakeholders
- Provide hands on training for the students to become a potential entrepreneur
- Facilitate lifelong learning and produce skilled food and nutrition professionals for ensuring the food security around the globe
- Advance knowledge through basic and applied research

PROGRAM EDUCATION OBJECTIVES (PEOs)

The program educational objectives (PEOs) of Food Science and Technology degree program to produce trained human resource in the discipline of Food Science and Technology are:

- PEO1.** Graduates will demonstrate professional competency in food processing, safety, quality, and regulatory affairs
- PEO2.** Graduates will emerge as experts in modern processing and analytical techniques
- PEO3.** Graduates will demonstrate an ability to design and implement the system, component or process as per requirements of food business
- PEO4.** Graduates will efficiently work as a team leader or member with professional integrity and ethics

PROGRAM LEARNING OUTCOMES (PLOs)

By the time of graduation, the students of B.Sc. (Hons.) Food Science and Technology will acquire the following graduate attributes (PLO-01 to PLO-12) related to knowledge, skills and behavioral traits:

PLO-01: Knowledge: An ability to apply knowledge of food science & technology and allied sciences for better understanding of food composition, food hazards and processing methods to increase value of foods.

PLO-02: Problem Analysis: An ability to identify, formulate, search literature, and analyze complex problems related to food science & technology reaching substantiated conclusions using principles of food, nutrition, biochemistry, and food service

PLO-03: Design/Development of Solutions: An ability to modify the existing food production processes, their optimization, development of innovative and value added food products, extension of products shelf stability and curtailment of postharvest losses

PLO-04: Investigation: An ability to investigate issues related to food processing, safety, quality, development of new products, packaging and labeling in a methodical way including

literature survey, design and conduct of experiments, assessment of the individuals and composition of the dietary intake to derive valid conclusions

PLO-05: Modern Tool Usage: An ability to create, select and apply appropriate techniques, resources, latest software, and IT tools for compositional and data analysis

PLO-06: The Society and Food Systems: An ability to apply reasoning informed by contextual knowledge to assess societal, cultural issues and the consequent responsibilities relevant to professional food practices and solutions to complex food processing related problems

PLO-07: Environment and Sustainability: An ability to understand solutions in the food system for ecofriendly environment and nutrient sensitive techniques for sustainable processing

PLO-08: Ethics: Apply ethical principles and commit to professional ethics, responsibilities, and norms of food practices according to established principles

PLO-09: Individual and Teamwork: An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings with special reference to quality, safety and development of nutritious food products

PLO-10: Communication: An ability to communicate effectively, orally as well as in writing, for counseling, awareness of the masses regarding healthy foods for better health, teaching and research settings

PLO-11: Project Management: An ability to demonstrate management skills and apply scientific principles of food science & technology to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment

PLO-12: Lifelong Learning: An ability to recognize the need for, and have the preparation and ability to engage in, independent and life-long learning in the broadest context of technological change.

NATIONAL INSTITUTE OF FOOD SCIENCE AND TECHNOLOGY
FACULTY OF FOOD, NUTRITION AND HOME SCIENCES
SCHEME OF STUDIES FOR B.SC. (HONS.) FOOD SCIENCE AND TECHNOLOGY
DEGREE PROGRAM

SEMESTER-I

Existing			Proposed		
Title of the course	Credit Hours	Major/ Minor	Course No.	Title of the course	Credit Hours
Essentials of Food Science and Technology	3(2-1)	Major	FST-301	Essentials of Food Science and Technology	3(2-1)
Elementary Biochemistry	3(2-1)	Foundation Course	BIOCHEM-301	Elementary Biochemistry	3(2-1)
Post-Harvest Handling of Fruits and Vegetables	3(2-1)	Foundation Course	HORT-415	Post-Harvest Handling of Fruits and Vegetables	3(2-1)
Basic Agriculture Weed Control Methods (For Students of Pre-Agriculture only)	3(1-2) 3(1-2)	Compulsory Minor	AGR-301/ AGR-304	Basic Agriculture Weed Control Methods (For Students of Pre-Agriculture only)	3(1-2) 3(1-2)
Functional English	3(3-0)	GEC	ENG-313	Functional English	3(3-0)
Applications of information and communication technologies (ICT)	3(2-1)	GEC	CS-305	Applications of information and communication technologies (ICT)	3(2-1)
Tutorial Group Meeting for Soft Skills	1(1-0)	NCC	TGM-301	Tutorial Group Meeting for Soft Skills	1(1-0)
hours	18		Total credit hours		18

SEMESTER-II

Existing			Proposed		
Title of the course	Credit Hours	Major/ Minor	Course No.	Title of the course	Credit Hours
Food Hygiene and Public Health	3(3-0)	MC	FST-302	Food Hygiene and Public Health	3(3-0)
Global Food Issues	3(3-0)	MC	Course Deleted		
			FST-304/HND-304	Fundamentals of Food Systems	3(3-0)
Stored Products Pests and their Management	3(2-1)	IDC	ENT-508	Stored Products Pests and their Management	3(2-1)
Introduction to Microbiology and Immunology	3(2-1)	IDC	MICRO-304	Introduction to Microbiology and Immunology	3(2-1)
Expository Writing	3(3-0)	GEC	ENG-314	Expository Writing	3(3-0)
Ideology and Constitution of Pakistan	2(2-0)	GEC	SSH-303	Ideology and Constitution of Pakistan	2(2-0)
Fundamentals of Natural Sciences	3(2-1)	GEC	PY-307	Fundamentals of Natural Sciences	3(2-1)
			TGM-302	Tutorial Group Meeting for Soft Skills	1(1-0)

hours	20		Total credit hours	20
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SEMESTER-III

Existing			Proposed		
Title of the course	Credit Hours	Major/ Minor	Course No.	Title of the course	Credit Hours
Fundamentals of Halal Foods	2(2-0)	MC	FST-401	Fundamentals of Halal Foods	2(2-0)
Public Health Nutrition	2(2-0)	MC	FST-403 /HND-403	Public Health Nutrition	2(2-0)
Food Toxicology and Safety	3(3-0)	MC	FST-405	Food Toxicology and Safety	3(3-0)
Research Project and Scientific Writing	3(2-1)	MC	FST-407	Research Project and Scientific Writing	3(2-1)
Quantitative Reasoning -I	3(3-0)	GEC	MATH-408	Quantitative Reasoning -I	3(3-0)
Entrepreneurship	2(2-0)	GEC	BMS-402	Entrepreneurship	2(2-0)
Islamic Studies/ Basic Ethics	2(2-0)/ 2(2-0)	GEC	IS-401/ SSH-306	Islamic Studies/ Basic Ethics	2(2-0) 2(2-0)
Quran Translation /Interfaith Harmony (For Non-Muslims and Foreigners)	1(1-0)	NCC	IS-402/ SSH-403	Quran Translation /Interfaith Harmony (For Non-Muslims and Foreigners)	1(1-0)
Tutorial Group Meeting for Soft Skills	1(1-0)	NCC	TGM-401	Tutorial Group Meeting for Soft Skills	1(1-0)
hours	17		Total credit hours	17	

SEMESTER-IV

Existing				Proposed		
	Title of the course	Credit Hours	Major/ Minor	Course No.	Title of the course	Credit Hours
D-	Food and Nutrition Entrepreneurship	3(3-0)	MC	FST-402/HND-406	Food and Nutrition Entrepreneurship	3(3-0)
D-	Functional Foods and Nutraceuticals	3(3-0)	MC	FST-404/HND-404	Functional Foods and Supplements	3(2-1)
	Stored Products Pests and their Management	3(2-1)	IDC	Deleted as Duplicate Courses Offered in II-Semester		
				FST-406	Extrusion Technology	3(2-1)
	Introduction to sociology	2(2-0)	GEC	SOC-311	Introduction to sociology	2(2-0)
	Civics and Community Engagement	2(2-0)	GEC	EDU-306	Civics and Community Engagement	2(2-0)
	Quantitative Reasoning -II	3(3-0)	GEC	STAT-408	Quantitative Reasoning -II	3(3-0)
	Introduction to Art and Humanities	2(2-0)	GEC	FA-310	Introduction to Art and Humanities	2(2-0)
	تُرُوحَانِيَّة/Moral Philosophy	1 (1-0)	NCC	IS-403	تُرُوحَانِيَّة/Moral Philosophy	1 (1-0)
	Tutorial Group Meeting for Soft Skills	1(1-0)	NCC	TGM-402	Tutorial Group Meeting for Soft Skills	1(1-0)
hours	18			Total credit hours	18	

SEMESTER-V

Existing			Proposed		
Title of the course	Credit Hours	Major/Minor	Course No.	Title of the course	Credit Hours
Food Microbiology and Biotechnology	3(2-1)	MC	FST-501/HND-613	Food Microbiology and Biotechnology	3(2-1)
Food Quality Management	2(2-0)	MC	FST-503/HND-614	Food Quality Management	2(2-0)
Meat and Poultry Processing	3(2-1)	MC	FST-505	Meat and Poultry Processing	3(2-1)
Fundamentals of Human Nutrition	3(3-0)	MC	FST-507/HND-301	Fundamentals of Human Nutrition	3(3-0)
Fruits and Vegetables Processing	3(2-1)	MC	FST-509	Fruits and Vegetables Processing	3(2-1)
Food Service Management	3(3-0)	MC	FST-511/HND-608/FN-507	Food Service Management	3(3-0)
Tutorial Group Meeting for Soft Skills	1(1-0)	NCC	TGM-501	Tutorial Group Meeting for Soft Skills	1(1-0)
Total credit hours	17		Total credit hours		17

SEMESTER-VI

Existing			Proposed		
Title of the course	Credit Hours	Major/Minor	Course No.	Title of the course	Credit Hours
Food Analysis and Sensory Evaluation	3(1-2)	MC	FST-502/HND-507/FN-510	Food Analysis and Sensory Evaluation	3(1-2)
Bakery Products Technology	3(2-1)	MC	FST-504	Bakery Products Technology	3(2-1)
Technology of Edible Oils and Fats	3(2-1)	MC	FST-506	Technology of Edible Oils and Fats	3(2-1)
Food Chemistry	3(3-0)	MC	FST-508	Food Chemistry	3(3-0)
Dairy Technology	3(2-1)	MC	FST-510	Dairy Technology	3(2-1)
Unit Operations in Food Processing	3(3-0)	MC	FST-512	Unit Operations in Food Processing	3(3-0)
Tutorial Group Meeting for Soft Skills	1(1-0)	NCC	TGM-502	Tutorial Group Meeting for Soft Skills	1(1-0)
Total credit hours	18		Total credit hours		18

SEMESTER-VII

Existing			Proposed		
Title of the course	Credit Hours	Major/Minor	Course No.	Title of the course	Credit Hours
Instrumental Techniques in Food Analysis	3(1-2)	MC	FST-601	Instrumental Techniques in Food Analysis	3(1-2)
Cereal Technology	3(2-1)	MC	FST-603	Cereal Technology	3(2-1)
Beverage Technology	3(2-1)	MC	FST-605	Beverage Technology	3(2-1)

Food Process Engineering	3(2-1)	IDC	FE-304	Food Process Engineering	3(0-0)
Food and Nutrition Policies	3(3-0)	MC	FST-607/HND-605	Food and Nutrition Policies	3(0-0)
Nutrition in Emergencies	3(3-0)	IDC	HND-506/FN-508	Nutrition in Emergencies	3(0-0)
Tutorial Group Meeting for Soft Skills	1(1-0)	NCC	TGM-601	Tutorial Group Meeting for Soft Skills	1(0-0)
Hours	18		Total credit hours		18

SEMESTER-VIII

Existing			Proposed		
Title of the course	Credit Hours	Major/Minor	Course No.	Title of the course	Credit Hours
Food Packaging	2(2-0)	MC	FST-602	Food Packaging	2(0-0)
Food Product Development	3(1-2)	MC	FST-604	Food Product Development	3(0-0)
Food Laws and Regulations	3(3-0)	MC	FST-606	Food Laws and Regulations	3(0-0)
Confectionery and Snack Foods	2(1-1)	MC	FST-608	Confectionery and Snack Foods	2(0-0)
Capstone Project	3(0-3)		FST-610	Capstone Project	3(0-0)
Internship/Field Experience	3(0-3)		FST-612	Internship/Field Experience	3(0-0)
Hours	6				16
	140		Grand Total		140

**General Education Courses=30 Major Courses= 82 Credit Hours
Internship & Capstone Project= 0**

Interdisciplinary= 24