Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Bio Sciences and Technology

M.Sc., Integrated Food Science and Technology (5yr.)

Curriculum and Syllabus

(2021-2022 admitted students)

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M.Sc., Food Science and Technology (2021-2022)

VISION STATEMENT OF VELLORE INSTITUTE OF TECHNOLOGY

➢ Transforming life through excellence in education and research.

MISSION STATEMENT OF VELLORE INSTITUTE OF TECHNOLOGY

➢ **World class Education:** Excellence in education, grounded in ethics and critical thinking, for improvement of life.

➢ **Cutting edge Research:** An innovation ecosystem to extend knowledge and solve critical problems.

➢ **Impactful People:** Happy, accountable, caring and effective workforce and students.

➢ **Rewarding Co-creations:** Active collaboration with national & international industries & universities for productivity and economic development.

➢ **Service to Society:** Service to the region and world through knowledge and compassion.

VISION STATEMENT OF THE SCHOOL OF BIO SCIENCES AND TECHNOLOGY

➢ To nurture high-quality bioengineers and science graduates with the potential to innovate, invent and disseminate knowledge for the benefit of society and environment.

MISSION STATEMENT OF THE SCHOOL OF BIO SCIENCES AND TECHNOLOGY

➢ To create opportunities for multi-disciplinary education, training and research in biotechnology and bio-sciences.

➢ To instill a spirit of innovation and creativity in young minds from across the globe with sound research aptitude.

➢ To foster ethically strong biologists who effectively contribute towards the growth of the nation.

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INTEGRATED M.SC., FOOD SCIENCE AND TECHNOLOGY

Programme Educational Objectives (PEO)

PEO	Statements
PEO1	Graduates will be practitioners and leaders in their chosen field
PEO2	Graduates will function in their profession with social awareness and responsibility
PEO3	Graduates will interact with their peers in other disciplines in their work place and society and contribute to the economic growth of the country
PEO4	Graduates will be successful in pursuing higher studies in their chosen field
PEO5	Graduates will pursue career paths in teaching or research

Programme Outcomes (POs)

POs	PO Statements
PO_1	Having a clear understanding of subject-related concepts and contemporary issues
PO_2	Having an ability to design and conduct experiments, as well as analyse and interpret data.
PO_3	Having an ability to use techniques, skills and modern tools required for scientific career.
PO_4	Having problem-solving ability for social issues.
PO_5	Having adaptive thinking and adaptability.
PO_6	Having a clear understanding of professional and ethical responsibility.
PO_7	Having cross-cultural competency exhibited by working in teams.
PO_8	Having a good working knowledge of communicating in English.
PO_9	Having good cognitive load management (discriminate and filter available data) skills.
PO_10	Having interest in lifelong learning.

INTEGRATED M.SC., FOOD SCIENCE AND TECHNOLOGY

Programme Specific Outcomes (PSOs)

On completion of Integrated M.Sc., (Food Science and Technology) programme, graduates will be able to

PSO   Statements

PSO1   Formulate innovative solutions utilising critical research skills to address the real-time scenarios combining the appropriate science and technology and discover new techniques and tools for improvisation/modernization in food processing, food preservation and production.

PSO2   Assess the quality of the food and ensure maintenance of ethical standards in food production for fostering a healthy generation.

PSO3   Apply the knowledge, problem-solving, and research skills in multifaceted careers at health care, food industry, agricultural produce, and government roles.

CREDIT INFO

Category	Credits
Foundation Core Courses	60
Discipline Core Courses	71
Discipline Elective Courses	27
Ability Enhancement Compulsory Courses	09
Skill Enhancement Courses	08
Open Elective Courses	12
Project and Internship	23
Total Credit Requirement	**210**
Non-Graded Credit Requirement	12

Foundation Core Courses - 60								
Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	CHY XXXX	Chemistry	Theory	1	3	0	0	3
2	CHY XXXX	Chemistry Lab	Lab	1	0	0	2	1
3	PHY XXXX	Physics	Theory	1	3	0	0	3
4	PHY XXXX	Physics Lab	Lab	1	0	0	2	1
5	MAT XXXX	Mathematics	Theory	1	3	1	0	4
6	BIY XXXX	Biological Sciences	Theory	1	3	0	0	3
7	BIY XXXX	Bioethics and Biosafety	Theory	1	2	0	0	2
8	CSE XXXX	Computer Programming: C	Theory	1	2	0	0	2
9	CSE XXXX	Computer Programming: C Lab	Lab	1	0	0	2	1
10	BIY XXXX	Cell Biology	Theory	1	3	0	0	3
11	BIY XXXX	Molecular Biology	Theory	1	3	0	0	3
12	BIY XXXX	Cell and Molecular Biology Lab	Lab	1	0	0	4	2
13	BIY XXXX	Biochemistry	Theory	1	3	0	0	3
14	BIY XXXX	Biochemistry Lab	Lab	1	0	0	4	2
15	BIY XXXX	Industrial Unit Operations	Theory	1	3	0	0	3
16	BIY XXXX	Industrial Unit Operations Lab	Lab	1	0	0	2	1
17	BIY XXXX	Probability and Statistics	Theory	1	3	0	0	3
18	BIY XXXX	Probability and Statistics Lab	Lab	1	0	0	2	1
19	CSE XXXX	Computer Programming: Python	Theory	1	2	0	0	2
20	CSE XXXX	Computer Programming: Python Lab	Lab	1	0	0	2	1
21	RES XXXX	Research Methodology	Theory	1	3	0	0	3
22	OTH XXXX	Industry Standards and Guidelines	Theory	1	3	0	0	3
23	OTH XXXX	Critical Thinking	Theory	1	2	0	0	2
24	OTH XXXX	Intra and Interpersonal Skills	Theory	1	2	0	0	2
25	FLC XXXX	Foreign Language	Theory	1	2	0	0	2

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Discipline Core Courses - 71								
Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	MFI XXXX	Principles of Food Science	Theory	1	3	0	0	3
2	MFI XXXX	Food Chemistry	Theory	1	3	0	0	3
3	MFI XXXX	Food Microbiology	Theory	1	3	0	0	3
4	MFI XXXX	Food Chemistry and Food Microbiology Lab	Lab	1	0	0	4	2
5	MFI XXXX	Physiology and Nutrition	Theory	1	3	0	0	3
6	MFI XXXX	Food Additives	Theory	1	3	0	0	3
7	MFI XXXX	Food Quality and Analysis	Theory	1	3	0	0	3
8	MFI XXXX	Food Preservation Technology	Theory	1	3	0	0	3
9	MFI XXXX	Food Analysis and Preservation	Lab	1	0	0	2	1
10	MFI XXXX	Food Engineering	Theory	1	3	0	0	3
11	MFI XXXX	Food Packaging	Theory	1	3	0	0	3
12	MFI XXXX	Food Engineering and Packaging Lab	Lab	1	0	0	4	2
13	MFI XXXX	Milk and Milk Products Technology	Theory	1	3	0	0	3
14	MFI XXXX	Nutraceuticals and Functional Foods	Theory	1	3	0	0	3
15	MFI XXXX	Food Toxicology and Safety	Theory	1	3	0	0	3
16	MFI XXXX	Food Toxicology and Safety Lab	Lab	1	0	0	4	2
17	MFI XXXX	Animal Products Technology	Theory	1	3	0	0	3
18	MFI XXXX	Animal and Milk Products Lab	Theory	1	3	0	0	3
19	MFI XXXX	Food Laws and Regulations	Theory	1	3	0	0	3
20	MFI XXXX	Food Equipment Design and Automation	Theory	1	3	0	0	3
21	MFI XXXX	Baking and Confectionary Technology	Theory	1	3	0	0	3
22	MFI XXXX	Baking and Confectionary Lab	Lab	1	0	0	4	2
23	MFI XXXX	Food Process Technology	Theory	1	3	0	0	3
24	MFI XXXX	Production Technology of Spices and Plantation Crops	Theory	1	3	0	0	3
25	MFI XXXX	Grain Science and Technology	Theory	1	3	0	0	3
26	MFI XXXX	Grain, Spices and Plantation Products Lab	Lab	1	0	0	4	2

Discipline Elective Courses - 27								
Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	MFI XXXX	Food Adulteration	Theory	1	3	0	0	3
2	MFI XXXX	Food Fermentation and Synbiotic Food Technology	Theory	1	3	0	0	3
3	MFI XXXX	Food Nanotechnology	Theory	1	3	0	0	3
4	MFI XXXX	Food Forensics	Theory	1	3	0	0	3
5	MFI XXXX	Food Rheology	Theory	1	3	0	0	3
6	MFI XXXX	Technology of Fats and Oils	Theory	1	3	0	0	3
7	MFI XXXX	Fruit and Vegetable Processing Technology	Theory	1	3	0	0	3
8	MFI XXXX	Crop Production Concepts and Practices	Theory	1	3	0	0	3
9	MFI XXXX	Nutrition and Dietetics	Theory	1	3	0	0	3
10	MFI XXXX	Industrial Enzymology	Theory	1	3	0	0	3
11	MFI XXXX	Beverage Processing Technology	Theory	1	3	0	0	3
12	MFI XXXX	Technical Answers to Real world Problems		1	0	0	0	3
13	MFI XXXX	Laboratory Project		1	0	0	0	3
14	MFI XXXX	Design Project		1	0	0	0	3
15	MFI XXXX	Special Project		1	0	0	0	3
16	MFI XXXX	Study Project		1	0	0	0	3
17	MFI XXXX	Computer Project		1	0	0	0	3

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Ability Enhancement Courses - 9

Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	ENG XXXX	Effective English Communication	Theory	1	2	0	0	2
2	ENG XXXX	Technical English Communication	Theory	1	2	0	0	2
3	ENG XXXX	Technical English Communication Lab	Lab	1	0	0	2	1
4	ENG XXXX	Technical Report Writing Lab	Lab	1	0	0	2	1
5	CHY XXXX	Environmental Studies	Theory	1	3	0	0	3

Skill Enhancement Courses - 8

Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	MFI XXXX	Value Added Food Products	Theory & Lab	1	1	0	2	2
2	MFI XXXX	Mushroom Farming	Theory & Lab	1	1	0	2	2
3	MFI XXXX	Beekeeping and Honey Processing	Theory & Lab	1	1	0	2	2
4	MFI XXXX	Biofortification of Foods	Theory & Lab	1	1	0	2	2
5	MFI XXXX	Computer Programming: Java	Theory	1	3	0	0	3
6	MFI XXXX	Computer Programming: Java Lab	Lab	1	0	0	2	1

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Open Elective Courses - 12

Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	MFI XXXX	Principles of Management	Theory	1	3	0	0	3
2	MFI XXXX	Marketing Management	Theory	1	3	0	0	3
3	MFI XXXX	Human Resource Management	Theory	1	3	0	0	3
4	MFI XXXX	Total Quality Management	Theory	1	3	0	0	3
5	MFI XXXX	Supply Chain Management	Theory	1	3	0	0	3
6	MFI XXXX	Consumer Behaviour	Theory	1	3	0	0	3
7	MFI XXXX	International Business	Theory	1	3	0	0	3
8	MFI XXXX	Design Thinking for Innovation	Theory	1	3	0	0	3
9	MFI XXXX	Entrepreneurship	Theory	1	3	0	0	3
10	MFI XXXX	Fundamentals of Finance and Accounting	Theory	1	3	0	0	3

Project and Internship - 23

Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	PJT XXXX	Summer Industrial Internship (28 days)		1	0	0	0	2
2	PJT XXXX	Project		1	0	0	0	3
3	PJT XXXX	Research Project I		1	0	0	0	6
4	PJT XXXX	Research Project II / Internship		1	0	0	0	12

Non-Graded Credit Requirement - 12

Sl.no	Course Code	Course Title	Course Type	Version	L	T	P	C
1	NGC XXXX	Introduction to Science			2	0	0	2
2	NGC XXXX	Essence of Traditional Knowledge			2	0	0	2
3	NGC XXXX	Indian Constitution			2	0	0	2
4	NGC XXXX	Co-curricular Activities			0	0	0	2
5	NGC XXXX	Extracurricular Activities			0	0	0	2
6	NGC XXXX	NSS/NCC			0	0	0	2