GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITAM)

(Deemed to be University)

VISAKHAPATNAM * HYDERABAD * BENGALURU

Accredited by NAAC with A^{++} Grade

GITAM School of Science

CURRICULUM AND SYLLABUS

2 Year Postgraduate Programme

PMFST02: M.Sc. Food Science and Technology

w.e.f. 2025-26 admitted batch

(Updated on July 2025)

Academic Regulations

Applicable for the Postgraduate Programmes in the Schools of Humanities & Social Sciences and Science (except M.C.A)

https://www.gitam.edu/academics/academic-regulations

GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Vision

GITAM will be an exceptional knowledge-driven institution advancing on a culture of honesty and compassion to make a difference to the world.

Mission

- Build a dynamic application-oriented education ecosystem immersed in holistic development.
- Nurture valuable futures with global perspectives for our students by helping them find their ikigai.
- Drive impactful integrated research programmes to generate new knowledge, guided by integrity, collaboration, and entrepreneurial spirit.
- Permeate a culture of kindness within GITAM, fostering passionate contributors.

Quality Policy

To achieve global standards and excellence in teaching, research, and consultancy by creating an environment in which the faculty and students share a passion for creating, sharing and applying knowledge to continuously improve the quality of education.

GITAM School of Science

Vision

Nurturing a high-quality Science Education and Research by providing a best learning ecosystem to create world class academicians and researchers.

Mission

- To teach the most renewed curriculum that lay the foundation for students to start exciting careers in academia, research, and industry.
- To foster an environment of healthy curiosity, an innovative mindset, and a strong desire to contribute to the science world.
- To advance our understandings of the natural processes of Physical, Chemical and Biological systems for a better habitable world.
- To inculcate a strong sense of empathy, integrity, and trust in the GITAM Fraternity with a strong commitment towards society and environment.

VISION AND MISSION OF THE DEPARTMENT

VISION

Fostering a seamless and innovative interdisciplinary research-driven academic ecosystem to address complex biological challenges, by reinforcing critical thinking, creativity, and collaboration

MISSION

- Holistic development of the students through interdisciplinary research and teaching programs with focus on contemporary problems in health, food, disease and environment
- Encourage students to embrace their curiosity to understand the natural processes and boost entrepreneurship for sustainable development
- To emerge as centre of excellence by addressing global challenges in personalized food and medicine, sustainable agriculture and environment through cutting-edge and collaborative research
- Nurture a culture of honesty, kindness, empathy and trust among the Life Sciences fraternity with a strong commitment towards all life on earth and its environment

Programme Educational Objectives (PEOs)

PEO 1: To provide the knowledge for successful careers in food industries, and in the institutions of higher learning.

PEO 2: To provide hands-on experience in basic tools and techniques and make students competent in food sciences and allied areas.

PEO 3: To motivate the future food technologists through professional, ethical development and research in food science and technology.

PEO 4: Enable the graduates for becoming entrepreneurs.

PEO 5: To introduce the students various societal needs and global food security challenges for taking up a dissertation in this direction.

PEO Articulation

	PEO1	PEO2	PEO3	PEO4	PEO5
M1	2	3	3	3	1
M2	3	2	1	3	3
M3	3	2	2	3	1
M4	2	2	3	3	3

3 - High Correlation, 2 - Medium Correlation, 1 - Low Correlation

Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

At the end of the Programme the students would be able to demonstrate:

PO1:	Students will be able to acquire knowledge of food science and nutrition fundamentals, food chemistry, and source and variability of raw food materials and biochemical changes during processing and preservation.
PO2:	Students will understand the properties and reactions of various food components and select the appropriate analytical method when presented with a practical problem.
PO3:	Students learn to identify the key pathogens and spoilage microorganisms in foods and the conditions under which they will grow, and laboratory techniques to identify microorganisms in food.
PO4:	Students can describe the unit operations, mass, and energy balances required in food processing to produce a given food product
PO5:	Students learn to describe the basic principles and practices of cleaning and sanitation in food processing operations, and explain the properties and uses of various packaging materials.
PO6:	Students learn to apply and include the principles of food science in practical, real-world situations and problems.
PSO1:	Understand the composition of food, the role of each component and their interaction, their roles in food processing.
PSO2:	Learn the detailed principles, procedures, and applications of various chromatographic and electrophoretic techniques for successfully purifying food proteins to homogeneity.
PSO3:	Will apply the knowledge of various spectrophotometric methods to quantify the desired compound in the given solutions.
PSO4:	Will be able to describe the importance of microbiology to food production and food safety and demonstrate the role and significance of microbial inactivation, adaptation, and environmental factors on the growth and response of microorganisms in various environments.
PSO5:	Will be able to design food plant, identify the instruments required for processing by understanding principles followed by preservation techniques, and successful packaging method employment with good marketing skills

Curriculum Structure

(Flexible Credit System)

Minimum Credit Requirements to Award Degree Under Each Category

Duration & Name of the Programme				S.No	Course Category		Minimum Credit Requirement		
Programme	Eligibility	Programme	Eligibility				2 Year PG (2nd year- Course Work alone)	2 Year PG (2nd year - Course Work and Research)	2 Year PG (2nd year - Research alone)
2-year PG Degree (with exit option at the end of first year)	3-year UG Degree	1 year & PG Diploma	3-year UG Degree	1	Programme Core Courses & Labs	PC	28	28	28
				2	Programme Electives Courses	PE	8	8	8
				3	Research Methodology	FC	4	4	4
				4	Seminar	FC	1	1	1
				5	Term Paper	FC	1	1	1
				6	Internship	FC	4	4	4
				Total (At the end of I Year)			46	46	46
		1 year & PG Degree	4-year UG Degree	7	Programme Core Courses	PC	40	20	0
				8	Programme Electives Courses	PE			
				9	Research Project	FC	0	20	0
				10	Research Dissertation	FC	0	0	40
				Total (At the end of II Year)			86	86	86

2 Year PG programme:

Semester I and II: Common Structure for Course Work, Course Work & Research and Research Alone

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - I									
25MFST6151	PC	600	Food Analysis Techniques	4	0	0	0	0	4
25MFST6161	PC	600	Microbiology of Foods	4	0	0	0	0	4
25MFST6171	PC	600	Food Chemistry	4	0	0	0	0	4
25MFST6181	PC	600	Analysis of Foods Laboratory	0	0	4	0	0	2
25MFST6191	PC	600	Microbial Methods Laboratory	0	0	4	0	0	2
25MFST6666	FC	600	Seminar	0	0	0	0	2	1
Choose any one of the following electives:									
25MFST6201	PE	600	Human health and nutrition	4	0	0	0	0	4
25MFST6211	PE	600	Bakery and Confectionery Technology	4	0	0	0	0	4
25MFST6221	PE	600	Dairy Technology	4	0	0	0	0	4
			Total Credits						**21**
Semester - II									
25MFST6231	PC	600	Principles of Food Engineering	4	0	0	0	0	4
25MFST6241	PC	600	Technology of Plant Foods, Spices and Plantation Products	4	0	0	0	0	4
25MFST6251	PC	600	Principles of Food Engineering Laboratory	0	0	4	0	0	2
25MFST6261	PC	600	Technology of Foods Laboratory	0	0	4	0	0	2
25MFST6444	FC	600	Research Methodology	4	0	0	0	0	4
25MFST6777	FC	600	Term Paper	0	0	0	0	2	1
25MFST6333	FC	600	Internship	0	0	0	0	8	4
Choose any one of the following electives:									
25MFST6271	PE	600	Post-Harvest Technology	4	0	0	0	0	4
25MFST6281	PE	600	Food Biotechnology and Nanotechnology	4	0	0	0	0	4
25MFST6291	PE	600	Food Waste Management	4	0	0	0	0	4
			Total Credits						**25**

2nd Year - Research alone:

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - III									
25MFST7888	FC	700	Research Dissertation - I	0	0	0	0	40	20
			Total Credits						**20**
Semester – IV									
25MFST7999	FC	700	Research Dissertation - II	0	0	0	0	40	20
			Total Credits						**20**

2nd Year – 'Course Work alone' & 'Coursework and Research':

Semester – III (Common Structure for 'Course Work alone' & 'Course Work and Research')									
Course Code	**Category**	**Level**	**Course Title**	**L**	**T**	**P**	**S**	**J**	**C**
25MFST7181	PC	700	Modern Food Packaging Technologies	4	0	0	0	0	4
25MFST7191	PC	700	Technology of Animal Foods	4	0	0	0	0	4
25MFST7201	PC	700	Food Processing and Preservation	4	0	0	0	0	4
25MFST7211	PC	700	Product Development and Analysis Laboratory	0	0	4	0	0	2
25MFST7221	PC	700	Food Processing and Preservation Laboratory	0	0	4	0	0	2
Choose any one of the following electives:									
25MFST7231	PE	700	Food Innovation Process	4	0	0	0	0	4
25MFST7241	PE	700	Food Additives and Flavour Technology	4	0	0	0	0	4
25MFST7021	PE	700	Fermentation Technology	4	0	0	0	0	4
			Total Credits						**20**

Course Work alone

Semester - IV									
Course Code	**Category**	**Level**	**Course Title**	**L**	**T**	**P**	**S**	**J**	**C**
25MFST7251	PC	700	Clinical and Therapeutic Nutrition	4	0	0	0	0	4
25MFST7261	PC	700	Food Safety Management	4	0	0	0	0	4
25MFST7271	PC	700	Clinical and Therapeutic Nutrition Laboratory	0	0	4	0	0	2
25MFST7281	PC	700	Food Safety, Standards and Quality Control Laboratory	0	0	4	0	0	2
Choose any one of the following electives:									
25MFST7141	PE	700	Mushroom Technology	4	0	0	0	0	4
25MFST7291	PE	700	Enzymes in Food Processing	4	0	0	0	0	4
25MFST7301	PE	700	Snack Food Technology	4	0	0	0	0	4
Choose any one of the following electives:									
25MFST7311	PE	700	Advances in Millet Processing Technology	4	0	0	0	0	4
25MFST7321	PE	700	Sensory Science and Consumer Behaviour	4	0	0	0	0	4
25MFST7331	PE	700	Lipid Science and Technology	4	0	0	0	0	4
			Total Credits						**20**

Coursework and Research

Semester – IV									
Course Code	**Category**	**Level**	**Course Title**	**L**	**T**	**P**	**S**	**J**	**C**
25MFST7555	FC	700	Research Project	0	0	0	0	40	20
			Total Credits						**20**

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