Department of Food Technology

Scheme & Syllabi

M.Tech. (Food Technology)

(Choice Based Credit System)

(w. e. f. session 2022-23)

Guru Jambheshwar University
of
Science & Technology Hisar Haryana-125001

Department of Food Technology

VISION
• To become a model department for scientific industrial research in the area of Food Science and Technology • To become an advanced centre for Food Analysis aiming to provide guidance to food industries with regard to physical, chemical, sensory and microbiological qualities of raw and processed food products
MISSION
• To assist and promote the growth of food industry of the region through technology and technical services • To add value and utility to agro- resources through R&D • To develop human resource for the industry
PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)
• **Successful Career:** Post-graduates of the programme will have successful technical and or professional careers in food industry • **Higher Study:** The programme will make the students competent to undertake further research in top institutes globally • **Lifelong Learning:** The programme will facilitate lifelong learning of the students for the larger benefit of industry and society

PROGRAMME OUTCOMES (POs)

PO1	An ability to independently carry out research /investigation and development work to solve practical problems
PO2	An ability to write and present a substantial technical report/document
PO3	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1	Acquire knowledge of food composition and advance techniques for offering guidance and solutions to the society and industry
PSO2	Understand and apply learning of engineering, processing, plant layout and packaging for sustainable growth of industry
PSO3	Ability to plan and conduct research to offer effective solutions for the benefit of society and industry

Department of Food Technology

Guru Jambheshwar University of Science & Technology Hisar, Haryana

Choice Based Credit System Scheme and Syllabi

(w. e. f. session 2022-23)

M.TECH. (FOOD TECHNOLOGY)

Programme Core	Programme Elective	Open Elective	Research Project	Audit Course	Research Methodology and IPR	Mini Project	Total Credit
16	19	3	26	NC	2	2	68

Semester I

Sr. No.	Course Code	Course Nomenclature	Course Type	L	T	P	Credit	Marks
1.	1MFT01	Advances in Food Engineering	Programme Core I	3	0	0	3	100
2.	1MFT02	Advances in Food Analysis	Programme Core II	3	0	0	3	100
3.	1MFT03	Programme Elective I	Programme Elective I	3	0	0	3	100
4.	1MFT04	Programme Elective II	Programme Elective II	3	0	0	3	100
5.	1MFT05	Programme Core Lab I	Lab I	0	0	4	2	100
6.	1MFT06	Programme Elective Lab II	Lab II	0	0	4	2	100
7.	1MFT07	Research Methodology and IPR		2	0	0	2	100
8.	Audit Course	One from the list	Audit Course I	2	0	0	NC	100
		Total credits		16	0	8	18	

The "Teaching Scheme (hrs/weeks)" header spans the L, T, P columns.

Semester II

Sr. No.	Course Code	Course Nomenclature	Course Type	Teaching Scheme (hrs/weeks)			Credit	Marks
				L	T	P		
9.	2MFT11	Advances in Post-harvest Technology of Fruits and Vegetables	Programme Core III	3	0	0	3	100
10.	2MFT12	Advances in Cereal Science and Technology	Programme Core IV	3	0	0	3	100
11.	2MFT13	Programme Elective III	Programme Elective III	3	0	0	3	100
12.	2MFT14	Programme Elective IV	Programme Elective IV	3	0	0	3	100
13.	2MFT15	Programme Core Lab III	Lab III	0	0	4	2	100
14.	2MFT16	Programme Elective Lab IV	Lab IV	0	0	4	2	100
15.	2MFT18	Mini Project		0	0	4	2	100
16.	Audit Course	One from the list	Audit Course II	2	0	0	NC	100
		Total Credits		**14**	**0**	**12**	**18**	

Semester III

Sr. No.	Course Code	Course Nomenclature	Course Type	Teaching Scheme (hrs/weeks)			Credit	Marks
				L	T	P		
17.	3MFT21	Programme Elective V	Programme Elective V	3	0	0	3	100
18.	3MFT-801A	Dissertation Phase-I	Dissertation	0	0	20	10	100
19.	Open Elective	One from the list	Open Elective	3	0	0	3	100
		Total Credits		**6**	**0**	**20**	**16**	

Semester IV

Sr. No.	Course Code	Course Nomenclature	Course Type	Teaching Scheme (hrs/weeks)			Credit	Marks
				L	T	P		
20.	4MFT-801B	Dissertation Phase-II/Thesis	Dissertation/Thesis	0	0	32	16	100
		Total Credits		**0**	**0**	**32**	**16**	
						Total Credits	**68**	

List of Programme Electives:

Programme Elective-I
1MFT03 (i) Food Safety and Quality Assurance
      (ii) Food Additives, Contaminants and Toxicology
      (iii) Food Microstructure and Texture

Programme Elective-II
1MFT04 (i) Novel Food Packaging
      (ii) Technology of Frozen Foods
      (iii) Powder Technology

Programme Elective-III
2MFT13 (i) Advances in Dairy Technology
      (ii) Beverage Technology
      (iii) Flavour Technology

Programme Elective-IV
2MFT14 (i) Advances in Meat, Fish, Poultry and Egg Processing
      (ii) Snack Food Technology
      (iii) Food Equipment and Plant Design

Programme Elective-V
3MFT21 (i) Bioprocess Engineering
      (ii) Nutraceuticals and Functional Foods
      (iii) Valorization of Food By-Products

Audit Courses/Open Electives for M.Tech.

List of Audit Courses 1 (1st Semester-Non-Credit):

Sr. No.	Course	Code	To be Taught by Department	Time Table Schedule
1.	English for Research Paper Writing	AC01	CMT	1st Lecture Thursday & Friday
2.	Disaster Management	AC02	ESE (Env. Sc. and Engg.)	
3.	Value Education	AC04	Religious Studies	
4.	Stress Management by Yoga	AC07	Physiotherapy	

List of Audit Courses 2 (2nd Semester-Non-Credit):

Sr. No.	Course	Code	To be Taught by Department	Time Table Schedule
1.	Sanskrit for Technical Knowledge	AC03	Religious Studies	1st Lecture Thursday & Friday
2.	Constitution of India	AC05	Faculty of Law	
3.	Pedagogy Studies	AC06	HRDC	
4.	Personality Development through Life Enlightenment Skills	AC08	Applied Psychology	

*List of Open Electives (3ʳᵈ Semester-3 Credits):

Sr. No.	Course	Code	To be Taught by Department	Time table schedule
1.	Business Analytics	3OE01	MBA/HSB	
2.	Industrial Safety	3OE02	Mechanical Engineering	
3.	Operations Research	3OE03	MBA/HSB	
4.	Cost Management of Engineering Projects	3OE04	MBA/HSB	
5.	Composite Materials	3OE05	Mechanical Engineering	
6.	Waste to Energy	3OE06	ESE (Env. Sc. and Engg.)	
7.	Advancements in Communication System	3OE07	ECE	1ˢᵗ Lecture Wednesday, Thursday & Friday
8.	Introduction to Soft Computing Techniques	3OE08	CSE	
9.	Advanced Printing Technology	3OE09	Printing Technology	
10.	Computer Aided Design & Manufacturing	3OE10	Mechanical Engineering	
11.	Food Safety and Quality Assurance	3OE11	Food Technology	
12.	Basic Nanotechnology	3OE12	Bio and Nano Technology	
13.	MEMS & NEMS – Sensors & Devices	3OE13	Bio and Nano Technology	

*Note: Student has to choose any one Open Elective out of the above list other than offered by his/her own department.

Important Notes:

1. The credit requirement for the M. Tech. (Food Technology) degree is 68 credits inclusive of the 19 elective course credits.

2. Each theory paper examination will be of 3 hours duration and practical examination will be of 2 to 4 hours duration. One laboratory hour per week per semester will be assigned half credit. No elective course will be run unless the strength registered for the elective course is fifty percent of total admitted students.

3. For theory subject's internal assessment (30 marks), three minor tests each of 20 marks will be conducted. The third minor will be conducted in open book mode by the course coordinator. No date sheet will be issued for the third minor at the level of the departments. For the purpose of internal assessment, the average of the highest marks obtained by a student in any of the two minor examinations will be considered. All the minor examinations question papers will be prepared and evaluated by the following the Outcome Based Education Framework. Class performance (10 marks) will be measured through percentage of lecture attended (04 marks), assignments (04 marks) and class performance (02 marks).

4. The course coordinator/Internal Examiners/External Examiners will maintain and submit the bifurcation of marks obtained by the students in internal as well as external evaluations in the prescribed proformas to the respective departments in addition to submitting and uploading of overall marks on the university portal as per the requirement of the result branch. The laboratory course coordinator will also conduct laboratory course exit survey, calculate and submit the attainment levels of the course outcomes of the laboratory course based on direct and indirect evaluation components and submit it to the Chairperson office along with the internal assessment marks.

5. The students shall be encouraged to undergo industrial/institute/organization training during semester breaks.

6. A student is required to undertake a Dissertation/Thesis of 26 credits on a topic approved by the supervisor and the Departmental Research Committee (DRC).

7. The student is required to prepare his/her research project synopsis and should make a presentation to the DRC after the commencement of the final examination of second semester.

8. The research project shall be evaluated by the internal and external examiner at the end of Semester IV.

9. Audit Courses (Non-Credit, 2+0+0) will be offered in semester I and II. Every student has to opt for one course in each semester as per the list. It is mandatory to qualify this course.

10. Student has to opt for any one open elective course as per the list attached other than that offered by one's own department. It is mandatory to qualify this course.

11. A Supervisor will be allotted by the Chairperson for every student in the beginning of first semester. The supervisor will get half credit per student per week for the Dissertation /Thesis Phase-I and II.