

# **National Institute of Food Technology, Entrepreneurship and Management, Thanjavur (NIFTEM-T)**

**An Institute of National Importance**  
Ministry of Food Processing Industries, Government of India



# **ACADEMIC PROSPECTUS 2023-2024**

**B.Tech. (Food Technology)**

**NIFTEM-T**  
has been ranked

**nirf**



in **Agriculture and Allied Sector Category**  
& among 101-150 in **Engineering Colleges category** by  
the **NIRF Ranking of Ministry of Education**



**Dr. M. Loganathan**  
*Director (i/c)*

## Preamble

National Institute of Food Technology, Entrepreneurship and Management, Thanjavur (NIFTEM-T) is one of the Institutes of National Importance functioning under the aegis of the Ministry of Food Processing Industries, Government of India. Over the years, we have expanded our mandates – from an R&D laboratory to finding solutions for post-harvest preservation of paddy located at Thiruvavur - TN in 1967, to Paddy Processing Research Center (PPRC) to Indian Institute of Crop Processing Technology (IICPT) to Indian Institute of Food Processing Technology (IIFPT) to what we are now, NIFTEM-Thanjavur. This journey has witnessed major milestones in research, academic excellence, outreach, and services. Apart from our main campus at Thanjavur, we have our liaison offices at Bathinda and Guwahati, primarily focusing on skill development and outreach.

Over a period of 50 years, the institute has evolved in different dimensions like education, research, consultation, skill development, capacity building, business incubation, etc.

NIFTEM-T mainly focus on inclusive and sustainable growth of post-harvest processing and value addition towards accomplishing economic thriving and prosperous food processing sector of the nation. The institute caters the needs of the country by developing skilled/technical manpower for achieving the targets like sustained food security for all, safe food supply at grass root levels, reduced food losses and economic prosperity of country.

Today, the institute is internationally well knowing among the academicians for its high-class education and superior research achievements. NIFTEM-T offers one Under Graduate program, three super specialized post graduate program and two doctoral programs. Having more than 5 decades of experience in the field of food processing, the institute delivered more than 600 young professional to the core field and they are proving their phenomenal prudence in food processing domain both in India and abroad.

NIFTEM-T is not mere graduating the students, it creates doyens in food processing.

NIFTEM-T is a road to excellence; board into that for prosperous, promising and peaceful future



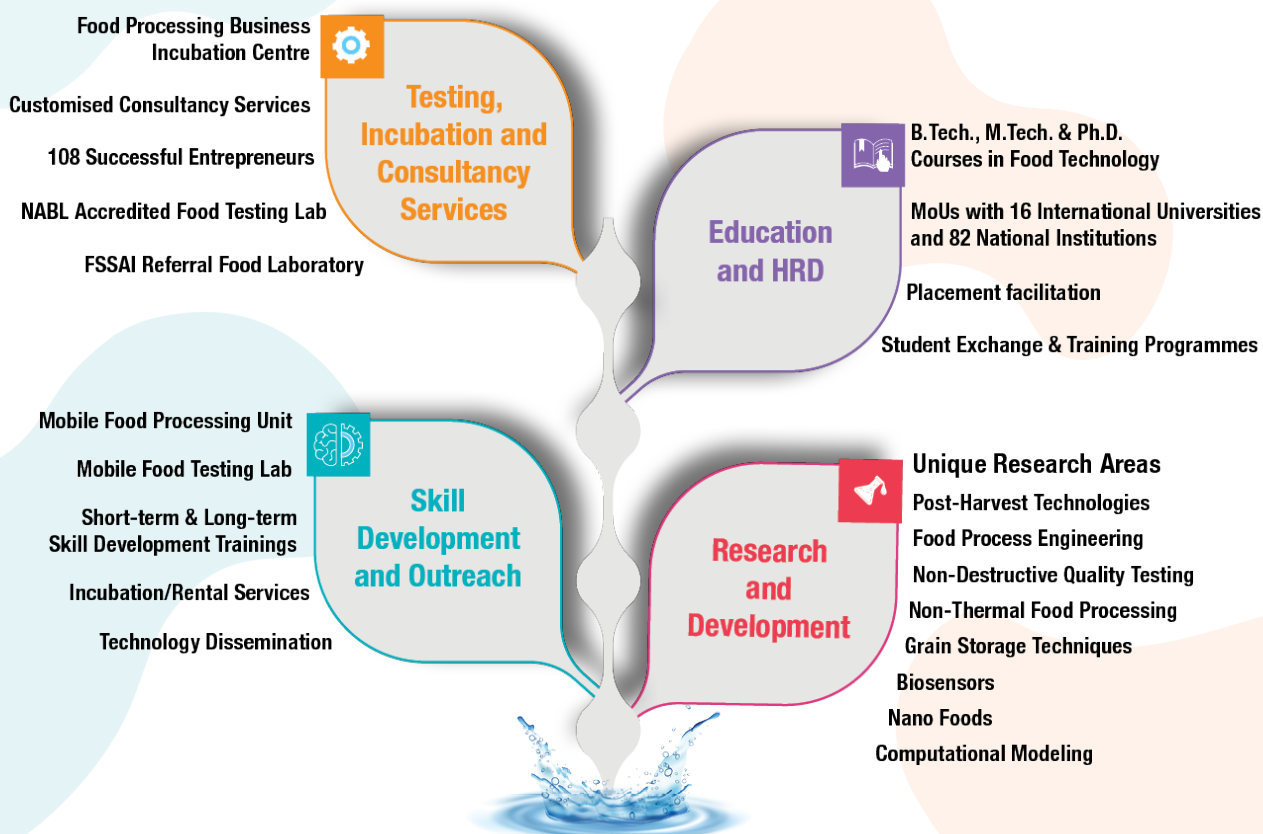
# National Institutional Ranking Framework-2023

**NIFTEM-T**  
has been ranked



in  
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## Our Services





## Vision

Focus on inclusive growth by accomplishing overall sustainability, safety and economic prosperity in the food sector

## Mission

- ◆ Undertaking demand driven research; cater to the needs of the stakeholders in food sector
- ◆ Creating industry-academic interface for problem solving and ad-hoc researches
- ◆ Creating skilled human resources through value based education and training
- ◆ Enabling institutional collaborations for exchange of knowledge and human resources
- ◆ Serving the food sector stakeholders by providing analytical and consultancy services



# Significance of Human Resource Management in Food Processing Sector

India is the world's third-largest food producer and is only outpaced by China and the United States. We produce more than 600 million tons of foods annually. We are the largest producers of pulses, milk, tea, all spices, fruits and vegetables, third largest in grains and oilseeds, fifth largest in poultry and seventh largest in fish production.

In spite of these superlative facts, the domestic food supply is inadequate at the receiving end and our export share in international markets is much less than 2%. The main reasons are due to lack of technical work force in food processing sector, fewer ventures in food processing businesses, huge post-harvest losses and lack of technical knowhow. The food processing sector has a larger global reach and Skilled professionals are in great need. Starting from food collection, transit, supply chain management, processing, value addition, cold chain management and up to consumer end. The total value of food trade in the country is Rs.9,00,000 crores. Government of India has a target of achieving 3% of international food trade from current levels of 1.5% in the coming years. A meagre 1% growth rate in food processing industries will lead to 5 lakhs direct and 15 lakhs indirect employments. In recognition of the importance of this vital sector, NIFTEM-T provides the following academic programs.



# Academic Programmes

## Undergraduate Programme

B.Tech. (Food Technology) – 4 years (8 semesters)

## Postgraduate Programmes

M.Tech. (Food Technology) in Food Process Engineering – 2 years (4 semesters)

M.Tech. (Food Technology) in Food Process Technology – 2 years (4 semesters)

M.Tech. (Food Technology) in Food Safety & Quality Assurance – 2 years (4 semesters)

## Doctoral Programmes

Ph.D. (Food Technology) in Food Process Engineering – 3 years (6 semesters)

Ph.D. (Food Technology) in Food Process Technology – 3 years (6 semesters)

Ph.D. (Food Technology) in Food Safety & Quality Assurance - 3 years (6 semesters)

## Centre of Excellences

- ◆ Centre for Excellence in Grain Science
- ◆ Centre of Excellence in Nonthermal Processing

## Departments

- ◆ Academics & Human Resource Development
- ◆ Food Engineering
- ◆ Food Packaging & System Development
- ◆ Food Product Development
- ◆ Food Safety & Quality Testing
- ◆ Food Biotechnology
- ◆ Food Processing Business Incubation Centre
- ◆ Primary Processing, Storage & Handling
- ◆ Computational Modeling & Nanoscale Processing Unit
- ◆ Technology Dissemination
- ◆ Food Processing Business incubation Centre
- ◆ Workshop & Fabrication Unit
- ◆ Industry Academia Cell
- ◆ Public Relations Office





## Infrastructure Facilities

The NIFTEM-T is located at a distance of 2 km from the Thanjavur new bus terminus, 8 km from Thanjavur Railway Station and 50 km from Trichirappalli International Airport and 300 km from Chennai. NIFTEM-T has established world class research laboratories in its main campus at Thanjavur for conducting research in different sectors of food processing technologies. NIFTEM-T and its scientists are experts in different field of food processing. The institute owns world class teaching and research facilities. The current facilities in the institute include the following:

## Teaching Laboratories

- ◆ Food Microbiology
- ◆ Food Biochemistry
- ◆ Food Engineering
- ◆ Food Biotechnology
- ◆ Food Quality Testing
- ◆ Food Packaging
- ◆ Nonthermal Processing
- ◆ Sensory Analysis
- ◆ Computation Modeling & Nanoscale Processing
- ◆ Non Destructive Quality Measurement
- ◆ Manufacturing Practices
- ◆ Grains Processing
- ◆ Spices Processing
- ◆ Unit Operations
- ◆ Heat Transfer
- ◆ Refrigeration and Air-Conditioning
- ◆ Fluid Mechanics and Hydraulics
- ◆ Instrumentation and Process Control
- ◆ Central Instrumentation
- ◆ Common Analytical Instrumentation
- ◆ Primary Processing & Storage
- ◆ Electrical Engineering
- ◆ Basic Electronics
- ◆ Computer Centre





**Ice cream processing pilot plant**



**Bakery unit**

## State of the Art R&D Facilities

- ◆ Food Product Development Lab
- ◆ NABL Food Quality Analysis Lab
- ◆ Soft X-ray Lab
- ◆ Food Packaging Systems
- ◆ Sonication Systems
- ◆ Sensory Evaluation Systems
- ◆ Biosensor Systems
- ◆ Pulsed Electric Field System
- ◆ Pilot Scale Bakery Unit
- ◆ Pilot Scale Confectionary Unit
- ◆ Pilot Scale Ice cream Unit
- ◆ Pilot Scale Fruit Beverages Unit
- ◆ Cryogenic Processing Unit
- ◆ Advanced Drying Units
- ◆ Nanoscale Processing
- ◆ High Pressure Processing
- ◆ Bulk Storage Facilities
- ◆ Common Instrumentation Facility
- ◆ Food Engineering
- ◆ Computational Modeling
- ◆ Super Critical Fluid Extraction
- ◆ Scanning Electron Microscope



**Food microbiology lab**



**Fruit beverage pilot processing plant**



## Centre of Excellence for Grain Sciences

The centre is also involved in developing the protocols for standardizing different testing quality parameters in nutrients analysis and quality assessment of pre-release varieties. Facility for quality evaluation and milling of millets and pulses, processing of oilseeds also included. Centre of excellence for grain sciences in association with leading industry aims to train students and professionals involved in grain milling, conduct innovative research, and provide solutions to issues faced by the milling industry. This centre also seeks to provide human resources, skill development and a continuous knowledge platform for Government procurement and public distribution authorities to process paddy, millets, pulses and oilseeds. Machinery available for processing half a tonne capacity “state of art rice parboiling and milling unit” integrated with solar drying system, millet processing unit and dhal milling unit. This department also has extrusion cooking unit.



## Centre of Excellence in Nonthermal Processing

Processing of foods without the application of heat is termed as the Nonthermal processing. The most widely used Nonthermal processing techniques are high pressure processing, pulsed electric field, ultrasound, pulsed light, ultra violet light, irradiation, oscillating magnetic field etc. As the foods are treated without heat, the foremost importance of the Nonthermal processing is the maximum retention of colour, taste, appearance and nutrition content in food. The major facility in the centre is the unique equipment available for different non-thermal processing methods. The equipments and technologies available at CENTP are Cold plasma processing, ultrasound, ultraviolet and osmotic dehydration. These equipments are used by the scholars and doctoral students on various approaches to solve technical problems and challenges in food industries. Equipments on High pressure processing, pulsed electric field, pulsed light, irradiation, oscillating magnetic field are in the pipeline and will be added to this centre. The objective of this centre is to conduct research on non-thermal food processing methods to produce fresh like products with increased shelf life.



## Computational Modeling and Nanoscale Processing Unit

Modeling is a powerful tool for optimizing and improving process control over various unit operations by acquiring an in-depth understanding of the intricate transport phenomena in food systems. The unit uses advanced computing methods and undertakes industry and other external funded research projects in this field. Further, considering the potential of nanotechnology, the unit also conducts studies on nano-level food processing. This includes strategies for nanoencapsulation, nanoemulsions, nano delivery systems, nanopackaging and other advanced applications. Research and development on various aspects of nanostructured foods, nanocarrier systems, nano food additives, nanocoatings, and development of nanosensors are under progress.

## School of Sensory Science

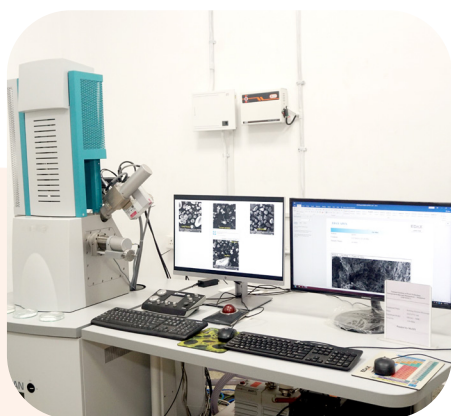
The consumer behaviour towards the food product taste and aroma provides essential information for a successful product development. In order to develop food product that meets customer expectations, the sensory quality of the product is constantly evaluated through objective and subjective methods. The Subject method is done using Sensory lab specifically development with International standards using trained and Untrained Panel Judges and assessing the acceptability of food product. The object methods using instruments method for different characteristic of food like texture and color. Sensor technique used to assess the flavor using ENose and eTongue for assessing the acceptable food ingredients and additives that can be used in food product development. The department is established with full-fledged Sensory lab with climate control and facial deduction software to predict and assess the consumer acceptance and remote operating software system using Fizzy logic technique.

## Food Product Development

This laboratory focuses on the development of novel and functional foods from specific food grains, pulses, oilseeds, and fruits and vegetables. Modern equipments including different types of extruders, texture analyzers, phase transition analyzer, rapid visco analyzer, milling machines and all accessories necessary for food product development are parts of this facility.

## Food Quality Testing Laboratory

Our FSSAI Referral & NABL accredited ISO/IEC 17025 Food Analysis Laboratory is equipped with modern equipments to carryout physico-chemical analysis of food, water and any organic samples. This laboratory has hi-tech analytical instruments like GCMS, ICPMS, LCMS, NMR, HPLC, HPTLC Amino acid analyzer, Iron chromatography for analyzing biochemical parameters, pesticides residual and nutrition etc. in samples related to food products. Ready reference books such as BIS, CODEX, PFA, AOAC and AACC for food analysis are available. The laboratory is constantly upgraded to meet international standards.





## Food Safety and Quality Testing Facility

- ▶ Inductively coupled plasma-optical emission spectrophotometer (ICP-OES)
- ▶ Gas chromatography-mass spectrometer (GC-MS/MS)
- ▶ Texture analyzer
- ▶ High performance thin layer chromatography (HPTLC)
- ▶ Rapid visco analyser
- ▶ Fermentor/Bioreactor
- ▶ Inductively coupled plasma-mass spectrometry (ICP-MS)
- ▶ Liquid chromatography mass spectrometry (LC-MS/MS)
- ▶ Nuclear magnetic resonance (NMR)
- ▶ Microbial identification system
- ▶ Reverse transcription polymerase chain reaction (RT-PCR)
- ▶ DNA sequencer
- ▶ Fourier transform infrared spectroscopy (FTIR)
- ▶ Powder X-ray diffraction
- ▶ Scanning electron microscope
- ▶ 3D Food printer
- ▶ Differential scanning calorimeter
- ▶ High performance liquid chromatography
- ▶ Particle size analyzer
- ▶ Freeze dryer unit
- ▶ Electrospinning unit with dual pump

## Food Engineering Laboratory

The ideas generated by other departments are given a shape in the food engineering laboratory. This laboratory consists of modern fabrication facilities with all manufacturing machines and tools. The food engineering division work, either independently or jointly with other divisions, help in creating new machines and processes for food processing industries. This laboratory provides direct linkage with the farm produce and the postharvest activities. Some of the gadgets, technologies or accessories developed includes Fruit and Vegetable Washer, Grader, Destoner, Mobile Processing Unit, Multi Purpose Yard Drying Equipment, continuous rice puffing unit, thermal dis-infestation of paddy, low friction huller, improved parboiling unit, rice degermer, husk fired stove, small scale pulse de-husker, improved parboiling unit and pedal operated winnower. These technologies are popular among the farmers and entrepreneurs.





## Food Biotechnology Laboratory

The Department of Food Biotechnology houses state-of-the-art facilities that support a wide range of research areas. The department has worked extensively in the field of food microbiology, beneficial microbes, probiotics, molecular microbiology, and food safety and quality assurance. Current research includes the production of pigments and natural colorants, identification and studies on natural preservatives, phytochemical screening for antimicrobial application, method development for screening genetically modified organisms (GMOs) using PCR and FTIR, food authentication method for vegan food compliance, genomic approaches for identifying food pathogens and biomarkers, preparation and preservation technology of millet-based products, probiotic food formulation, recent application of indigenous knowledge and exploration of ethnic fermented food.



The hi-tech and cottage level food processing incubation cum training centre at NIFTEM-T has the following product lines:

- ▶ Canning fruits and vegetables or meat and meat products
- ▶ Ready to serve (RTS) or Ready to drink (RTD) fruit based beverages and jams and jelly manufacturing with bottling facility
- ▶ Ready to Cook (RTC) foods and Ready to eat (RTE) extruded food products making
- ▶ Instant mixes, masala and chutney powders production and sachet packaging
- ▶ Specialized packaging section with facilities for ordinary

## Food Processing Business Incubation Centre

packaging and modified atmosphere packaging (MAP)

- ▶ Hands-on-training on different food processing technologies, renting facilities and other supports are offered all through the year to help the entrepreneurs to put in their innovative ideas for the development of new products
- ▶ Pilot scale fruit beverage processing plant
- ▶ Pilot scale ice cream processing plant
- ▶ Pilot scale virgin coconut oil processing plant
- ▶ Pilot scale spray dryer
- ▶ Pilot scale fluidized bed dryer
- ▶ Pilot scale freeze dryer



## Knowledge Centre



The knowledge centre has exclusive collection of books and journals on food processing related areas. The knowledge centre having more than 45,000 books and regularly subscribe for more than 50 Indian and 15 International journals in food processing. We keep adding to our wealth of books and journals resources every year and soon expect the library to become reference point of national importance for food processing, preservation and value addition related subjects.

## Industrial Collaboration for R&D



# Exposure to Industry

NIFTEM-T students are sent to industries for hands-on experience on the functions of an industry. This prepares them to be industry ready upon their graduation. Following are some industries in which our current graduating students have taken up such industrial internship trainings.

- ▶ Mondelez International
- ▶ Nestlé India Ltd
- ▶ ITC Foods, Bangalore
- ▶ Aachi, Chennai
- ▶ Eastern Pvt. Ltd., Kerala
- ▶ Hatsun Agro Product Ltd., Kanchipuram
- ▶ Hindustan Unilever Limited, Chennai
- ▶ Nilgiris Pvt Ltd., Bangalore
- ▶ Savorit Limited, Dindigul
- ▶ Moksha Foods Condiments & Beverages, Coimbatore
- ▶ MTR Foods Pvt. Ltd., Bangalore
- ▶ Paramount Nutrition India, Karnataka
- ▶ Rohini Foods, Chennai
- ▶ Ruchi Soya, Chennai
- ▶ Mother Dairy, Fruit & Vegetables Pvt Ltd, Bangalore & New Delhi
- ▶ Britannia Industries Ltd., Rudrapur, Chennai & Bangalore
- ▶ Oceanic Tropical Fruits Pvt.Ltd., Villupuram
- ▶ Sri Anna Poorna Foods, Coimbatore
- ▶ Ninja Cart, Bangalore
- ▶ Perfetti Van Melle India Pvt Ltd., Chennai
- ▶ Parle Ltd., Nasik
- ▶ Vista Tools Pvt.Ltd.,Mumbai.
- ▶ Tata Smart Foods Pvt. Ltd., Sricity, Andhra Pradesh
- ▶ Aavin, Madurai
- ▶ Yellows and Greens, Hydrebad.
- ▶ India Food Park, Tumkur
- ▶ Pepsico, Bangalore
- ▶ GRB Dairy foods pvt ltd
- ▶ Milky Mist Dairy Food Private Limited
- ▶ NutriPlanet Foods Private Limited
- ▶ Swastiks Masalas, Pickles and Food Products pvt ltd

## International / National Collaborations

In the changing socio-economic, academic and research scenarios, no institution can stand alone and deliver effectively. NIFTEM-T clearly understands this and knows the beneficial effects of collaborations with International and National Institutes.

### MoUs Signed with the following institutions

#### International

- ▶ University of Manitoba
- ▶ University of Nebraska-Lincoln
- ▶ University of Saskatchewan
- ▶ McGill University
- ▶ Colorado State University
- ▶ Illinois Institute of Technology
- ▶ Saskatoon Pulse Growers
- ▶ Kuraray-EVAL - Japan
- ▶ Oklahoma State University
- ▶ Kansas State University
- ▶ Auburn University
- ▶ Wageningen University
- ▶ Asian Institute of Technology
- ▶ Ambo University
- ▶ ONIRIS
- ▶ NRI, Greenwich

#### National

- ▶ Gandhigram Rural Institute, Dindigul
- ▶ Tamil nadu Dr. Jayalalithaa Fisheries University (TNJFU)
- ▶ Central University of Tamil Nadu (CUTN)
- ▶ ICAR-National Research centre for Banana (NRCB), Trichy
- ▶ Punjab Agricultural University, Ludhiana
- ▶ National Dairy Research Institute, Karnal
- ▶ Central Institute of Post-Harvest Engg. & Tech., Ludhiana
- ▶ TANUVAS, Chennai
- ▶ Indian Institute of Packaging, Mumbai
- ▶ Saint Longowal Institute of Engg. & Tech., Sangrur
- ▶ National Agri-Food Biotechnology Institute, Mohali
- ▶ Mizoram University , Aizawl, Mizoram
- ▶ University of Science & Technology, Meghalaya (USTM)





## Hostels

NIFTEM-T has separate hostels for boys and girls with well furnished rooms and equipped with state-of-the-art facilities, reading rooms, television, gym and music rooms. The hostel messes provide nutritionally balanced, wholesome and tasty food and the dining charges are based on a dividing system. The hostel is run by the students under the supervision of Wardens and Deputy Wardens for both boys and girls hostels. Hostel life at NIFTEM-T is a mixture of fun and learning with Indoor and outdoor games facilities. New hostel facilities are being built-up to accommodate more students.



Kaveri Girls Hostel



# Scholarships and Research Assistantships

Merit scholarships are offered for the students to

- ◆ Attract meritorious students to NIFTEM-T
- ◆ Encourage top ranking students for pursuing excel
- ◆ Boost the talents and knowledge of the students

## Scholarships Offered\*

Scholarships	Details
<b>B.Tech</b>	
Institute Merit-cum-Means Scholarship	Available for 5 students from each batch @ Rs.1,000/- p.m. subject to a minimum GPA of 7.5 in the previous semester.
Institute Free Studentship	Available for 1 student per batch @ Rs.5000/- per semester subject to a minimum GPA of 7.5 in the previous semester.
Institute Notional Prize	A notional prize of Rs.5000/- (One time award) and a certificate of merit for each batch from 2 <sup>nd</sup> to 4 <sup>th</sup> year based on ranking in the previous year
Anil Adlakha Award Scholarship	Award to a II <sup>nd</sup> year B.Tech. (FT) student for his/her outstanding performance in his/her first year @ Rs.10,000/-

\* The Scholarships will be provided as per the institute norms





# B.Tech. (Food Technology)

Full Time

## Duration:

Four years (8 semesters) programme

## Eligibility:

Admission will be purely based on All India Rank through Join Seat Allocation Authority 2023 (JoSAA 2023) based on the JEE (Mains)-2023(Paper 1)

## Admission

- ♦ The reservation policy is as per the GoI norms.
- ♦ Total No. of Seats: 90

Open	= 35;	Open-EWS	= 09;	Open-PwD	= 02
OBC (Non creamy layer)	= 23;	OBC-PwD	= 01;		
SC	= 12;	SC-PwD	= 01;	ST	= 07

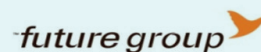
\*PwD = Persons with Disabilities



## Placements

Every year, NIFTEM-T conduct on-campus interviews for the placements of final year students. Food processing firms/industries come to recruit the young professionals for their needs. Apart from the regular placements, the institute assists the students to get higher education opportunities in premier institutes of India and across the world. Periodically, institute organize special guest lectures of various experts from industries, academics and personality management to build up the students' ability and self-confidence to face their future confidently.

## Major Recruiters





## Extra Curricular Activities

- ▶ MoE's Institute Innovation Council
- ▶ Sports Club
- ▶ Literary Club
- ▶ Science Club
- ▶ Alumni Association
- ▶ National Service Scheme
- ▶ Cultural Club
- ▶ Rotaract Club





## Fees Structure – B.Tech. (Food Technology)

2023–24 – ACADEMIC FEES

S. No.	Details	Fees (Rs.)
<b>A. One Time Fees</b>		
1	Admission Fee	15480
2	ID Card Fee	400
3	Seminar/Thesis Fee	1620
4	Caution Deposit (Refundable)	4350
5	Library Deposit Fee (Refundable)	650
<b>Total (A)</b>		<b>22500</b>
<b>B. Semester Fees</b>		
		<b>Semester</b>
1	Tuition Fee*	46170
2	Lab Support Fee	7260
3	Library Fee	2300
4	Examination Fee	6670
5	Student Activities	6300
6	IT Support	5700
7	Medical and Insurance Fee <sup>§</sup>	600
<b>Total (B)</b>		<b>75000</b>
<b>Total (A+B)</b>		<b>97500</b>

**Note:** \*SC/ST students will get full waiveoff for tuition fee; other category students will get tuition fee waiver based on their annual family income (Limited to 5% of the total intake strength).

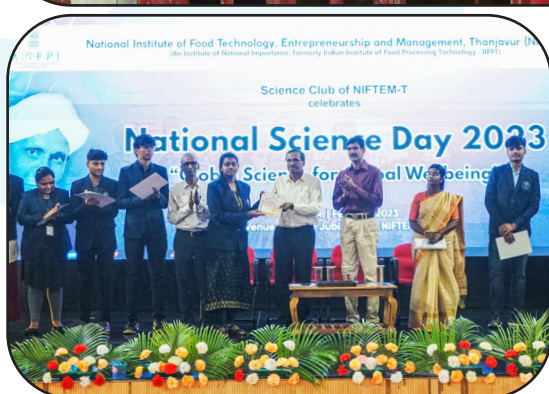
<sup>§</sup>Subject to revision as per the actual premium cost.

### HOSTEL FEES & MESS CHARGES\*

S. No.	Details	Fees
<b>C. One Time Fees</b>		
1	Hostel Admission Fee	1500
2	Hostel Deposit (Refundable)	3500
<b>Total (C)</b>		<b>5000</b>
<b>D. Semester Fees</b>		
1	Establishment charges, (Hostel room rent, Electricity & Water charges)	15000
2	Mess advance (dining charges on sharing basis)	20000
<b>Total (D)</b>		<b>35000</b>
<b>Total (C+D)</b>		<b>40000</b>

\*Subject to Revision





For further information, please contact:

**Dean (Academics and Students Welfare)**

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