| M. Tech. Food Technology | |
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| **M. Tech. Food Technology** | |
| Programme outcomes | Students will get the ability to apply principles of food engineering in industry, understand, identify and analyze the problem related to the food industry and ability to find an appropriate solution for the same. They will be able to design, implement and evaluate a research-based project to meet demands of the society. Students will get the ability to use appropriate techniques, skills, and modern tools in the food industry and the academic profession. They will get the proper understanding of professional, ethical, legal, security, and social issues and responsibilities for entrepreneurship skills. |
| Programme specific outcomes | Students acquire in-depth theoretical and practical knowledge of mathematics, food science, and engineering. They will get proficiency in solving engineering problems related to the food industry and focus on the importance of safe processed nutritious food. They will develop an ability to work in Food industries, research organizations and academia as well as to design or process food products as per the needs and specifications. |

## Course Outcomes

| M. Tech. 1st semester | |
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| **Courses** | **Outcomes** |
| Advances in Food Chemistry & Nutrition (FST 601) | CO 1: Interactions among food components and water relationships in foods.<br>CO 2: Description of fragrance and flavouring compounds.<br>CO 3: Description of therapeutic, parenteral and geriatric nutrition and relevant food formulations and chemistry of alkaloids, flavonoids and other phenolics. |
| Modern Food Microbiology (FST 602) | CO 1: Factors influencing the development of microbes in food.<br>CO 2: Microbial behavior against the newer methods of food processing.<br>CO 3: Modern methods of cell culture, cell immobilization, and applications. |
| Food Processing (FST 604) | CO 1: To develop an insight among the students about the existing modern techniques and their applications in food processing.<br>CO 2: Description of membrane technology, microwave and radio frequency processing and high-pressure processing.<br>CO 3: Application of newer techniques in food processing. |

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| Juice Processing Technology (FST 623) | CO 1: To understand the fundamentals of juice processing technology<br>CO 2: To acquaint with various equipment & tools for juice extraction |
| Library and Information Services (PGS-501) | CO 1: Introduction to library and its services and role of libraries in education, research, and technology transfer<br>CO 1: Use of CD-ROM Databases, Online Public Access Catalogue, and other computerized library services |
| Technical Writing and Communications Skills (PGS-502) | CO 2: To equip the students/scholars with skills to write dissertations, research papers, etc.<br>CO 3: To equip the students/scholars with skills to communicate and articulate in English (verbal as well as writing). |
| **M. Tech. 2nd semester** | |
| Food Packaging (FST 605) | CO 1: Learning of active and intelligent packaging.<br>CO 2: Description of non-migratory bioactive polymers (NMBP) in food packaging.<br>CO 3: Description of modern packaging systems such as green plastics for food packaging. |
| Food Analysis (FST-606) | CO 1: To develop an understanding and methodologies of instrumental techniques in food analysis.<br>CO 2: Application and operating parameters of a spectrophotometer, AAS, GC, HPLC, NMR, FTIR, GC-MS, LC-MS. |
| Food Quality Systems & Management (FST 607) | CO 1: To acquaint with food quality parameters and control systems, food standards, regulations, specifications.<br>CO 2: Concepts of Total Quality Management, sanitary and hygienic practices.<br>CO 3: Description of laboratory quality procedures and assessment of laboratory performance. |
| Confectionary Technology (FST 630) | CO 1: To provide an understanding of various classes of confectionary products, their manufacture, and quality aspects.<br>CO 2: Description of chocolate processing technology, sugar confectionery manufacture, and flour confectionery. |
| Statistical Methods for Food Science (FST 531) | CO 1: Exposure to various statistical tools required to analyze the experimental data in food research and industry.<br>CO 2: Descriptive statistics, estimation, and confidence intervals hypothesis testing. |
| Intellectual Property and Its Management in Agriculture (PGS-503) | CO 1: To equip students and stakeholders with knowledge of intellectual property rights (IPR), related protection systems, their significance, and the use of IPR as a tool for wealth and value creation in a knowledge-based economy. |

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| | CO 2: Learning of Indian legislations for the protection of various types of intellectual properties. |
| Basic Concepts in Laboratory Techniques (PGS-504) | CO 1: To acquaint the students with the basics of commonly used techniques in the laboratory.<br>CO 2: Preparation of solutions of acids, bases, buffers, tissue culture, etc. |
| **M. Tech. 3rd semester** | |
| Advances in Food Engineering (FST-603) | CO 1: To acquaint with recent advances in food engineering and its processes.<br>CO 2: Engineering properties of foods, their significance in equipment design.<br>CO 3: Theory of ultra-filtration and reverse osmosis. |
| Equipment Design & Process Control (FST 608) | CO 1: To introduce basic equipment design and various process control mechanisms and related engineering aspects.<br>CO 2: Design of vessels, food storage tank, and heat exchangers.<br>CO 3: Instrument terminology, performance system accuracy, and introduction to programmable logic controllers (PLC). |
| Nutraceuticals & Health Foods (FST 612) | CO 1: To cater to the newly emerging area of nutraceuticals with respect to the types and mechanisms of action.<br>CO 2: Description of the manufacturing process of selected nutraceuticals, product development, clinical testing, and toxicity aspects. |
| Business Management & International Trade (FST-533) | CO 1: To acquaint with techniques of business management & international trade for the food sector.<br>CO 2: Concept and functions of marketing, market measurement, and advertising. |
| Master's seminar (FST 591) | CO 1: To develop presentation skills among students<br>CO 2: Presentation and discussion by each student on current topics/interests in Food Processing Technology |
| Agricultural Research, Research Ethics and Rural Development Program (PGS 505) | CO 1: To enlighten the students about the organization and functioning of agricultural research systems at national and international levels<br>CO 2: research ethics, and rural development programs and policies of Government. |
| Disaster Management (PGS 506) | CO 1: To introduce learners to the key concepts and practices of natural disaster management;<br>CO 2: To equip them to conduct a thorough assessment of hazards, and risks vulnerability; and capacity building. |
| **M. Tech. 4th semester** | |

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| Industrial Training (FST 590) | CO 1: In-plant Training is intended to expose the students to an environment in which they are expected to be associated in their future careers.<br>CO 2: The students will gain hands-on experience in one or more commercial establishments. |
| Master Research (FST 699) | CO 1: To investigate selected problems of special interests in Food Technology by individual students.<br>CO 2: The work includes library work, field or laboratory research, recording data, analyzing data, and writing of a dissertation. |