UNIVERSITÀ DEGLI STUDI DI PADOVA

Food Industry Engineering

Master's Degree

Admission Requirements

Students wishing to enroll in the master's degree Course in Food Industry Engineering must hold a bachelor's degree or a three-year university diploma, or another qualification obtained in Italy or abroad and recognized as suitable according to current regulations.

- **For Italian Qualification:** The required curricular requirements for admission are:
  a) possession of a degree in Class L-7 "Civil and Environmental Engineering" or Class L-8 "Information Engineering" or Class L-9 "Industrial Engineering";
  b) alternatively, for graduates in classes other than L-7, L-8, and L-9: having obtained no fewer than 30 CFU (university educational credits) in the fields ING-IND/06-08-09-10-11-13-14-15-16-17-19-21-22-23-24-25-26-31-32-33-34-35 and ING-INF/01-02-03-04-05-06-07 as a whole;
  c) Furthermore, knowledge of the English language is required for admission, verified according to the regulations set by the course of study, at a level not lower than B2 of the Common European Framework of Reference for Languages.
  Adequacy of personal preparation is ensured by holding a degree with a grade not lower than 84/110.

- **For Foreign Qualification**: The verification of these curricular requirements will be carried out by a special committee (Admission Board) appointed by the Course of Study (CdS), which will individually evaluate applications when such criteria are not directly applicable (with reference to students who have obtained their qualification abroad), particularly for candidates holding an Italian qualification with an arrangement different from those regulated by DM 509/99 or DM 270/2004 or holding a qualification obtained abroad.

Syllabus

For an effective attendance of the Food Industry Engineering course, it is advisable that students have acquired the following basic skills in the various areas outlined below.
Educational materials such as Massive Open Online Courses (MOOCs), reference books, and handouts will be made available at the beginning of each course to support this basic training in cases where the student identifies gaps in certain areas.

Unit operations in food industry; Legislation, hygiene and applied microbiology for food safety; Materials for sustainable food packaging

Prerequisites - Principles of thermodynamics. Thermodynamic properties of pure fluids; equations of state. Structure of matter, organic and inorganic chemistry fundamental of biochemistry. General engineering: fundamentals on materials and their production processes. Formulation and solution of macroscopic material and energy balances for single equipment. Fundamentals of cell biology, general structure, and its internal organization; basic knowledge of the composition and quality of foods.

Hygienic design & steels, alloys and coatings for food industry

Prerequisites - Basic principles for the static analysis of structures and the preliminary design of mechanical components under static and cyclic loads.

Electronics for information processing

Prerequisites - Basics of circuit theory, basics of electrical concepts like voltage, current, resistance, capacitance, and electrical power.

Refrigeration and thermal processing technologies

Prerequisites - Basics of thermodynamics and heat transfer.

Plant-safe design and food logistics

Prerequisites – Basics of industrial systems design, plant layout concepts, dimensioning approaches for production systems and general plant services.

Sustainable and traceable digital supply chains and statistical quality; Safety management and risk management

Prerequisites - Basics of business administration and organization, operations and production management and basic statistics.

Automatic machines and robots for food industry

Prerequisites - Basics of concepts of mechanics, such as speed, acceleration, force, torque, mechanical energy and power, laws of dynamics, force equilibrium.

Electrification, sustainability and efficiency in food processing

Prerequisites - Basics of heat transfer, electromagnetism, and electrical circuits.

Conversion and storage systems for the energy sustainability of the food industry

Prerequisites - Basics of thermodynamics, heat exchange and fluid machines.

Applied machine learning

Prerequisites - Basics of computer skills.