

Postgraduate Program in Food Engineering

Program description

The Post-Graduate Program in Food Engineering has as its general objective the training of high-level human resources, both in the Masters and Doctoral programs, with a solid academic-scientific background that allows their professional placement in different areas of Food Engineering, especially in Teaching and Research activities. For this purpose, the following specific objectives are:

- Achieve a level of excellence in the basic disciplines of the area (thermodynamics, transport phenomena, mathematical methods, etc.);
- Provide knowledge to students in various areas of Food Engineering by offering disciplines with basic knowledge and topics of current interest;
- Enable students to independently develop high-level research in innovative and up-to-date lines, in order to reach international levels of excellence.

Program Courses

Course 57M – Master's degree in Food Engineering

Course 7D – Doctorate degree in Food Engineering

Areas of Research

BIOENGINEERING AND BIOTECHNOLOGY: Development of Biochemical Processes; Yeast Improvement for Industrial Applications; Fermentative and Enzymatic Processes for Obtaining Different Bio products; Treatment and Use of Agro-industrial Waste; Production and Purification of Biotechnological Products of Industrial Interest.

ENGINEERING PROCESS IN THE FOOD INDUSTRY: Minimally Processed Food, Use of Edible Toppings, Dewatering by Impregnation with Solutes; Process Analytical Technologies and Non-Destructive Methods in the Food Industry; Colloids and Food Biopolymers: Development of New Ingredients and Processes for Encapsulation of Functional Compounds; Encapsulation and Controlled Release of Bioactive Compounds; Biopolymers for Innovation in Product and Process Development; Obtaining Functional Products of Native Brazilian Flora by Concentration by Membranes; Production of Natural Polymeric Films; Drying and Production of Spray Microparticles for the Development of Functional Foods.

ECOLOGICAL ENGINEERING AND ECO-DEVELOPMENT: Modeling and Planning of Integrated Systems for Food Production.

REFRIGERATION: Refrigeration and Automation in the Food Industry.

PHYSICAL SEPARATIONS: Phase Balance and its Applications in the Separation Process; Extraction and Phase Balance in Supercritical Fluids; High Pressure Processing of Food and By-Products; Supercritical, Ultrasonic, High Turbulence Technologies Applied to the Processing and Stabilization of Plant Extracts Aiming at Obtaining Functional Foods.

Master's Degree in Food Engineering

Completion time

The minimum and maximum durations for the Master's course in Food Engineering are 12 and 36 months, respectively. To obtain a Master's Degree in Food Engineering, the student must complete the requirements of 16 credits corresponding to 13 compulsory credits and 3 elective credits.

Program Evaluation and Recognition

The Master's course in Food Engineering was awarded grade 7 in the CAPES evaluation process for the quadrennial period of 2013/2016 and were recognized by the Ordinance 609 of the Ministry of Education (MEC), of 03/14/2019, published in the Official Gazette of 03/18/2019.

Requirements for Obtaining the Title

Completion time

Fulfillment of the course credits and grades as established in the course completion, and academic performance of a minimum grade point of 2.5 from the second academic period attended

Foreign Language Aptitude

Students must pass an aptitude test in a foreign language (English) to defend the master's dissertation in the Food Engineering

Qualification exam

The qualification exam is carried out in the discipline TP199 – Seminars by the end of the second semester of the course.

Scientific production

As established in the current Normative Instruction.

Dissertation/Thesis Defense

The student must pass the dissertation public defense.

Master's students must prepare a dissertation on the chosen subject in agreement with their supervisors, which must be approved by the Postgraduate Committee.

Curriculum / Course Program

In the list of disciplines, the numbers in the 2nd and 3rd columns correspond to the total workload and credits for each subject, respectively.

Mandatory Activity

AA001 – Master Thesis

Mandatory Disciplines

TP199 – Seminars (2)

TP320 – Thermodynamics (3)

TP322 – Transport Phenomena I (4)

TP323 – Transport Phenomena II (4)

Elective Disciplines

Elective Disciplines I: The student must obtain 3 credits from the subjects listed below, chosen in agreement with the supervisor.

TP004 – Modeling and Simulation of Natural Ecosystems

TP121 – Topics in Food Engineering

TP132 – Mathematical Methods in Food Engineering

TP133 – Advanced Cooling Techniques

TP139 – Storage of Perishable Foods

TP143 – Rheology

TP150 – Topics in Food Engineering II

TP159 – Special Topics in Food Engineering

TP276 – Biological Treatment of Wastewater

TP297 – Drying

TP319 – Biochemical Engineering

TP333 – Experimental Planning and Process Optimization

TP334 – Experimental Planning and Process Optimization

TP360 – Novel Processes in Food Engineering

TP369 – Microbial Physiology

TP386 – Intellectual Property, Innovation and Entrepreneurship: Contemporary Issues

TP401 – Integrative activities in Outreach and Research

Any postgraduate discipline taught at Unicamp

Doctorate Degree in Food Engineering

Completion time

The minimum and maximum durations for the Doctorate course in Food Science are 24 and 60 months, respectively. To obtain a Doctorate Degree in Food Science, the student must complete the requirements of 16 credits corresponding to 13 compulsory credits and 3 elective credits.

Program Evaluation and Recognition

The doctorate course in Food Science was awarded grade 7 in the CAPES evaluation of 2013/2016 and were recognized by the Ordinance 609 of the Ministry of Education (MEC), of 03/14/2019, published in the Official Gazette of 03/18/2019.

Requirements for Obtaining the Title

Completion time

Fulfillment of the course credits and grades as established in the course completion, and academic performance of a minimum grade point of 2.5 from the second academic period attended

Foreign Language Aptitude

Students must pass an aptitude test in a foreign language (English) to defend their thesis in the Food Science Program.

Qualification exam

Qualification exam in the research field: it should be carried out in the discipline TP199 – Seminars by the end of the third semester of the course.

General Examination: until the end of the fifth semester of the course.

Scientific production

As established in the current Normative Instruction.

Dissertation/Thesis Defense

The student must pass the dissertation public defense.

The doctoral student must produce a thesis related to a research study, with a significant contribution to knowledge about the subject, chosen in agreement with his supervisor and approved by the Postgraduate Committee.

Curriculum / Course Program

In the list of disciplines, the numbers in the 2nd and 3rd columns correspond to the total workload and credits for each subject, respectively.

Mandatory Activity

AA002 – Doctoral Thesis

Mandatory Disciplines

TP199 – Seminars (2)

TP320 – Thermodynamics (3)

TP322 – Transport Phenomena I (4)

TP323 – Transport Phenomena II (4)

Elective Disciplines

Elective Disciplines I: The student must obtain 3 credits from the subjects listed below, chosen in agreement with the supervisor.

TP004 – Modeling and Simulation of Natural Ecosystems

TP121 – Topics in Food Engineering

TP132 – Mathematical Methods in Food Engineering

TP133 – Advanced Cooling Techniques

TP139 – Storage of Perishable Foods

TP143 – Rheology

TP150 – Topics in Food Engineering II

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TP297 – Drying

TP319 – Biochemical Engineering

TP333 – Experimental Planning and Process Optimization

TP334 – Experimental Planning and Process Optimization

TP360 – Novel Processes in Food Engineering

TP369 – Microbial Physiology

TP386 – Intellectual Property, Innovation and Entrepreneurship: Contemporary Issues

TP401 – Integrative activities in Outreach and Research

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