

**Degree: Master of Science**  
**Programme: Food Science and Technology**

**Curriculum**

1 **Program Courses**

Total credit required not less than 39 Credits

2 **Curriculum structure**

Coursework 21 credits  
 Required courses 9 credits  
 Elective courses 12 credits  
 Thesis 18 credits

3 **Courses Offered**

3.1 Required courses		9 Credits
2314665	Statistical Methods for Food Research	3(3-0-9)
2314672*	Instrumentation Techniques in Food Research	3(2-3-7)
2314698	Individual Study I	1(0-0-4)
2314703	Seminar I	1(1-0-3)
2314704	Seminar II	1(1-0-3)
3.2 Electives courses		not less than 12 Credits
2314565	Thermal Processing of Foods	2(2-0-6)
2314566	Food Chilling and Freezing	2(2-0-6)
2314568	Physical Properties of Foods	3(2-3-7)
2314572	Food Product Design	2(2-0-6)
2314573*	Applied Food Microbiology	3(3-0-9)
2314574*	Research and Development of Functional Foods	3(3-0-9)
2314575*	Interactions of Food Components	2(2-0-6)
2314576*	Drying Technologies in Food Processing	2(2-0-6)
2314667	Transport Phenomena in Food Processing	3(3-0-9)
2314668	Computational Techniques for Food Processing	3(2-3-7)
2314670	Food Phenolics	2(2-0-6)
2314671	Chemical and Physical Changes in Food	3(3-0-9)
2314673	Packaging of Food Products	3(3-0-9)
2314699	Individual Study II	1(0-0-4)
3.3 Thesis		18 Credits
2314813	Thesis	18 Credits

## 4 Study plan

### First year semester 1

Course ID	Course Title	Credits
2314665	Statistical Methods for Food Research	3
2314672	Instrumentation Techniques in Food Research	3
2314698	Individual Study I	1
2314xxx	Electives	5
	Total	12

### First year semester 2

Course ID	Course Title	Credits
2314xxx	Electives	7
2314813	Thesis	5
	Total	12

### Second year semester 1

Course ID	Course Title	Credits
2314703	Seminar I	1
2314813	Thesis	11
	Total	12

### Second year semester 2

Course ID	Course Title	Credits
2314704	Seminar II	1
2314813	Thesis	2
	Total	3

Total 39

## 5 Course Description

Course ID	Course Description
2314501**	Basic Food Processing BSC FOOD PROC Principles of food processing including: properties of raw material, handling, transportation and preparation of raw material; Various food process operations; containers; water supply and wastewater treatment

2314502**	<p>Basic Food Microbiology 3(3-0-9)</p> <p>BSC FOOD MICRO</p> <p>Relationships of microorganisms to foods; control of microorganisms in food process operation; food spoilage caused by microorganisms; foodborne pathogens and their toxins; important microorganisms in food production</p>
2314503**	<p>Basic Food Chemistry 3(3-0-9)</p> <p>BSC FOOD CHEM</p> <p>Food compositions and their reactions in foods; structure and physicochemical properties of food commodities</p>
2314565	<p>Thermal Processing of Foods 2(2-0-6)</p> <p>THERMAL PRO FOODS</p> <p>Condition : Prerequisite 2314431 or Consent of faculty</p> <p>Use of heat in food processing including blanching, pasteurization, sterilization and aseptic processing</p>
2314566	<p>Food Chilling and Freezing 2(2-0-6)</p> <p>FOOD CHILL/FREEZ</p> <p>Condition : Prerequisite 2314431 or Consent of faculty</p> <p>Application of chilling and freezing to food system, effects of chilling, freezing and thawing on food qualities</p>
2314568	<p>Physical Properties of Foods 3(2-3-7)</p> <p>PHYS PROP FOODS</p> <p>Principles and measurement of various physical properties of foods that are important in handling, preparing, processing, packaging, storing and transportation of foods.</p>
2314572	<p>Food Product Design 2(2-0-6)</p> <p>FOOD PROD DESIGN</p> <p>Condition : Prerequisite 2301286, 2314431 or Consent of faculty</p> <p>Basic concepts of systematic food products and process, identification of modeling system, modeling and optimization for both food formulation and process</p>
2314573*	<p>Applied Food Microbiology 3(3-0-9)</p> <p>APPL FOOD MICRO</p> <p>In-depth study the roles microorganisms play in food industrial and biotechnological processes; importance microorganisms in the safety and production of foods; current situation on food poisoning microorganisms and update methods of food poisoning/food-borne disease investigation and control</p>

2314574*	<p>Research and Development of Functional Foods RES/DEV FUNCT FOOD</p> <p>3(3-0-9)</p> <p>Definitions and health benefits of nutraceuticals and functional foods; effect of food processing on stability of nutraceuticals; analysis of nutraceuticals; guidelines in development of new functional foods</p>
2314575*	<p>Interactions of Food Components INTERACT FOOD COMP</p> <p>2(2-0-6)</p> <p>Interactions of various food components including water, sugars, starches, hydrocolloids, proteins, lipids, and food additives; roles of the components in food systems; mechanisms of the interactions; effects of the interactions on food properties.</p>
2314576*	<p>Drying Technologies in Food Processing DRY TECH FOOD PROC</p> <p>2(2-0-6)</p> <p>Key drying processes in food processing; their impacts on food properties and energy; strategies of selection appropriate drying technologies to individual product in terms of quality and energy saving</p>
2314665	<p>Statistical Methods for Food Research STAT METH FOOD RES</p> <p>3(3-0-9)</p> <p>Condition : Prerequisite 2301286 or Consent of faculty</p> <p>Principles of food research in which statistics is used as a tool in material sampling, experiment design, sensory evaluation, data analysis and interpretation.</p>
2314667	<p>Transport Phenomena in Food Processing TRANS PHE FOOD PRO</p> <p>3(3-0-9)</p> <p>Condition : Prerequisite 2314432 or Consent of faculty</p> <p>Principles of heat, mass and momentum transfers and their applications in food and food processing</p>
2314668	<p>Computational Techniques for Food Processing COMP TECH FOOD PRO</p> <p>(2-3-7)</p> <p>Condition: Prerequisite 2314201 or 2314431 or Consent of faculty</p> <p>Computational techniques used in food processing, problem classification, and application of mathematical models in analyzing problems related to food processing.</p>
2314670	<p>Food Phenolics FOOD PHENOLICS</p> <p>2(2-0-6)</p> <p>Condition: Prerequisite 2314414 or Consent of faculty</p> <p>Structures of natural phenolic compounds; the biosynthesis and phenol</p>

	chemistry; significance of phenolics especially in grapes and wines; analysis of phenolics.	
2314671	Chemical and Physical Changes in Food CHEM/PHYS CHG FOOD Condition: Prerequisite 2314314 or 2314371 or Consent of faculty Application of principles of chemistry and physics to a study of changes in water binding properties and activity, changes in proteins, nutrients, toxic constituents, and other compounds during storage, heating, freezing, dehydrating, and concentration of food materials.	3(3-0-9)
2314672*	Instrumentation Techniques in Food Research INST TECH FOOD RES Principles and use of research instruments in analyzing and measurement of chemical, physical, and microbiological properties of foods	3(2-3-7)
2314673	Packaging of Food Products PACK FOOD PROD Condition: Prerequisite 2314314 or 2314371 or Consent of faculty Food package systems and their relationship to specific products and processes, product composition problems, packaging-solution and shelf life of food	3(3-0-9)
2314698	Individual Study I INDIV STUD I Investigation on the topics of thesis work as guided by an advisor	1(0-0-4)
2314699	Individual Study I INDIV STUD II Investigation on the topics of thesis work as guided by an advisor	1(0-0-4)
2314703	Seminar I SEMINAR I An oral presentation of the research related to the thesis theme in which the student is interested and may be used as references for the thesis in the Master's degree program	1(1-0-3)
2314704	Seminar II SEMINAR II An oral presentation of the research done as part of the Master's degree thesis.	1(1-0-3)