



Course Specifications

Course Title:	Food Additives
Course Code:	2063103-2
Program:	Bachelor in Food Science and Nutrition
Department:	Food Sciences and Nutrition Department
College:	College of Science
Institution:	Taif University

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A. Course Identification

1. Credit hours: 2 Hours
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 12 th Level / 4 rd year
4. Pre-requisites for this course (if any): Organic Chemistry (2062205-3)
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 h/ Week	100%
2	Blended	---	---
3	E-learning	---	---
4	Distance learning	---	---
5	Other	---	---

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	---
3	Tutorial	---
4	Others (specify)	---
	Total	30

B. Course Objectives and Learning Outcomes:

<p>1. Course Description</p> <p>The course is designed to deliver the knowledge about food additives, classification, functions, EU food categories, toxicology and safety. Different types of food additives like (antioxidants, colorants, antimicrobials, emulsifiers, stabilizers, thickeners, nutritional, sweeteners, flavoring, flavor enhancers, pH controller, enzymes, fat substitute, bleaching agents, maturing agents, and starch modifiers).</p>
<p>2. Course Main Objective:</p> <ol style="list-style-type: none"> 1) Considerations about food additives. 2) Understand the mode of action, rolls, risks of food additives in food processing. 3) Different types of food additives and their uses. 4) Toxicology and safety of food additives.

3. Course Learning Outcomes:

CLOs		Aligned PLOs
1.0	Knowledge and understanding	
1.1	Student recognizes functions, classification, role, EU of food additives	K 4
1.2	Student describes the mode of action of different types of food additives	K 4
1.3	Student lists the different types of food additives	K 4
2.0	Skills:	
2.1	Student compares between the structure and characteristic of food additives.	S 4

CLOs		Aligned PLOs
2.2	Student judges on the effect of processing methods on food additives.	S 4
2.3	Student differentiates between benefits and toxic effects of food additives.	S 4
3.0	Values:	
3.1	Student reacts with modern technology, computer applications for data presentation and explanation of food additives -related issues.	V2
3.2	Student supports to using the suitable audiovisual media in presentation of the data of the different industrial processes.	V3

C. Course Content:

No	List of Topics	Contact Hours
1	Introduction (What are food additives? EU food Categories-Role of food additives in food Processing-Functions – Classification) Antioxidants (Antioxidants and chelating agents-What are antioxidants and their role in foods-Types of antioxidants (natural & synthetic)-What are chelating agents - their mode of action in foods)	3
2	Food colorants (Natural food colors-Synthetic food colors-Types and their chemical nature-Their impact on health)	3
3	Antimicrobials (What are preservatives-Natural preservation-Chemical preservatives-Chemical actions in foods)	3
4	Emulsifiers, Stabilizers and thickeners (Structure and types-Mode of action in foods)	3
5	Nutritional additives (Naturally occurring Food Additives-Classification-Role in Food Processing-Health Implications)	3
6	Sweeteners (Artificial sweeteners and non-nutritive sweeteners-Natural sweeteners-Special dietary supplements and their health implication-Role in food processing)	3
7	Flavoring agents and flavor enhancers (Natural flavors and synthetic flavor-Chemical nature -role of flavoring agents in food processing)	3
8	pH control agents and acidulates Fat substitute and replacers (Types and their role in food processing)	3
9	Enzymes (Classification-types-Mode of action in different food products) Bleaching and Maturing Agents (what is bleaching-Types of bleaching agents-What is maturing-Examples of maturing agents-Their role in food processing)	3
10	Starch Modifiers (Structure and Classification-Rheological Properties-Role in food processing) Risks and Benefits of Food Additives (Toxicology and safety evaluation of food additives- Beneficial effects of food additives /toxic effects-Food additives generally recognized as safe (GRAS)-Tolerance levels &toxic levels in foods-LD 50 values of food additives)	3
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding		
1.1	Student recognizes functions, classification, role, EU of food additives	Lecturer - Educational Videos	Written exam
1.2	Student describes the mode of action of different types of food additives		
1.3	Student lists the different types of food additives		
2.0	Skills		
2.1	Student compares between the structure and characteristic of food additives.	Lecturer - Educational Videos Brain storming	Written exam
2.2	Student judges on the effect of processing methods on food additives.		
2.3	Student differentiates between benefits and toxic effects of food additives.		
3.0	Values		
3.1	Student cooperates to use information technology to investigate, analyze and provide solutions	Reports	Evaluation
3.2	Student participates to make presentation and reports	Presentations	Evaluation

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments, term paper, oral presentations, and interaction during lectures.	Continues	10%
2	Midterm exam	5-6	30%
3	Periodical short exams	8	10%
4	Final exam	12	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support:

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- There are 6 h per week for this purpose and the students know these hours according to the time of professor who teach the course.
- Student satisfaction surveys are conducted for academic guidance.
- Develop an improvement plan for academic guidance based on the results of the questionnaire analysis.

F. Learning Resources and Facilities

1. Learning Resources:

Required Textbooks	<p>-Msagati, T.A.M. (2013). Chemistry of Food Additives and Preservatives. John Wiley & Sons, Ltd. The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK. (https://onlinelibrary.wiley.com/doi/book/10.1002/9781118274132)</p> <p>-Branen A. L., Davidson P. M., Salminen S., and Thorngate J. H. (2002). Food Additives 2^{ed}, Marcel Dehker, Inc 270 Madison Avenue, NY 10016, New York. USA.</p>
Essential References Materials	<p>-Karunaratne D. N. and Pamunuwa G. (2017). Food Additives. INTECH, Open Access book publisher.</p> <p>-Emerton V. and Choi E. (2008). Essential Guide To Food Additives. 3^{ed}, a division of Leatherhead Food International Ltd Randalls Road, Leatherhead, Surrey KT22 7RY, UK.</p>
Electronic Materials	<ul style="list-style-type: none"> • Wikipedia • ScienceDirect • SpringerOpen • Wiley • PubMed
Other Learning Materials	Information technology

2. Facilities Required:

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	- Classroom (capacity not more than 40 students) for 2 h/week.
Technology Resources (AV, data show, Smart Board, software, etc.)	- Data Show projectors, smart blackboard. - Computer - PowerPoint presentations.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	- None

G. Course Quality Evaluation:

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students, faculty, program leaders and Peer Reviewer	<ul style="list-style-type: none"> • Continuous monitoring by directors of program and quality assurance unit (Direct). • Applying Questionnaires received from the Deanship of Academic Development for Student evaluation (indirect). • Evaluation of course report (indirect).
Extent of achievement of course learning outcomes	Students, faculty, program leaders and Peer Reviewer	<ul style="list-style-type: none"> • Applying Questionnaires for Student evaluation (indirect). • Evaluation of course report (indirect).

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Quality of learning resources	Faculty, program leaders, administrative staff, independent reviewers.	<ul style="list-style-type: none"> • Continuous monitoring by directors of program and quality assurance unit (Direct). • Applying Questionnaires for Student evaluation (indirect). • Evaluation of course report (indirect).

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department council - Academic Development Committee	
Reference No.	Department council NO: 2	Subject NO: 1
Date	30 /02 /1444 H	