

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
DEPARTMENT	DEPARTMENT OF CHEMISTRY		
LEVEL OF STUDIES	ISCED level 6 – Bachelor’s or equivalent level		
COURSE CODE	EN13	SEMESTER	7th / 8th Semester
COURSE TITLE	Quality Control – Accreditation		
TEACHING ACTIVITIES <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>		TEACHING HOURS PER WEEK	ECTS CREDITS
Theory		3	3
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
COURSE TYPE <i>Background, General Knowledge, Scientific Area, Skill Development</i>	Skill Development		
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS:	NO		
COURSE URL:	https://eclass2.emt.duth.gr		

(2) LEARNING OUTCOMES

<p>Learning Outcomes <i>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.</i></p> <p>The course aims to introduce students to the fundamental concepts of Quality Control and Quality Assurance – Accreditation. Upon successful completion of the course, students will have acquired the following knowledge and skills:</p> <p>Understand the basic concepts of Quality Management, Quality Planning, and Total Quality Control, including:</p> <ul style="list-style-type: none"> • Tools and techniques for quality control. • Sampling methods and the design of sampling inspection plans. • Supplier evaluation. • Customer satisfaction measurement and questionnaire design. • Quality Management Systems and an overview of standards (ISO, EN, HACCP). • Quality certification, internal audits, external audits, and certification bodies. • Organization of testing and calibration laboratories, metrology, and the International System of Units (SI). • Testing methods, calibration and verification of measuring systems, calculation of measurement uncertainty, and measurement traceability. • Laboratory accreditation and the management requirements of the ISO/IEC 17025 standard. • Experimental Design and Analysis of Experiments (DOE), including documentation of experimental procedures, completely randomized designs, and factorial experiments.

This course provides students with both theoretical knowledge and practical skills in quality management, laboratory quality systems, accreditation procedures, and experimental design methodologies.

Upon completion of this course, students will have further developed the following skills and competencies:

- Ability to demonstrate knowledge and understanding of the essential facts, concepts, theories, and applications related to Quality Control, Quality Assurance, and Accreditation.
- Ability to apply this knowledge and understanding to solve problems of an unfamiliar nature.
- Ability to adopt and apply appropriate methodologies for solving unfamiliar problems.
- Independent learning and study skills required for continuous professional development and lifelong learning.
- Ability to interact and collaborate with others in addressing interdisciplinary problems and challenges.

General Skills

Name the desirable general skills upon successful completion of the module

<i>Search, analysis and synthesis of data and information,</i>	<i>Project design and management</i>
<i>ICT Use</i>	<i>Equity and Inclusion</i>
<i>Adaptation to new situations</i>	<i>Respect for the natural environment</i>
<i>Decision making</i>	<i>Sustainability</i>
<i>Autonomous work</i>	<i>Demonstration of social, professional and moral responsibility and sensitivity to gender issues</i>
<i>Teamwork</i>	<i>Critical thinking</i>
<i>Working in an international environment</i>	<i>Promoting free, creative and inductive reasoning</i>
<i>Working in an interdisciplinary environment</i>	
<i>Production of new research ideas</i>	

Search, analysis and synthesis of data and information, Adaptation to new situations, Decision making, Autonomous work, Teamwork, Critical thinking, Respect for the natural environment, creative and inductive reasoning,

(3) COURSE CONTENT

1. Introduction to basic concepts and definitions related to Quality Management, Quality Planning, and Total Quality Control.
2. Quality control tools and techniques, including methods for monitoring, measuring, and improving quality performance.
3. Sampling and Sampling Inspection Design, covering sampling methods and the development of acceptance sampling plans.
4. Supplier Evaluation, including criteria and methodologies for assessing supplier performance and quality.
5. Customer Satisfaction Measurement and Questionnaire Design, focusing on methods for collecting and analyzing customer feedback.
6. Quality Management Systems (QMS) and an overview of major standards and frameworks, including ISO, EN, and HACCP.
7. Quality Certification, including internal audits, external audits, and the role of certification bodies.
8. Organization and Management of Testing and Calibration Laboratories, including principles of metrology and the International System of Units (SI).
9. Testing Methods, Calibration and Verification of Measurement Systems, including the calculation of measurement uncertainty and measurement traceability.
10. Laboratory Accreditation and the management requirements of ISO/IEC 17025.
11. Introduction to Experimental Design and Analysis of Experiments (DOE), including documentation of experimental procedures, completely randomized designs, and factorial experimental designs.

(4) LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD <i>Face to face, Distance learning, etc.</i>	Face to face	
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i>	Use of ICT in Teaching Use of ICT in Communication with students	
TEACHING ORGANIZATION <i>The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.</i> <i>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i>	Activity	Workload/semester
	Lectures	39
	Bibliographic research & analysis	8
	Interactive learning	13
	Total	60
STUDENT EVALUATION <i>Description of the evaluation process</i> <i>Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others</i> <i>Please indicate all relevant information about the course assessment and how students are informed</i>	Written final exam that includes problem solving from different sections of the course.	

(5) SUGGESTED BIBLIOGRAPHY

<ol style="list-style-type: none"> 1. Management Ολικής Ποιότητας. Συγγραφέας: Ν. Λογοθέτης , Εκδόσεις Interbooks, Αθήνα, 1992 2. ISO 9000:2000, Συγγραφείς: Αρβανιτογιάννης, Ι., & Κούρτης Λ. , Εκδόσεις Σταμούλη Α.Ε, Αθήνα 2002. 3. Οργάνωση Εργαστηρίων Ελέγχων και Δοκιμών, Συγγραφείς: Δ. Κυριακίδης, Α. Λευκόπουλος, Ι. Πλιάτσικας, Εκδόσεις ΕΑΠ, Πάτρα 2008. 4. Quality Control Handbook, 3rd Edition, Juran J.M. McGraw Hill Book Company, N. York, 1988 5. Διάφορες επιστημονικές εργασίες ή άρθρα σχολιασμού οι οποίες μπορεί να είναι γενικότερου ενδιαφέροντος ή να περιλαμβάνουν πρόσφατες εξελίξεις στο αντικείμενο της Βιοχημείας (αλλά και ευρύτερα των βιολογικών επιστημών) οι οποίες (όπως ισχύει παντού) αργούν να ενσωματωθούν στα διδακτικά συγγράμματα και οι οποίες μπορεί να μεταβάλλονται κάθε έτος, αναρτώνται στην πλατφόρμα του e-class.
