

10. Certification of products and systems

GENERAL INFORMATION ABOUT THE COURSE		
Course coordinator	Živko Kondić, PhD, professor	
Course name	Certification of products and systems	
Study program	Mechanical Engineering	
Course status	Compulsory / Elective	
Year	2	
Semester	3	
Number of credits and teaching methods	ECTS student load coefficient	6
	Number of hours (lectures + seminars + exercises)	

1. DESCRIPTION OF THE COURSE

1.1. Course objectives

Train students to properly interpret and apply modern international standards for certification of management systems and technical products.

1.2. Course enrolment prerequisites *(if applicable)*

No prerequisites

1.3. Expected course learning outcomes

After having listened to the lectures, conducted the exercises and successfully presented the seminar paper, as well as passed the exam from this course, the student will be able to:

- Analyse the purpose and need for certification of some management systems, as well as select the competent institution for conducting the external assessment (certification).
- Organising management systems in compliance with different international standards and present them to interest parties as well as maintain them at the required level.
- Properly explain the requirements of international, regional and national norms in terms of providing arguments for applications in specific management systems.
- Analyse and review requirements for certification of specific technical products by identifying and evaluating requirements.
- Draft the necessary documented information (technical construction file) and select the suitable institution for testing product conformity.
- Investigate all options in selecting the adequate module, directives and standards for assessing product conformity.

1.4. Course content

- Concept of certifying management systems and technical products
- Description of the quality management system
- Description of the environmental management system.
- Description of the occupational health and safety management system.

<p>5. Description of the energy management system.</p> <p>6. Description of information security management system.</p> <p>7. Brief overview of other management systems.</p> <p>8. Procedure for certifying a management system.</p> <p>9. Fundamentals of EU legislation for industrial products.</p> <p>10. Modules and procedures for assessing product conformity and product testing</p> <p>11. Structure of new approach directives and legislation of the Republic of Croatia for industrial products.</p> <p>12. Infrastructure for quality.</p> <p>13. Directives and regulations of a sectorial approach to industrial products, including other important directives.</p> <p>14. New approach directive for industrial products, Part 1.</p> <p>15. New approach directive for industrial products, Part 2.</p>							
1.5. Types of teaching	<input checked="" type="checkbox"/> Lectures <input checked="" type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Distance learning <input type="checkbox"/> Field work			<input checked="" type="checkbox"/> Autonomous exercises <input checked="" type="checkbox"/> Multimedia and network <input type="checkbox"/> Laboratory <input checked="" type="checkbox"/> Mentor assistance <input checked="" type="checkbox"/> Other types			
1.6. Comments							
1.7. Student obligations (<i>attendance at classes, lectures, tutorials, seminars</i>)							
<ul style="list-style-type: none"> ▪ Attending lectures and exercises ▪ Solving colloquiums ▪ Drafting and presenting a seminar paper ▪ Passing the exam 							
1.8. Tracking student work (proportion of individual activities in terms of ECTS credits based on the total number of ECTS credits)							
Class attendance	2	Class participation	0.4	Seminar paper	1.1	Experimental work	
Written exam	0.5	Oral exam		Essay		Research	0.5
Project		Continual assessment of knowledge	1	Written seminar paper		Practical work	
Online activity	0.5						
1.9. Grading and assessment of student work during the semester and for the final exam (<i>interim exam, written exam, oral exam</i>)							
Colloquiums as well as written and oral exams.							
1.10. Mandatory literature (relevant at the time of submitting the proposed study program)							
- Kondić Živko; Certification of Products and Systems, Lectures and Exercises in Digital Format							

- EC Council Resolution No. 90/C10/01 on the global approach to conformity assessment -Official Journal of the European Union No. c 10, 16 January 1990

- Ivan Poljičanin; ZAKONODAVSTVO EUROPSKE UNIJE, Kiklos - krug knjige, Zagreb 2013.

1.11. Supplementary literature (relevant at the time of submitting the proposed study program)

- HRN EN ISO/IEC 17024; Certification of personnel
- HRN EN ISO/IEC 17065; Certification of products
- HRN EN ISO/IEC 17021; Certification of management systems
- ISO 9001, Quality management system, requirements
- ISO 14001, Environmental management systems, requirements
- ISO 45001, Occupational health and safety management systems, requirements
- ISO 50001, Energy management systems
- ISO 27001, Information security management system
- ISO 31000, Risk management system
- Guide to the implementation of directives based on the New Approach, European Commission, Luxemburg, 2000.

1.12. Manner of tracking quality to ensure the acquisition of exit knowledge, skills and competences

- Attendance at lectures and exercises, colloquiums, discussions, presentations, preparation

2. COMBINING THE LEARNING OUTCOMES, TEACHING METHODS AND ASSESSMENT OF THE LEARNING OUTCOMES

<i>2.1. Class participation</i>	<i>2.2. Student participation</i>	<i>2.3. Learning outcome</i>	<i>2.4. Assessment method</i>
Lectures	Analyse field-specific texts, select and elaborate the seminar paper topic, synthesis knowledge and present it through participation and presenting what has been learnt.	1-6	Filling out the on-line form of initial and final self-evaluation as well as periodical reports, written and uploaded applications as well as elaborating the seminar paper topic on the course website (10% of points)
Seminar paper	Writing up the seminar paper in lien with instructions for work by applying principles presented and commented on at the lectures.	1 - 6	Uploading the seminar paper on the course website, preparing the collection of seminar papers. (30% of points)
	Presenting the seminar paper and acquired competences relating to the course in front of students and the teacher	1 - 6	Uploading the seminar paper presentation onto the course website, preparing the collection of seminar papers. (30% of points)
On-line activities	Analyses and reviews of applications and seminar papers as well as participation through evaluation, based on specifically defined criteria	1-6	Evaluation of all analyses and reviews as well as respective comparisons with class analyses and reviews. (30% points)