

## Appendix A

### MODULE HANDBOOK

**Bachelor program,  
“Instrumentation Engineering” department**

<b>Course Unit Title</b>	Standardization and Certification
<b>Course Unit Code</b>	
<b>Type of Course Unit</b>	Compulsory
<b>Level of Course Unit</b>	1 <sup>st</sup> year
<b>National Credits</b>	
<b>Number of ECTS Credits Allocated</b>	6
<b>Theoretical (hour/week)</b>	2
<b>Practice (hour/week)</b>	1
<b>Laboratory (hour/week)</b>	0
<b>Year of Study</b>	1
<b>Semester when the course unit is delivered</b>	1
<b>Course Coordinator</b>	Jahandar Sh. Muradov
<b>Name of Lecturer (s)</b>	Jahandar Sh. Muradov
<b>Name of Assistant (s)</b>	-
<b>Mode of Delivery</b>	Face to Face, Seminar.
<b>Language of Instruction</b>	English
<b>Prerequisites</b>	-
<b>Recommended Optional Program Components</b>	-
<b>Course description:</b> Historical development of standardization and certification. Introduction to international and national standardization organizations. The role and importance of standards in various industries. Overview of the certification process and its benefits. Types of standards, including quality management, environmental, and safety standards. Key principles of conformity assessment, product certification, and system certification. Understanding ISO 9001, ISO 14001, and ISO 45001 standards. The impact of standardization on global trade, innovation, and technological development.	
<b>Objectives of the Course:</b> The aim of this subject is to provide students with a comprehensive understanding of the principles and practices of standardization and certification. The course will enhance students' knowledge of the role of standards in ensuring	

quality, safety, and efficiency across various sectors. The main goal is to equip students with both theoretical and practical foundations in the field of standardization and certification, enabling them to apply these concepts in real-world scenarios, including conformity assessment, quality management systems, and international trade. Additionally, the course aims to deepen students' understanding of how standards contribute to global technological innovation, sustainable development, and organizational improvement.

### Learning Outcomes

At the end of the course the student will be able to		Assessment
1	Define the key concepts of standardization and certification.	1
2	Identify different types of standards (e.g., ISO 9001, ISO 14001, ISO 45001) and their applications.	1, 2, 3
3	Explain the role of standardization in ensuring quality, safety, and sustainability.	1
4	Analyze the certification process and its impact on global trade and industry practices.	1, 2
5	Understand the principles of conformity assessment and its relevance to product and system certification.	1, 3
6	Apply knowledge of standardization to real-world scenarios in various sectors.	1, 2, 3

Assessment Methods: 1. Final Exam, 2. Presentation, 3. Midterm exam

### Course's Contribution to Program

		CL
1	Ability to understand and apply the principles of standardization and certification in solving complex industry issues.	5
2	Ability to evaluate and implement various standards (ISO 9001, ISO 14001, ISO 45001) in organizational processes.	5
3	Ability to analyze and assess the impact of certification on quality management and regulatory compliance.	4
4	Ability to conduct conformity assessments and audits in compliance with international standards.	5
5	Ability to use problem-solving skills in the context of standardization to address real-world challenges in different sectors.	5
6	Understanding of the role of standards in global trade, innovation, and sustainability.	4
7	Ability to critically assess the benefits and challenges of certification for businesses and organizations.	4
8	Ability to integrate standardization principles in organizational improvement	5

	strategies.		
9	Awareness of professional, ethical, and legal responsibilities related to standardization and certification.	3	
10	Ability to apply theoretical knowledge in real-world projects and contribute to organizational development through standards implementation.	5	
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)			
<b>Course Contents</b>			
Week	Chapter	Topics	Exam
1	[Cohen]: Chapter 1, s: 1-20	Introduction to Standardization: Historical Background and Importance	
2	[Hoyle]: Chapter 1, s: 1-30	Overview of Quality Management Systems (QMS) and Their Importance	
3	[Hussein & Gutterman]: Chapter 2, s: 26-50	International Standardization Organizations (ISO, IEC, etc.) and Their Roles	
4	[Hoyle]: Chapter 2, s: 31-60	Clause-by-Clause Analysis of Key Quality Management Standards	
5	[Cohen]: Chapter 2, s: 21-40	The Certification Process: Steps, Benefits, and Challenges	
6	[Hoyle]: Chapter 3, s: 61-90	ISO 14001: Environmental Management Systems Seminar 1: Case study on environmental management	
7	[ 0 ]: Midterm Exam	Midterm Examination	Midterm
8	[Hoyle]: Chapter 4, s: 91-120	ISO 45001: Occupational Health and Safety Management Systems	
9	[Hussein & Gutterman]: Chapter 3, s: 51-75	Standardization and Innovation: The Role of Standards in Technological Development	
10	[Cohen]: Chapter 3, s: 41-60	Conformity Assessment and Product Certification Seminar 2: Innovation through standardization	
11	[Hoyle]: Chapter 5, s: 121-150	Understanding Global Supply Chains: The Impact of Certification	
12	[Hussein & Gutterman]: Chapter 4, s: 76-100	The Role of Certification in Market Access and Trade Seminar 3: Case study on trade and certification	
13	[Cohen]: Chapter 4, s: 61-80	Standardization in Emerging Industries: Sustainability and Digital Transformation	

14	[Hoyle]: Chapter 6, s: 151-180	Future Trends in Standardization and Certification Seminar 4: Group discussion on future trends	
15	[Hussein & Gutterman]: Chapter 5, s: 101-125	Business Compliance: The Importance of Adhering to Standards	
16		Final Examination	Final

**Recommended Sources**

**TEXTBOOK(S)**

1. Tahir Hussein and Alan S. Gutterman, Standardization and Certification: Theory and Practice (3rd Edition), Cambridge University Press, 2017.
2. David Hoyle, Quality Management Essentials, Routledge, 2017.
3. William A. Cohen, The Art of Standardization and Certification Management: From Strategy to Execution, McGraw-Hill, 2019

**Assessment**

Attendance	0%	At least 75% class attendance is compulsory
Presentation	20%	
Seminar	0%	
Midterm Exam	30%	Written Exam
Final Exam	50%	Written-Oral Exam
Total	100%	

**Assessment Criteria**

Final grades are determined according to the Academic Regulations of Azerbaijan State Oil and Industry University for Undergraduate Studies

**Course Policies**

- Attendance of the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students cannot use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Azerbaijan State Oil and Industrial University General Student Discipline Regulations

**ECTS allocated based on Student Workload**

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including midterm)	15	3	45
Presentation	1	10	10
Tutorials	14	1	14
Preparation for midterm exam	1	10	10

Final Examination	1	3	3
Preparation for final exam	1	28	28
Self-study	14	5	70
<b>Total Workload</b>			<b>180</b>
<b>Total Workload/30(h)</b>			<b>180/30</b>
<b>ECTS Credit of the Course</b>			<b>6</b>