COURSE DESCRIPTION

1. Program identification information

1.1 Higher education institution	**National University of Science and Technology Politehnica Bucharest**
1.2 Faculty	**Electronics, Telecommunications and Information Technology**
1.3 Department	**Electronic Technology and Reliability**
1.4 Domain of studies	Electronic Engineering, Telecommunications and Information Technology
1.5 Cycle of studies	Masters
1.6 Programme of studies	Quality and Safety Engineering in Electronics and Telecommunications

2. Date despre disciplină

2.1 Course name (ro) (en)				Managementul calităţii totale Total Quality Management			
2.2 Course Lecturer				Dr. ing. Cristinel RONCEA			
2.3 Instructor for practical activities				Dr. ing. Cristinel RONCEA			
2.4 Year of studies	2	2.5 Semester	I	2.6. Evaluation type	E	2.7 Course regime	Ob
2.8 Course type		DA	2.9 Course code	UPB.04.M3.O.14-10		2.10 Tipul de notare	Nota

3. Total estimated time (hours per semester for academic activities)

3.1 Number of hours per week	3	Out of which: 3.2 course	2.00	3.3 seminary/laboratory	1
3.4 Total hours in the curricula	42.00	Out of which: 3.5 course	28	3.6 seminary/laboratory	14
Distribution of time:					hours
Study according to the manual, course support, bibliography and hand notes Supplemental documentation (library, electronic access resources, in the field, etc) Preparation for practical activities, homework, essays, portfolios, etc.					56
Tutoring					0
Examinations					2
Other activities (if any):					0

3.7 Total hours of individual study	58.00
3.8 Total hours per semester	100
3.9 Number of ECTS credit points	4

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	It's not necessary

4.2 Results of learning	Studying and promoting the following disciplines: • Standardization and legislation in quality and safety in operation • Assurance and certification of quality and reliability

5. Necessary conditions for the optimal development of teaching activities (where applicable)

5.1 Course	The course will take place in a room equipped with video projector and computer.
5.2 Seminary/ Laboratory/Project	The applications will take place in a room equipped with video projector and computer.

6. General objective *(Reffering to the teachers' intentions for students and to what the students will be thought during the course. It offers an idea on the position of course in the scientific domain, as well as the role it has for the study programme. The course topics, the justification of including the course in the currcula of the study programme, etc. will be described in a general manner)*

The discipline "Total Quality Management" (TQM) deals with the deepening of knowledge to be the basis for the development of a management strategy, which aims to embed quality in all the processes of an organization, based on the participation of all its members, which aims to ensure success in the long term by satisfying the customer and obtaining advantages for all members of the organization and for society.
The course presents a wide thematic area, with an emphasis on the latest innovations in the field, being strongly oriented towards the application, towards the achievement of "organizational quality", insisting on the design, implementation and auditing of such management systems that allow the fulfillment of the needs and expectations of the organization's customers and other interested parties, in order to achieve its sustainable success.

7. Competences *(Proven capacity to use knowledge, aptitudes and personal, social and/or methodological abilities in work or study situations and for personal and proffesional growth. They refflect the empolyers requirements.)*

Specific Competences	Ability to use models and methods for quality assessment, attestation, assurance and improvement.
Transversal (General) Competences	Works in a team and communicates effectively, coordinating efforts with others to solve high-complexity problem situations. Autonomy and critical thinking: the ability to think in scientific terms, search and analyze data independently, and draw and present conclusions / identify solutions. Ability to analyze and synthesize: presents the acquired knowledge in a synthetic way, as a result of a process of systematic analysis. Respect the principles of academic ethics: correctly cite the bibliographic sources used in the documentation activity. Puts elements of emotional intelligence into practice in the appropriate social-emotional management of real-life/academic/professional situations, demonstrating self-control and objectivity in decision-making or stressful situations.

8. Learning outcomes *(Synthetic descriptions for what a student will be capable of doing or showing at the completion of a course. The learning outcomes reflect the student's acomplishments and to a lesser extent the teachers' intentions. The learning outcomes inform the students of what is expected from them with respect to performance and to obtain the desired grades and ECTS points. They are defined in concise terms, using verbs similar to the examples below and indicate what will be required for evaluation. The learning outcomes will be formulated so that the correlation with the competences defined in section 7 is highlighted.)*

Knowledge	*The result of knowledge aquisition through learning. The knowledge represents the totality of facts, priciples, theories and practices for a given work or study field. They can be theoretical and/or factual.* • Defines notions specific to the field of total quality management. • Describes/classifies notions/processes/phenomena/structures. • Highlights consequences and relationships.
Skills	*The capacity to apply the knowledge and use the know-how for completing tasks and solving problems. The skills are described as being cognitive (requiring the use of logical, intuitive and creative thinking) or practical (implying manual dexterity and the use of methods, materials, tools and intrumentation).* • Selects and groups relevant information in a given context. • Uses specific principles with reason. • Work productively in a team. • Elaborate a scientific text. • Solve practical applications. • Adequately interpret causal relationships. • Analyze and compare various situations. • Identifies solutions and develops resolution plans. • Formulates synthetic conclusions regarding the subject of the evaluation. • Argue the findings made.
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* • Select appropriate bibliographic sources and analyze them. • Respect the principles of academic ethics, correctly citing the bibliographic sources used. • Demonstrates responsiveness to new learning contexts. • Demonstrates collaboration with other colleagues and teaching staff in carrying out teaching activities. • Demonstrates autonomy in organizing the learning situation/context or the problem situation to be solved. • Applies principles of ethics/professional deontology. • Demonstrates real-life situation management skills.

9. Teaching techniques *(Student centric techniques will be considered. The means for students to participate in defining their own study path, the identification of eventual fallbacks and the remedial measures that will be adopted in those cases will be described.)*

Starting from the analysis of students' learning characteristics and their specific needs, the teaching process will explore both expository (lecture, exposition) and conversational-interactive teaching methods, based on discovery learning models facilitated by direct exploration and indirect of reality (experiment, demonstration, modelling), but also on action-based methods, such as exercise, practical activities and problem solving.
In the teaching activity, lectures will be used, based on Power Point presentations or different videos that will be made available to the students. Each course will start with a recap of the chapters already covered, with an emphasis on the concepts covered in the last course.
Presentations use images and diagrams so that the information presented is easy to understand and assimilate.
This discipline covers information and practical activities designed to support students in their learning efforts and the development of optimal collaborative and communicative relationships in a climate conducive to discovery learning.
It will be considered the practice of active listening and assertive communication skills, as well as feedback

construction mechanisms, as ways of regulating behavior in various situations and adapting the pedagogical approach to the students' learning needs.
Teamwork skills will be practiced to solve different learning tasks.

10. Contents

COURSE		
Chapter	**Content**	**No. hours**
1	MCT and the current context	1
2	Organizational quality culture	1
3	Terminology. The principles of quality	2
4	SL Annex	2
5	Risks and opportunities related to the quality management system	2
6	ISO 9001 quality management systems - context and leadership	2
7	ISO 9001 quality management systems - support	2
8	ISO 9001 quality management systems - operation	2
9	ISO 9001 quality management systems - performance evaluation and improvement	2
10	Audit of quality management systems according to ISO 19011. Definitions. Principles. Risks and opportunities.	2
11	Initiating the audit and preparing the audit activities. Audit planning. Allocation of activities within the audit team. Preparation of documented information for audit.	2
12	Performing audit activities. Assigning roles and responsibilities for guides and observers. Conducting the opening session. Analysis of documented information during the audit. Sampling	2
13	The virtual audit. Auditing of specific requirements	2
14	Audit findings. Determining the results of the audit. Recording of conformities and non-conformities. Framing the findings. Drafting of non-conformities. Carrying out the closing session. Report	2
15	Management of non-conformities. Competence of auditors	2
	Total:	28

Bibliography:
1. C. Roncea, Managementul calității totale. Suport curs, 2022, https://curs.upb.ro/2021/course/view.php?id=9223.
2. Anexa SL: 2021 - Apendix 2 al directivei ISO/IEC Directives, Part 1, Consolidated ISO Supplement. High Level Structure and identical text for management system standards and common core management system terms and definitions.
3. ISO/TMB/JTCG N 360: 2013 - N360 JTCG concept document to support Annex SL.
4. SR EN ISO 9000:2015 - Sisteme de management al calitatii - Principii fundamentale și vocabular.
5. SR EN ISO 9001:2015 - Sisteme de management al calităţii - Cerinţe.
6. ISO 9002:2016 - Quality management systems - Guidelines for the application of ISO 9001:2015.
7. ISO 9004:2018 Managementul calității - Calitatea unei organizații - Îndrumări pentru obținerea unui succes durabil.
8. ISO 10010:2022 - Quality management - Guide to understand, evaluate and improve organizational quality culture.
9. ISO 19011:2018 - Linii directoare pentru auditarea sistemelor de management.
10. ISO 9001:2015 - Understanding the International Standard, IRCA&CQI Report, 2015.
11. ISO 9001 Auditing Practices Group, www.iaf.nu.

SEMINARY

Crt. no.	Content	No. hours
1	Process sheet	2
2	Process diagram	2
3	Audit plan	2
4	Audit report	2
5	Nonconformities	2
6	Risks at the level of an integrated management system	2
7	Case study	2
	Total:	14

Bibliography:
1. C. Roncea, Managementul calității totale. Suport curs, 2021, https://curs.upb.ro/2021/course/view.php?id=9223.
2. Anexa SL: 2021 - Apendix 2 al directivei ISO/IEC Directives, Part 1, Consolidated ISO Supplement. High Level Structure and identical text for management system standards and common core management system terms and definitions.
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11. ISO 9001 Auditing Practices Group, www.iaf.nu.

11. Evaluation

Activity type	11.1 Evaluation criteria	11.2 Evaluation methods	11.3 Percentage of final grade
11.4 Course	Knowledge of fundamental theoretical notions	Final exam (written)	40%
11.5 Seminary/laboratory/project	Correct use of specific tools	Tests	20%
	Application of theory to specific problems	Homework	40%
11.6 Passing conditions			
• Fulfilling the obligations characteristic of applied activities: teaching and supporting homework. • Obtaining 50% of the score related to the activity during the semester. • To promote the discipline, the student must obtain at least 50% of the total score, in compliance with all the requirements specified in the UPB / ETTI Regulations.			

12. Corroborate the content of the course with the expectations of representatives of employers and representative professional associations in the field of the program, as well as with the current state of knowledge in the scientific field approached and practices in higher education institutions in the European Higher Education Area (EHEA)

• Through the activities carried out, students develop skills to offer solutions to problems and to propose ideas to improve the situation of existence in the field of total quality management.
• Knowledge / aspects / phenomena described by specialized literature / own research published in journals / presented at international scientific conferences were taken into account in the development of the content of the discipline.
• Through the activities in this discipline, the development of the graduate's skills to manage practical situations that he may face in real life is considered in order to increase his contribution to the improvement of the economic and technological environment.

Date	Course lecturer	Instructor(s) for practical activities
	Dr. ing. Cristinel RONCEA	Dr. ing. Cristinel RONCEA

Date of department approval	Head of department
	Conf. dr. ing. Marian VLĂDESCU

Date of approval in the Faculty Council	Dean
01.11.2024	Prof. Dr. Mihnea Udrea

Universitatea Națională de Știință și Tehnologie Politehnica București

Facultatea de Electronică, Telecomunicații și

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