REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	**Course Name**	**Semester (X)**	**Credit**		
1204102	PHYSICS	… Spring (X) Fall	T	P	ECTS
			3	2	7

Instructor(s) (Title, Name Surname)	**Language(s) of Instruction (X)**	**Course Type (X)**		**Mode of Course (X)**	
		Must	Elective	Face to face	Online
Asst. Prof. Emine GURPINAR GULER	(X) Turkish … English	(X)		(X)	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	The aim of this course is to provide students with a clear and detailed understanding of the fundamental concepts and principles of mechanics. It also aims to demonstrate the applications of these principles and concepts in both everyday life and engineering practices, thereby enhancing comprehension. The course is
Course Content	1-Physics and Measurement 2-Motion in One Dimension 3-Vectors 4-Motion in Two Dimensions 5-Laws of Motion 6-Circular Motion and Other Applications of Newton's Laws 7-Work and Kinetic Energy 8-Potential Energy and Conservation of Energy 9-Midterm Exam 10-Linear Momentum and Its Conservation, Impulse and Momentum 11-Elastic and Inelastic Collisions in One Dimension, Two-Dimensional Collisions, Center of Mass, Motion of a System of Particles 12-Rotation of a Rigid Body About a Fixed Axis Angular and Linear Quantities, Rotational Energy, Calculation of Moment of Inertia 13-Torque, Relation Between Torque and Angular Acceleration, Work, Power and Energy in Rotational Motion 14-Final Exam

Course Learning Outcomes	1-Defines the concepts of measurement, distance, mass, and time. Performs conversions of length and mass between different unit systems. Determines the amount of error in calculations. 2-Understands coordinate systems and performs vector operations. Determines the position and distance of an object within a coordinate system. 3-Explains one- and two-dimensional motions. Understands that the magnitude or direction of velocity may change with time. Defines the concept of acceleration. 4-Analyzes motion in inertial and non-inertial reference frames. Identifies the sources of acceleration. Comprehends the action–reaction principle and explains circular motion. 5-Explains the concepts of energy and energy transformation. Defines the concept of work in physics. Expresses the relationship between work and energy. Describes the difference between potential and kinetic energies arising from an object's position and motion. 6-Explains the concepts of linear and angular momentum. Understands the principle of conservation. Analyzes elastic and inelastic collisions in one and two dimensions. 7-Analyzes the rotation of a rigid body about an axis. Evaluates angular displacement, angular velocity, and angular acceleration. Understands angular and linear quantities. Calculates rotational energy and moment of inertia. Examines the rotation of bodies about a fixed axis. Understands the relationship between torque and angular acceleration. Analyzes the rolling motion of a rigid body.
Recommended Resources	-Fen ve Mühendislik İçin Fizik I, Serway-Beichner, Çeviri Editörü: Kemal ÇOLAKOĞLU, Palme Yayıncılık, Ankara, 2002. 2-Giancoli, D. C. (2008). Physics: Principles with Applications (6th ed.). Pearson. 3-James S. Walker (2009). Physics (4th ed.) Addison-Wesley. 4-Fiziğin Temelleri, David Halliday, Robert Resnick, Jearl Walker 5-Üniversite Fiziği, Hugh D.YOUNG ve RogerA. FREEDMAN

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204103	CHEMISTRY	(X) Fall … Spring	2	2	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mustafa TABAKCI	(X) Turkish … English	(X)		(X)	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	The aim of the course is for students to learn the ideas and concepts used to understand and manipulate chemical changes. In addition, it is aimed to enable students to associate the observed phenomena with the concepts of atoms, ions and molecules.
Course Content	1. Basic chemical and physical properties of matter 2. Atom and molecule theory, historical development of chemistry. explanation of laboratory rules 3. Atomic theories and the structure of the atom and the introduction of laboratory materials 4. Electron distribution in atom, periodic table and basic properties of elements. 5. Compounds, types of compounds, nomenclature and formulas, conservation of matter experiment 6. Basic calculations in chemistry, chemical equations, stoichiometry and determination of the limiting component, law of constant proportions experiment 7. Reaction types and balancing reactions, stoichiometry experiment 8. MIDTERM EXAM 9. Basic properties of gases, ideal gas equation, determination of relative diffusion rates of gases experiment 10. Real gases, kinetic theory of gases, 11. Thermochemistry, standard formation enthalpy, endothermic and exothermic reactions, thermochemistry experiment 12. Basic properties of liquids and solids, determination of melting and boiling points experiment 13. Solutions, concentration units, preparation of solutions, preparation of solutions experiment 14. Acids and bases, titration experiment

	15. FINAL EXAM
Course Learning Outcomes	1. Students will learn the basic concepts of chemistry. 2. Students will learn to associate the chemistry topics they learned in the course with engineering topics. 3. Students will learn to conduct experiments related to course topics in the laboratory. 4. Students will be able to write and balance simple chemical reactions. They will be able to evaluate the energy status of a reaction.
Recommended Resources	1. E.Mortimer, Modern University Chemistry I-II", Translation Editor T.Altınata, Publisher: Çağlayan, 1988. 2. R.H.Petrucci, W.S.Harwood, F.G.Herring,"General Chemistry 1-2. Principles and Modern Practices", Translation Editors: Tahsin Uyar, Serpil Aksoy, Eighth Edition, Palme Publishing, 2002. 3. Raymon Chang "General Chemistry" Translation: Tahsin Uyar, Serpil Aksoy, Recai İnam, Palme Publishing, Ankara.

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	**Course Name**	**Semester (X)**	**Credit**		
			T	P	ECTS
1204107	TURKISH LANGUAGE 1	(X) Fall … Spring	2	0	2

Instructor(s) (Title, Name Surname)	**Language(s) of Instruction (X)**	**Course Type (X)**		**Mode of Course (X)**	
		Must	Elective	Face to face	Online
Lecturer Ümit KARUL	(X) Turkish … English	(X)			(X)

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	To have every young person who will complete their higher education comprehend the structure and functioning of their mother tongue properly, to have them obtain the ability to use Turkish correctly and perfectly as a written and oral communication tool in terms of language-thought connection, and to make a unifying language dominant in education. To provide students with the ability to read, understand what they read, and express their feelings and thoughts in a complete, accurate and effective way, either verbally or in writing. To raise young people who are conscious of their mother tongue.
Course Content	1-What is language? The place and importance of language in the life of the nation as a social institution; language-culture relationship. 2-Culture, Characteristics of Culture, Language-Culture Relation 3-Classification of languages and the place of Turkish among world languages 4-The development of the Turkish language and its historical periods 5-The current state of the Turkish language and its breadth areas 6-Sounds and classification of sounds in Turkish 7-Turkish phonetic features and rules about phonetics 8- Midterm Exam 9-Semantics 10-Spelling rules and practices 11-Punctuations and practices 12-Derivational affixes and practices 13-Inflection affixes and practices 14-General information about the composition 15-The outline for composition writing and practices

	16-Final Exam
Course Learning Outcomes	1-Gains the ability to use Turkish correctly and beautifully as a means of written and oral expression. 2-They acquire the skills to use the language correctly, effectively and beautifully in various professions and scientific fields, and learn the Turkish equivalents of various terms, if any. 3-Learns how to access accurate information, use it, and present it using appropriate methods. 4-He/she understands the importance of reading, researching and writing and improves himself/herself in these aspects.
Recommended Resources	Özkan, A., Aşçı, U. D., & Toker, M. (2013). Türk dili: dil ve anlatım. Palet Yayınları.

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204113	Introduction to Civil Engineering	X Fall … Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mehmet KAMANLI	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**%40**
Final Exam	**1**	**%60**

Course Objectives and Goals	This course aims to provide students with an understanding of the historical development, fundamental concepts, and application areas of civil engineering, as well as the social significance of the engineering profession. It also helps students comprehend the
Course Content	1- Introduction, Human History and the Beginning of Construction Activities 2- Definition and Classification of Construction 3- Construction Activities in Ancient Civilizations 4- Building Art in the Middle Ages and Islamic Civilizations 5- Development of Engineering During the Renaissance and the Industrial Revolution 6- Developments in Civil Engineering During the 19th and 20th Centuries 7- Modern Construction Technologies and Megastructures 8- The Relationship Between Science, Technology and Engineering 9- History of Science and Technology 10- The Concept of Engineering and Civil Engineering 11- Fields of Specialization in Civil Engineering 12- History of Civil Engineering Education in the World 13- Development of Civil Engineering Education in Turkish History 14- The Role and Future of Civil Engineering in the Modern World
Course Learning Outcomes	• Explain the historical development of construction activities. • Identify and classify different types of constructions. • Analyze the relationship between science, technology, and engineering. • Understand the basic principles and ethical responsibilities of engineering. • Summarize the evolution of civil engineering education in Turkey and worldwide.

	• Discuss the concepts of technology and sustainability in modern engineering practices.
Recommended Resources	Lecture Notes

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204114	Occupational Health and Safety 1	**X** Fall … Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist. Prof. Mustafa ONÜÇYILDIZ	**X** Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	Providing participants with the necessary information to ensure OHS in working life and to gain a safety culture.
Course Content	1- Occupational health and safety (OHS) concept and various definitions, 2- Historical development, 3- National and international organizations, 4- OHS in laws, 5- International conventions, 6- Basic theories, 7- Work accident and occupational diseases, 8- Safe living culture, 9- Occupational health and safety studies-Planning, 10- Occupational Health and Safety Law No. 6331, 11- Occupational health and safety regulations, 12- Occupational safety expertise and duties, 13- Responsibilities of employers and employees, 14- Things to do during the epidemic period.
Course Learning Outcomes	1- Information will be obtained regarding Occupational Health and Safety and the establishment of a culture. 2- Information will be obtained regarding relevant national and international institutions and organizations. 3- Information will be obtained regarding Occupational Health and Safety planning activities, taking into account laws and regulations. 4- Information will be obtained regarding authorities and responsibilities, as well as what to do during epidemics.

Recommended Resources	Law No. 6331 and related regulations

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Foreign Language (English)**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204150	Foreign Language 1 (English)	… Fall (X) Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Öğr. Gör. Naile Canlı Cingöz	… Turkish (X) English	(X)		(X)	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	This course aims to develop students' four language skills (speaking, listening, reading, and writing) to reach level B1 (CEFR). In addition, it aims to build students' confidence in communicating in English across social, professional, and academic settings.
Course Content	1. Giving personal information and introducing family members, talking about people you know. 2. Talking about belongings and everyday things. 3. Talking about what you do every day, at weekends, etc., using the expressions do, have and make. 4. Talking about the workplace, work and work items. (use of this, that, these, those). 5. Talking about what you are doing now, sports and exercise. 6. Talking about exercise routines and comparing what we are doing now and what we usually do (Present Simple and Present Continuous). 7. Talking about your plans, making and accepting invitations, planning where and when to meet. 8. Talking about celebrations and giving and receiving gifts (object pronouns). 9. Mid-term Exam 10. Talking about past events in your life, reacting to good and bad news. 11. Talking about a special day in your life and asking questions about the past. Talking about a special picture from our childhood 12. Talking about shopping habits and money, and planning a future shopping trip. 13. Explaining a language problem and the function of what you want. Describing shopping activities related to shopping and money

	terms. 14. Reviewing topics related to the past. 15. Final Exam
Course Learning Outcomes	1. Students will be able to read short texts and a story at A2 level; they will be able to understand information about simple everyday materials such as short texts, advertisements, brochures, menus, timetables and short personal letters/emails, and answer questions on these topics. 2. Students will be able to write simple texts, messages, and short paragraphs on topics of their choice, as well as simple personal letters/emails, such as thank-you letters. 3. Students will be able to communicate in routine tasks requiring simple and direct information exchange on familiar topics and activities; they will be able to ask and answer questions about themselves, their families, educational background, abilities, interests, daily routines, plans, past events and life experiences, etc.; they will be able to make presentations on similar topics. 4. Students will be able to answer questions related to audio recordings containing the most frequently used words and expressions related to their personal interests (basic personal and family information, daily routines, school or work life, talents, interests, shopping, responsibilities, home and environment). They will be able to identify the main idea in short, clear and simple messages, announcements and dialogues.
Recommended Resources	1-Life Elementary - Student's book + workbook (National Geographic Learning) 2-The Piano (Stage 2) Oxford Bookworms

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Mechanics**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204202	STATICS	… Fall X Spring	4	0	6

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. M. Sami DÖNDÜREN Assoc. Prof. Dr. Alptuğ ÜNAL	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	Considering the basic concepts, definitions and solution proposals of statics, basic problems of statics, truss systems calculation and ideal truss system design, friction force, center of gravity and moment of inertia, carrier systems, normal force, shear force and bending moment on beam elements in the carrier system, teaching static analysis approaches of cables exposed to axial tensile force.
Course Content	1-Introduction to statics, basic concepts and basic principles of statics. Basic problems of statics, solutions and support types 2-Summation of the system of forces applied at a point and equilibrium conditions 3-Moment of force about a point and couple theory. 4-Theorems about the couple and bringing the space system of forces to a center 5-Equilibrium conditions of the space force system. 6-Special cases and Varignon's Theorem. Examples of equilibrium conditions of the system of planar forces. 7-Finding the center of gravity calculations, examples. 8-General question solving 9-Moment of inertia calculations, examples 10-Calculation of shear force and bending moment in beams. 11-Calculation of cage systems 12-Knots method and Ritter Method. 13-Calculation of tensile force in suspended cables. 14-Frictional force.
Course Learning Outcomes	The basic concepts of statics will be taught and their relationship with real situations will be determined. It will be possible to determine the cross-sectional effects that occur under the effect of external load in the carrier systems. The basic concepts of civil engineering will be given and the student's infrastructure will be

	formed for Civil Engineering.
Recommended Resources	Engineering Mechanics-Static-Hibbeler

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
1204213	BUILDING AND ARCHITECTURE INFORMATION	… Fall (X) Spring	T	P	ECTS
			2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Dr. Selçuk SAYIN	(X) Turkish … English	(X)		(X)	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	1	40
Final Exam	1	60

Course Objectives and Goals	It is aimed to define the professional relationship between civil engineering and architecture. Main concepts and principles of architecture and buildings are presented to the civil engineering students.
Course Content	1st week-Definition of architectural terms 2nd week-Zoning regulations-lot, garden 3rd week-Zoning status-exercises 4th week-Essential documentation for construction permit 5th week-Building-building classifications 6th week-Foundation soil-site investigation – excavation 7th week-Fortifications- building foundations 8-MIDTERM EXAM 9th week-Architectural project structural system examination 10th week-Structural system design exercise 11th week-Staircases-ramps-elevators 12th week-Staircase exercise 13th week-Roofs 14th week-Roofs-exercise 15th week-Final Exam
Course Learning Outcomes	1-Gain knowledge of cooperation between architect and civil engineer. 2-Gain knowledge of zoning regulations. 3-Gain knowledge of building construction process. 4-Gain knowledge of building elements and their functions
Recommended Resources	1-Ferrely, F., Mimarlığın Temelleri, Literatür Yayınları, İstanbul, 2011 2-Özcan, K., Yapı, Bilim Yayınları, İstanbul 3-Türkçü, Ç., Yapım, Birse Yayınları, İstanbul, 2004 4-Sarı, A., Düşey Sirkülasyon Araçları Merdivenler, YEM Yayınları,

	İstanbul, 1996 5-Toydemir, N., Bulut, Ü., Çatılar, Yapı Yayın, İstanbul, 2004. 6-Planlı Alanlar Tip İmar Yönetmeliği

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204225	Computer Aided Technical Drawing	… Fall X Spring	3	2	6

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Doç. Dr. Arife AKIN Dr. Öğr. Üyesi Adnan KARADUMAN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**12**	**20**
	Project		
	Midterm Exam	**1**	**20**
	Final Exam	**1**	**60**

Course Objectives and Goals	To draw three views of a given object using technical drawing materials, to draw perspective from three views, to make a section from perspective, to teach using Rapito pen, to make drawings with the help of AutoCad program.
Course Content	1- Introduction of technical drawing materials, introduction to the drawing program on the computer and the introduction of the program. 2- Line work, editing the drawing screen in AutoCad, introduction of basic drawing commands and menus. 3- Line work, introduction of basic editing commands on the computer, application of basic drawing and editing commands 4- Line and compass work, geometric drawings and applications on the computer 5- Projection study, presentation of layers in computer and application examples 6- Explanation and applications of 3 views from perspective, dimensioning and text menus on the computer 7- 3 views from perspective, geometric drawings and applications on the computer 8- 3 perspective extraction from view, technical drawings on computer, truss drawing application example 9- Line work with a ropito pen, technical drawings on the computer, application example of reinforced concrete beam detail 10- Dimensioning work with ropito pen, technical drawings on computer, mold plan application example 11- Sectioning from perspective with ropito pen, technical drawings on computer, application example of column application plan 12- Sectioning from perspective with ropito pen, technical drawings on computer, application example of basic mold plan

	13- Working on scaling, technical drawings on computer, application example of foundation beam detail 14- Floor plan drawing with ropito pen, scaling and printing of technical drawing plans on computer
Course Learning Outcomes	1-Developing the student's ability to use tools by introducing and gaining the use of tools related to drawing and making line work. 2-Developing the student's drawing skills by using a ropito pen, 3 views from perspective and perspective from 3 views. 3-Reinforcing the learned and gained drawing skills with AutoCad program, which is frequently used in the construction industry.
Recommended Resources	1-Teknik Resim - Prof. Dr. Nejat KIRAÇ 2-AutoCad 2019 - Gökalp BAYKAL

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Foreign Language (English)**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204150	Foreign Language 2 (English)	… Fall (X) Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Öğr. Gör. Naile Canlı Cingöz	… Turkish (X) English	(X)		(X)	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	This course aims to develop students' four language skills (speaking, listening, reading, and writing) to reach level B1 (CEFR). In addition, it aims to build students' confidence in communicating in English across social, professional, and academic settings.
Course Content	1. Talking about past trips using adjectives related to travel. Comparing different modes of transport. Comparative adjectives, superlative adjectives. 2. Talking about travel experiences and using money. Learning and using expressions related to money. Practicing expressions for asking someone for something. 3. Appearance and Descriptions. Talking about clothes, face and body parts. Learning adjectives related to festivals and special days and talking about past experiences. Present simple, present continuous, 'have got' structure. 4. Talking about photos and pictures. Commenting on photographs and pictures. Describing one's own or someone else's appearance. Use of the verb 'like'. 5. Talking about entertainment venues, films and television programmes. 'Be going to' (for future plans), infinitive of purpose. 6. Using the correct verbs when talking about films and television. Inviting someone to an event and exchanging ideas about planning. Differences between the verbs 'see' and 'watch'. 7. Talking about past experiences using words related to daily routines and education. Present perfect tense, structures comparing the past with the present (difference between present perfect and past simple). 8. Mid-term Exam 9. Talking about types of holidays and learning words related to

	tourism. ‘Have to / don’t have to’, ‘can / can’t’, ‘should / shouldn’t’, indefinite pronouns (something, nobody, anywhere). 10. Using structures that express obligation and advice when making holiday plans. Making suggestions and exchanging ideas. 11. Learning geographical terms related to the world. Talking about land and water forms. ‘Will / won’t’ (future tense), articles. 12. Revise the grammar structures covered in all units. 13. Review topics covered in previous weeks. Identify areas of difficulty and do extra activities. 14. Review all topics learned throughout the school year. Do speaking practice. 15. Final Exam
Course Learning Outcomes	1. Students will be able to read short texts and a story at A2 level; they will be able to understand information about simple everyday materials such as short texts, advertisements, brochures, menus, timetables and short personal letters/emails, and answer questions on these topics. 2. Students will be able to write simple texts, messages, and short paragraphs on topics of their choice, as well as simple personal letters/emails, such as thank-you letters. 3. Students will be able to communicate in routine tasks requiring simple and direct information exchange on familiar topics and activities; they will be able to ask and answer questions about themselves, their families, educational background, abilities, interests, daily routines, plans, past events and life experiences, etc.; they will be able to make presentations on similar topics. 4. Students will be able to answer questions related to audio recordings containing the most frequently used words and expressions related to their personal interests (basic personal and family information, daily routines, school or work life, talents, interests, shopping, responsibilities, home and environment). They will be able to identify the main idea in short, clear and simple messages, announcements and dialogues.
Recommended Resources	1-Life Elementary - Student's book + workbook (National Geographic Learning) 2- Gulliver's Travels (Stage 1) Young Adult Eli Readers

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Construction Materials**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204301	MATERIAL SCIENCE	X Fall …. Spring	3	0	4

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Ülkü Sultan KESKİN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	To teach the general properties of construction materials.
Course Content	1-Subject and introduction of materials science 2-Mechanical properties of materials 3-Mechanical properties of materials 4-Mechanical properties of materials 5-Internal structure of materials and fracture theories 6-Technological properties of materials 7-Technological properties of materials 8-Physical properties of materials 9-Midterm exam 10-Properties of hollow material 11-Properties of hollow material 12-Properties of hollow material 13-Thermal Properties 14-Acoustic Properties 15-Harmful External Effects and Protection Remedies
Course Learning Outcomes	1-Learns the basic concepts of materials science.. 2-Learns the internal structure of the material.. 3-Learns the basic properties of the material.. 4-Learns the external effects affecting the material
Recommended Resources	Lecturer Notes

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204304	Strength of Materials I	X Fall … Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mehmet KAMANLI Prof. Dr. M. Sami DÖNDÜREN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**%40**
	Final Exam	**1**	**%60**

Course Objectives and Goals	The aim of this course is to enable students to understand the behavior of structural elements under external forces, and to learn the fundamental concepts of stress, strain, and deformation. Strength of Materials I provides engineering students with the analytical skills needed to evaluate material capacity, safety limits, and design principles.
Course Content	1- Introduction and Basic Concepts: Force, equilibrium, internal forces, stress concept 2- Normal Stress: Average and unit stress calculations 3- Stress State: Stress components, plane stress condition 4- Strain and Deformation: Elongation, unit strain, shear strain 5- Stress–Strain Relationships: Hooke's Law, Poisson's ratio 6- Applications of Stress–Strain Relationships 7- Axial Loading: Bars under tension and compression 8- Shear Force and Shear Stress: Effects of shear, connections and fasteners 9- Torsion: Torsion of circular shafts, shear stress distribution 10- Combined Loading: Axial, shear, and torsional effects together 11- Energy Methods and Deformation Analysis (overview) 12- Stress Safety and Strength Limits 13- General Review and Example Problems 14- Final Examination Review and Preparation
Course Learning Outcomes	• Explain the historical development of construction activities. • Identify and classify different types of constructions. • Analyze the relationship between science, technology, and engineering. • Understand the basic principles and ethical responsibilities of engineering.

	• Summarize the evolution of civil engineering education in Turkey and worldwide. • Discuss the concepts of technology and sustainability in modern engineering practices.
Recommended Resources	Mukavemet- Prof. Dr. Yaşar KALTAKCI Cisimlerin Mukavemeti- Prof. Dr. Mustafa İNAN

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204325	STATISTICS AND NUMERICAL ANALYSES FOR ENGINEERS	X Fall … Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist. Prof. Ali YILDIZ Assist. Prof. Abdulhamit Nakipoğlu	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory	**-**	**-**
Quiz	**-**	**-**
Assignment	**-**	**-**
Project	**-**	**-**
Midterm Exam	**1**	**%40**
Final Exam	**1**	**%60**

Course Objectives and Goals	To improve students' ability to use mathematical and statistical methods in engineering.
Course Content	1- Matrices and Definitions 2- Matrix Operations 3- Determinant 4- Methods for Finding Determinants 5- Inverse Matrix 6- Methods for Finding Inverse Matrix 7- Linear Equation Systems 8- Solving Linear Equation Systems 9- Nonlinear Equation Systems 10- Intermediate Topics 11- Solving Nonlinear Equation Systems 12- Numerical Approximation (Curve Fitting) 13- Interpolation 14- Definitions Related to Statistics 15- Populations, Samples, Probability Distributions
Course Learning Outcomes	1. Learn matrices and determinants 2. Perform numerical integrations 3. Learn basic definitions in statistics
Recommended Resources	Lecture Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Geological Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204330	Geology for Civil Engineers	(X) Fall Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Dr. A. Ferat Bayram Assoc. Prof. Dr. Ali Bozdağ	.....Turkish (X) English	(X)		(X)	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	1	40
Final Exam	1	60

Course Objectives and Goals	To provide general geological information. To demonstrate the relationship between geology and civil engineering. To provide an understanding of the importance of earth science in civil engineering practices. To provide an understanding of the geological aspects of natural disasters.
Course Content	1-Introduction: Definition and subject of geology 2-The Earth and Its Structure 3-Tectonic Deformation of Rocks: Joints, Veins and Faults 4-Geological Time Scale 5-External Dynamic Processes 1: Weathering and Transportation 6-External Dynamic Processes 2: Sedimentation and Depositional Environments 7-Geological Hazards 1: Erosion, Water Systems and Their Environmental Effects, Mass Movements 8-Geological Hazards 2: Volcanoes, Earthquakes 9-Midterm Exam 10-Rock forming Minerals 11-Rocks 12-Engineering Geology 1: Rock Strength Properties 13-Engineering Geology 1: Soil Strength Properties 14-Foundation Investigations 15-Usage areas of rocks 16-Final Exam
Course Learning Outcomes	1-Understanding the ground beneath the building stock for civil engineers. 2-Recognize the rocks and minerals that make up the ground. 3-Recognizing natural disasters and having an idea about the damage they can cause to the building stock. 4-By analyzing geological problems, students acquire the competence

	to design safe and sustainable projects in civil engineering applications.problems.
Recommended Resources	1-Mühendislere Jeoloji Ders Notları, Doç. Dr. A. Ferat Bayram 2-Engineering Geology and Construction, Fred G. Bell 3- Physical Geology: The Study of the Earth, James S. Monroe and Reed Wicander

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Mechanics**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204353	DYNAMICS	X Fall … Spring	3	0	4

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Dr. Alptuğ ÜNAL Assoc. Prof. Dr. Ceyhun AKSOYLU	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	To learn mathematical formulas of dynamical problems, define kinetic and kinematic problems, and develop problem-solving skills. To learn the kinematics and kinematics of moving systems and bodies, to understand the basic concepts of vibration, and to examine the kinetics and kinematics of rigid bodies.
Course Content	1-Fundamental theories 2-Particle kinematics and irregular motion 3-General Curvilinear Motion, Orthogonal Components in Curvilinear Motion, Projectile Motion 4-Normal and Tangential Components in Curvilinear Motion, Cylindrical Components in Curvilinear Motion 5-Absolute Dependent Motion Analysis of Two Particles, Analysis of Relative Motion of Two Particles with Shifted Axes 6-Particle Kinetics: Force and Acceleration 7-Particle Kinetics: Force and Acceleration-Question Solution 8-General Review and General Question Solving 9-Planar Kinematics of a Rigid Body 10-Planar Kinematics of a Rigid Body 11-Kinetic Equations of Planar Motion 12-Vibration 13-Vibration-Question Solution 14-Vibration-Question Solution
Course Learning Outcomes	The fundamental concepts of dynamics will be taught, and their relationship with real situations will be determined. The condition of vibration in civil engineering in practice will be learned. Will be able to learn kinematics and kinetics of moving systems and objects.
Recommended Resources	Engineering Mechanics-Dynamic-Hibbelers

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Construction Materials**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204402	CONSTRUCTION MATERIALS	… Fall X. Spring	3	1	4

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Ülkü Sultan KESKİN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory	**3**	**10**
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**30**
	Final Exam	**1**	**60**

Course Objectives and Goals	To introduce important building materials, especially concrete.
Course Content	1-Principles of preparation of building materials test reports, Concrete as a Building Material: Definition of fresh and hardened concrete, expected performance from concrete, advantages and disadvantages of concrete 2-Binders: Theory of binders, cement and its types, gypsum, lime, pozzolan 3-Conducting cement experiments in the laboratory 4-Concrete aggregates: classification of aggregates, properties of aggregates 5-Aggregate sieve analysis test and specific gravity and water absorption tests on aggregate in the laboratory 6-Properties of water used in concrete production 7-Properties of concrete, Concrete mix calculations 8-Technical trip to Building Material Fair 9-Midterm exam 10-Concrete making in the laboratory 11-Technical trip to the cement factory 12-Concrete strength test in the laboratory 13-Technical trip to ready mixed concrete plant 14-Control of Concrete 15-Introduction of important building materials: Stones, metals, earth materials, organic polymers, wood, mortars
Course Learning Outcomes	1-Recognizes important building materials... 2-Recognizes the materials that make up the concrete 3-Learns the mixing calculation and production of concrete... 4-Performs concrete experiments in the laboratory and prepares test reports.

Recommended Resources	Lecturer Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204403	Strength of Materials II	… Fall X Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mehmet KAMANLI Prof. Dr. M. Sami DÖNDÜREN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**%40**
Final Exam	**1**	**%60**

Course Objectives and Goals	The main objective of this course is to equip students with the knowledge and skills to analyze the behavior (stress, strain, and displacement) of structural elements under complex loading conditions commonly encountered in engineering applications, such as bending, shear in beams (shear-bending), eccentric axial load, combined loading states, and buckling, and to perform safety checks and dimensioning for these elements.
Course Content	1- Bending (Basic Concepts and Review) 2- Bending Applications and Inclined Bending (Oblique Bending) 3- Shear-Bending (Shear Stress Theory) 4- Shear-Bending Applications (Various Cross-Sections) 5- Elastic Curve (Double Integration Method) 6- Elastic Curve (Statically Indeterminate Beams) 7- Eccentric Axial Load Case 8- MIDTERM EXAM 9- Eccentric Axial Load Applications (Kernel of the Section) 10- Other Combined Loading States (Bending and Torsion) 11- Energy Methods (Strain Energy and Castigliano's Theorem) 12- Buckling Theory (Introduction and Euler's Formula) 13- Buckling Applications (Effective Length and Dimensioning) 14- General Review and Problem Solving
Course Learning Outcomes	• Calculate the distribution of shear stresses in beams (Shear-Bending) and perform dimensioning. • Calculate deflections and slope changes (Elastic Curve) of structural elements (beams, columns, etc.) under loads using different methods (Integration, Energy Methods).

	• Analyze the stress distribution in short columns or bar elements under eccentric axial load and determine the safe cross-sectional area. • Analyze complex loading states (Other Combined Loading States) involving simultaneous axial force, bending, shear, and torsion, and determine the critical points of maximum stresses and principal stresses. • Understand the phenomenon of buckling in compression members (columns), calculate the critical buckling load (Euler formulas), and perform dimensioning against buckling. • Solve complex problems (statically indeterminate systems) in strength of materials using integral and energy methods.
Recommended Resources	Mukavemet- Prof. Dr. Yaşar KALTAKCI Cisimlerin Mukavemeti- Prof. Dr. Mustafa İNAN

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204425	STRUCTURAL ANALYSIS 1	… Fall X Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat Öztürk Asst. Prof. Dr. Nail KARA	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	Learning the calculation and drawing the diagrams of internal forces in isostatic beams and frame systems, arch and gerber beams, calculating displacements, and drawing influence lines.
Course Content	1-Introduction; structural and civil engineering, calculations according to elastic and bearing capacity theories, assumptions, classification of structural systems and loads, singular and distributed loads. 2- definitions in bar systems, nodes, equilibrium equations, calculation of support reactions, isostatic, hyperstatic and labile systems 3-internal forces, positive direction, calculation of isostatic systems according to constant loads, internal force diagrams, inclined beams and drawing the internal force diagrams 4-Example solutions 5-Example solutions 6-gerber beams, solution methods of gerber beams, placement of hinges, drawing internal force diagrams 7-Example solutions 8-arches, three-joint arch, tensioned arch, three-joint frames 9- Example solutions 10-classification of truss systems, truss system solution methods, nodal points method, bar shear method 11- Example solutions 12- drawing influence lines 13- calculation of displacements with virtual work theorem 14- Example solutions
Course Learning Outcomes	1. to draw internal force diagrams in isostatic structural systems 2. Ability to calculate displacements in Isostatic Structure systems 3. ability to draw and interpret the influence lines in isostatic systems.
Recommended Resources	Structural Analysis-1 Lecture Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204428	Fluid Mechanics	… Fall X Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof Dr. Meral BÜYÜKYILDIZ	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	To introduce the basic properties of fluids and their place and importance in engineering applications, to teach and apply the methods used in the analysis of engineering problems involving fluids.
Course Content	1- Introduction, Basic Concepts, Physical Properties of Fluids 2- Behavior against stresses, Viscosity 3- Applications of Surface Tension, Capillarity, 1st and 2nd week subjects 4- Static of fluids (Hydrostatic), Variation of pressure with depth 5- Manometers, Pascal's Principle 6- Manometers and Applications of Pascal's Principle, Hydrostatic Lift 7- Objects floating on the water surface, Liquids in relative equilibrium, Applications on bodies floating on the water and liquids in relative equilibrium 8- Fluid kinematics, Lagrangian point of view, Euler point of view, Streamlines, Flow types, Flow pipe 9- Fundamental equations of one-dimensional currents, Continuity equation, Energy equation, Applications of Bernoulli's equation 10- Continuity and applications of Bernoulli's equation 11- Impulse-momentum equation, Forces on elbows 12- Water jet and its effect on blades, Pelton turbines 13- Applications of the impulse-momentum equation 14- Two-dimensional flows, Applications related to two-dimensional flows

Course Learning Outcomes	1- Understanding the basic properties of the fluid is provided. 2- It is ensured that the methods used in the analysis of force and energy interactions with the surface that the fluid is in contact with are researched, developed and used in design. 3- Research and understanding of fluid motion is provided. 4- It is ensured that the problems related to pipe hydraulics can be solved and the results obtained can be evaluated. 5- It gives the ability to apply Mathematics, Science and Engineering knowledge to the field of Fluid Mechanics. 6- It is provided to learn and understand the basic concepts of Hydraulic Engineering. 7- The relations between other disciplines and the Fluid Mechanics course are learned.
Recommended Resources	1- Prof. Dr. Yalçın YÜKSEL, Akışkanlar Mekaniği ve Hidrolik, Beta Pub., Pub. No: 1020, Technical Serie: 62, ISBN 975-486-921-3, İstanbul, 2000. 2- Prof. Cemil ILGAZ, Prof. Dr. M. Emin KARAHAN, Assoc.Prof.Dr. Atıl BULU, Akışkanlar Mekaniği ve Hidrolik Problemleri, Çağlayan Bookstore, İstanbul, 1993. 3- Massey, B.S., 1989, Mechanics of Fluids, Van Nostrand Reinhold, International Sixth Edition. 4- Streeter, V.L. and Wylie, E.B., 1983, Fluid Mechanics, McGraw Hill International, First SI Metric Edition. 5- Giles, R.V., Evett, J.B. and Liu, C., 1994, Fluid Mechanics and Hydraulics, Schaums Outline Series, McGraw Hill Book. 6- Y.A. Çengel ve J.M. Jımbala, Akışkanlar Mekaniği Temelleri ve Uygulamaları 7- M. Salih Kırkgöz, Akışkanlar Mekaniği, Kare Yayınları 8- Nusret Şekerdağ, Akışkanlar Mekaniği ve Hidrolik Problemleri, Nobel Yayın Dağıtım 9- F. M. White, Fluid Mechanics, McGraw-Hill

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204429	ENGINEERING HYDROLOGY	… Fall (X) Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Nermin ŞARLAK Assoc. Prof. Dr. Volkan YILMAZ	(X) Turkish … English	(X)		(X)	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	Students of Civil Engineering Department are taught to make the best use of water and to meet the needs of people for various purposes, measurements and calculations and their evaluation.
Course Content	1-Hydrological Definitions and Hydrological Cycle 2-Precipitation 3-Analysis of Precipitation Data 4-Streamflow 5-Basin 6-Infiltration 7-Midterm Exam 8-Hydrograph Analysis 9-Unit Hydrograph 10-Practice 11-Unit Hydrographs of Different Durations 12-Practice 13-Statistical Methods in Hydrology 14-Probability Distribution Functions 15-Practice 16-Final Exam
Course Learning Outcomes	1-Student learns the skills of recognizing and analyzing the application areas of hydrology, designing, project making and development in accordance with the related area and problem. 2-Student learns the importance of relations between Statistics, Economics, Hydraulics and Hydrology course. 3-Student learns the universal and social effects of hydrology applications, the need to know the problems of the age. 4-Student learns to use theoretical and applied knowledge in mathematics, science and basic engineering for solving hydrology

	problems.
Recommended Resources	1-Hidroloji Prof. Dr. Mehmetcik BAYAZIT 2-Mühendislik Hidrolojisi Nurünnisa USUL

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204502	Reinforced Concrete I	X Fall … Spring	4	---	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Musa Hakan ARSLAN Assoc. Prof. Dr. Gamze DOĞAN	x Turkish … English	**x**		**x**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	The primary aim of this course is to provide students with a comprehensive understanding of the mechanical behavior and design principles of reinforced concrete structural elements from an engineering perspective. Students will learn the physical properties of concrete and reinforcing steel, their combined behavior, and time-dependent effects, thereby gaining the theoretical foundation necessary for the design of safe and durable structures.The course includes a detailed examination of material behavior through parameters such as stress–strain relationships of concrete, shear strength, modulus of elasticity, and Poisson's ratio. These concepts will be explored to help students analyze and interpret the performance of structural materials under various loading conditions.
Course Content	1. Mechanical properties of concrete and reinforcing steel 2. Stress–strain characteristics of concrete 3. Behavior of concrete under multiaxial stress states; behavior of confined concrete 4. Time-dependent deformation in concrete; creep effects 5. Concept of structural safety 6. Members under axial load 7. Prestressed (confined) columns 8. Fundamental principles of reinforced concrete behavior and design 9. Behavior of beams under simple bending 10. Flanged sections 11. Doubly reinforced rectangular sections 12. Shear capacity of structural members 13. Behavior of shear-reinforced members

	14. Design of beams under combined bending and shear
Course Learning Outcomes	1. Defines the mechanical properties of concrete and reinforcing steel, and explains their influence on reinforced concrete behavior. 2. Analyzes the stress–strain relationship of concrete and interprets it in engineering applications. 3. Evaluates the behavior of concrete under multiaxial stress states and the effect of confinement. 4. Identifies time-dependent deformations in concrete (creep, shrinkage) and explains their impact on design. 5. Explains the concept of structural safety and interprets principles of safe design. 6. Calculates the load-bearing capacity of reinforced concrete members under axial force. 7. Analyzes the behavior of confined (prestressed) columns and applies design principles. 8. Explains the combined behavior of reinforced concrete elements and fundamental design principles. 9. Calculates internal force distribution and load-bearing capacity of beams under simple bending. 10. Analyzes the behavior of flanged sections and determines their moment capacity. 11. Designs doubly reinforced rectangular sections and evaluates reinforcement layout. 12. Calculates the shear capacity of structural members subjected to shear force. 13. Interprets cracking and load-bearing behavior of shear-reinforced members.
Recommended Resources	1. Betonarme yapıların tasarım ve yapım kuralları, ts-500 (2000) 2. Türkiye Bina Deprem Yönetmeliği-2018 3. Yapı Elemanlarının Boyutlandırmasında Alınacak Yüklerin Hesap Değerleri, TS-498-2000 4. Kaltakcı M.Y. Taşıma gücü ilkelerine göre düzenlenmiş çizelge ve abaklar” (ders notu) 5. Darılmaz K., Betonarme, 2022 6. Ersoy U., Özcebe G., Canbay E., “Betonarme Davranışı ve Hesap İlkeleri” Evrim Yayınevi, 2018. 7. Celep Z., “Betonarme Yapılar” Beta Dağıtım, 2018 8. Doğangün A., “Betonarme Yapıların Hesap ve Tasarımları” Biirsen Yayınevi, 2018.

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204503	Steel Structures 1	X Fall … Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc.Prof.Dr. Günnur YAVUZ Assist.Prof.Dr. Adnan KARADUMAN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	To deal with steel as a building material, to introduce the connection elements used in steel structures and to teach the design of joints, the design of tension members and their connections in steel structures by taking into account the provisions of the current regulation (ÇYTHYE-2018).
Course Content	1- History of steel structures, steel as a structural material 2- Mechanical properties of structural steel, Structural steel loading conditions, design methods, Profiles 3- Advantages and disadvantages of steel structure, Application areas, Calculation method 4- Fasteners used in steel structures, Brief information about riveted joints - Bolted joints 5- Fasteners used in steel structures, Bolted joints 6- Example solutions for bolted joints 7- Welded joints, calculation method of welded joints 8- Example solutions for welded joints 9- Steel members under the effect of axial tensile force - Tension members 10- Example solutions for tension members 11- Tension member's splices 12- Example solutions for tension member's splices 13- Steel members under the effect of axial compression force - Compression members 14- Example solutions for compression members
Course Learning Outcomes	Learning the material properties of steel and the profiles used in the formation of steel structures. Learning the calculation and formation principles of the fasteners used in the construction of steel structures. Learning the calculation and formation principles of the structural elements under the effect of tension and compression in

	steel structures. Performing strength and stability checks on steel structural members.
Recommended Resources	1- Çelik Yapılar, H.Deren, E.Uzgider, F. Piroğlu, B.Ö. Çağlayan, 2012. 2- Çelik Yapılar Cilt 1-M. Karaduman, 2012. 3- Çelik Yapıların Tasarım, Hesap ve Yapım Esaslarına dair Yönetmelik, 2018. 4- Çelik Yapıların Tasarım, Hesap ve Yapım Esaslarına dair Yönetmelik Hakkında Uygulama Kılavuzu, 2017. 5- Çelik profil tabloları

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204519	STRUCTURAL ANALYSIS 2	X Fall … Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat Öztürk Asst. Prof. Dr. Nail KARA	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	Explaining the solution of statically indeterminate systems with different methods and diagram drawings.
Course Content	1-Introduction, statically indeterminate systems 2- Solution of statically indeterminate systems by force method 3-Solution of statically indeterminate systems by force method 4-Solution of statically indeterminate systems by force method 5-Calculation of the temperature variations of statically indeterminate systems. Calculation of the support settlements for statically indeterminate systems 6-Solution of the systems having fixed nodes by using slope-deflection method. 7-Solution of the systems having not fixed nodes by using slope-deflection method 8-Solution of the systems having fixed nodes by using moment distribution method 9- Solution of the systems having not fixed nodes by using moment distribution method 10-Solutions of the statically indeterminate continuous beams by matrix displacement method (stiffness method). 11- Solutions of the statically indeterminate continuous beams by matrix displacement method (stiffness method). 12- Example solutions 13- Example solutions 14- An overview
Course Learning Outcomes	1. solve the statically indeterminate systems under the influence of external loads, temperature changes and support settlements by force method 2. Solution of the systems having fixed nodes by using slope-deflection method and moment distribution method, Solution of the systems having not fixed nodes by using slope-deflection method and moment distribution method 3. solve the continuous beams with matrix displacement method.
Recommended Resources	Structural Analysis-2 Lecture Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204527	SPECIAL CONCRETE (TSD 1)	X Fall …. Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Ülkü Sultan KESKİN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**X**	**40**
	Final Exam	**X**	**60**

Course Objectives and Goals	Identifying concrete that differs from normal concrete in terms of production technique or characteristics
Course Content	1-Airport concrete, high-strength concrete 2-Ready-mix concrete 3-Concrete pouring in cold weather 4-Concrete pouring in hot weather 5-Self-compacting concrete 6-Heavy concrete 7-Lightweight concrete 8-Joint concrete 9-Precast concrete and thermal treatment application 10-Exposed concrete, vacuum concrete 11-Prepack concrete 12-Underwater concrete placement 13-Sprayed concrete 14-Fiber-reinforced concrete
Course Learning Outcomes	Learns about concrete with different production techniques. Learns about concrete with different properties. Learns about precautions to be taken in concrete production under abnormal weather conditions.
Recommended Resources	Class Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulics**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204535	HYDRAULICS	(X) Fall …. Spring	4	0	4

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof.Dr. Nermin ŞARLAK Assist.Prof.Dr. Ali İhsan MARTI	(X) Turkish …. English	(X)		(X)	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	1	40
Final Exam	1	60

Course Objectives and Goals	Students of Civil Engineering Department are taught to make the best use of water and to meet the needs of people for various purposes, measurements and calculations and their evaluation.
Course Content	1- Introduction to Hydraulics, Pipe Hydraulics, Boundary Layer 2- Types of Pipe Flows, Laminar and Turbulent Flows 3- Continuous and Local Head Losses, Moody Diagram, Problems 4- Pump Aided Reservoir Systems, Problems 5- Wetted Perimeter and Hydraulic Radius, Uniform Flow Formulas 6- Three-Reservoir Systems, Problems 7- **Midterm Examination** 8- Water Pipelines,Water Networks,Hardy Cross Method,Problems 9- Open Channel Flow, Energy Loss in Open Channel 10- Chezy, Manning Formulas, The Most Economic X-section 11- Non-uniform flows, Specific Energy-Depth Relationship 12- Sub- and Super Critical Flows, Discharge-Depth Relations, Cross-section Change 13- Channel Control Structures, Hydraulic Jump, Problems 14- Dimensional Analysis, Buckingham Pi Theory, Rayleigh Method 15- Froude Models, Reynolds Models, Applications 16- **Final Examination**
Course Learning Outcomes	1- Student learns the skills of recognizing and analyzing the application areas of hydraulics, designing, project making and development in accordance with the related area and problem. 2- Student learns the importance of relations between statistics, water supply, wastewater disposal courses and hydraulics course. 3- Student learns the universal and social effects of hydraulics applications and the need to know the problems of the age.

	4- Student learns to use theoretical and applied knowledge in mathematics, science and basic engineering for solving hydraulics problems.
Recommended Resources	1- Prof.Dr. Yalçın Yüksel, Akışkanlar Mekaniği ve Hidrolik, Beta yayınları, Publish No: 1020, Technical Series: 62, ISBN 975-486-921-3, İstanbul, 2000. 2- Prof.M.Sc.Eng. Kazım Çeçen, Hidrolik Vol.II Açık Kanallar, İTÜ Publishes, No: 1232, İstanbul, 1982. 3- Prof.M.Sc.Eng. Kazım Çeçen, Hidrolik Vol.I, İTÜ Publishes, No: 1206, İstanbul, 1981. 4- Assoc.Prof.Dr. M.Emin Karahan, Boru ve Açık Kanal Hidroliği, Technical Books Publishing House, İstanbul, 1986. 5- Prof. Cemil Ilgaz, Prof.Dr. M.Emin KARAHAN, Assoc.Prof.Dr. Atıl Bulu, Akışkanlar Mekaniği ve Hidrolik Problemleri, Çağlayan Publishing House, İstanbul, 1993. 6- Ranald V: Giles, Jack B: Evett, Ph.D., Cheng Liu, Translators: Prof.Dr. Nuri Yüksel, Prof.Dr. Haşmet Türkoğlu, Akışkanlar Mekaniği ve Hidrolik, Schaum's Outline Series, Mc Graw Hill, Nobel Publishing House, Ankara, 2001. 7- Prof.Dr. Hamdi Topkaya, Technical Hydraulics, Technical Books Publishing House, Ankara, 1983.

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204536	TRAFFIC SAFETY (SEC 1)	X Fall … Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Dr. M. Levent Ağırdır	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	**It is aimed to increase the awareness and sensitivity of university students about traffic rules, risky and safe behaviors about traffic accidents, which are the first cause of death of young people.**
Course Content	**1- Introduction, the importance of traffic safety 2- Analysis of accidents, causes of traffic accidents, speed, and the effect of alcohol on accidents 3- The importance of black spots in traffic accidents 4- Traffic safety report 5- Traffic accident summaries, the importance of seat belt use 6- Traffic problems and the purpose of training 7- Safe vehicles, safe roads, human drivers 8- Traffic signs 9- Turkey traffic safety report 10- Traffic and environmental safety 11- Active and passive safety systems 12- Speed limits, following distance, first aid 13- The contribution of smart transportation to traffic safety 14- Design of road safety elements**
Course Learning Outcomes	**Define traffic as a system. Critically examine social norms related to general life safety and traffic safety, providing examples of speed, alcohol, cell phones, seat belts, vision and visibility, ensuring traffic safety for vulnerable groups, and addressing traffic accident black spots. Demonstrate how the number of accidents, including fatalities and injuries, can be significantly reduced. Students understand the importance of road safety systems, active-passive safety systems, and traffic signs, and are knowledgeable about horizontal and vertical traffic signals.**
Recommended Resources	**Traffic safety issue, Speed inspections presentation, Yunus Avcı Traffic Responsibility Movement, Safe Vehicle Education, Zeynep.M Türkmen Sanduvaç, Yrd. doç.dr. İdil Işık Yrd.Doç.Dr.İdil Traffic Safety Lecture Notes, Prof. Dr. Osman Nuri Çelik Traffic Safety T.C.K. (Accident Black Spot) presentation**

	National Traffic Safety Project ,SWEROAD **Summary of Traffic Accidents, T.C.K.** **Highway Traffic Safety, Eleventh Development Plan, Ministry of Development of the Republic of Turkey** **Safe Roadside Design Principles, Presentation, Prof. Dr. Ali Osman Atahan** **Pedestrian Safety, E.G.M.** **Road Safety Survey and Report. AXA Insurance** **Traffic Signs Handbook, K.G.M.** **Traffic Safety Lecture Notes**

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204538	HISTORY OF SCIENCE (SSD-1)	X Fall .. Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Dr. Önder Kaan KESKİN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**X**	**40**
	Final Exam	**X**	**60**

Course Objectives and Goals	To help engineering students, who are studying one of the positive sciences, understand the importance of the history of science from different perspectives, to compile scientific developments under a systematic framework
Course Content	1. General information on the history of science, 2. The foundations of scientific thought and its historical development, 3. The role of Anatolian Turks and Muslim scientists in the history of science, 4. Fuat Sezgin and anecdotes about important scientists 5. The place of Andalusia in the history of science 6. The Renaissance 7. The printing press and beyond 8. Important periods, events, and scientists in the history of science 9. Major museums in Europe and Turkey 10. Art history - brief summaries 11. Scientific developments in the 20th century 12. Scientific developments in the 21st century 13. The development of space, nuclear sciences, and the military industry 14. The internet, artificial intelligence, and digitalization
Course Learning Outcomes	Provides information about the history of science Follows scientific developments Provides information about important scientists
Recommended Resources	Science History Lecture Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204540	Hydroelectric Facilities	**X** Fall … Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist. Prof. Mustafa ONÜÇYILDIZ	**X** Turkish … English		**X**	**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	It is aimed to inform the participants about current energy problems and pricing by explaining the energy production from flowing water mass and its importance for the country.
Course Content	1- Energy, 2- Energy types and electricity, 3- Energy production and energy sources in turkey 4- Renewable energy sources, 5- Hydraulic energy, 6- Hydroelectric Facilities and production, 7- Economy in hydroelectric facilities, 8- Water intake structures, 9- transmission lines, 10- Penstock pipes, 11- Power plant building, 12- Central classification 13- Turbine and its types, 14- Hydroelectric power plant downstream facilities.
Course Learning Outcomes	1- You will learn about energy, its types, and renewable energy. 2- You will learn about energy resources and pricing in Turkey. 3- You will learn about the structures used in hydropower energy production. 4- You will learn about power plant economics.
Recommended Resources	YILDIZ, K., Hidroelektrik Santraller Hesap Esasları ve Projelendirilmesi, 1992

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Geotechnical**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204541	Fundamentals of Soil Dynamics	X Fall … Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat OLGUN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	In our country affected by earthquakes, the aim is to teach the fundamental principles of geotechnical earthquake engineering and soil dynamics. The objectives of the course are; - Detailing the behavior of soils and foundations under dynamic effects - Providing adequate knowledge and analytical skills by taking dynamic effects into account in the design of soil structures.
Course Content	1- Introduction to Soil Dynamics 2- Fundamentals of Vibration in Soil Dynamics 3- Waves in an Elastic Medium 4- Properties of Soils under Dynamic Loads 5- Vibration of Foundations I 6- Vibration of Foundations II 7- Dynamic Bearing Capacity of Shallow Foundations 8- Earthquake and Ground Shaking 9- Midterm Exam 10- Lateral Earth Pressure on Retaining Walls during Earthquakes 11- Compressibility of Soils under Dynamic Loads 12- Soil Liquefaction 13- Machine Foundations on Piles 14- Seismic Stability of Earthfill Dams I 15- Seismic Stability of Earthfill Dams II
Course Learning Outcomes	- Being able to understand the basic definitions and parameters to determine changes that may occur in the ground during earthquakes - Being able to identify the main changes occurring in the ground during earthquakes and calculate them for applications - Being able to analyze and evaluate structure-soil interaction problems during earthquakes
Recommended Resources	-Principles of Soil Dynamics, Braja M. Das - G. V. Ramana, USA, 2011.

REPUBLIC OF TURKEY
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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
1204542	PROJECT MENAGEMENT and PLANNING (SEC 1)	X Fall … Spring	T 2	P 0	ECTS 3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mustafa Tolga ÇÖĞÜRCÜ	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**Teaching project planning techniques, applying these techniques to construction projects, determining the optimum time and cost for construction projects.**
Course Content	1-Necessary factors for successful project management. 2-Project management concepts 3-Project management concepts 4-Project organization 5-Project organization 6-Project organization 7-Project organization 8-Project communication 9-Project planning, scheduling, control and associated costs 10-Midterm 11-Project planning, scheduling, control and associated costs 12-Project planning, scheduling, control and associated costs 13-Software tools for project management 14-Software tools for project management 15-Software tools for project management
Course Learning Outcomes	1-Learns the necessary factors for a successful project management. 2-Gain knowledge of project management concepts, requirements definition, project manager, teams, project organization, project communication, project planning, programming, control and

	associated costs. 3-Learns software tools for project management.
Recommended Resources	Project ile Proje Yönetimi ve Planlama - Cenk İltir, Lecture Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**-**

Course Code	Course Name	Semester (X)	Credit		
1204546	SUMMER INTERNSHIP 1	X Fall	T	P	ECTS
		… Spring	0	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Asst. Prof. Dr. Abdulhamit Nakipoğlu	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**1**	**100**
	Project		
	Midterm Exam		
	Final Exam		

Course Objectives and Goals	**To develop practical knowledge by applying the fundamental concepts and principles learned during civil engineering education.**
Course Content	1-Internship practice 2-Internship practice 3-Internship practice 4-Internship practice 5-Internship practice 6-Internship practice 7-Internship practice 8-Internship practice 9-Internship practice 10-Internship practice 11-Internship practice 12-Internship practice 13-Internship practice 14-Internship practice
Course Learning Outcomes	1-Obtaining information about the construction site 2-Performing the tasks assigned in the construction site area 3-Evaluating the information acquired about the construction site 4-Evaluating relevant questions and opinions regarding the construction site
Recommended Resources	Internship Directive and Guidelines of the Department of Civil Engineering

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (x)	Credit		
			T	P	ECTS
1204550	Railway Engineering	Fall	2	0	3
		x Spring			

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (x)	Course Type (x)		Mode of Course (x)	
		Must	Elective	Face to face	Online
	x Turkish …English		x	x	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**The aim of this course is to provide undergraduate-level information about the railway transportation system. It includes general knowledge of railways, examination of railway vehicles, learning railway traction mechanics, and learning railway movement reports.**
Course Content	**1. Introduction, Modes of Transportation, Definition and History of Railways 2. Classification and Overview of Railways 3. Railway Superstructure 4. Railway Cars and Their Characteristics 5. Movements of Railway Vehicles 6. Resistance Forces Resisting Railway Train Movement 7. Geometric Design of Railway Lines 8. Gauge, Slopes, and Track Width 9. Horizontal and Vertical Curves 10. Superelevation, Longitudinal Section, and Cross Section 11. Route Survey 12. Connecting Curves 13. Turnouts 14. Stations**
Course Learning Outcomes	**Students will be able to perform necessary calculations related to railways, understand superstructure, rails, sleepers, ballast, superstructure installation, and switches, understand traction mechanics, resistance forces, and standard route elements, and understand railways and rail systems. They will also be able to conduct geometric design, slopes, horizontal and vertical curves, connecting curves, and route surveys.**

Recommended Resources	**Railway Book, Prof. Dr. Güngör Evren, Asst. Prof. Dr. Selim Dündar, Birsen Publishing House** **Railroad Lecture Notes, Asst. Prof. Dr. Şafak Bilgiç** **Railroad Lecture Notes, Prof. Dr. M. Vefa Akpınar Lecture Notes,** **Earthworks and Railway Engineering, Prof. Dr. Hilmi Berk Çelikoğlu, Res. Asst. Mehmet Ali Silgu** **Railroad topics are supported with various videos, including high-speed trains, Maglev, railway repairs, switches, and documentaries on railway construction**

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204551	Flood Hydrology (TEC 1)	X Fall … Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
	X Turkish … English		X	X	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	To teach the importance and definition of flood, flood analysis methods and risk analysis, statistical methods used in flood forecasting and their applications to various examples and to provide information
Course Content	1- Flood concept, classification of floods, factors affecting floods 2- Flood damages and protection methods 3- Precipitation-runoff relationships, runoff event and runoff forecasts 4- Hydrograph analysis 5- Flood forecasting methods 6- Unit hydrograph concept 7- Synthetic unit hydrograph methods 8- Statistical Flood Forecasting methods 9- Flood routing 10- Hydrological methods used in flood routing 11- Hydraulic methods used in flood routing 12- Flood control methods 13- Economic analysis 14- Flood management
Course Learning Outcomes	1- To learn about hydrological phenomena. 2- To learn the concept of flood, its occurrence and flood calculation methods 3- Learning about flood control
Recommended Resources	1- Bayazıt, M.; Önöz, B. Taşkın ve Kuraklık Hidrolojisi. Nobel Basımevi, İstanbul, 2008. 2- Bayazıt, M. : Hidrolojik Modeller. İTÜ İnşaat Fakültesi Matbaası, İstanbul, 1998. 3- Usul, N. Mühendislik Hidrolojisi, ODTÜ Yayıncılık, 2013

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Construction Materials**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204552	Cement and Concrete Technology	… Fall x Spring	3		3

Instructor(s)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Oğuzhan Öztürk	x Turkish … English		**x**	**x**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40%**
	Final Exam	**1**	**60%**

Course Objectives and Goals	The aim of this course is to provide students with fundamental knowledge of cement and concrete production and to introduce applications of cement and concrete technology in the field of civil engineering.
Course Content	1. cement raw materials, 2. cement production, 3. cement composition, 4. hydration, 5. special types of cement, 6. concrete production,7. 7. cost, 8. workability, 9. quality control and procedures.
Course Learning Outcomes	fundamental knowledge about cement production fundamental knowledge about concrete production prepare a concrete mix
Recommended Resources	BETON, Beton Turhan Y. Erdoğan ODTÜ - Akademik Kitaplar

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY
Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204602	Reinforced Concrete II	X Fall … Spring	4		5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc.Prof.Dr.Gamze DOĞAN Prof.Dr. Musa Hakan ARSLAN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	The primary aim of this course is to build upon the fundamental knowledge of structural behavior introduced in *Reinforced Concrete I* by deepening the understanding of key topics such as shear behavior in beams and columns, punching shear in slabs, and the design of columns under combined axial load and bending moment (N-M interaction). The course also aims to provide students with the ability to account for slenderness effects in reinforced concrete columns and to perform analyses of various types of slabs, foundations, and staircases while considering practical design principles.
Course Content	1. Shear behavior in reinforced concrete structures (capacity design) 2. Punching shear 3. Behavior of reinforced concrete columns under combined bending 4. Behavior of reinforced concrete columns under biaxial bending 5. Slenderness effects in reinforced concrete columns (non-short columns) 6. Flat slab systems (slabs without beams) 7. One-way and two-way slab systems with beams 8. Ribbed (waffle) slab systems 9. Staircase design and analysis 10. Isolated (single) footings 11. Continuous (strip) footings

Course Learning Outcomes	Upon successful completion of the course, the student will be able to: 1. Comprehend the principles of shear behavior and capacity design, calculate the shear capacity of reinforced concrete members, and design the required reinforcement. 2. Analyze punching shear and determine the punching resistance at slab–column connections, as well as propose necessary preventive measures. 3. Explain the behavior of reinforced concrete columns under combined bending and design sections subjected to axial load and bending moment. 4. Analyze the behavior of columns under biaxial bending and perform the design of column sections under such conditions. 5. Consider slenderness effects, evaluate second-order effects in non-short reinforced concrete columns, and incorporate them into the design process. 6. Explain the load-bearing mechanism of flat slabs, apply the fundamental design principles, and perform punching shear checks. 7. Perform the structural analysis and design of one-way and two-way slab systems with beams. 8. Understand the structural behavior of ribbed (waffle) slabs and carry out section design and reinforcement detailing. 9. Evaluate the structural and static behavior of staircase systems and perform appropriate section design and reinforcement placement. 10. Learn the fundamental design principles of isolated footings and design them to safely transfer column loads to the ground. 11. Analyze continuous footing systems and design them based on bending moment, shear, and punching effects.
Recommended Resources	- Turkish Standards Institution (2000). *TS 500: Design and Construction Rules for Reinforced Concrete Structures* (in Turkish). - AFAD – Disaster and Emergency Management Authority (2018). *Turkish Building Earthquake Code (TBEC-2018)* (in Turkish). - Turkish Standards Institution (2000). *TS 498: Design Loads for Buildings* (in Turkish). - Kaltakcı, M.Y. *Tables and Charts Prepared According to Ultimate Strength Design Principles* (Lecture Notes) (in Turkish). - Darılmaz, K. (2022). *Reinforced Concrete* (in Turkish). - Ersoy, U., Özcebe, G., & Canbay, E. (2018). *Behavior and Design Principles of Reinforced Concrete Structures*, Evrim Publishing, Ankara. - Celep, Z. (2018). *Reinforced Concrete Structures*, Beta Publishing, Istanbul. - Doğangün, A. (2018). *Design and Analysis of Reinforced Concrete Structures*, Birsen Publishing, Istanbul.

T.C.
KONYA TEKNİK ÜNİVERSİTESİ
Lisans Ders Bilgi Formu

Fakülte	**Mühendislik ve Doğa Bilimleri Fakültesi**
Bölüm	**İnşaat Mühendisliği**
Anabilim Dalı	**Yapı**

Dersin Kodu	**Dersin Adı**	**Yarıyıl (X)**	**Kredi**		
			T	U	AKTS
1204603	Çelik Yapılar 2	… Güz X Bahar	3	0	4

Dersi Veren Öğretim Eleman(lar)ı (Unvanı, Adı Soyadı)	**Dersin Verilebileceği Diller (X)**	**Dersin Türü (X)**		**Veriliş Türü (X)**	
		Zorunlu	Seçmeli	Yüz yüze	Uzaktan
Doç.Dr. Günnur YAVUZ Dr.Öğr. Üyesi Adnan KARADUMAN	X Türkçe … İngilizce	**X**		**X**	

Sınav ve Değerlendirme Yöntemleri		
Değerlendirme Yöntemi	**Sayısı**	**Yüzdesi** (%)
Laboratuar		
Sözlü/Quiz		
Ödev		
Proje		
Ara Sınav	**1**	**40**
Genel Sınav	**1**	**60**

Dersin Amaç ve Hedefleri	Çelik yapılarda basınç çubukları, kiriş, kolon, kafes kiriş elemanlarının teşkil ve hesap yöntemlerini, çelik yapılarda kirişlerin mesnetlendirilmesi ve çelik yapı birleşimlerinin boyutlandırılmasını, çelik yapı kirişlerinde kiriş-kiriş ve kiriş-kolon birleşimlerinin tasarımı ve boyutlandırmasını, çelik yapı çerçevelerinin kolon ayaklarını, ankrajlarını ve kolon eklerinin tasarımını öğretmek.
Dersin İçeriği	1- Eksenel basınç kuvveti etkisindeki elemanlar-Yapma enkesitli basınç çubukları 2- Yapma enkesitli basınç çubuklarıyla ilgili örnek çözümleri 3- Eğilme momenti etkisindeki elemanlar-Kirişler 4- Eğilme momenti etkisindeki elemanlar-Kirişler 5- Kirişlerle ilgili örnek çözümleri-eğilme momenti etkisi 6- Kesme kuvveti etkisindeki elemanlar ve örnek çözümleri 7- Yapım (Yapma enkesitli) kirişler ve örnek çözümleri 8- Bulonlu kiriş ekleri ve örnek çözümleri 9- Kaynaklı kiriş ekleri ve örnek çözümleri 10- Kirişlerin mesnetlendirilmesi 11- Kirişlerin mafsallı birleşimleri 12- Kirişlerin mafsallı birleşimleri ile ilgili örnek çözümleri 13- Mütemadi kiriş birleşimleri ve örnek çözümleri 14- Kolon ayağı ve temel
Dersin Çıktıları	Çelik yapılarda, eğilme, kesme ve basınç etkisindeki yapısal elemanların ve eklerinin hesap ve teşkil esaslarının öğrenilmesi. Çelik yapılarda kiriş mesnetlerinin ve kiriş birleşimlerinin tasarım ve boyutlandırılmasının öğrenilmesi. Çelik yapı elemanlarında dayanım ve stabilite kontrollerinin yapılabilmesi.
Takip Edilecek Kaynak(lar)	1- Çelik Yapılar, H.Deren, E.Uzgider, F. Piroğlu, B.Ö. Çağlayan, 2012. 2- Çelik Yapılar Cilt 1-M. Karaduman, 2012.

	3- Çelik Yapıların Tasarım, Hesap ve Yapım Esaslarına dair Yönetmelik, 2018. 4- Çelik Yapıların Tasarım, Hesap ve Yapım Esaslarına dair Yönetmelik Hakkında Uygulama Kılavuzu, 2017. 5- Çelik profil tabloları

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Geotechnical**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204606	Foundation Construction	… Fall X Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat OLGUN Assoc. Prof. Dr. Atila DEMİRÖZ	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	The aim is to acquire basic geotechnical knowledge related to soil-structure interaction in order to construct substructure foundation systems. Course objectives: - Detailing the principles of soil bearing capacity - Detailing the calculation principles of shallow foundation systems - Detailing the calculation principles of deep foundation systems - Examining soil stabilization methods
Course Content	1- Introduction of soil investigation methods and details 2- Introduction of field tests in soil investigations 3- Detailing theories of bearing capacity in soil 4- Obtaining bearing capacity values through field tests 5- Evaluation of shallow foundations and general calculation principles 6- Isolated foundations and calculation methods 7- Continuous foundations under walls and calculation principles 8- Continuous foundations under columns and calculation principles 9- Midterm exam 10- Combined foundations and calculation principles 11- Raft foundations and calculation principles 12- Pile foundations and introduction of different application types 13- Introduction of bearing capacity calculation principles for pile foundations 14- Introduction of settlement, laterally loaded piles, and pile load tests in pile foundations 15- Introduction of soil stabilization methods
Course Learning Outcomes	- Being able to calculate the bearing capacity of soils using different theories and field experiments - Being able to apply the calculation and design principles of isolated foundations, continuous foundations, and raft foundations - Being able to apply the calculation and design principles of pile foundations - Being able to explain soil improvement methods
Recommended Resources	-Introduction to Basic Engineering - Prof. Dr. Bayram Ali Uzuner, Derya Publishing, Trabzon, 2013 -Geotechnical Knowledge III - Building Foundations - Akın Önalp, Sedat Sert, Birsen Publishing, Istanbul, 2010 -Piled Foundations, Ergün Toğrol, Oğuz Tan, Birsen Publishing, Istanbul, 2009

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204624	TRANSPORTATION	… Fall X Spring	4	0	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist. Prof. Dr. Deniz Arslan	X Turkish X English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**To teach basic geometrical arrangements for proper route design that will ensure vehicle and human safety in transportation planning, to teach earthwork volume calculations**
Course Content	1- Introduction, highway-country-environment relationship, transportation and transportation systems 2- Various definitions of capacity, level of service concept, capacity affecting factors 3- Project speed, Project traffic, Average Annual Daily Traffic (AADT), Maximum hourly traffic (30th hour), Determination of geometric standards 4- Classification and standards of highways in Turkey, route research 5- Route research, zero line 6- Types and characteristics of horizontal curves 7- Vehicle stability on curves, superelevation, superelevation applications, radial acceleration and rate of change of radial acceleration 8- Transition curves, design of horizontal curves having transition curves, superelevation calculations 9- Sight on horizontal curves, sight distance on highways 10- Longitudinal profile, application of grade line, vertical curves 11- Cross-sections, calculation of cross-sections 12- Earthwork volume calculations 13- Bruckner diagram and hauling distance 14- Drainage methods and subsurface drainage facilities, general evaluation, repetition and problem solutions
Course Learning Outcomes	1. Has general information about transportation and its modes. 2. Learns the relationship between highway geometric standards and project traffic, level of service and capacity. 3. Designs highway geometric elements. 4. Calculates earthwork volumes and hauling distance for the highway route. 5. Knows basic approaches in highway transportation planning.
Recommended Resources	1. A Policy on Geometric Design of Highways and Streets, 7th edition 2018, AASHTO 2. Yol İnşaatı, Faruk Umar, Nadir Yayla, İTÜ 3. Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis, Transportation Research Board 4. Lecture Notes

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204629	**PRINCIPLES OF STRUCTURAL DYNAMICS**	… Fall X Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Tolga YILMAZ	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz	**1**	**-**
	Assignment	**2**	**-**
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**The goal has been to instruct the fundamental concepts of structural dynamics required for earthquake engineering.**
Course Content	1-Characteristic of Single Degree of Freedom Systems 2-Equation of Motion 3-Solution Methods of Equation of Motion, static condensation. 4-Free vibration of Damped and Undamped Single Degree of Freedom Systems 5-Examples related to free vibration 6-Undamped Vibration Under the Harmonic Forces 7-Damped Vibration Under the Harmonic Forces 8-Vibration Under the General Force 9-Numerical Evaluation of Dynamic Response 10-Midterm 11-Response Spectrum Concept 12-Equation of Motion (Multi Degree of Freedom Systems, Dynamic Forces, Static Condensation) 13-Free Vibration Analysis (Natural Vibration Frequencies and Modes, Orthogonality of Modes, Normalization of Modes, Modal Expansion, Free vibration of Multi Degree of Freedom Systems, Eigenvalue Problem, Vector Iteration Methods 14-Dynamic Analysis of Linear Multi Degree of Freedom Systems (Modal Analysis of Damped and Undamped Multi Degree of Freedom Systems, Modal Forces, Modal Contribution Factor, Response Spectrum Analysis) 15-Dynamic Analysis of Linear Multi Degree of Freedom Systems (Modal Analysis of Damped and Undamped Multi Degree of Freedom Systems, Modal Forces, Modal Contribution Factor, Response Spectrum Analysis)

Course Learning Outcomes	1-Calculation of dynamic responses of single and multi-degree-of-freedom systems under time-varying forces 2-Numerical Evaluation of Dynamic Response and Response Spectrum Concept. 3-Learning and applying the modal analysis method
Recommended Resources	1-Dynamics of Structures, A. K. Chopra 2-Fundamentals of Structural Dynamics and Earthquake Engineering Applications (Turkish), Azer Kasımzade. 3-Basic Earthquake Engineering, Haluk Sucuoğlu, Sinan Akkar. 4-Introduction to the Design of Earthquake-Resistant Buildings (Turkish), Kutlu Darılmaz. 5-Introduction to Earthquake Engineering (Turkish), Zekai Celep.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division / Program	**Hydraulics**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204630	COASTAL AND HARBOR ENGINEERING (TEC 2)	…. Fall (X) Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist.Prof.Dr. Ali İhsan MARTI	(X) Turkish …. English		(X)	(X)	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	1	40
Final Exam	1	60

Course Objectives and Goals	To teach the necessary theoretical information about coastal and harbor engineering branch and the basic principles to apply this theoretical information into practical.
Course Content	1- Introduction to coastal and harbor engineering 2- Maritime and the scope of maritime 3- Weather-sea-land relationships, basic concepts 4- Sea waves, classification of waves 5- Changes in waves at coastal regions 6- Currents 7- **Midterm Examination** 8- Shore protection structures 9- Bank revetments 10- Shore stability structures 11- Coastal flows, coastal sediment transport 12- Breakwaters 13- Harbors, classification of harbors 14- Harbor structures, docks, piers 15- Coastal changes due to shoreline structures 16- **Final Examination**
Course Learning Outcomes	1- Learning the theoretical information about coastal and harbor engineering 2- Learning the practical application of the theoretical information of coastal and harbor engineering 3- Learning the basic principles of coastal and harbor structures

Recommended Resources	1- Coastal Engineering (Ayşen Ergin, ODTÜ, 2015) 2- Kıyı Mühendisliği (Yüksel & Çevik, Yıldız Tech. Univ., 2009) 3- Liman Mühendisliği (Yüksel & Çevik, Yıldız Tech. Univ., 2010)

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204632	Urban Transportation (SSD2)	… Fall … Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Dr. M. Levent Ağırdır	X Turkish … English		**X**	**X1**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	**It is to give basic design information about the structure of urban transportation systems, characteristics and performances of transportation systems.**
Course Content	**1- Introduction and basic concepts, 2- Typical urban transportation modes, General structure of the transportation planning process, 3- Urban development process, Layout of main road networks, 4- Classification of urban roads, Layout of main road networks, 5- Effect of road improvements on vehicle traffic, Integration of rail transit systems, 6- Public transportation model in urban transportation, 7- Capacities of urban roads, Characteristics of vehicle types, 8- Phases in urban transportation planning, Study phase, 9- Demand phase, Trip distribution phase, Sample solution, 10- Road selection phase, General introduction to intersections, Planning purpose, 11- At-grade intersections, Roundabouts, 12- Intersections with different levels, 13- Istanbul Transportation Master Plan, Konya Transportation Master Plan, 14- Intelligent transportation systems**
Course Learning Outcomes	**Students will gain knowledge of the fundamental concepts of urban transportation. They will be familiar with the characteristics and performance of urban transportation systems. They will also gain knowledge of the four-stage transportation model. They will also gain engineering knowledge and skills to solve planning-related problems using these fundamental concepts. They will also gain knowledge of urban public transportation practices around the world.**
Recommended Resources	**Kent İçi Ulaşım Ders Notları, KTÜ Kentsel Ulaşım, Tülay Klıçarslan, Ninova yayıncılık, Kentsel Ulaşım Planlaması Ders Kitabı, Hülagu Kaplan Çeşitli Konferans ve sempozyum sunumları, Çeşitli Hocaların Hazırladığı Kent içi Ulaşımı İle ilgili Sunumlar Kent içi ulaşım planlama ve uygulama sorunları, Erhan Öncü, sunum**

	Erhan Öncü Kent içi ulaşım planlama süreçleri ve karar ölçütleri, sunum **Kentsel ulaşım politikaları, Cüneyt Elker, sunum** **Yolların kapasitesi, sınıflandırılması ve boyutlandırılması İsmail Hakkı Acar, sunum** **Kent içi trafik sorunları ve yönetimi, Ergun Gedizlioğlu, sunum** **Enerji & Çevre Perspektifinde** **Bilişim – Ulaşım Bileşenleri ile Akıllı Ulaşım, Serhan Dağtaş, sunum** **Akıllı şehirlerde ulaşım çözümleri, Hediye Tüydeş Yaman, sunum**

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
1204633	Reinforced Concrete Load Bearing Systems (Tec 2)	… Fall **X** Spring	T **X**	P	ECTS 3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. S. Bahadır YÜKSEL	**X** Turkish … English		**X**	**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	To provide students with information about reinforced concrete load-bearing systems
Course Content	1- Stress-Strain Relationships for Concrete and Reinforcing Steel 2- Confined and Unconfined Concrete Strength 3- Reinforced Concrete Structural Elements analysis 4- Modeling of Reinforced Concrete Structural Elements 5- Modeling of Reinforced Concrete Structural Elements 6- Modeling of Reinforced Concrete Structural Elements 7- Design of Reinforced Concrete Bearing Elements 8- Design of Reinforced Concrete Bearing Elements 9- Moment Curvature Relationship in Reinforced Concrete Elements 10- Moment Curvature Relationship in Reinforced Concrete Elements 11- Reinforced Concrete Shear Walls 12- Reinforced Concrete Shear Walls 13- Coupled Shear Walls 14- Design Principles According to Displacement
Course Learning Outcomes	1- To be able to analyze reinforced concrete load-bearing elements 2- Ability to design reinforced concrete load-bearing elements 3- Ability to analyze and design reinforced concrete load-bearing systems
Recommended Resources	1. Ersoy, U., Özcebe, G., Canbay, E., (2023), *Betonarme - Davranış ve Hesap İlkeleri - Cilt 1*, Nobel Akademik Yayıncılık. 2. Ersoy, U., Özcebe, G., Canbay, E., (2021), Betonarme Cilt 2 - Özel Konular: TS 500-2000 ve TBDY-2019'a Uygun Olarak Geliştirilmiş Yeni Baskı. 3. Darılmaz, K., (2022), *Betonarme*, Birsen Yayınevi, İstanbul. 4. Darılmaz, K., (2023), *Depreme Dayanıklı Binaların Tasarımına*

	Giriş, Birsen Yayınevi, Genişletilmiş 2. Baskı, İstanbul. 5. Doğangün, A., (2024), *Betonarme Yapıların Hesap ve Tasarımı*, Birsen Yayınevi, 18. Baskı, İstanbul. 6. Celep, Z., (2024), *Betonarme Yapılar*, Birsen Yayınevi, Onbirinci ve TBDY (2018)'e uygun baskı, İstanbul. 7. TBDY-2018 (2018). *Türkiye Bina Deprem Yönetmeliği*, T.C. Bayındırlık ve İskân Bakanlığı, Ankara. 8. TS500-2000 (2000). *Betonarme Yapıların Tasarım ve Yapım Kuralları*, Türk Standardları Enstitüsü, Bakanlıklar / Ankara.

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
1204634	**PRINCIPLES OF EARTHQUAKE ENGINEERING**	… Fall X Spring	T 4	P 0	ECTS 5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Tolga YILMAZ Asst. Prof. Mustafa KOÇER	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz	**3**	**-**
	Assignment	**6**	**-**
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**To teach the behavior of structures and structural members subjected to the effect of earthquakes, and the design principles of earthquake-resistant structures**
Course Content	1-Earthquake motion, occurrence and characteristics of earthquake, intensity and magnitude of earthquake 2-Faults and tectonic zones, faults and tectonic zones on earth and in our country, active seismotectonics of Turkey 3-Single degree of freedom systems, force-displacement relationship, linear elastic systems, inelastic systems 4-Damping force, equation of motion (effect of external forces), equation of motion (effect of earthquake), element forces 5-Free vibration, undamped free vibration, viscous damped free vibration, free vibration tests 6-Earthquake spectra, the effect of soil condition on earthquake motion, soil liquefaction, soil structure interaction 7-Turkey Earthquake Risk Map and Design Spectra 8-Calculation rules for earthquake resistant buildings (General principles and rules, irregular buildings) 9-Calculation rules for earthquake resistant buildings (Equivalent Static Lateral Load Method) 10-Midterm 11-Calculation rules for earthquake resistant buildings (spectral acceleration coefficient, spectrum coefficient, earthquake load reduction factor, examples) 12-Shear walls and Coupled Shear Walls 13-Approximate solutions under the earthquake forces, Muto Method 14-Approximate solutions under the earthquake forces, Muto Method

	15-Modal analysis
Course Learning Outcomes	To learn of the general behavior of structures under the earthquake effect and the design principles of the earthquake-resistant structures. Ability to create appropriate reinforcement arrangement in structural elements for ductile behavior. Ability to design earthquake-resistant reinforced concrete structures
Recommended Resources	1-TBEC-2018, ”Turkish Building Earthquake Code” 2-TS-500 (2000), "Design and Construction Rules of Reinforced Concrete Structures" 3-TS-498 (1997), "Design Loads for Buildings" 4-Introduction to Earthquake Engineering and Design of Earthquake Resistant Structure (Turkish), Zekai Celep 5-Introduction to the Design of Earthquake-Resistant Buildings (Turkish), Kutlu Darılmaz 6-Dynamics of Structures, Anil K. Chopra

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
1204638	Scientific Research and Presentation Techniques (SSD 2)	… Fall X Spring	T	P	ECTS
			2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Ülkü Sultan KESKİN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**X**	**40**
	Final Exam	**X**	**60**

Course Objectives and Goals	To ensure that civil engineering students have knowledge about conducting scientific research and presenting research results.
Course Content	1-Definition and importance of scientific research 2-Scientific research methods and processes 3-Rules for writing scientific research reports 4-Use of graphs and tables in writing research reports 5-Ethical principles in writing research reports 6-Developing oral communication skills, elements to consider 7-Body language techniques 8-Using effective body language when presenting 9-Programs used to prepare presentation files 10-Points to consider when preparing presentation files, use of colors, slide design, use of time 11-Points to consider when preparing presentation files, use of colors, slide design, use of time 12-Student presentation 13-Student presentation 14-Student presentation
Course Learning Outcomes	They will learn scientific research methods and techniques. They will be able to explain the stages of the scientific research process through practical application. They will learn the tools needed to successfully communicate scientific research results. They will gain the ability to make effective presentations. They will be able to design a presentation file on a scientific research topic and deliver a presentation in front of an audience.
Recommended Resources	Scientific Research and Presentation Techniques (Prof. Dr. Asım Saldamlı, Detay Publishing, 2016)

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204640	TRAFFIC ENGINEERING (SEC 2)	… Fall X Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Dr. M. Levent Ağırdır	… Turkish … English		**X**	**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	**Analysis of traffic flows, statistical properties, determination of problems in various types of intersections, development of solution options, signalized intersection planning and signalization calculations.**
Course Content	**1.Basic structure of transportation systems, main function of the road. 2.Characteristics of drivers and pedestrians in terms of traffic. 3.Vehicle characteristics 4.Resistances to movement, stance-sight lengths, transitional sight lengths 5.Distribution of vehicle arrivals, vehicle tracking interval, lecture and applications 6.Change in traffic, increase in traffic 7.Traffic volume, density, speed relations 8.Capacity of roads, service level concept 9.Factors affecting capacity, intersections, conflict points, roundabouts 10. Multi-storey intersections, their types, features and planning principles 11. Design of traffic islands and canalized intersections 12. Signalized intersections and fixed-time signal calculation 13. Vehicle warning signals and coordinated signal systems 14. Intelligent transportation and intelligent transportation systems**
Course Learning Outcomes	**They understand traffic flow patterns and gain knowledge of the fundamental components and concepts of highway traffic. They acquire engineering knowledge and skills to solve problems related to the design of traffic facilities. They are knowledgeable about road geometric standards and capacity relationships, vehicle arrivals, and vehicle spacing distributions. They are knowledgeable about the tools used in current traffic engineering practices. They are knowledgeable about intersections, intersection design, signaling methods, and signaling calculations.**
Recommended Resources	**KTU Traffic Engineering Lecture Notes, Traffic Engineering Lecture Notes, Prof. Dr. Yetiş Şazi Murat, Introduction to Traffic Engineering, Prof. Dr. Mustafa Karaşahin,**

	Traffic Engineering Lecture Notes, Dr. Levent Ağırdır, Transport Planning and Traffic Engineering, Edited by C A O'Flaherty HCM 2000, 2010, 2015 Supplements, the course is also supported by various videos and presentations.

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204648	Sustianable Building Materials (SEC 2)	… Fall X Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Arife AKIN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**1**	**10**
	Project		
	Midterm Exam	**1**	**30**
	Final Exam	**1**	**60**

Course Objectives and Goals	The evaluate the properties of building materials in terms of sustainability and to establish principles for material selection within the framework of sustainability, provide the necessary knowledge and skills to make material selections in the building production process in line with sustainability.
Course Content	1-Introduction – Transferring course content to students; The concept of sustainability 2-Properties of Sustainable Building Materials 3-Properties of Sustainable Building Materials 4-Evaluation of plant waste materials within the framework of sustainability 5-Evaluation of artificial waste materials within the framework of sustainability 6-Evaluation of artificial waste materials within the framework of sustainability 7-Evaluation of wood building materials within the framework of sustainability 8-Evaluation of composite building materials within the framework of sustainability 9-Evaluation of metal building materials within the framework of sustainability 10-Midterm exam 11-Presentation of student assignments 12-Presentation of student assignments 13-Presentation of student assignments 14-Presentation of student assignments

Course Learning Outcomes	1-Knowledge of sustainability 2-Knowledge of the properties of sustainable building materials 3-Ability to integrate the concept of sustainability with the material knowledge acquired during the undergraduate program 4-Ability to effectively implement sustainability in the material selection process by integrating material knowledge with the principles of sustainable material selection 5-Possessing the ability to select sustainable materials in material selection
Recommended Resources	1-Sustainable Building Materials and Applications-1 2-Sustainable Building Materials lecture notes

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Construction Materials**

Course Code	Course Name	Semester (X)	Credit		
1204649	INSULATION AND MATERIALS IN BUILDINGS	… Fall X Spring	T 2	P 0	ECTS 3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Dr. Murat SAYDAN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**4**	**20**
	Project		
	Midterm Exam	**1**	**30**
	Final Exam	**1**	**50**

Course Objectives and Goals	The aim of this course is to address thermal, acoustic, waterproofing, and fire insulation topics through a technical and practice-oriented approach, in line with building physics principles. It introduces students to the physical properties of insulation materials, performance criteria, and their appropriate use in compliance with regulations. Students will be able to analyze insulation solutions for different building types, consider energy efficiency and sustainability principles in material selection, and develop detailing skills.
Course Content	1-Introduction to Building Physics and the Importance of Insulation 2-Thermal Insulation: Basic Principles and Material Properties 3-Thermal Insulation Materials and Application Details 4-Acoustic Insulation: Fundamentals and Material Selection 5-Acoustic Insulation Systems and Detailing 6-Waterproofing: Risks, Materials and Systems 7-Waterproofing Application Techniques and Details 8-Fire Insulation and Fire-Resistant Materials 9-Regulations and Standards in Insulation 10-Energy Efficiency and Sustainable Material Selection 11-Field Experiences and Common Errors in Insulation Applications 12-New Technologies in Insulation 13-Chemical and Materials Science Approaches in Insulation 14-The Future of Insulation Material 15-Student Presentations
Course Learning Outcomes	1-Classifies thermal, acoustic, waterproofing, and fire insulation systems based on their technical characteristics. 2-Evaluates the physical, chemical, and mechanical properties of insulation materials and identifies appropriate areas of use. 3-Detects frequent technical mistakes in insulation practices and

	develops solution proposals. 4-Assesses the performance of different materials using laboratory data or field examples. 5-Chooses suitable insulation materials based on building type, climate conditions, and intended use.
Recommended Resources	Herkes İçin Su / Isı Yalıtımı – Yapı Güçlendirme ve Yapı Kimyasalları Rehberi-Akın Keskin Yapı Fiziği ve Isı Yalıtımı Lecturer Notes

REPUBLIC OF TURKEY
KONYA TECHNICAL UNIVERSITY

Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204701	Reinforced Concrete Building Design Applications	X Fall … Spring	3	1	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Musa Hakan ARSLAN Prof. Dr. S. Bahadır YÜKSEL Prof. Dr. Murat ÖZTÜRK Doç. Dr. Gamze DOĞAN Doç. Dr. Tolga YILMAZ Dr. Öğr. Üyesi Nail KARA Dr. Öğr. Üyesi Mustafa KOÇER	X Turkish … English	**x**		**x**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**14**	**40**
	Project		
	Midterm Exam		
	Final Exam	**1**	**60**

Course Objectives and Goals	To provide the students to get information about the reinforced concrete building design.
Course Content	1. Distribution of the project data about the project, 2. Description of the project. 3. Reinforced concrete (RC) slab calculations and drawings. 4. Calculations of RC stairs and drawings. 5. Beam and column presizing and slopedeflection method. 6. Earthquake load analysis and distribution of lateral force to the members using Muto Method. 7. Creating 2D and 3D models of the structure by using SAP2000/ETABs. 8. RC beam calculations 9. RC column calculations 10. RC shear wall calculations 11. Foundation calculations 12. The evaluation of the project 13. Preparing the all calculations and drawings by using AUTOCAD. 14. Submission of the project.

Course Learning Outcomes	1. Seeing the application of the information obtained from Reinforced Concrete 1, Reinforced Concrete 2, Structural Statics II and Earthquake Engineering courses on a project. 2. Being able to create 2D and 3D models of buildings at a sufficient level with ETABS or SAP2000 3. To be able to draw a reinforcement plan with calculated elements
Recommended Resources	1. Betonarme yapıların tasarım ve yapım kuralları, ts-500 (2000) 2. Türkiye Bina Deprem Yönetmeliği-2018 3. Yapı Elemanlarının Boyutlandırmasında Alınacak Yüklerin Hesap Değerleri, TS-498-2000 4. Kaltakcı M.Y. Taşıma gücü ilkelerine göre düzenlenmiş çizelge ve abaklar" (ders notu) 5. Darılmaz K., Betonarme, 2022 6. Ersoy U., Özcebe G., Canbay E., "Betonarme Davranışı ve Hesap İlkeleri" Evrim Yayınevi, 2018. 7. Celep Z., "Betonarme Yapılar" Beta Dağıtım, 2018 8. Doğangün A., "Betonarme Yapıların Hesap ve Tasarımları" Biirsen Yayınevi, 2018.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
1204702	WATER SUPPLY AND WASTEWATER REMOVAL	(X) Fall … Spring	T 4	P 0	ECTS 4

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Meral BÜYÜKYILDIZ Assoc. Prof. Dr. Volkan YILMAZ	(X)Turkish … English	X		X	

Assessment and Evaluation Methods

	Evaluation Method	Number	Percentage (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	To teach the applications and design principles about population and water demand calculation methods, planning of water resources, transmission lines, reservoirs, water distribution networks and wastewater collection systems.
Course Content	1-Introduction and Population Estimation Methods 2-Unit Water Consumption 3-Open Surface Spring Design 4-Collection of Groundwater With Horizontal Facilities 5-Design of Wells 6-Collecting Water from Rivers, Lakes and Reservoirs 7-Gravity Flow Water Pipeline Design 8-Practice 9-Midterm Exam 10-High-Pressure Transmission Line Design 11-Design of Water Reservoirs 12-Practice 13-Design of Water Distribution Networks 14-Practice 15-Wastewater Collection 16-Final Exam
Course Learning Outcomes	1-To explain the basic engineering knowledge. 2-To present the information about the properties of water supply systems and waste water and rain water channels. 3-To present the necessary information about the calculation and design principles of the structures related to supply water and remove the waste water. 4-To define and explain the problems in civil engineering field 5-To define the design principles and to present the predictive design applications using estimation methods.

Recommended Resources	1-Yılmaz Muslu, Su Temini ve Çevre Sağlığı, Su Vakfı Yayınları, İstanbul, 2003. 2-Su Temini ve Çevre Sağlığı, Karpuzcu M., İTÜ İnşaat Fak., 1985. 3-Su Temini ve Atıksuların Uzaklaştırılması Uygulamaları, Topacık D., Eroğlu V., İTÜ İnşaat Fakültesi, 1998.Çevre Sağlığı, Karpuzcu M., İTÜ İnşaat Fak., 1985.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
	COMPUTER APPLICATIONS IN STRUCTURAL ENGINEERING	X Fall … Spring	T	P	ECTS
			2	1	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Doç.Dr. Tolga Yılmaz Dr. Öğr. Üyesi Mustafa Koçer	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz	**3**	**12**
Assignment	**10**	**8**
Project		
Midterm Exam	**1**	**20**
Final Exam	**1**	**60**

Course Objectives and Goals	It is aimed to teach how to perform static and dynamic analyses of structures using the ETABS software
Course Content	1. General Introduction to the ETABS Program, Use of Menus and Toolbars 2. Analysis of a Two-Dimensional Reinforced Concrete Structure 3. Analysis of a Reinforced Concrete Structure – 1 4. Analysis of a Reinforced Concrete Structure – 2 5. Analysis of a Reinforced Concrete Structure – 3 6. Analysis of a Reinforced Concrete Structure – 4 7. Modal Analysis 8. Time-Domain Analysis 9. Midterm Examination 10. Design of a Reinforced Concrete Structure 11. Steel Structure Analysis 12. Modeling of an Industrial Steel Structure 13. Analysis of a Base-Isolated Structure 14. Nonlinear Static Analysis
Course Learning Outcomes	• To introduce the ETABS finite element software and teach its usage • To teach how to perform static and dynamic analyses of structures • To teach the principles of structural member design using the ETABS software
Recommended Resources	Örneklerle ETABS 2013 (Günay Özmen, Engin Orakdöğen, Kutlu Darılmaz)

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204706	Water Resources	(X) Fall … Spring	4	0	4

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Dr. Alpaslan YARAR Assoc. Prof. Dr. Cihangir KÖYCEĞİZ	(X) Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	This course aims to provide students with the necessary knowledge regarding the design and operation of structures built for the development, protection, and management of water resources from a sustainable engineering perspective.
Course Content	1- Water resource development 2- River morphology 3- River and basin characteristics 4- Sediment transport in rivers 5- Calculation of suspended and bedload sediment quantities in rivers 6- Relief structures 7- General information on diversion weirs 8- Fixed crest weirs 9- Midterm exam 10- Movable weirs and weir construction in permeable soils 11- General information about dams and dam reservoirs 12- General characteristics of dam types 13- Dam reservoirs and operational studies 14- Energy dissipater structures 15- Water intake structures 16- Final exam
Course Learning Outcomes	1- To be able to define basic terms related to water resources 2- To be able to quantitatively analyze rivers and basins 3- To be able to calculate the basic parameters required for the analysis of sediment transport in rivers 5- To be able to perform basic construction and safety evaluation calculations for structures 6- To be able to perform basic design calculations for dams,

	reservoirs, energy dissipater structures, and water intake structures
Recommended Resources	1- Course notes 2- Su kaynakları mühendisliği, Cevat Erkek, Necati Ağıralioğlu 3- Su kaynakları mühendisliği uygulamaları, Cevat Erkek, Necati Ağıralioğlu 4- Applied water resources engineering, A. Melih Yanmaz

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
1204712	Steel Structure Design Applications (STTU1)	X Fall … Spring	T 3	P 1	ECTS 5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc.Prof.Dr. Günnur YAVUZ	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**13**	**35**
	Project	**1**	**15**
	Midterm Exam		
	Final Exam	**1**	**50**

Course Objectives and Goals	To teach the calculations, dimensioning and detailing of steel truss and purlin systems in order to cover the top of a single-storey and single-span structure and the behavior, calculation methods, theoretical and practical assumptions of steel structures and steel in accordance with the current regulation principles (ÇYTHYE 2018), both theoretically and practically and to give the engineering responsibility related to this subject to the student.
Course Content	1- Project data distribution 2- Plan drawing, Finding truss beam spacing, Determining bar lengths, Choosing roof covering 3- Purlin beam calculation, Tensionless solution 4- Purlin calculation, tensioned solution from L/2, tensioned solution from L/3, tension rod calculation, Economic comparison table 5-Finding the bar forces, Finding the forces on the nodes, Solution with the nodal points method 6- Finding the bar forces with the SAP2000/ETABS program 7- Establishment of Table of bar forces, Selfweight load, Full snow load, 1/2 snow load, Right wind load, Left wind load 8- Determination of the bar sections 9- Calculation and drawing of joints 10- Calculation and drawing of joints 11- Steel column and foundation calculations 12- Completion of calculations and production of quantity 13- Making the drawings of the project in the AutoCAD program; Roof plan, 1/2 Structural System, All joint details, Wind and stiffness connection details, Drawbar attachment details, splice connection detail of tension member 14- Making the drawings of the project in the AutoCAD program; Roof plan, 1/2 Structural System, All joint details, Wind and stiffness

	connection details, Drawbar attachment details, splice connection detail of tension member
Course Learning Outcomes	To teach the student to prepare a steel application project. To show the student's use of the knowledge learned in Steel Structures 1 and Steel Structures 2 courses in the field of application. Demonstrate the application of the knowledge in other engineering and mathematics courses that the student has taken before.
Recommended Resources	1- Çelik Yapıların Tasarım, Hesap ve Yapım Esaslarına Dair Yönetmelik, 2018. 2- Çelik Yapıların Tasarım, Hesap ve Yapım Esaslarına dair Yönetmelik Hakkında Uygulama Kılavuzu, 2017. 3- Çelik profil tabloları

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
1204718	Laboratory Applications in Civil Engineering	X Fall … Spring	T 3	P 1	ECTS 5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat OLGUN Dr. Öğr. Üyesi Atila Demiröz Dr. Öğr. Üyesi Hüseyin KÖSE Arş. Gör. Dr. Neslihan ATASAGUN Arş. Gör. Dr. M. Mevlüt AKMAZ Doç. Dr. Arife AKIN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory	**9**	**20**
	Quiz		
	Assignment	**9**	**20**
	Project		
	Midterm Exam		
	Final Exam	**1**	**60**

Course Objectives and Goals	To provide knowledge to the students about the experimental techniques used in civil engineering, to develop their ability in obtaining, interpretting-discussing and reporting of test results by applying specific test methods belonging to the different sub-branches.
Course Content	1- General information on civil engineering test methods and their importance 2- An overview of experimental methods applied in Geotechnical Science 3- An overview of experimental methods applied in Construction Materials Science 4- An overview of experimental methods applied in Transportation Science 5- Application of softening point and penetration tests to bituminous binder with students 6- Experimental and analytical investigation to determine what proportions of aggregates with known gradation will be used to achieve the targeted gradation 7- Preparation of briquettes to be used in the Marshall test together with students 8- Determination of the measurements and loading results applied on Marshall briquettes to be used in determining optimum bitumen content of the mixture 9- The fineness and density of cement particles are determined together with the students. 10- Determination of the amount of fine material in aggregates using the methylene blue test and determination of abrasion resistance in

	cement mortar samples 11- Experimental determination of the grain distribution of soils (sieve analysis and hydrometer test), soil particle specific gravity (by using pycnometer test) and water content. Experimental determination of consistency limits of soils, liquid limit (Casagrande method and falling cone method), plastic limit and shrinkage limit 12- Shear strength parameters of the soil; experimental determination of unconfined compressive strength by shear box and vane methods 13- Experimental determination of consistency limits of soils, liquid limit (Casagrande method and falling cone method), plastic limit and shrinkage limit. 14- Compaction test with standard Proctor test for stabilized soils and consolidation test for cohesive soils
Course Learning Outcomes	1-Knows rheological properties of the binder used in bituminous hot mixture, performs size analysis of the aggregate, determines optimum bitumen content of the mixture and makes void-density calculations of the mixture. Compares test results according to relevant specification limits. 2-It can determine the specific gravity and fineness of cement particles 3-It can determine the abrasion resistance of mortar samples and identify the amount of fine materials present in aggregates. 4-Experimentally determine the grain distribution of soils (sieve analysis and hydrometer test), soil particle specific gravity (by pycnometer test) and water content. free compressive strength, determines. Compaction test with standard Proctor test for stabilized soils and consolidation test for cohesive soils
Recommended Resources	1- TS EN 12697-34 Bitümlü karışımlar - Sıcak asfalt karışımları için deney yöntemleri - Bölüm 34: Marshall deneyi 2- TS EN 1427 Bitüm ve bitümlü bağlayıcılar-Yumuşama noktası tayini-Halka ve bilye yöntemi 3- TS EN 1426 Bitüm ve bitümlü bağlayıcılar-İğne batma derinliği tayini 4- TS EN 933-1:2012(EN) Agregaların geometrik özellikleri için deneyler bölüm 1: Tane büyüklüğü dağılımı tayini- Eleme metodu 5- TS EN 196-6 Çimento Deney Metodları - Bölüm:6 İncelik Tayini, Tane Yoğunluğu 6- TS EN 933 - 9 Agregaların Geometrik Özellikleri için Deneyler-Bölüm 9: İnce Tanelerin Tayini, Metilen Mavisi Deneyi 7- TS EN 14157 Aşınma Direncinin Tayini, Böhme Aşındırma Deneyi 8- Aytekin, M., 2004., Deneysel Zemin Mekaniği, Teknik Yayınevi.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (X)	Credit		
1204725	HIGHWAY ENGINEERING	X Fall	T	P	ECTS
		… Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist. Prof. Dr. Deniz Arslan	X Turkish X English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	**To introduce highway pavement materials,** **To teach principal knowledge in highway pavement design and construction.**
Course Content	1-General definitions of highway 2- Highway pavement types and subbase applications 3- Laboratory tests applied on granular materials 4- California Bearing Ratio (CBR) test 5- Base applications in highway construction 6- Flexible pavement design, solved problems 7- Flexible pavement design, problem solutions (continue) 8- Materials of flexible pavements 9- Tests applied on flexible pavement materials 10- Bituminous binders and their general properties 11- Bituminous hot mixtures, laboratory tests and design of bituminous hot mixtures 12- Laboratory tests and design of bituminous hot mixtures (continue) 13- Rigid pavements, rigid pavement design, rigid pavement materials 14- Joints, comparison of flexible and rigid pavements
Course Learning Outcomes	1. Learns aggregate and bitumen tests and knows their specification limits that they have to meet according to the pavement layer they are applied to. 2. Determines optimum bitumen content to be used in bituminous hot mixtures and evaluates engineering properties of aggregate-bitumen mixtures. 3. Learns types of pavements and does their thickness design. 4. Knows distresses occurring in flexible pavements.
Recommended Resources	1. AASHTO HM-2019 PT 1 Standard specifications for transportation materials and Methods of sampling and testing and provisional standard 2. The Shell Bitumen Handbook Sixth edition Principal authors Dr Robert N. Hunter, Andy Self and Professor John Read 3. Karayolu Teknik Şartnamesi 2013, 2023 4. Yol Malzemeleri ve Uygulamaları, Argun Tunç, 2001 5. Karayolları Esnek Üstyapılar Projelendirme Rehberi 6. Lecture Notes

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**-**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204736	SUMMER INTERNSHIP 2	X Fall … Spring	0	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Asst. Prof. Dr. Abdulhamit Nakipoğlu	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment	**1**	**100**
	Project		
	Midterm Exam		
	Final Exam		

Course Objectives and Goals	**To develop practical knowledge by applying the fundamental concepts and principles learned during civil engineering education.**
Course Content	1-Internship practice 2-Internship practice 3-Internship practice 4-Internship practice 5-Internship practice 6-Internship practice 7-Internship practice 8-Internship practice 9-Internship practice 10-Internship practice 11-Internship practice 12-Internship practice 13-Internship practice 14-Internship practice
Course Learning Outcomes	1-Obtaining information about the construction site or office 2-Performing the tasks assigned in the construction site area or in the office 3-Evaluating the information acquired about the construction site or office 4-Evaluating relevant questions and opinions regarding the construction site or office
Recommended Resources	Internship Directive and Guidelines of the Department of Civil Engineering

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204740	CONSTRUCTION MANAGEMENT	X Fall … Spring	3	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mustafa Tolga ÇÖĞÜRCÜ	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	**Teaching the technical and legal management of a construction from planning to completion.**
Course Content	1-Construction projects and relations, construction stages 2-Building elements and construction techniques 3-Public procurement laws 4-Public procurement laws 5-Construction zoning law 6-Project planning 7-Project planning 8-Project planning 9-Project planning 10-Midterm 11-Quantity takeoff and applications 12-Quantity takeoff and applications 13-Quantity takeoff and applications 14-Quantity takeoff and applications 15-Quantity takeoff and applications
Course Learning Outcomes	1-Learning construction projects and relationships, construction stages 2-Learning building elements and construction techniques, Laws and details 3-Learning quantity takeoff and applications

Recommended Resources	ÖRNEKLERLE PRATİK YAPI METRAJI VE MALİYETİ - MAZLUM BİRECİKLİ- BAHADIR BİRECİKLİ

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204804	LABOR LAW	… Fall X Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Dr. Önder Kaan KESKİN	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**X**	**40**
	Final Exam	**X**	**60**

Course Objectives and Goals	To teach in detail the legal relationship between the employee and the employer and the role of the state within this relationship.
Course Content	1. Basic concepts of law 2. Turkish administrative system 3. Turkish judicial system 4. Mediation-litigation law 5. Constitution and fundamental laws 6. Fundamental rights and freedoms 7. Contract law 8. Labor law and regulations 9. Basic concepts in labor law 10. Trade union and labor law - international agreements 11. Social security system and institutions 12. Work ethics and career planning 13. General assessments related to labor law 14. Analysis and evaluation of all articles of labor law
Course Learning Outcomes	Can develop up-to-date and advanced knowledge of concepts, institutions, and methods related to Individual Labor Law at an expert level and arrive at original definitions and characterizations of these concepts, institutions, and methods. Can analyze and evaluate the theory and practice of Individual Labor Law using the knowledge acquired and arrive at new and original conclusions and ideas. Can contribute to establishing awareness of law and justice in society by introducing the values of Individual Labor Law to society. Can evaluate an existing concept or institution related to Individual Labor Law with a new idea, approach, or method, or can research a

	new concept/institution from an original perspective.
Recommended Resources	Haluk Hadi Sümer, İş Hukuku Nuri Çelik, İş Hukuku

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Transportation**

Course Code	Course Name	Semester (X)	Credit		
1204811	HIGHWAY DESING APPLICATIONS 2 (STTU 2)	… Fall X Spring	T	P	ECTS
			3	1	5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Asst. Prof. Dr. Hüseyin KÖSE Res. Asst. Dr. Neslihan ATASAĞUN Res. Asst. Dr. Muhammet Mevlüt AKMAZ	… Turkish X English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory	0	0
	Quiz	0	0
	Assignment	9	20
	Project	1	20
	Midterm Exam	0	0
	Final Exam	1	60

Course Objectives and Goals	To design a highway between two points given on the topographic map, to develop engineering perspective of students to solve the problems that may occur in design process.
Course Content	1-Providing general information about the project and project data 2-Determining highway geometric standards and identifying the zero line that will minimize earthworks along the highway 3-Examination of alternative highway routes on the determined zero line 4-Inserting a transition curve to the route and performing the transition curve calculation 5-Calculation of true station kilometers on the selected route 6-Determination of the points and kilometers of the cross-sections and preparation the plan sheet 7-Calculation of superelevation 8-Preparing the longitudinal profile of the selected route, researching of grade line, and designing vertical curves 9-Preparing cross-sections for the route 10-Calculation of areas of cross-sections (Fill and Cut) 11-Area diagram and volume calculations 12-Performing earthwork volume distribution and calculating hauling distances 13-Flexible pavement design 14-Delivery and evaluation of reports and sheets of the projects

Course Learning Outcomes	1) Designs highway project. 2) Controls highway project. 3) Determines most suitable route between 2 points on the topographic map, arranges vertical and horizontal geometry, and calculates earthworks of the route. 4) Designs high standard flexible pavement based on traffic, environmental effects and material properties.
Recommended Resources	1) A Policy on Geometric Design of Highways and Streets, 7th edition 2018, AASHTO 2) Yol İnşaatı, Faruk Umar, Nadir Yayla, İTÜ 3) Lecture notes

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	**Course Name**	**Semester (X)**	**Credit**		
			T	P	ECTS
1204812	WATER SUPPLY AND WASTEWATER SYSTEMS DESING APPLICATIONS (STTU 2)	… Fall (X) Spring	3	1	5

Instructor(s) (Title, Name Surname)	**Language(s) of Instruction (X)**	**Course Type (X)**		**Mode of Course (X)**	
		Must	Elective	Face to face	Online
Prof. Dr. Meral BÜYÜKYILDIZ Assoc. Prof. Dr. Volkan YILMAZ Assoc. Prof. Dr. Cihangir KÖYCEĞİZ	(X) Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	1	40
	Final Exam	1	60

Course Objectives and Goals	Providing the drinking and utility water needed by a settlement from different water sources is an integrity. Designing a project in accordance with the relevant laws and regulations.
Course Content	1-Distributing project data, giving information about the project 2-Gathering information about the settlement 3-Making a population projection, determining water needs, drawing related graphics 4-Taking water from the slope upstream and making the relevant calculations and drawings 5-Taking water from horizontal and inclined layer springs and making the relevant calculations and drawings 6-Taking water from free surface wells and and making the relevant calculations and drawings 7-Taking water from pressurized wells and and making the relevant calculations and drawings 8-Design of the gravitational water transmission systems and drawing the cross section and hydraulic profile 9-Midterm Exam 10-Designing of the pressurized water transmission lines by economically, determining the volume of air tanks and drawing the cross section and hydraulic profile 11-Designing the water reservoirs and making the drawings 12-Designing the water distribution systems and making the drawings 13-General checks and completion of deficiencies 14-General checks and completion of deficiencies 15-Delivery of the project 16-Final Exam

Course Learning Outcomes	1-To enable the basic concepts of hydraulic engineering to be used in practical applications. 2-Ensuring the definition of project design principles and the implementation of future projecting applications with estimation methods. 3-To ensure the implementation of the calculation principles of the structures related to water supply and the necessary information for their design. 4-Ensuring the transfer of basic engineering knowledge to real life. 5-To learn the hydraulic design of infrastructure systems (drinking water and sewage). 6-To ensure the application of mathematics, science and engineering knowledge to the field of Hydraulic Engineering.
Recommended Resources	Yılmaz Muslu, Su Temini ve Çevre Sağlığı, Su Vakfı Yayınları, İstanbul, 2003.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulics**

Course Code	Course Name	Semester (X)	Credit		
1204813	WATER STRUCTURES DESING APPLICATIONS (STTU 2)	… Fall X Spring	T 3	P 1	ECTS 5

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
Doç. Dr. Alpaslan Yarar Dr. Öğr. Üyesi Mustafa Onüçyıldız Dr. Öğr. Üyesi Ali Yıldız	X Turkish … English	Must **X**	Elective	Face to face **X**	Online

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**It is aimed to evaluate the measurements and calculations necessary for the planning, design and projecting of a mooring facility in a river determined as a water source for the students of the Civil Engineering Department.**
Course Content	1-Distributing Data and Giving Information About the Application 2-Gathering Information for the Hydrological Report of the Region 3-Preparation and Presentation of Hydrological Report 4-Evaluation of Hydrological Data 5-Key Curve and Chamber Calculation 6-Sizing of Settlement Tank and Washing Channel 7-Sizing the Transmission Channel 8-Determination and Dimensioning of the Measurement Structure 9-Sizing of Transition Channels 10-Sizing the Spillway Body 11-Required Investigations 12-Making Necessary Investigations 13-Preparation of Report and File 14-Presentation and Delivery
Course Learning Outcomes	1- Learns to use theoretical and applied knowledge in the fields of mathematics, science and basic engineering for the solution of application course problems. 2- It determines the required water structure in line with the needed water and realizes its design. 3- Learns the self-confidence of taking responsibility with the ability to work individually, interdisciplinary and in teams for the design of the Water Structure. 4- Learns the awareness of universal, social and professional ethics.

Recommended Resources	1- Prof. Dr. Mehmetçik BAYAZIT, Hidroloji, Birsen Yayınevi., Pub. No: Y.0029, ISBN 975-511-364-9, İstanbul, 2003. 2- Prof. Dr. Cevat ERKEK, Prof. Dr. Necati AĞIRALİOĞLU, Su Kaynakları Mühendisliği, Beta Pub., Pub. No: 387, ISBN 975-486-289-3, İstanbul, 1998. 3- Prof. Dr. Cevat ERKEK, Prof. Dr. Necati AĞIRALİOĞLU, Su Kaynakları Mühendisliği Uygulamaları, Beta Pub., Pub. No: 1286, ISBN 975-295-167-8, İstanbul, 2002.

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204814	Engineering Ethics	… Fall X Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mehmet KAMANLI	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**%40**
	Final Exam	**1**	**%60**

Course Objectives and Goals	The aim is to understand the importance of the universal dimension of ethics, to learn the professional responsibility and ethical principles of engineering ethics and Civil Engineering, and to develop the ability to examine, question, and evaluate professional
Course Content	1- Introduction: The Concept and Importance of Ethics, Understanding Ethics in Engineering 2- The Concepts of Ethics and Morality, and Their Differences 3- History and Philosophical Foundations of Ethics 4- Ethical Theories: Utilitarianism, Deontology, Virtue Ethics 5- Universal Ethical Principles: Justice, Equality, Responsibility 6- Types and Consequences of Unethical Behavior 7- Fundamental Principles of Engineering Ethics and the Notion of Responsibility 8- Ethical Dilemmas and Decision-Making Processes in Engineering Practice 9- Professional Ethics and the Concept of Professionalism 10- Social, Environmental and Global Ethical Responsibilities 11- Ethical Codes and Guidelines of Engineering Organizations 12- Ethical Violations and Case Studies in Engineering 13- Relationship Between Sustainability, Technology and Ethics 14- Developing Ethical Awareness and Professional Consciousness for Future Engineers
Course Learning Outcomes	Awareness of professional and ethical responsibilities, awareness of and ability to evaluate the economic, political, and legal aspects of professional problems encountered, effective written and verbal communication skills, and understanding of the social impact of engineering. .
Recommended Resources	Lecture Notes

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Construction Management**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204825	ENGINEERING ECONOMY	… Fall X Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. M. Tolga ÇÖĞÜRCÜ Assoc. Prof. Dr. Alptuğ ÜNAL	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	To teach the economic analysis applications necessary for the civil engineers, to teach the adequacy and limits of cash flow analyses for the evaluation of the investments and to provide the ability of formulating cash flow models in practice.
Course Content	1-Introduction to Engineering Economics 2-Supply-demand relationship, elasticity of supply, elasticity of demand 3-Break-even Analysis 4-Simple interest, compound interest 5-money and time relations 6-money and time relations 7-Methods of selecting Profitable Project 8-Methods of selecting Profitable Project 9-Methods of selecting Profitable Project 10-Renovation investments 11-Economic life analysis 12-Depreciation Accounts 13-Depreciation Accounts 14-A general summary of the lesson
Course Learning Outcomes	Creates the cash flow diagram using interest rates. Converts cash flows to net present value, net future value, annual series, incremental series and ascending series. Compares alternatives using various analyzes.
Recommended Resources	Engineering Economy-Osman Okka

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Civil Engineering**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204826	CONSTRUCTION SITE TECHNIQUE	… Fall X Spring	2	1	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Mustafa Tolga ÇÖĞÜRCÜ	X Turkish … English	**X**		**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	**To provide civil engineer candidates with the necessary managerial skills in construction works and to teach them to regulate their formal and informal relations.**
Course Content	1-Preparation for the structure, definitions and explanations of labor law regarding the contractor and the employer 2-Preparation for the structure, definitions and explanations of labor law regarding the contractor and the employer 3-Procurement law No. 4734 and procurement regulation 4-Procurement law No. 4734 and procurement regulation 5-Field Trip 6-Construction site organization 7-Construction Site and Construction Site Organizations, formwork and scaffolding 8-Field Trip 9-Structure of Construction Firms 10-Midterm 11-Construction Sites 12-Highway, Railway, Port Construction Sites 13-General organization of construction sites 14-Occupational health and safety 15-Occupational health and safety

Course Learning Outcomes	1-Learning the formal and informal procedures applied in construction works and the procedures related to preparation for the construction 2-Learning construction site and construction site organizations 3-Preparation for the structure, learning the definitions and explanations of the labor law about the contractor and the employer
Recommended Resources	Lecture Notes

REPUBLIC OF TURKEY
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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Structure**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204840	REPAIR AND STRENGTHENING OF BUILDINGS (TSD 3)	Fall X Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat Öztürk	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods		
Evaluation Method	**Number**	**Percentage** (%)
Laboratory		
Quiz		
Assignment		
Project		
Midterm Exam	**1**	**40**
Final Exam	**1**	**60**

Course Objectives and Goals	Teaching the basic information on repair and strengthening of damaged and undamaged reinforced concrete structures and providing the necessary information about the materials to be used in applications.
Course Content	1-The concept of repair and strengthening and basic principles 2-Damage types and detection in RC structures 3-Behavior of anchorage components 4-Building Safety philosophy and performance concept 5-Building Safety philosophy and performance concept 6-Repair/strengthening methods 7-Strengthening of beams 8- Strengthening of columns 9- Strengthening of columns 10-Strengthening of shear walls, foundations and slabs 11-System Based Strengthening 12-System Based Strengthening 13- Strengthening examples 14- Strengthening examples
Course Learning Outcomes	1. Teaches repair and strengthening techniques for damaged and undamaged reinforced concrete structures 2. Have knowledge about the materials used in repair and strengthening and their usage techniques. 3. Have knowledge about the problems and solution methods that may be encountered in repair and strengthening applications.
Recommended Resources	Lecture Notes

REPUBLIC OF TURKEY
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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Geotechnical**

Course Code	Course Name	Semester (X)	Credit		
1204843	Deep Foundations and Deep Excavations	… Fall X Spring	T	P	ECTS
			2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof. Dr. Murat OLGUN	X Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	The aim is to teach the implementation of deep foundation systems in cases where shallow foundation systems are insufficient, and the methods applied to ensure stability in deep excavation situations. Course objectives: - Detailing the calculation principles of deep foundation systems beneath structures - Detailing the calculation principles in deep excavation applications
Course Content	1- Identification and Functions of Deep Foundations and Piles 2- Methods for Calculating Static Pile Capacity for Single Piles 3- Negative Skin Friction, Driven Piles, and Dynamic Pile Formulas 4- Determination of Pile Capacity from Field Tests 5- Group Behavior of Piles and Pile Load Tests 6- Settlement Behavior in Pile Groups and Piled Raft Foundation Systems 7- Determination of the Lateral Load Bearing Capacity of Piles 8- Mini and Micro Piles, Inclined Load Piles 9- Midterm Exam 10- Shaft Foundations, Footing Foundations, and Caisson Foundations 11- Identification of Lateral Soil Pressures 12- Study of Retaining Structures and Design Methods 13- Design of Sheet Pile Retaining Walls 14- Study of Cantilever Pile and Anchored Bored Pile Designs 15- Construction and Inspection of Shoring Systems
Course Learning Outcomes	-Ability to understand the problem in deep foundation systems and deep excavation issues and to comprehend which parameters we will use in solving the problems that may arise in the soil -Ability to decide on the methods used in the design of deep foundations and the solution of shoring problems, and to apply these methods -Ability to analyze and compare the results of solutions applied in deep foundation and shoring problems
Recommended Resources	-Geotechnical Knowledge III / Building Foundations, Akın Önalp-Sedat Sert, Birsen Publishing, Istanbul, 2010. -Piled Foundations, Oğuz Tan, Ergün Toğrol, Birsen Publishing, Istanbul, 2002. -Soil Investigation and Foundation Design, Sönmez Yıldırım, Birsen Publishing, Istanbul, 2009.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204852	TSD 3 - Stream Arrangement	… Fall **X** Spring	2	0	2

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assist. Prof. Mustafa ONÜÇYILDIZ	**X** Turkish … English		**X**	**X**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	It is aimed to provide information on the structures and their dimensions that need to be built within the planning to protect against river damage.
Course Content	1- Definitions of Rivers, 2- River Network and Basin, 3- Turkey's Rivers and Basins, 4- River Morphology, 5- Factors Disturbing River Balance, 6- River Regulation, 7- Planning, 8- River Regulation Structures, 9- Bottom Protection Structures, 10- Shore Protection Structures, 11- Groins, 12- Parallel Structures, 13- Levees, 14- Reclamation Works
Course Learning Outcomes	1- Information will be acquired about rivers. 2- Information will be acquired about the rehabilitation of factors disrupting river balance. 3- Information will be acquired about protection structures. 4- Information will be acquired about the management of rehabilitation efforts.

Recommended Resources	Peterson, Margaret S., "River Engineering", Prentice-Hall, Englewood Cliffs, N. J. 07632, 1986. - Erkek C., Ağıralioğlu N., "Su Kaynakları Mühendisliği", Beta Yayın Dağıtım A.Ş., Cağaloğlu/İst., 1998. - Linsley, R. K., Franzini, J. B., "Water Resources Engineering", Mc Graw - Hill Book Company, New York, 1979.

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Undergraduate Course Information Form

Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Construction Materials**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204854	Durability in Concrete	… Fall x Spring	3		3

Instructor(s)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Assoc. Prof. Oğuzhan Öztürk	x Turkish … English		**x**	**x**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40%**
	Final Exam	**1**	**60%**

Course Objectives and Goals	The aim of this course is to introduce students to the physical and chemical deterioration mechanisms that concrete may encounter over its service life and to convey the corresponding preventive measures.
Course Content	1. Definition of durability in concrete, 2. Deleterious effects in concrete, 3. Water as a deleterious agent, 4. Permeability, permeability of hardened cement paste, permeability of aggregate, permeability of concrete, 5. Freeze–thaw, 6. Freezing of hardened cement paste, 7. De-icing salts, effect of fire, 8. Cement paste, aggregate, concrete at high temperatures. 9. Sulfate attack, 10. Control of sulfate attack, 11. Alkali–aggregate reaction, 12. Expansion mechanism, 13. Corrosion, control of corrosion 14. Concrete in marine structures.
Course Learning Outcomes	**1.Durability Concepts and Mechanisms** Defines durability in concrete; explains the role of water and the relationship between permeability/transport (seepage, diffusion, capillarity) and microstructure; distinguishes the triggering conditions for freeze–thaw, de-icing salts, high temperature, sulfate attack, alkali–aggregate reaction (AAR), and steel corrosion. 2.**Diagnosis and Test Interpretation** Performs tests in accordance with TS/EN/ASTM standards (water absorption, sorptivity, RCPT/electrical conductivity, freeze–thaw

	mass/scaling loss, sulfate expansion, AAR mortar bars, chloride profile, carbonation depth) and interprets the results by linking them to the underlying mechanisms.3. **3.Durability Design and Mix Optimization** Identifies environmental exposure classes per TS EN 206 and related standards (XC, XS, XF, XA, etc.); designs concrete mixes to meet target permeability/resistance levels through binder type/content (e.g., CEM/LC3, fly ash/slag/silica fume), water–binder ratio, aggregate selection, and admixtures (PCE, air-entraining agents, inhibitors). **4.Damage Mitigation and Service Life** Performs service-life estimation considering chloride diffusion, carbonation, and moisture–temperature regimes; develops protection/repair strategies such as coatings/capillary blockers, cathodic protection, cover thickness, and joint-detailing decisions; establishes an actionable roadmap for marine structures and post-fire/high-temperature performance. **5.Problem Solving and Technical Communication** In a given case study (e.g., port concrete, pavement, dam), diagnoses the dominant deterioration factors, proposes a testing plan and design/rehabilitation recommendations, and communicates findings in an evidence-based technical report and presentation.
Recommended Resources	

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Faculty	**Faculty of Engineering and Natural Sciences**
Department	**Civil Engineering**
Division/Program	**Hydraulic**

Course Code	Course Name	Semester (X)	Credit		
			T	P	ECTS
1204855	Groundwater Engineering	… Fall x Spring	2	0	3

Instructor(s) (Title, Name Surname)	Language(s) of Instruction (X)	Course Type (X)		Mode of Course (X)	
		Must	Elective	Face to face	Online
Prof.Dr. Nermin ŞARLAK	x Turkish … English		**x**	**x**	

Assessment and Evaluation Methods			
	Evaluation Method	**Number**	**Percentage** (%)
	Laboratory		
	Quiz		
	Assignment		
	Project		
	Midterm Exam	**1**	**40**
	Final Exam	**1**	**60**

Course Objectives and Goals	To provide information about the formation, distribution, underground movement, properties of water on Earth, and how these properties change over time and with geographical location, as well as its relationship with the environment and water resources engineering.
Course Content	1-Global water budget and the hydrological cycle 2-Formation of groundwater and geological formations 3-Types of aquifers and physical properties of aquifers 4-Darcy's law, hydraulic conductivity, and transmission capacity 5-Groundwater direction, flow network 6-Derivation of groundwater flow equations in free-surface aquifers 7-Midterm exam 8-Derivation of groundwater flow equations in confined aquifers 9-Well hydraulics calculation for time-invariant 1-dimensional flow 10-Well hydraulics calculation for time-varying radial flow 11- Well hydraulics calculation for finite aquifers 12-Problem solves 13-Groundwater management, saline water intrusion 14-Pumping techniques, groundwater removal 15-Climate change and its effect on groundwater, groundwater budget, prevention of groundwater pollution
Course Learning Outcomes	1- Be able to interpret the fundamental concepts of hydrology, 2- Be able to interpret the formation of groundwater and the concepts of aquifer properties, 3- Be able to interpret groundwater flow equations, 4- Be able to perform well hydraulics calculations, 5- Be able to manage groundwater.
Recommended Resources	Mühendislik Hidrolojisi, Nurünnisa Usul; Groundwater Engineering, Uygur Şendil