

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
CHE101	CHEMISTRY FOR ENGINEERS	2.00	0.00	2.00	4.00	7.00
Course Detail						
Course Language	: English					
Qualification Degree	: Bachelor					
Course Type	: Compulsory					
Preconditions	: Not					
Objectives of the Course	: Introduction of basic concepts and methods of chemistry by theoretical and applicative means, solving problems by using own knowledge, development of the capability of making analysis and synthesis, bring in the usage of course knowledge in the field of science and technological areas.					
Course Contents	: Matter: Properties, Classification and Measurements; Significant figures, Atoms, molecules and ions; Stoichiometry in Chemical equations and formulations: Mass of compounds and mole concept; Thermochemistry; Periodic Table: Electronic Structure of Atoms; Ionic and Covalent Bonding; Molecular Geometry					
Recommended or Required Reading	: General Chemistry: Principles and Modern Applications (10th Edition), Ralph H. Petrucci, F. Geoffrey Herring, Jeffrey D. Madura, Carey Bissonette					
Planned Learning Activities and Teaching Methods	: Oral and written presentation, question and answer, powerpoint presentations, weekly experiments performed in the laboratory.					
Recommended Optional Programme Components	:					
Instructors	: Assoc. Prof. Dr. Nesrin Horzum Polat					
Instructor's Assistants	: Instructor Dr. Irmak TUNÇ Instructor Dr. Merve KARAMAN					
Presentation Of Course	: Face to face					
En Son Güncelleme Tarihi:	:					

Course Outcomes

Upon the completion of this course a student :

- 1 Properties, classification and measurement of the matter, identification and process of significant figures
- 2 Identification and nomenclature of compounds, Mole Concept
- 3 Classification of chemical reactions, Stoichiometry calculations in chemical reactions
- 4 Understanding of heat, work, enthalpy, internal energy, applications of thermodynamic principles
- 5 Knowing periodic table and defining its properties, identifying the relations in periodic trends
- 6 Identifying and classification of atomic bonds, drawing the 3D structure and electronic group geometry of the molecules

Preconditions

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Weekly Contents						
	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Matter: Properties and Classification		*Meeting and Laboratory Safety Rules, Canvas Registration	*Learning the place of General Chemistry Laboratory, Attending to the Laboratory first meeting	*Oral presentation, ppt presentation, short video-animation, question&answer	
2.Week	*Measurements and Significant Figures		*Introducing to laboratory equipments and tools, Canvas Registration and creating laboratory experiments groups	*Reading the Laboratory Safety Rules and Laboratory Equipments and Glassware Part in Laboratory Manuel	*Oral presentation, ppt presentation, short video-animation, question&answer	
3.Week	*Nomenclature of compounds, writing chemical formulas,		*Experiment 1: Measurements and Density	*Studying the first experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
4.Week	*Mole Concept and Related Calculations		*Experiment 2: Stoichiometry	*Studying the second experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
5.Week	*Classification of chemical reaction		*Experiment 3: Types of Reactions	*Studying the third experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
6.Week	*Stoichiometry and related calculations		*Experiment 4: Titration of Acids and Bases	*Studying the fourth experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
7.Week	*Midterm		*Experiment 5: Thermochemistry: The Heat of Reaction	*Studying the fifth experiment		
8.Week	*Chemical Reactions in Aqueous Solutions		*Midterm exam		*Oral presentation, ppt presentation, short video-animation, question&answer	
9.Week	*Energy, heat, work definitions and defining their relationships with systems		*Experiment 6: The Law of Conservation of Mass	*Studying the sixth experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
10.Week	*The relationship between entalphy and energy in chemical reactions		*Experiment 7: Osmotic Pressure	*Studying the seventh experiment	*Oral presentation, ppt presentation, short video-animation, question&answer *Oral presentation, ppt presentation, short video-animation, question&answer	
11.Week	*Periodic table and its properties		*Experiment 8: Demonstration Experiments-1	*Studying the eighth experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
12.Week	*Periodical trends in atomic size, electronegativity, electron affinity, ionization energy		*Experiment 8: Demonstration Experiments-2	*Studying the eighth experiment	*Oral presentation, ppt presentation, short video-animation, question&answer	
13.Week	*Intermolecular and intramolecular bonding		*Make-Up Week		*Oral presentation, ppt presentation, short video-animation, question&answer	
14.Week	*Molecular geometry, electron group theory, polarity, bond energy		*Laboratory Final Exam		*Oral presentation, ppt presentation, short video-animation, question&answer	

Assesment Methods %
1 Midterms : 30.000
2 Laboratory : 30.000
3 Final : 40.000

ECTS Workload			
Activities	Count	Time(Hour)	Sum of Workload
Vize / Midterms	1	2.00	2.00
Final / Final	1	2.00	2.00
Laboratuvar / Laboratory	13	2.00	26.00
Ders Öncesi Biresysel Çalışma / Individual study before lecture	14	2.00	28.00
Ders Sonrası Biresysel Çalışma / Individual study after lecture	14	2.00	28.00
Ara Sınav Hazırlık / Preparation for midterm	1	20.00	20.00
Final Sınavı Hazırlık / Preparation for final	1	30.00	30.00
Bütünleme / Make-up	1	2.00	2.00
Derse Katılım / Attending lectures	14	2.00	28.00
Rapor	8	5.00	40.00
			Total : 206.00
			Sum of Workload / 30 (Hour) : 7
			ECTS : 7.00

