

Year

Department of Science Education / Department of Mathematics and Science Education /

Course Code	Course Name	Theoretical	Practice	Laboratory	Credits	ECTS
FBEAE 304	LABORATORY APPLICATIONS IN SCIENCE TEACHING 2	1.00	2.00	0.00	2.00	4.00
Course Detail						
Course Language	: Turkish					
Qualification Degree	: Bachelor					
Course Type	: Compulsory					
Preconditions	: Not					
Objectives of the Course	: The aim of this course is to give information about the experiments (7th & 8th grade) in the Science Curriculum and the approaches to be used in these experiments.					
Course Contents	: This course explains the approaches to be used in the evaluation of student performances (knowledge, skills, attitude-value) in the experiments and experiments within the scope of the Science Curriculum.					
Recommended or Required Reading	: Ders Kitapları Ders Notları Bilgisayar (akıllı tahta vb.) Laboratuvar Malzemeleri Bilgisayar (akıllı tahta vb.) 1-) Bahar, M., Aydın, F., Polat, M. ve Bertiz, H. (2013). Fen ve Teknoloji Laboratuvar Uygulamaları II, Pegem Akademi, Ankara. sil 2-) Aydoğdu, M. vd. (2004). Fen Bilgisi Laboratuvar Uygulamaları. Ankara: Pegem Yayınları.					
Planned Learning Activities and Teaching Methods	: As various science-related simulation applications and examples of web-based technological programmes will be demonstrated throughout the term, it is necessary to register with the relevant databases at the beginning of the term.					
Recommended Optional Programme Components	: There are no other recommendations for the lesson.					
Course Instructors	: Dr. Öğr. Üyesi Mahmut Polat					
Instructor's Assistants	:					
Presentation Of Course	: The course will be delivered face-to-face throughout the term. The first six weeks of the course will focus primarily on presenting the conceptual/theoretical framework. In the following weeks, teacher candidates will undertake practical applications related to science experiments in secondary schools.					
Update Date	: 2/3/2026 3:43:09 PM					
Dosya İndirilme Tarihi	: 2/5/2026					

Course Outcomes

Upon the completion of this course a student :

- 1 Can explain the properties of materials that can be used in experiments.
- 2 Can apply the experiments within the scope of the 7th and 8th grade Science Curriculum in secondary school.
- 3 can explain the importance of scientific process skills in experiments.
- 4 Using data sets obtained from experiments and observations, it can create the most appropriate scientific model or pattern.

Pre / Side Conditions

Course Code	Course Name	Condition	Theoretical	Practice	Laboratory	Credits	ECTS
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Weekly Contents

	Theoretical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Recognizing the experimental materials, tools and equipment, using them according to the safety rules and guides			*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Discussion Methods - Lecture Method	Ö.Ç.1
2.Week	*Recognizing the experimental materials, tools and equipment, using them according to the safety rules and guides			*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Discussion Methods - Lecture Method	Ö.Ç.1
3.Week	*The place and use of technology in the laboratory	*Presentation of sample simulations, web pages, animations related to science experiments		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Discussion Methods - Lecture Method	Ö.Ç.1 Ö.Ç.2

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
4.Week	*The place and use of technology in the laboratory	*Presentation of sample simulations, web pages, animations related to science experiments		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Discussion Methods - Lecture Method	Ö.Ç.1 Ö.Ç.2
5.Week	*Determination of scientific process skills in experiments	*Making the students perform the scientific process skills in the determined demonstration experiments		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods- Lecture Method	Ö.Ç.3
6.Week	*Determination of scientific process skills in experiments	*Making the students perform the scientific process skills in the determined demonstration experiments		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods- Lecture Method	Ö.Ç.3
7.Week	*Approaches to be used to evaluate student performances (knowledge, skills, attitudes-values) in experiments			*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods-Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.2 Ö.Ç.3
8.Week	*Midterm exam week			*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.		
9.Week	*Different laboratory approaches in accordance with the nature of physics, chemistry, biology, environment, earth science subjects within the scope of the 7th and 8th grade Science course curriculum Planning, conducting and reporting various experiments based on	*Student groups present experiments related to the determined science topics		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.4
10.Week	*Different laboratory approaches in accordance with the nature of physics, chemistry, biology, environment, earth science subjects within the scope of the 7th and 8th grade Science course curriculum Planning, conducting and reporting various experiments based on	*Student groups present experiments related to the determined science topics		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.4
11.Week	*Different laboratory approaches in accordance with the nature of physics, chemistry, biology, environment, earth science subjects within the scope of the 7th and 8th grade Science course curriculum Planning, conducting and reporting various experiments based on	*Student groups present experiments related to the determined science topics		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.4
12.Week	*Different laboratory approaches in accordance with the nature of physics, chemistry, biology, environment, earth science subjects within the scope of the 7th and 8th grade Science course curriculum Planning, conducting and reporting various experiments based on	*Student groups present experiments related to the determined science topics		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.4

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
13.Week	*Different laboratory approaches in accordance with the nature of physics, chemistry, biology, environment, earth science subjects within the scope of the 7th and 8th grade Science course curriculum Planning, conducting and reporting various experiments based on	*Student groups present experiments related to the determined science topics		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.4
14.Week	*Different laboratory approaches in accordance with the nature of physics, chemistry, biology, environment, earth science subjects within the scope of the 7th and 8th grade Science course curriculum Planning, conducting and reporting various experiments based on	*Student groups present experiments related to the determined science topics		*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.	*Laboratory Method- Discussion Methods Lecture Method	Ö.Ç.2 Ö.Ç.3 Ö.Ç.4
15.Week	*End of term exam week			*Çepni, S. (2019). Science and technology teaching (From theory to practice). Ankara: Pegem Publishing. sil Gökalp, M. (2014). Learning, teaching theories and approaches (Ed. B. Oral), Teaching-learning models (pp. 325-349), Ankara: Pegem Akademi.		

Assesment Methods %

1 Mzæ : 40.000

2 Final : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	2.00	2.00
Final	1	2.00	2.00
Ara Sınav Hazırlık	6	2.00	12.00
Final Sınavı Hazırlık	12	2.00	24.00
Laboratuvar	5	2.00	10.00
Ders Öncesi Bireysel Çalışma	13	2.00	26.00
Rapor	2	1.00	2.00
Derse Katılım	14	3.00	42.00
Total :			120.00
Sum of Workload / 30 (Hour) :			4
ECTS :			4.00

Program And OutcomeRelation

	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12	P.O.13	P.O.14	P.O.15	P.O.16	P.O.17	P.O.18	P.O.19	P.O.20	P.O.21	P.O.22	P.O.23	P.O.24
L.O.1	0	0	1	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O.2	1	0	3	0	1	1	1	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
L.O.3	1	1	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
L.O.4	1	0	3	1	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0
Avarage	1.00	0.25	3.00	1.00	0.25	1.75	1.50	0.25	2.50	0.50	0	0.25	0.50	0.50	0	0.50	1.00	0.25	0.25	0.25	0	0	0	0.50

Ders/Program Çıktıları İlişkisi

P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12	P.O.13	P.O.14	P.O.15	P.O.16	P.O.17	P.O.18	P.O.19	P.O.20	P.O.21	P.O.22	P.O.23	P.O.24	P.O.25
1	0	5	2	0	5	4	0	4	1	0	1	1	1	0	1	2	1	1	1	0	0	0	1	1

BEWARE OF PLAGIARISM! Please pay attention to proper academic citation rules and avoid plagiarism, an unethical and academically fraudulent behavior, when completing reports, assignments, or other academic works, and it is treated with the same disciplinary action as cheating in a classroom setting. It is imperative to refrain from presenting another person's ideas, language, expressions, or any other form of intellectual property as your own. Regardless of quality, your assignments/projects/research should reflect your original work. Perfection is not a requirement, and in case of any uncertainties regarding academic writing guidelines, you may seek clarification from your course instructor.

Engel Durumu/Uyarılama Talebi : Engel durumuna ilişkin herhangi bir uyarılama talebinde bulunmak isteyen öğrenciler, dersin öğretim elemanı ya da Nevşehir Engelli Öğrenci Birimi ile en kısa sürede iletişime geçmelidir.