



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	ATA-180	Atatürk s Principles and History of Turkish Revolution 1	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : To understand Atatürk s understanding of leadership and revolution in his students for his efforts for non-racist nationalism and world peace and for the modernization of Turkey. Teaching Methods and Techniques : The National Struggle in education, culture, social and economic areas, the life of Atatürk, the strategy of Turkish Revolution, Prerequisites and co-requisites : Political, social, cultural and legal revolutions and the process of these revolutions. Ataturk s internal and external political events Course Coordinator : Atatürk s struggle for world peace. To warn youth against Atatürk s principles and internal and external threats to the country and Name of Lecturers Assistants : to give information about Turkey s geopolitical position. ATA-180 : Atatürk S Principles and History of Turkish Revolution 1 Instructor Ertan Dilekçi					

Recommended or Required Reading	
Resources	: Orhan Doğan, Atatürk İlke ve İnkılap Tarihi : Atatürk s understanding of leadership and revolution in his students for his efforts for non-racist nationalism and world peace and for the modernization of Turkey. : Orhan Doğan, Atatürk İlke ve İnkılap Tarihi : Orhan Doğan, Atatürk İlke ve İnkılap Tarihi

Course Category	
Mathematics and Basic Sciences : 0	Education : 0
Engineering : 0	Science : 0
Engineering Design : 0	Health : 20
Social Sciences : 0	Field : 20

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Assessment of Lausanne Negotiations and Lausanne Treaty in comparison with Assessment and Sevres	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
2	Political process leading to the declaration of the Republic and the declaration of the Republic	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
3	Concept of Revolution. Comparison of the Turkish Revolution with other revolutions that affect the world	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
4	Secularism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
5	Republicanism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
6	Nationalism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
7	Revolutionism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
8	Statism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
9	Populism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
10	Reforms in the framework of Atatürk s Principles (Legal Reforms-Political Area Reforms)	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
11	Education and Cultural Reforms - Reforms affecting social life	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
12	Atatürk Period Developments in domestic politics.	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
13	Ataturk s Foreign Policy	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
14	General Evaluation	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :

Course Learning Outcomes	
No	Learning Outcomes
C01	1) To understand Turkish Revolution correctly with its justifications 2) Adoption and protection of the Turkish Revolution and its values 3) Ability to evaluate current issues in the light of historical information
C02	Adoption and protection of the Turkish Revolution and its values
C03	Ability to evaluate current issues in the light of historical information
C04	Ability to evaluate current issues in the light of historical information
C05	Ability to evaluate current issues in the light of historical information

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%5	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	3	42
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	5	5
Project	0	%0	Practice	0	0	0
Final examination	1	%10	Laboratory	0	0	0
Total		%15	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P20
All	5	5	5	5	5	5	5	5	5	5	5
C01	5	5	5	5	5	5	5	5	5	5	5
C02	5	5	4	5	4	5	4	5	5	5	5
C03	5	5	4	5	5	5	5	5	5	5	5
C04	5	5	4	5	4	5	4	5	5	5	5
C05	5	5	5	4	5	4	5	4	5	5	5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	10	10
Total Work Load			85
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	ENF-152	information technologies	3	3	5

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: To gain the basic information technologies literacy.
Teaching Methods and Techniques	: In this course, basic information technology knowledge, operating system, word processor and spreadsheet, presentation preparation, database software and internet access training are given.
Prerequisites and co-requisites	:
Course Coordinator	:
Name of Lecturers	: technologies
Assistants	: Yok. Yok.

Recommended or Required Reading

Resources	: What is a computer, the development of computer history, computer hardware parts, computer software, features affecting computer literacy, operating system, word processing, spreadsheet, presentation, internet usage and information security
	:
	:
	:

Course Category

Mathematics and Basic Sciences	: 0	Education	: 0
Engineering	: 100	Science	: 0
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Information about Basic Information Technologies, Hardware and Software	Computer capacity units and hard	Süleyman Demirel Üniversitesi En
2	Information about Basic Information Technologies, Hardware and Software	Computer capacity units and hard	Süleyman Demirel Üniversitesi En
3	Computer Usage and File Management	Installation of operating systems	: Süleyman Demirel Üniversitesi En
4	Computer Usage and File Management	Research should be done about B	Süleyman Demirel Üniversitesi En
5	Internet, Accessing Information and Communication	internet service providers, internet	Süleyman Demirel Üniversitesi En
6	Word Processor (MS Word)	Office package programs and inst	Süleyman Demirel Üniversitesi En
7	Midterm Midterm		Süleyman Demirel Üniversitesi En
8	Word Processor (MS Word)	Office package programs and inst	Süleyman Demirel Üniversitesi En
9	Electronic Spreadsheet (MS Excel)	Basic Concepts of Spreadsheet (C	Süleyman Demirel Üniversitesi En
10	Electronic Spreadsheet (MS Excel)	Basic Concepts of Spreadsheet (C	Süleyman Demirel Üniversitesi En
11	Presentation (MS PowerPoint)	Basic Concepts of Presentation Pr	Süleyman Demirel Üniversitesi En
12	Presentation (MS PowerPoint)	Basic Concepts of Presentation Pr	Süleyman Demirel Üniversitesi En
13	Database (MS Access)	Basic Concepts of the database (I	Süleyman Demirel Üniversitesi En
14	Database (MS Access)	Basic Concepts of the database (I	Süleyman Demirel Üniversitesi En

Course Learning Outcomes

No	Learning Outcomes
C01	Knows the concepts of information technology.
C02	Knows the basic hardware and software components of computer.
C03	Has the knowledge about written word processor to meet the professional needs.
C04	Has the knowledge about electronic spreadsheet software to meet professional needs.
C05	Can prepare the presentation.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%25	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	4	56
Assignment	1	%25	Assignments	1	5	5
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	14	14
Project	0	%0	Practice	0	0	0
Final examination	1	%50	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01			2			5					5					
C02			1	1												
C03			5			5					5					
C04			5			5					5					
C05			5			5					5					

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ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	28	28
Total Work Load			145
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	MBD-104	Educational Philosophy	2	2	3
Mode of Delivery : Face to Face					
Language of Instruction : Turkish					
Level of Course Unit : Bachelor's Degree					
Work Placement(s) : No					
Department / Program : Department of Science Education					
Type of Course Unit : Compulsory					
Objectives of the Course : The purpose of education is based on the theory and practice to give a philosophical approach by realizing the basic concepts of					
Teaching Methods and Techniques : philosophy and current philosophical approaches to education					
Prerequisites and co-requisites : Relationship between education and philosophy and approaches based on the approaches of education system and its practice.					
Course Coordinator :					
Name of Lecturers : Philosophy					
Assistants : Prof. Dr. Selçuk UYGUN					
: yok					

Recommended or Required Reading	
Resources	: Ergün, Mustafa. Eğitim Felsefesi, Ergün, Mustafa. Eğitim felsefesi : slayt : saly : : vize- final

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 100
Science	: 20
Health	: 0
Field	: 0

Weekly Detailed Course Contents		Study Materials	Materials
Week	Topics		
1	Fundamental issues and problem areas of philosophy	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
2	Philosophy of existence, knowledge, ethics / values and education	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
3	Basic philosophical movements (idealism, realism, naturalism, empiricism, rationalism, pragmatism, exist	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
4	Basic philosophical movements (idealism, realism, naturalism, empiricism, rationalism, pragmatism, exist	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
5	Philosophy of education and educational movements: Perennialism, essentialism, progressivism, existent	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
6	Philosophy of education and educational movements: Perennialism, essentialism, progressivism, existent	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
7	Educational views of some philosophers (Plato, Aristotle, Socrates, J. Dewey, Ibn-i Sina, Farabi, J. J. Rou	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
8	Educational views of some philosophers (Plato, Aristotle, Socrates, J. Dewey, Ibn-i Sina, Farabi, J. J. Rou	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
9	Educational views of some philosophers (Plato, Aristotle, Socrates, J. Dewey, Ibn-i Sina, Farabi, J. J. Rou	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
10	Mid-term Exam	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
11	Human nature, individual differences and education	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
12	Education in terms of some political and economic ideologies	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
13	Influential currents of thought and education in the modernization process in Turkey	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.
14	The philosophical foundations of the Turkish education system.	Sönmez, V. 2007; Eğitim Felsefesi	Öğretim Üyesi tarafından hazırlan.

Course Learning Outcomes	
No	Learning Outcomes
C01	1. To be able to understand the basic concepts of philosophy.
C02	2. To be able to analyze the relations between philosophy and science.
C03	3. To be able to comprehend the basic areas of philosophy.
C04	4. To be able to comprehend traditional and contemporary educational philosophy movements.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%50	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	14	2	28
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	2	2
Project	0	%0	Practice	0	0	0
Final examination	1	%50	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05
All	5				
C01		5			
C02			5		
C03				5	
C04					5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	2	2
Total Work Load			88
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	MBD-101	introduction to education	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: Basic concepts of educational science. Understands social, philosophical, psychological, historical, economic and scientific foundations of education. Understands the concept of Turkish education and in education.
Teaching Methods and Techniques	: Basic concepts of education, social, psychological, economic, etc. basics, Turkish education system
Prerequisites and co-requisites	:
Course Coordinator	:
Name of Lecturers	: to education
Assistants	: yok

Recommended or Required Reading	
Resources	: Karip, E. (Editör). Eğitim Bilimine Giriş. PegemA Yayıncılık. Memduhoğlu, H. B. ve Yılmaz, K. Eğitime Giriş. PegemA Yayıncılık. Sönm : Basic concepts of educational science. Understands social, philosophical, psychological, historical, economic and scientific foundation
	:
	:

Course Category			
Mathematics and Basic Sciences	: 0	Education	: 100
Engineering	: 0	Science	: 0
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Discussion on the aim and scope of the course	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
2	Basic concepts of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
3	Legal and political foundations of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
4	Social foundations of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
5	Philosophical foundations of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
6	Psychological foundations of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
7	Historical basis of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
8	Historical basis of teacher education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
9	Midterm examination	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
10	Economic foundations of education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
11	Scientific foundations of education and educational research	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
12	Turkish education system	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
13	Problems of Turkish education system	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları
14	Contemporary trends in education	comes to class by reading the tex	Eğitim Bilimine Giriş der kitapları

Course Learning Outcomes	
No	Learning Outcomes
C01	Defines the concept of education
C02	Social, psychological, historical, economic, etc. education. become aware of the basics.
C03	Knows the structure of contemporary Turkish education system.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations

P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	20	20
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P07	P12
All	3	3
C01	3	3
C02	3	3
C03	3	3

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			96
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	FEN-101	Physics 1	2	3	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of this course is to teach the principles of Newtonian mechanics, basic laws and basic principles of movement and to develop proficiency about the applications of those to the physical events that occur in daily life. Teaching Methods and Techniques : Prerequisites and co-requisites : Meaning, fields, importance and historical development of physics; SI unit system, dimension analysis, vectors; meaning and variables of movement; examples of motion in one and two dimensional space; relative speed; Newton s laws and practices; Course Coordinator : Name of Lecturers : universal gravitation; frictional force; work, power, mechanical energy types; simple machines; energy in conservative and non-conservative force systems; impulse, linear momentum, center of mass, interaction in one and two dimensional space; equilibrium in solid bodies; kinematics and dynamics of rotation and rolling motion, energy and angular momentum; pressure; Lifting force; Assistants : simple harmonic motion, damped and forced oscillations, resonance and open and close ended experiments for these subjects. FEN-101 Physics 1 Prof. Dr. Halil Turgut					

Recommended or Required Reading	
Resources	: Physics I for Scientists and Engineers ; Raymond A. Serway, Robert J. Beichner : Physics for Science and Engineering, Part I-SERWAY : : :

Course Category	
Mathematics and Basic Sciences	: 40
Engineering	: 10
Engineering Design	:
Social Sciences	:
Education	:
Science	: 50
Health	:
Field	:

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Meaning, fields, importance, historical development of physics and open and close ended experiments for	Reading related documents	
2	SI unit system, dimension analysis, vectors and open and close ended experiments for these subjects.	Reading related documents	
3	Meaning and variables of movement and open and close ended experiments for these subjects.	Reading related documents	
4	Examples of motion in one and two dimensional space and open and close ended experiments for these	Reading related documents	
5	Relative speed and open and close ended experiments for these subjects.	Reading related documents	
6	Newton s laws and practices; frictional force and open and close ended experiments for these subjects.	Reading related documents	
7	Universal gravitation and open and close ended experiments for these subjects.	Reading related documents	
8	Work, power, mechanical energy types; simple machines and open and close ended experiments for the	Reading related documents	
9	Energy in conservative and non-conservative force systems and open and close ended experiments for tl	Reading related documents	
10	Impulse, linear momentum, center of mass, interaction in one and two dimensional space and open and	Reading related documents	
11	Equilibrium in solid bodies and open and close ended experiments for these subjects.	Reading related documents	
12	Kinematics and dynamics of rotation and rolling motion, energy and angular momentum and open and c	Reading related documents	
13	Pressure; Lifting force and open and close ended experiments for these subjects.	Reading related documents	
14	Simple harmonic motion, damped and forced oscillations, resonance and open and close ended experim	Reading related documents	

Recommended Optional Programme Components

FEN-101 Physics 1

Course Learning Outcomes	
No	Learning Outcomes
C01	Understands the importance of measuring in science.

C02	Refers to the physical quantities with their units.
C03	Distinguishes the vector and scalar quantities.
C04	Knows the basic concepts of motion.
C05	Analyzes the relationship between displacement, speed, velocity and acceleration.
C06	Analyzes the effect of force on objects.
C07	Solves problems related to mechanics.
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	4	56
Quizzes	0	%0	Hours for off-the-c.r.stud	12	2	24
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	5	5
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	2	4	1	4	1	1	4	1	3	1	1	1	1	2	2	2
C02	1	4	1	4	1	1	4	1	3	1	1	1	1	2	2	1
C03	2	4	1	4	1	1	4	1	3	1	1	1	1	2	2	2
C04	4	4	4	4	1	1	4	1	3	1	1	1	1	2	2	4
C05	4	4	4	4	1	1	4	1	3	1	1	1	1	2	2	4
C06	4	4	4	4	1	1	4	1	3	1	1	1	1	2	2	4
C07	4	4	4	4	1	1	4	1	3	1	1	1	1	2	2	4

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	5	5
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	FEN-105	General Mathematics 1	2	2	2

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: Mathematics is a unique and powerful intellectual discipline used to investigate patterns, order, generality and uncertainty. It is a
Teaching Methods and Techniques	: method of thinking in which problems are explored and solved through observation, reflection and logical reasoning. In doing so,
Prerequisites and co-requisites	: it uses a concise communication system with written, symbolic, verbal and visual components. Mathematics is creative, requires
Course Coordinator	: initiative and encourages curiosity in an increasingly complex and data-driven world. In this sense, it is the basis of all quantitative
Name of Lecturers	: disciplines.
Assistants	:
FEN-105	General Mathematics I Effective involvement of students in society and the economy requires them to be prepared with knowledge, skills and confidence, and to develop skills that reflect the demands of the 21st century. Students taking mathematics will develop critical and creative thinking, verbal and written communication, ICT capabilities, collaboration skills, and a sense of personal and social responsibility, and ultimately will be lifelong learners who take initiative when confronted with challenges. In doing so, it is aimed to establish a connection between technology and mathematics, thus to develop conceptual understanding and to establish a positive effect on students tendency to mathematics. Mathematics teaching and learning practices range from the application of basic mathematical routines to developing procedural fluency, exploring scenarios, modeling the real world, solving problems, and explaining reasoning. When students gain procedural fluency, they conduct procedures flexibly, accurately and efficiently. When real knowledge and concepts easily come to mind, students can use information in a more complex way. Formulates, represents and solves mathematical problems successfully. Problem solving helps to develop an ability to transfer mathematical skills and ideas between different contexts. This helps students make connections between relevant concepts and adapt what they know to new and unfamiliar situations. With appropriate efforts and experience, students should build confidence and achieve success in their use of mathematics through discussion, collaboration and reflection of ideas. General Mathematics I is a content course for students who want to extend their mathematical skills beyond secondary education, but do not require a high-level account of their future studies or study paths. It includes a practical approach that meets students as future citizens for their needs. It aims to teach students mathematically appropriate questions, identify paths, the causes of complex solutions, build models, and communicate in different ways. In the first part of the two-semester General Mathematics courses, which are given as compulsory courses in the Department of Science Education, the main purpose of the General Mathematics I course is to increase the skills and self-confidence of the students towards mathematics, to understand the content of the course and to develop a mathematical thinking style while evaluating their own achievements. Numbers; relations; first and second order equations solutions; definition and properties of function; trigonometric, exponential and logarithmic functions; limit in functions, uncertainty in limits, continuity properties and types. Associate Prof.Dr. Tunahan TURHAN

Recommended or Required Reading	
Resources	: Google Çeviri de aç,What is the limit? : What is the limit used for? : What is uncertainty? : What happens in situations of uncertainty?,Problems regarding the limit are solved.,Continuity of a function is examined. Are there : * Defines the mathematical concepts used in their field of science. : * Interprets the relationships between mathematical concepts learned.

Course Category	
Mathematics and Basic Sciences	: 50
Engineering	: 20
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 30
Health	: 0
Field	: 0

Week	Topics	Study Materials	Materials
1	Introduction, Course Contents and Information about Syllabus	Referans edilen aşağıdaki kaynakl	Genel Matematik esas alan lisans
2	Numbers and "Set Theory"	The following references are exan	Genel Matematik esas alan lisans
3	Relations	The following references are exan	Genel Matematik esas alan lisans
4	First and second degree equation solutions	Related references should be exa	Genel Matematik esas alan lisans
5	First and second degree equation solutions	References should be examined.1	Genel Matematik esas alan lisans
6	Function description and properties	1. Mustafa BALCI. Genel Matemat	Genel Matematik esas alan lisans
7	Function description and properties	References should be examined:1	Genel Matematik esas alan lisans
8	Trigonometric, exponential and logarithmic functions	References should be examined:1	Genel Matematik esas alan lisans

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
9	Trigonometric, exponential and logarithmic functions	References should be examined.1	Genel Matematik esas alan lisans
10	Limit, limit in functions, limit uncertainty	1. Mustafa BALCI. Genel Matematik	Genel Matematik esas alan lisans
11	Limit, limit in functions, limit uncertainty	1. Mustafa BALCI. Genel Matematik	Genel Matematik esas alan lisans
12	Continuity properties and types	1. Mustafa BALCI. Genel Matematik	Genel Matematik esas alan lisans
13	Continuity properties and types	1. Mustafa BALCI. Genel Matematik	Genel Matematik esas alan lisans
14	General Review, General Evaluation of the Course	Referans edilen aşağıdaki kaynaklar	Genel Matematik esas alan lisans

Course Learning Outcomes	
No	Learning Outcomes
C01	* Discover the nature and principles of mathematics.
C02	* Understands the meaning of mathematical expressions and symbols.
C03	* Models mathematical problems in daily life by using mathematical relationships.
C04	* Have knowledge about the place, importance and historical development of number concept in mathematics.
C05	* Associates mathematical meanings of function, limit and derivative with daily life.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	1	14
Assignment	14	%28	Assignments	14	1	14
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	10	10
Project	0	%0	Practice	0	0	0
Final examination	1	%0	Laboratory	0	0	0
Total		%28	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
All	4	3	4	3	4	4	3	4	3	4	3	4	3	4	4	4
C01	5	4	5	4	3	4	3	5	4	4	4	3	4	3	5	5
C02	5	5	5	5	4	5	4	4	3	3	5	4	3	4	5	5
C03	4	4	5	4	5	4	4	4	4	4	4	3	4	4	4	4
C04	3	3	4	4	4	4	3	3	5	4	4	4	5	4	4	3
C05	3	3	5	3	4	3	4	4	4	5	4	4	4	5	4	3

Empty box for additional information or notes.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			66
ECTS Credit of the Course			2

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	KRY-001	Career Planning and Introduction to Work Life	1	1	2

Mode of Delivery	:	Face to Face
Language of Instruction	:	Turkish
Level of Course Unit	:	Bachelor's Degree
Work Placement(s)	:	No
Department / Program	:	Department of Science Education
Type of Course Unit	:	Compulsory
Objectives of the Course	:	According to their personal future goals, university students find themselves a place in a sector after their graduation as both an employee, manager and entrepreneur. Therefore, in the context of the education they receive, they become a structural part of a public, private or non-profit organization. However, they can obtain information about the sectors they will work in and career opportunities either through applications such as internships or through personal efforts. Those who cannot acquire this information can only have this information when they start working (The phrase "returning to the fish out of water" after graduation is commonly used for these students). With the advice made by the members of the Career Center Alumni Advisory Board and the Presidency Human Resources Office, it will be beneficial for the students to get to know the sectors they can work in the future without waiting until their graduation and to prepare in line with their career plans starting from the first year. Although they gain basic information about a specific sector according to the branch of science they study, gaining knowledge about different sectors that make up the economic structure will affect the success of students after graduation. With the Career Planning and Introduction to Working Life course, the profit purpose established for entrepreneurship in which students will work on their own behalf and account, the private sector covering different sectors, the public sector and foundations, associations and social enterprises that include employees based on different areas of expertise, It is aimed to gain basic knowledge about career opportunities in non-governmental organizations and to start planning their career related to the sector they want to work in.
Teaching Methods and Techniques	:	
Prerequisites and co-requisites	:	
Course Coordinator	:	
Name of Lecturers	:	
Assistants	:	
KRY-001	Career Planning and Introduction to Work Life	<p>Career Planning and Introduction to Working Life course has been framed in a single roof to address different departments and programs.</p> <p>In line with the aim of the course, the concepts of career and career planning will be explained to the students first. CV preparation training will be provided as the key to starting working in institutions and each student's personal CVs will be entered and updated to the Talent Gate (www.yetenekkapisi.org) system. It provides information about national and international exchange programs to add different perspectives to their careers. Entrepreneurship and leadership training as a career path will be transferred to students within the scope of the course. According to the Professional Committees established within the Isparta Chamber of Commerce and Industry, sector representatives and / or university graduates will be informed about private sectors. These sectors are as follows:</p> <ol style="list-style-type: none"> 1. Real Estate, Finance and Insurance Activities 2. Education, Culture, Entertainment Sports Information and Communication 3. Human Health and Other Social Support Service Activities 4. Construction Activities 5. Construction Materials Trade 6. Leather Manufacturing and Exports 7. Agriculture, Fisheries and Livestock 8. Food, Beverage, Tobacco Trade and Manufacturing 9. Chemical, Machinery, Boiler, Marble, Metal Manufacturing, Electricity Generation and Distribution 10. Motor Vehicles Spare Parts Accessory Fuels Trade and Manufacturing 11. Clothing, Home Textile Trade and Manufacturing 12. Trade of Furniture and Electrical Materials 13. Mineral, Chemical, Jewelry, Toy and Gift Trade 14. Forestry and Packaging Material Manufacturing and Trade 15. Passenger and Freight Transport Transport 16. Accommodation, Consultancy and Tourism 17. Engineering Activities <p>Awareness level of the students taking the course will be increased by informing them about different sectors by sector representatives. Career opportunities in the public sector and non-profit organizations will also be explained to students within the scope of the course.</p> <p>Asist Prof.Dr. Halil İbrahim ÖZMEN</p>

Recommended or Required Reading	
Resources	: By watching web-based learning videos, gaining information about "10. Motor Vehicles Spare Parts and Accessories Fuel Trade and Career Concept to students, CV preparation techniques presentation prepared by Career Center, Obtaining information about National and International Exchange Programs have been uploaded online to https://www.youtube.com/watch?v=_V_F9ZTwwLo&list=PLjrxpO2bd02RUjtcY9 : https://www.youtube.com/playlist?list=PLjrxpO2bd02RUjtcY9WsbjYfsemcPzG

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 0
Field	: 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Explanation of Course Method and Operation (Distance):Drawing the general framework of the course, t	Task 1. Answering the distance ex	https://www.youtube.com/playlist
2	National and International Exchange Programs (Distance)Pervin KAPLAN - What is Mevlana Student Exch	Task 2. Answering distance educa	https://www.youtube.com/playlist
3	246/5000Entrepreneurship as a Career Path (Distance)Entrepreneurship and Leadership PresentationCar	Task 3. Answering distance educa	https://www.youtube.com/playlist

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
4	Sector Presentation (Distance): CAREER IN PRIVATE SECTOR1. Real Estate, Finance and Insurance Activ	Task 4. Answering distance educa	https://www.youtube.com/playlist
5	Sector Presentation (Distance): CAREER IN PRIVATE SECTOR4. Construction Activities5. Construction Ma	Task 5. Answering distance educa	https://www.youtube.com/playlist
6	Sector Presentation (Distance): CAREER IN PRIVATE SECTOR7. Agriculture, Fisheries and Livestock8.Foc	Task 6. Answering distance educa	https://www.youtube.com/playlist
7	Sector Presentation (Distance): CAREER IN PRIVATE SECTOR10. Motor Vehicles Spare Parts Accessory F	Task 7. Answering distance educa	https://www.youtube.com/playlist
8	Individual Career Presentation and Counseling (Distance):Delivery and Evaluation of Individual Career Pr	Task 8.Activating CV in Talent Gal	https://www.youtube.com/playlist
9	Sector Presentation (Distance): CAREER IN PRIVATE SECTOR13. Mine, Chemical, Jewelry, Toy and Gift 1	Task 9. Answering distance educa	https://www.youtube.com/playlist
10	Sector Presentation (Distance): CAREER IN PRIVATE SECTOR16. Accommodation, Consultancy and Tour	Task 10. Answering distance educ	https://www.youtube.com/playlist
11	Sector Presentation (Distance): CAREER IN THE PUBLIC SECTOR1. Career in the General Public Sector2.	Task 11. Answering distance educ	https://www.youtube.com/playlist
12	Sector Presentation (Distance): CAREER IN THE PUBLIC SECTOR4. Religious Services5. Justice Services6	Task 12. Answering distance educ	https://www.youtube.com/playlist
13	Sector Presentation: CAREER IN NON-PROFIT ORGANIZATIONS1. Local Governments2. Civil Society Org	Task 13. Answering distance educ	https://www.youtube.com/playlist
14	230/5000General Evaluation of the Semester and Student Expectations Questionnaire (Distance):Determ	Task 14. Uploading individual CV	https://www.youtube.com/playlist

Course Learning Outcomes

No	Learning Outcomes
C01	Knows the stages of career planning process.
C02	Analyze the factors affecting personal career planning.
C03	Kişisel Kariyer Planı hazırlar
C04	Prepares CV for realizing a Career Plan
C05	It reviews and evaluates career development and revises it according to current conditions.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	0	%0	Course Duration	14	1	14
Quizzes	14	%100	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%2	Assignments	14	1	14
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	0	0	0
Project	0	%0	Practice	0	0	0
Final examination	0	%0	Laboratory	0	0	0
Total		%102	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P02	P03	P09
All	5	5	5
C01	5	5	5
C02	5	5	5
C03	5	5	5
C04	5	5	5
C05	5	5	5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			56
ECTS Credit of the Course			2

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	FEN-103	Chemistry 1	2	3	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of the course is to teach the laws, principles, theories and applications of general chemistry including atomic structure, stoichiometry, periodic table, chemical compounds, solutions and chemical bonds. Teaching Methods and Techniques : The historical development of the chemistry (the importance, the fields, the effect of our life, the classification and properties of the material); chemical reactions and stoichiometry (scientific methods, significant figures, chemical reactions and equations, atomic mass, mole concept, avogadro number); atom and atom electron structure (atomic nucleus, atomic theories, electron structure); periodic table (classification of elements, periodic properties); metals (alkali metals, alkaline earth metals, main group elements, ammetals: noble gases, halogens); chemical compounds (types of compounds, formulation and naming of compounds, concept of mole); acids and bases (definition of arhenius acid-base, definition of brønsted-lowry acid-base, definition of lewis acid base, definition of strong-weak acid-bases); chemical bonds (basic concepts, chemical bond, ionic bond, covalent bond, bond energy, molecular geometry); valence bond theory (hybridization and molecular geometry); intermolecular interactions (fluids, solids, gases); physical properties of solutions and separation (methods of separation of chemicals in various ways, purification methods) and open and close ended experiments for these subjects. Prerequisites and co-requisites : Course Coordinator : Name of Lecturers : Assistants :					
FEN-103	Chemistry 1	Associate Prof.Dr. Seraceddin Levent ZORLUOĞLU			
Recommended or Required Reading					
Resources : Genel Kimya, Petrucci. Harwood. Herring. Çeviri Ed: Tahsin Uyar, Serpil Aksoy, Palme Yayıncılık, Ankara 2002. : The main objective of the course is to provide the student with the basic methodology of chemistry and the logic to explain these ce : : :					
Course Category					
Mathematics and Basic Sciences	: 0	Education	: 10		
Engineering	: 0	Science	: 80		
Engineering Design	: 0	Health	: 0		
Social Sciences	: 0	Field	: 10		
Weekly Detailed Course Contents					
Week	Topics	Study Materials	Materials		
1	The historical development of the chemistry (the importance, the fields, the effect of our life, the classifi	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
2	The historical development of the chemistry (the importance, the fields, the effect of our life, the classifi	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
3	Matter of Unit	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
4	Matter of Energy	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
5	Changes and the Driving Force of the Changes in Matter	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
6	Elements and Atoms	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
7	Elements and Atoms	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
8	Elements and Atoms	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
9	Chemical Bond, Molecules and Compounds	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
10	The Holistic View of Matter and Coming together of Particles	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
11	Unit of Gases	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
12	Unit of Solutions	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
13	Unit of Solutions	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
14	Ideal Solutions (Melting and Freezing Point)	1 Genel Kimya, Petrucci. Harwooc	Dersin teorisinin işlenmesinde, çe:		
Course Learning Outcomes					
No	Learning Outcomes				
C01	to realize the development of chemical science				
C02	to learn everything about matter				

C03	to evaluate the forces of bring together to matter
C04	to learn detailed information about gases and solutions
C05	to analyze the concepts of melting and freezing point
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Empty box for additional information or notes.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	1	1
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	TUR-290	Turkish Language 1	3	3	5

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: This course aims to improve the students' Turkish language skills of syntax, semantics, pragmatics, and writing.
Teaching Methods and Techniques	: What is language? Birth of languages. The relation of language-feeling-thought. Language-Culture relation. Language society
Prerequisites and co-requisites	: relation. Language all over the world and the place of Turkish among these languages. Punctuation marks and spelling rules.
Course Coordinator	: Fhonoloji-Structure-word-verbs-phrases-sentence.
Name of Lecturers	:
Assistants	: İnşaat 1
	: Instructor Denizhan İZCİ
	: -

Recommended or Required Reading

Resources	: Nurettin Demir, Emine Yılmaz, Türk Dili Yazılı ve Sözlü Anlatım, Nobel Yayın Dağıtım, Ankara 2009. Süer Eker, Çağdaş Türk Dili, Graf
	: This goal of this course to improve the students' Turkish language skills of syntax, semantics, pragmatics, and writing.
	:
	:
	:

Course Category

Mathematics and Basic Sciences	:	Education	:
Engineering	:	Science	:
Engineering Design	:	Health	:
Social Sciences	: 80	Field	: 20

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Verbal narration	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
2	Written narration (Essay)a) Essay writing rules	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
3	b) Narration typesc) Ambiguities	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
4	Letter, ad, advertisement, autobiography	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
5	Article, essay, critics	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
6	Memory, voyager, biography, autobiography	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
7	Interview, story, novel, theatre, tale	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
8	Report, record.Midterm.	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
9	Applications of literary work types	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
10	Art of speaking and speaking kinds:a) Rules for a successful address	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
11	b) Address types (application)	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
12	Methods for scientific survey (Choosing the topic, restriction, finding resources and writing)	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
13	Text studies and specific articles	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	
14	Text studies and specific articles	Özkan vd. Türk Dili, Lisans Yayın: Muhittin Bilgin, Meaningful Narrat	

Course Learning Outcomes

No	Learning Outcomes
C01	Learning the place of Turkish language among world languages
C02	Learning the phonetic features of Turkish and the rules about phonetics
C03	General information about the composition, the plan and application to be used in writing the composition

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations

P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	40	40
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P20
All	1	2	1	2	2	1	4	1	2	3	1	2	1
C01	1	2	1	2	2	1	4	1	2	3	1	2	1
C02	1	2	1	2	2	1	4	1	2	3	1	2	1
C03	1	2	1	2	2	1	4	1	2	3	1	2	1

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	50	50
Total Work Load			146
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
1	YBD-401	Foreign Language 1	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of the course is to teach the students the present continuous and simple present tense and to provide basic speaking and writing skills Teaching Methods and Techniques : and writing skills Prerequisites and co-requisites : The Common European Framework A2 Skills Course Coordinator : Present Simple Tense; Present Continuous Tense; verbal, reading, writing and listening skills in these tenses; verbal skills (self-introduction, description of something / place, giving directions, question and answer patterns for personal information); reading skills (in a restaurant, in the bus-train etc. transportation vehicles, at shopping, list / label reading, asking questions etc.); writing skills (writing text messages, poster content, filling in form); listening skills (directions, place / person descriptions, etc.). Name of Lecturers : Assistants : YBD-401 Foreign Language Elementary Level(Başlangıç Seviyesi) Yok					

Recommended or Required Reading	
Resources	: Manage simple routine exchanges,"to be", possessive adjectives, countries,"to be" Questions and negatives,jobs,Everyday objects, c : The goal of this course is to provide the students with the ability to express the problems that can be faced in daily life in a foreign l : : :

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 50
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 0
Field	: 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Manage simple, routine exchanges	Directions, signs, notices and intri	Ders Kitabı (Face2Face English Ek
2	"to be", possessive adjectives, countries	Posters and advertisements	Ders Kitabı (Face2Face English Ek
3	"to be" Questions and negatives, jobs	Extract essential information form	Ders Kitabı (Face2Face English Ek
4	Everyday objects, countries, opposite adjectives	Handles simple business in shops,	Ders Kitabı (Face2Face English Ek
5	What time is it? Social expressions: I m sorry. Excuse me.	Make and respond to invitations, :	Ders Kitabı (Face2Face English Ek
6	There is/are, How many? Preposition of place	Discuss what to do in the evening	Ders Kitabı (Face2Face English Ek
7	Midterm Exam		Ders Kitabı (Face2Face English Ek
8	Give and receive information about travel and buy tickets	Forms, standart letters	Ders Kitabı (Face2Face English Ek
9	Agree and disagree with others, order a meal	Personal correspondence	Ders Kitabı (Face2Face English Ek
10	Describe events and activities	Describe plans and arrangements	Ders Kitabı (Face2Face English Ek
11	Express likes and dislikes	Ask for and give directions	Ders Kitabı (Face2Face English Ek
12	Describe family and living conditions	Ask for and provide personal infor	Ders Kitabı (Face2Face English Ek
13	Relate personal experience	Use simple tecniques to start, mai	Ders Kitabı (Face2Face English Ek
14	Past Simple Tense	Past habits	Ders Kitabı (Face2Face English Ek

Course Learning Outcomes	
No	Learning Outcomes
C01	To be able to develop reading, writing and listening skills in the present continuous tense,
C02	To be able to develop reading, writing and listening skills in the present simple tense,
C03	To be able to develop verbal skills such as self-introduction, description of something / place, giving directions, question and answer patterns for personal information,
C04	To be able to develop reading skills in a restaurant, in the bus-train etc. transportation vehicles, at shopping, list / label reading,

C05 To be able to develop writing skills such as writing text messages, poster content, filling in form.

C06 To be able to talk about clothes on a basic level and ask sellers about them.

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	4	4
Total Work Load			94
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	ATA-280	Principles of Atatürk and Modern Turkish History I-II	2	2	3
Mode of Delivery : Face to Face					
Language of Instruction : Turkish					
Level of Course Unit : Bachelor's Degree					
Work Placement(s) : No					
Department / Program : Department of Science Education					
Type of Course Unit : Compulsory					
Objectives of the Course : To understand Atatürk's understanding of leadership and revolution in his students for his efforts for non-racist nationalism and world peace and for the modernization of Turkey.					
Teaching Methods and Techniques : The National Struggle in education, culture, social and economic areas, the life of Atatürk, the strategy of Turkish Revolution,					
Prerequisites and co-requisites : Political, social, cultural and legal revolutions and the process of these revolutions. Atatürk's internal and external political events					
Course Coordinator : Atatürk's struggle for world peace. To warn youth against Atatürk's principles and internal and external threats to the country and					
Name of Lecturers Assistants : to give information about Turkey's geopolitical position.					
ATA-280 Principles of Atatürk and Modern Turkish History I-II					
Instructor Ertan Dilekçi					

Recommended or Required Reading	
Resources	: Orhan Doğan, Atatürk İlke ve İnkılap Tarihi : Atatürk's understanding of leadership and revolution in his students for his efforts for non-racist nationalism and world peace and for : Orhan Doğan, Atatürk İlke ve İnkılap Tarihi : Orhan Doğan, Atatürk İlke ve İnkılap Tarihi

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 20
Field	: 20

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Assessment of Lausanne Negotiations and Lausanne Treaty in comparison with Assessment and Sevres	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
2	Political process leading to the declaration of the Republic and the declaration of the Republic	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
3	Concept of Revolution. Comparison of the Turkish Revolution with other revolutions that affect the world	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
4	Secularism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
5	Republicanism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
6	Nationalism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
7	Revolutionism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
8	Statism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
9	Populism	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
10	Reforms in the framework of Atatürk's Principles (Legal Reforms-Political Area Reforms)	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
11	Education and Cultural Reforms - Reforms affecting social life	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
12	Atatürk Period Developments in domestic politics.	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
13	Atatürk's Foreign Policy	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :
14	General Evaluation	Atatürk İlkeleri ve İnkılap Tarihi I/	1-Mustafa Kemal, Nutuk, Ankara :

Course Learning Outcomes	
No	Learning Outcomes
C01	1) To understand Turkish Revolution correctly with its justifications 2) Adoption and protection of the Turkish Revolution and its values 3) Ability to evaluate current issues in the light of historical information
C02	Adoption and protection of the Turkish Revolution and its values
C03	Ability to evaluate current issues in the light of historical information
C04	Ability to evaluate current issues in the light of historical information
C05	Ability to evaluate current issues in the light of historical information

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%5	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	3	42
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	5	5
Project	0	%0	Practice	0	0	0
Final examination	1	%10	Laboratory	0	0	0
Total		%15	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P20
All	5	5	5	5	5	5	5	5	5	5	5
C01	5	5	5	5	5	5	5	5	5	5	5
C02	5	5	4	5	4	5	4	5	5	5	5
C03	5	5	4	5	5	5	5	5	5	5	5
C04	5	5	4	5	4	5	4	5	5	5	5
C05	5	5	5	4	5	4	5	4	5	5	5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	10	10
Total Work Load			85
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	FEN-108	Biology 1	2	3	4
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : It aims to provide students with information about the importance of biology science, living things, classification, vegetative cells and tissues, cell division. Teaching Methods and Techniques : The meaning, areas, importance and historical development of biology; living and inanimate structures; diversity of living things Prerequisites and co-requisites : and Course Coordinator : classification (prokaryotes, eukaryotes, concept of species and taxonomic structures, concept of species and taxonomic structures, structure and properties of plants); the basic unit of life (cell, cell structure and function, membrane structure and function); cell division (mitosis, meiosis and uncontrolled cell division); textures (vegetative tissues, dividing tissue, invariant tissue); vegetative organs and structures (vegetative organs, generative organs, reproduction, fertilization and development in flowering and flowering plants) and open and closed-ended experiments. Name of Lecturers : Associate Prof.Dr. YASEMİN COŞKUN Assistants : -					

Recommended or Required Reading	
Resources	: To have general information about botanical subjects in biology : Students are expected to understand the importance of the science of biology and to learn the basic concepts required. : :

Course Category	
Mathematics and Basic Sciences : 0 Engineering : 0 Engineering Design : 0 Social Sciences : 0	Education : 0 Science : 80 Health : 0 Field : 20

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Meaning, areas, importance, historical development of biology and open and close ended experiments for	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
2	Living and non-living structures; diversity and classification of living things and open and close ended ex	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
3	Prokaryotes, eukaryotes, species concept and taxonomic structures, species concept and taxonomic stru	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
4	Structure and properties of plants and open and close ended experiments for these subjects.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
5	Basic unit of life (cell, cell structure and function, membrane structure and function); and open and clos	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
6	Mitosis, meiosis and uncontrolled cell division and open and close ended experiments for these subjects.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
7	Plant tissues, dividing tissue, invariant tissue and open and close ended experiments for these subjects.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
8	Vegetative organs, generative organs and open and close ended experiments for these subjects.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
9	Reproductive in non-flowering plants and open and close ended experiments for these subjects.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
10	Reproductive in flowering plants and open and close ended experiments for these subjects.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
11	Fertilization and development in non-flowering plants and open and close ended experiments for these s	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
12	Fertilization and development in flowering plants and open and close ended experiments for these subje	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
13	General features of plant embryology and open and closed-ended experiments on these topics.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	
14	General features of plant embryology and open and closed-ended experiments on these topics.	Plant cell. Çiğdem Savaşkan (200: Öğretim üyesi tarafından hazırlan	

Course Learning Outcomes	
No	Learning Outcomes
C01	In this course, students entering the field of biology will be able to recognize the issues related to the content.
C02	It allows the microscopic examination of cell, organelle and tissue samples, examination environment and material (with systematic name).
C03	Acquires knowledge about the diversity of living things.

C04 Finds access to current information in the field of Biology.

C05 Getting the ability of speculating on various subjects regarding life.

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			140
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	MBD-102	Education psychology	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : This course concerns the psychology of education for prospective teachers. Course content considers principles from various Teaching Methods and Techniques : areas of psychology (e.g., the psychology of learning, mental development, and motivation) applied to the practical problems of Prerequisites and co-requisites : teaching and learning. Course Coordinator : The aim of this course is to introduce the students to basic concepts of education psychology and to give informations about Name of Lecturers : child development, cognitive, the facts which influence education, etc. Assistants : Instructor AKİF FATİH KILIÇ Yok. Yok.					

Recommended or Required Reading	
Resources	: Eğitim Psikolojisi- Pegem Yayınları : This course concerns the psychology of education for prospective teachers. Course content considers principles from various areas of : : :

Course Category	
Mathematics and Basic Sciences : 0	Education : 100
Engineering : 0	Science : 0
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 0

Week	Topics	Study Materials	Materials
1	Basic concepts of development	Chapter 1 should be read before t	Ders Kitabı/Kaynak Kitap: Eğitim İ
2	Physical Development	Chapter 2 should be read before t	Ders Kitabı/Kaynak Kitap: Eğitim İ
3	Cognitive Development	Chapter 3 should be read before t	Ders Kitabı/Kaynak Kitap: Eğitim İ
4	Personality Development	Section 5 must be read before the	Ders Kitabı/Kaynak Kitap: Eğitim İ
5	Moral Development	Chapter 6 should be read before t	Ders Kitabı/Kaynak Kitap: Eğitim İ
6	Other Development Areas	Chapter 7 should be read before t	Ders Kitabı/Kaynak Kitap: Eğitim İ
7	Midterm Exam		Ders Kitabı/Kaynak Kitap: Eğitim İ
8	Basic concepts of learning	Chapter 9 should be read before t	Ders Kitabı/Kaynak Kitap: Eğitim İ
9	Classic Reactive Conditioning	Chapter 10 should be read before	Ders Kitabı/Kaynak Kitap: Eğitim İ
10	Connection Theory	Chapter 11 from the course book	Ders Kitabı/Kaynak Kitap: Eğitim İ
11	Operant Conditioning	• Chapter 11 should be read befo	Ders Kitabı/Kaynak Kitap: Eğitim İ
12	Social Cognitive Learning Theory	• Chapter 13 from the course boo	Ders Kitabı/Kaynak Kitap: Eğitim İ
13	Gestalt Theory	Chapter 14 from the course book	Ders Kitabı/Kaynak Kitap: Eğitim İ
14	Information Processing Theory	Chapter 15 from the course book	Ders Kitabı/Kaynak Kitap: Eğitim İ

Recommended Optional Programme Components	
MBD-602 Child Psychology	

Course Learning Outcomes	
No	Learning Outcomes
C01	Can differentiate the exceptional or special needed children in education and support them.
C02	Knows and differentiates the effectual learning environments.
C03	Possesses the importance of individual differences in education and be able to differentiate the factors (interests, abilities, learning and thinking styles, etc) that are influential in this domain.

C04	Compares and contrasts the traditional and modern teaching methods and related techniques, be able to differentiate the related principle and develop new techniques. Understand the roles of the
C05	Understands the roles of the psychological factors (motivation, anxiety, stress, etc) in learning and teaching and be able to differentiate the roles and responsibilities of the teachers in these factors
C06	Knows the learning approaches (Behavioral and Cognitive), related concepts and the stages and be able to explain their roles and functions in learning and teaching.
C07	Knows the psycho-social development theories (Erikson and Freud), related concepts and the stages and be able to explain their roles and functions in learning and teaching.
C08	Knows the cognitive development theories (Piaget and Constructivist Approaches), related concepts and the stages and be able to explain their roles and functions in learning and teaching.
C09	Understands the relationship between Psychology and Education; know the subject areas of Educational Psychology.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	20	20
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15
All	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
C01	2	1	1	1	2	1	2	1	1	1	1	1	1	1	
C02	1	2	1	1	1	1	1	1	1		1	1	1	1	
C03	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
C04	1	1	4	1	1	1	1	1	1	1	1	1	1	1	
C05	1	1	1	2	1	1	1	1	2		1	1	1	1	
C06	1	1	1	1	1	2	1	1	1	1	1	2	1	1	
C07	1	1	1	1	1	1	1	1	1	1	1	1	5	1	
C08	1	1	1	1	1	1	1	3	1	1	1	1	5	1	
C09	1	1	1	1	1	1	1	1	1	1	3	1	1	1	4

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			96
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	MBD-103	Educational Sociology	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of this course is to provide an understanding of the relationship between social institutions such as culture, family, economy, state, religion, law and social structure, the relationship between the level of development of society and the education system, and to gain knowledge and skills about the role of education in development. Teaching Methods and Techniques : Sociology of Education, characteristics, importance and development (theories), Social functions of education, Socialization Prerequisites and co-requisites : process, Economy, politics, non-governmental organizations and education, Social stratification, classes, mobility and education, Course Coordinator : Social elements (family, gender, peer, etc.) and education, Educational problems and problems of the Turkish Education System, Name of Lecturers : School as a social system, Teacher and teacher position as a profession, Classroom roles (teacher-student), teacher personality, Assistants : school-environment relations, School as an environment of violence, Equal opportunities in education, Globalization, information society, multiculturalism and education, Future education: 21st century schools.					
MBD-103	Educational Sociology	Yok			

Recommended or Required Reading	
Resources	: Know the theoretical approaches underlying the sociology of education., Explain the elements of socialization process., Explain the re : 1-Sociology of Education, characteristics, importance and development knows. 2- Explain the theories of Sociology of Education. 3-S : : :

Course Category	
Mathematics and Basic Sciences : 0	Education : 100
Engineering : 0	Science : 0
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Introduction-Sociology of education, characteristics, importance and development (theories)	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
2	Educational Sociology, characteristics, importance and development (theories)	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
3	Social functions of education	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
4	Socialization process	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
5	Economy, politics, non-governmental organizations and education	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
6	Social stratification, classes, mobility and education	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
7	Social elements (family, gender, peer, etc.) and education	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
8	Educational problems and problems of Turkish Education System	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
9	School as a social system	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
10	Teaching as a profession and the position of the teacher	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
11	In-class roles (teacher-student), teacher personality, school-environment relations	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
12	School as an environment of violence	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
13	Equality of opportunity in education, Globalization, information society, multiculturalism and education	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	
14	Review of the term	Examination of the documents (ar Doğan, İ. (2018). Eğitim Sosyoloji	

Course Learning Outcomes	
No	Learning Outcomes
C01	Knows the properties, importance and development of the relationship between education and sociology.
C02	Explains the theories that affect the sociology of education.
C03	Establishes a relationship between education and social dynamics.

C04	Explains the relationship between education and economy, politics, NGO etc. that have an impact on society.
C05	Analyzes the relationships between social stratification, social classes, social mobility and social elements (family, gender, peer, etc.).
C06	Explains global education problems and Turkish Education System problems.
C07	Expresses the dynamics between school, the teaching profession and the position of the teacher.
C08	Explains classroom roles (teacher-student), teacher personality, school-environment relationships.
C09	Explains concepts such as violence, multiculturalism, equal opportunities, globalization affecting the school climate.
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Empty box for additional information or notes.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			96
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	FEN-102	Physics 2	2	3	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : To provide the students with the basic concepts and principles of classical electricity and electromagnetism. Teaching Methods and Techniques : Charge and its conservation, electrification, insulators and conductors, Coulomb s law, electric fields of continuous and discontinuous charges; Gauss law; potential energy of static charge; direct current; magnetic force and field; Hall effect, magnetic properties of matter; electromagnetic induction, AC generators, electric motors, transformers, heat and temperature, Prerequisites and co-requisites : thermodynamic laws and open-ended, structured experiments related with these subjects. Course Coordinator : Name of Lecturers : Assistants : Prof. Dr. Halil Turgut					

Recommended or Required Reading	
Resources	: Physics II for Science and Engineers - Serway : Physics II for Science and Engineering- Serway : : :

Course Category			
Mathmatics and Basic Sciences	: 40	Education	: 0
Engineering	: 10	Science	: 50
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Charge and its conservation, electrification, insulators, conductors, and open-ended, structured experime	Reading related documents	
2	Coulomb s law, electric fields of continuous and discontinuous charges, and open-ended, structured exp	Reading related documents	
3	Gauss law and open-ended, structured experiments of these subjects.	Reading related documents	
4	Potential of discontinuous and continuous charges and open-ended, structured experiments of these sub	Reading related documents	
5	Potential difference and open-ended, structured experiments of these subjects.	Reading related documents	
6	Dielectrics, energy in capacitors, and open-ended, structured experiments of these subjects.	Reading related documents	
7	Direct current, power sources, emf, and open-ended, structured experiments of these subjects.	Reading related documents	
8	Resistance, energy and power, direct current circuits, and open-ended, structured experiments of these	Reading related documents	
9	Structure of measuring instruments, use of electricity, safety, and open-ended, structured experiments o	Reading related documents	
10	Interaction of conductors having an electric current, moving charges with a magnetic field, Law of Biot-S	Reading related documents	
11	Faraday's Law, Lenz Law, the self-inductance, and open-ended, structured experiments of these subject	Reading related documents	
12	Magnetic field energy, AC generators, electric motors, transformer, and open-ended, structured experim	Reading related documents	
13	Heat and temperature, the thermal properties of the material, and open-ended, structured experiments	Reading related documents	
14	Thermodynamic laws, reversible and irreversible events, efficiency and entropy, and open-ended, struct	Reading related documents	

Recommended Optional Programme Components

FEN-102 Physics 2

Course Learning Outcomes

No	Learning Outcomes
C01	To be able to define the concepts of electric charge and electricity.
C02	To be able to analyse the force and electric field established by charged systems.
C03	To be able to express the concepts of electrical potential and potential energy.

C04	To be able to express the structures of capacitors and design circuits with capacitors.
C05	To be able to analyse electrical current and transmission of it.
C06	To be able to define the magnetic force on moving charged particles and apply the Biot-Savart, Ampere Laws.
C07	To be able to interpret electrical induction and apply Faraday, Lenz s Laws.
C08	To be able to develop understanding about heat, temperature and thermal properties of matter.

Program Learning Outcomes	
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No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	4	56
Quizzes	0	%0	Hours for off-the-c.r.stud	12	2	24
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	5	5
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C02	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C03	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C04	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C05	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C06	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C07	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5
C08	5	4	1	4	4	2	5	1	3	1	1	4	1	5	3	5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	5	5
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	FEN-106	General Mathematics 2	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : Definition and applications of derivation, integral and its applications, analytic geometry Teaching Methods and Techniques : Definition of derivatives and geometric applications; graphical indications, indefinite integral, integral separable into variables, Prerequisites and co-requisites : partial integral, indefinite integral applications; definite integral; analytical geometry Course Coordinator : Name of Lecturers : Mathematics 2 Assistants : Matematik Bölümü Araştırma Görevlileri					

Recommended or Required Reading	
Resources	<ul style="list-style-type: none">Critical points, maximum and minimum points are determined and marked on the graph.With the help of the second derivative, the convexity and concavity of the function are decided.In this direction, graphics are drawn.,What is integral and what need has arisen as a result for integral?What is the relationship between integral and derivative?What are the integration rules for elementary functions?,Integration rules andThe method integration by substitution is learned.,It is known that integral separable into variables method used to solve integrals toHow to establish a definite integral and area account relationship?,Basic concepts are mentioned on the analytical examination of the

Course Category	
Mathematics and Basic Sciences : 0	Education : 0
Engineering : 0	Science : 50
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 50

Weekly Detailed Course Contents		
Week	Topics	Study Materials / Materials
1	Definition of derivatives	The subject is read from the sound Temel matematik II yi esas alan ü
2	Definition of derivatives	The subject is read from the sound Temel matematik II yi esas alan ü
3	Geometric applications of derivatives	The subject is read from the sound Temel matematik II yi esas alan ü
4	Geometric applications of derivatives	The subject is read from the sound Temel matematik II yi esas alan ü
5	Graphical indications of derivatives	The subject is read from the sound Temel matematik II yi esas alan ü
6	Indefinite integral	The subject is read from the sound Temel matematik II yi esas alan ü
7	Indefinite integral	The subject is read from the sound Temel matematik II yi esas alan ü
8	Indefinite Integral	The subject is read from the sound Temel matematik II yi esas alan ü
9	Integral separable into variables	The subject is read from the sound Temel matematik II yi esas alan ü
10	Integral separable into variables	The subject is read from the sound Temel matematik II yi esas alan ü
11	Partial integral	The subject is read from the sound Temel matematik II yi esas alan ü
12	Indefinite integral applications	The subject is read from the sound Temel matematik II yi esas alan ü
13	Definite integral	The subject is read from the sound Temel matematik II yi esas alan ü
14	Analytical geometry.	The subject is read from the sound Temel matematik II yi esas alan ü

Course Learning Outcomes	
No	Learning Outcomes
C01	1. he can define the definition of derivation
C02	2. he can know the areas in which derivative is used and solves the related problems
C03	3. He can analyze the data by doing data analysis.
C04	4.He can have information about integral and its solutions.
C05	5.He can have knowledge about analytical geometry and solve related problems.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	FEN-104	Chemistry 2	2	3	3
Mode of Delivery		: Face to Face			
Language of Instruction		: Turkish			
Level of Course Unit		: Bachelor's Degree			
Work Placement(s)		: No			
Department / Program		: Department of Science Education			
Type of Course Unit		: Compulsory			
Objectives of the Course		: General chemistry, chemical equilibrium, chemical kinetics concepts, acid-base and salt solutions, electrochemistry and thermochemistry, as well as radioactivity and energy is aimed to provide information about energy issues.			
Teaching Methods and Techniques		: Chemical reactions (chemical equations, precipitation, complexation reactions); chemical kinetics (rate of reaction, factors affecting reaction rate, rate law, threshold energy, rate constant dependence on temperature); reaction mechanisms and catalysis; chemical equilibrium (finding equilibrium constant); proton transfer- acids and bases; salt solutions (acid bases of ions, titrations, buffer solutions, factors affecting chemical equilibrium, oxidation-reduction reactions); electrochemistry (electrolysis and battery); thermochemistry (heat, laws of thermodynamics, enthalpy, internal energy, entropy); nuclear chemistry (radioactivity, nuclear energy) and open and close ended experiments for these subjects.			
Prerequisites and co-requisites					
Course Coordinator					
Name of Lecturers					
Assistants					
FEN-104	Chemistry 2	Associate Prof.Dr. Seraceddin Levent ZORLUOĞLU			

Recommended or Required Reading

Resources	: Genel Kimya, Petrucci. Harwood. Herring. Çeviri Ed: Tahsin Uyar, Serpil Aksoy, Palme Yayıncılık, Ankara 2002. : The main objective is to provide the students with a basic understanding of the basic principles and properties of chemistry, and to
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Course Category

Mathematics and Basic Sciences	: 0	Education	: 10
Engineering	: 0	Science	: 80
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 10

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Chemical reactions (chemical equations, precipitation, complexation reactions) and open and close ended	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
2	Chemical kinetics and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
3	Factors affecting reaction rate and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
4	Rate law, threshold energy and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
5	Rate constant dependence on temperature and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
6	Reaction mechanisms and catalysis and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
7	Chemical equilibrium (finding equilibrium constant) and open and close ended experiments for these sub	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
8	Proton transfer-acids and bases and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
9	Acid bases of ions, titrations, buffer solutions, factors affecting chemical equilibrium and open and close	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
10	Salt solutions and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
11	Oxidation-reduction reactions and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
12	Electrochemistry (electrolysis and battery) and open and close ended experiments for these subjects	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
13	Thermochemistry (heat, laws of thermodynamics, enthalpy, internal energy, entropy)	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	
14	Nuclear chemistry (radioactivity, nuclear energy) and open and close ended experiments for these subje	1. C.E. Mortimer (1993) Modern L Dersin teorisinin işlenmesinde, çe	

Recommended Optional Programme Components

FEN-103 Chemistry 1

Course Learning Outcomes

No	Learning Outcomes
C01	1. will be able to evaluate the reaction kinetics.

C02	2. will be able to interpret equilibrium events.
C03	3. will be able to evaluate the electrochemical processes.
C04	4. will be able to interpret reaction thermodynamics.
C05	5. will be able to interpret acid, base and salt terms.
C06	6. will be able to discuss core chemistry.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	0	0
Project	1	%28	Practice	0	0	0
Final examination	1	%0	Laboratory	14	2	28
Total		%28	Project	1	28	28

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	4	3		4	3	3	5	4				3	3	5	2	
C02	4	3		4	3	3	5	4				3	3	5	2	
C03	4	3		4	3	3	5	4				3	3	5	2	
C04	4	3		4	3	3	5	4				3	3	5	2	
C05	4	3		4	3	3	5	4				3	3	5	2	
C06	4	3		4	3	3	5	4				3	3	5	2	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	TUR-390	Turkish Language 2	3	3	5
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : Higher Education to have completed every person who can understand the structure and functioning of their native language, Teaching Methods and Techniques : language-thought relation in terms of Turkish as a means of oral and written expression to gain the ability to use the right and Prerequisites and co-requisites : good is the main aim of the Turkish language lessons. Course Coordinator : The features of written and verbal narration. Reading and comprehension. Correct and good narration. Recognizing literary Name of Lecturers : works. Listening and verbal narration. Assistants : juäge 2 Associate Prof.Dr. Dilek ÜNVEREN					

Recommended or Required Reading	
Resources	: Nurettin Demir, Emine Yılmaz, Türk Dili Yazılı ve Sözlü Anlatım, Nobel Yayın Dağıtım, Ankara 2009. Süer Eker, Çağdaş Türk Dili, Graf : Correct use of Turkish, reading the professional and extraprofessional texts, successful oral and written expression. : : :

Course Category	
Mathematics and Basic Sciences : Engineering : Engineering Design : Social Sciences : 80	Education : Science : Health : Field : 20

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials

1	Sharing introductory information about the course. Limits, uses, and differences of the concepts of subj	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
2	Sentence knowledge and types	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
3	Expression disorders	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
4	Types of expression and ways of developing thought	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
5	Oral expression and its types	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
6	Written expression and types	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
7	Academic language and features of writing; methods of reading academic texts.	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
8	Scientific thinking method; classification of sciences.	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
9	How is scientific research done? Choosing a topic; determining the boundaries of the subject.	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
10	Creating a research thesis (hypothesis, proposition) Determining the research method. Preparing the dra	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
11	Writing titles, summarizing, determining keywords. Ethical principles to be considered in scientific article	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
12	Formal features of scientific reports and articles. Language effectiveness in scientific writings; text transf	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
13	Steps of writing a scientific report; explanation, discussion, establishing relationships between texts. Sho	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü
14	Rules for creating a bibliography list. Scientific ethics and plagiarism. Presentation of scientific articles pr	Özkan vd. Türk Dili, Lisans Yayın	Nurettin Demir, Emine Yılmaz, Tü

Course Learning Outcomes	
No	Learning Outcomes
C01	Know about the languages used in the world and the place of Turkish among world languages.
C03	Can understand and use their mother tongue in a better way.
C04	Can use science and knowledge in a better way.
C05	Can express themselves better by internalizing Turkish language and get recognition in the society.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	3	42
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	30	30
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P20
All	1	2	2	1	3	2	4	3	4	3	4	4	1
C01	1	2	2	1	3	2	4	3	4	3	4	4	1
C03	1	2	2	1	3	2	4	3	4	3	4	4	1
C04	1	2	2	1	3	2	4	3	4	3	4	4	1
C05	1	2	2		3	2	4	3	4	3	4	4	1

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	30	30
Total Work Load			144
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
2	YBD-402	Foreign Language II	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: The Common European Framework A2 Skills
Teaching Methods and Techniques	: Elementary Level
Prerequisites and co-requisites	:
Course Coordinator	: Instructor Yok
Name of Lecturers	:
Assistants	: Bulunmamaktadır

Recommended or Required Reading

Resources	: Oxford Türkiye Sözlük İngilizce-Türkçe Oxford University Press
	: The Common European Framework A2 Skills
	:
	:

Course Category

Mathematics and Basic Sciences	: 0	Education	: 0
Engineering	: 0	Science	: 0
Engineering Design	: 0	Health	: 100
Social Sciences	: 0	Field	: 0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Past Simple: negative, yes/no questions and short answers	Irregular Past Simple forms; verb:	
2	Past Simple questions, past time phrases with ago, last and in	Question words. Articles: a, an	
3	Can/can't for possibility	Holiday activities	
4	Adjectives to describe places. Comparatives	Planning a day out: I'd rather.../I	
5	Present Continuous for "now"	Verb collocations, transport, phon	
6	Present Simple or Present Continuous	Talking on the phone, indoor and	
7	Imperatives; should/ shouldn't	How often...? And frequency expr	
8	Questions with like	Describing people's appearance a	
9	Mid term exam	Mid term exam	
10	Health problems and treatment	Talking about health; giving advic	
11	Health problems and treatment	Asking for and giving directions.	
12	Might; be going to: yes/no questions and short answers	Prepositions of place and moveme	
13	Superlatives, Past participles.	Questions on the phone, big and :	
14	experiences: positive and negative, Have you ever...? Questions and short answers	At the airport; saying goodbye, th	

Course Learning Outcomes

No	Learning Outcomes
C01	He/She can talk about past events.
C02	He/Se has question-answer adequacy in past and present events.
C03	He/She talks about her place and abilities.
C04	He/She talks about the recognized places and identifies important information in tourist information articles.
C05	He/She makes a daily plan and can understand electronic mail and letter to a simple extent.
C06	He/She talks about leisure activities.

C07	He/She finds important information from advertisements such as concerts and exhibitions.
C08	He/She associates objects in the room in terms of location and defines daily routines.
C09	He/She uses patterns used in important days, weeks and months.
C10	The proposal prepares and responds to the proposal, uses and understands the names of food and drinks.
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	1	%2	Assignments	1	2	2
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	1	1
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%102	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	4	4	4	4	4	4	4	4	4	4	4	3	5	4	3	
C02	5	5	3	4	4	5	3	3	4	3	4	3	4	3	4	
C03	4	4	4	4	4	4	4	4	4	3	4	3	4	4	4	
C04	4	4	4	4	4	4	4	4	5	4	4	3	5	4	4	
C05	4	4	4	4	4	4	4	4	4	4	3	4	4	3		
C06	4	4	4	4	4	5	4	4	4	4	3	4	3	3		
C07	4	4	5	4	4	5	4	4	4	4	3	4	4	4		
C08	4	5	5	4	4	4	4	4	4	4	3	4	5	3		
C09	3	4	4	4	5	4	4	4	4	4	3	4	4	4		
C10	4	4	4	3	4	3	4	3	4	4	5	3	4	4	3	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	1	1
Total Work Load			60
ECTS Credit of the Course			2

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
3	FEN-203	Biology 2	2	3	4
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of this course is to define biology and zoology, to gain basic information about cells, tissues and organs, to teach animal systems and working principles, and to comprehend structure and function harmony. Teaching Methods and Techniques : Prerequisites and co-requisites : Definition and sub-branches of zoology, characteristics of living things, physical and chemical structure of the cell, cell division, Course Coordinator : animal tissues and types, organ systems, chemical energy acquisition and respiration, systematic, taxonomy and classification, Name of Lecturers : ecology, genetics. Assistants :					

Recommended or Required Reading	
Resources	: The definition of zoology will be made, its sub-branches will be mentioned, the classification of living things from past to the present : At the end of the course, it is aimed that prospective teachers will be able to reduce the knowledge they have learned to a secondary level. : : :

Course Category	
Mathematics and Basic Sciences : 0	Education : 0
Engineering : 0	Science : 100
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Zoology and its sub-branches, classification of the living organisms, cell structure and its inorganic and organic components.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
2	Protein synthesis and its importance, cell organelles and functions, cell division.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
3	Animal tissues and their biological properties.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
4	Organ systems: İntegumentary, Skeleton, Digestive.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
5	Organ systems: Respiratory, Circulatory, Excretory.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
6	Sense organs.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
7	Regulatory systems: Nervous system.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
8	Regulatory systems: Endocrine system.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
9	Cellular respiration and chemical energy output.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
10	What is systematic? How are the species classified?	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
11	What is ecology? Ecological factors and their effects on living things.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
12	Ecological pyramids, food chain and feeding relations among living things.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
13	What is genetics? Some important definitions and generalizations.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.
14	General overview and evaluation.	Course presentations (Accessible to all)	İlgili öğretim üyesi tarafından hazırlanan sunumlar.

Course Learning Outcomes

No	Learning Outcomes
C01	Knows the physical and chemical properties of the animal cell and its constituent components.
C02	Learns about animal tissue types and their functions.
C03	Have a basic knowledge about organ systems and working principles.
C04	Makes comment on the classification of living organisms, hierarchical order and taxonomy.
C05	Learns the basic concepts of ecology and genetics.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	3	%3	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	3	42
Assignment	2	%20	Assignments	2	10	20
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	3	1	3
Project	0	%0	Practice	0	0	0
Final examination	1	%2	Laboratory	14	1	14
Total		%25	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	3	4	3	5	5	4	3	4	4	2	3	4	3	4	4	
C02	3	4	3	5	5	4	3	4	4	2	3	4	3	4	4	
C03	3	4	3	5	5	4	3	4	4	2	3	4	3	4	4	
C04	3	4	3	5	5	4	3	4	4	2	3	4	3	4	4	
C05	3	4	3	5	5	4	3	4	4	2	3	4	3	4	4	

Empty box for additional information or notes.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	2	2
Total Work Load			123
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
3	MBD-204	research methods in education	2	2	3

Mode of Delivery	:	Face to Face
Language of Instruction	:	Turkish
Level of Course Unit	:	Bachelor's Degree
Work Placement(s)	:	No
Department / Program	:	Department of Science Education
Type of Course Unit	:	Compulsory
Objectives of the Course	:	Developing preservice science teachers' understandings about fundamental concepts related with science, general
Teaching Methods and Techniques	:	structure of scientific research, scientific methods and related approaches, basic components of scientific research process,
Prerequisites and co-requisites	:	data collection and analysis processes in quantitative-qualitative research and developing a scientific research report.
Course Coordinator	:	Science and fundamental concepts (phenomenon, knowledge, absolute, truth, false, universal knowledge and etc.), basic
Name of Lecturers	:	knowledge about history of science, structure of scientific research, scientific methods and related approaches, problem,
Assistants	:	research models, sampling, data collection and data collection methods (quantitative and qualitative data collection
MBD-204	:	techniques), data recording-analysis-interpretation and reporting.
research methods in education	:	
Prof. Dr. Halil Turgut	:	

Recommended or Required Reading	
Resources	: Creswell, J. W. (1994). Research Design: Qualitative & Quantitative Approaches, London: Sage Publications : Büyükoztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Demirel, F. (2010). Bilimsel Araştırma Yöntemleri (5. Baskı), Ankara: PegemA : : :

Course Category	
Mathematics and Basic Sciences	: 20
Engineering	:
Engineering Design	:
Social Sciences	: 20
Education	: 10
Science	: 30
Health	:
Field	: 20

Week	Topics	Study Materials	Materials
1	Science and Basic Concepts	Reading related documents	
2	Scientific Research Process	Reading related documents	
3	Basic Scientific Research Paradigms	Reading related documents	
4	Quantitative Research Designs	Reading related documents	
5	Qualitative Research Designs	Reading related documents	
6	Quantitative Research: Problem Statement, Literature Review	Reading related documents	
7	Qualitative Research: Problem Statement, Literature Review	Reading related documents	
8	Quantitative Research: Method, Data Collection, Analysis and Reporting	Reading related documents	
9	Quantitative Research: Method, Data Collection, Analysis and Reporting	Reading related documents	
10	Qualitative Research: Method, Data Collection, Analysis and Reporting	Reading related documents	
11	Quantitative Research: Method, Data Collection, Analysis and Reporting	Reading related documents	
12	Sample Research Evaluation	Reading related documents	
13	Sample Research Evaluation	Reading related documents	
14	Presentation of Research Proposal	Reading related documents	

Recommended Optional Programme Components

GKD-704-B2 SCIENCE AND RESEARCH ETHICS

Course Learning Outcomes

No	Learning Outcomes
C01	Able to develop a general definition of science by using the fundamental concepts.
C02	Able to evaluate scientific research types for their methodologies.

C03	Able to define the fundamentals of quantitative research paradigm.
C04	Able to define the fundamentals of qualitative research paradigm.
C05	Able to develop research reports in terms of quantitative and qualitative research paradigms
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	14	14
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	1	2	1	5	2	2	4	4	2	1	2	2	3	2	3	3
C02	2	2	1	5	2	2	4	4	2	1	2	2	3	2	3	3
C03	2	2	1	5	2	2	4	4	2	1	2	2	3	2	3	3
C04	2	2	1	5	2	2	4	4	2	1	2	2	3	2	3	3
C05	4	2	1	5	2	2	4	4	2	1	2	2	3	2	3	3

Empty box for additional information or notes.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
3	FEN-201	Science Learning and Teaching Approaches	2	2	3

Mode of Delivery	:	Face to Face
Language of Instruction	:	Turkish
Level of Course Unit	:	Bachelor's Degree
Work Placement(s)	:	No
Department / Program	:	Department of Science Education
Type of Course Unit	:	Compulsory
Objectives of the Course	:	The aim of this course is to provide the students with a general knowledge of the aims and basic principles of science teaching and how different learning approaches are reflected in science teaching; It is aimed to gain by supporting with in-class
Teaching Methods and Techniques	:	and applications.
Prerequisites and co-requisites	:	Meaning of science learning and teaching; purpose and basic principles of science teaching; the history of science teaching;
Course Coordinator	:	reflection of teaching and learning approaches to science teaching; basic skills in science teaching; examples of in-class practice;
Name of Lecturers	:	current trends and problems in science teaching; components of an effective science teaching; social, cultural and economic
Assistants	:	aspects of science teaching.
FEN-201	Science Learning and Teaching Approaches	Yok

Recommended or Required Reading	
Resources	: Understanding the importance of learning and teaching science, Developing understanding of the purpose and basic principles of science teaching, The aim of the course is to teach the learning and teaching approaches in science education and to give the students the ability to apply these approaches in their future teaching practice.

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 0
Field	: 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Meaning of science learning	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
2	Meaning of science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
3	Purpose of science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
4	Basic principles of science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
5	The history of science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
6	Reflection of learning approaches to science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
7	Reflection of teaching approaches to science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
8	Basic skills in science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
9	Examples of in-class practice in science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
10	Current trends in science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
11	Current problems in science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
12	Components of an effective science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
13	Social aspects of science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	
14	Cultural and economic aspects of science teaching	1. Pegem Science and Technology Ders ile ilgili olarak basılı yayınları	

Course Learning Outcomes	
No	Learning Outcomes
C01	Understands the meaning of learning and teaching science
C02	Explains the main purpose and principles of science teaching.
C03	Learns about the reflections of different learning and teaching approaches on science teaching.
C04	Applies different teaching approaches in science teaching process.

C05	Investigates the current problems in science education.
C06	Explains the components of effective science teaching.
C07	Gains different perspectives on science teaching in social, cultural and economic fields.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	14	%28	Assignments	14	2	28
Attendance	0	%0	Presentation	14	2	28
Practice	0	%0	Mid-terms	1	0	0
Project	0	%0	Practice	0	0	0
Final examination	1	%0	Laboratory	0	0	0
Total		%28	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	3	3	3	3	5	5	3	4	3	4	3	3	3	3	3	
C02	3	3	3	3	5	5	3	4	3	4	3	3	3	3	3	
C03	3	3	3	3	5	5	3	4	3	5	3	3	3	3	3	
C04	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	
C05	3	3	3	3	5	4	3	5	4	4	4	4	4	4	4	
C06	3	3	3	3	5	5	3	4	4	5	4	4	5	4	5	
C07	3	3	3	4	5	5	4	5	3	5	3	4	3	3	3	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
3	FEN-205	Physics 3	2	3	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of this course is to teach pre-service teachers the thermal properties of heat and temperature, thermodynamics, optics, sound waves, waves, atomic and models, relativity and phenomena of Heisenberg uncertainty To gain knowledge about the Teaching Methods and Techniques : Schrödinger wave Prerequisites and co-requisites : - Understanding the concepts of heat and temperature, Course Coordinator : - Examination and understanding of the thermal conductivity mechanism, Name of Lecturers : - Determination of specific heat of various materials, Assistants : - Understanding the laws of thermodynamics and conservation of energy, - Agreement on the working principles of heat engines and heat pumps, - Examining the concepts of mirror and lens, - Reflection and refraction of light and examination of related events, - Investigation of the working mechanisms of optical instruments. Asist Prof.Dr. Deniz Türköz Altuğ					

Recommended or Required Reading	
Resources	: General information, Effective communication in electronic environment, Introduction of some digital education-training tools and re : At the end of this course, the students will be able to present a product about the subject and to be able to examine the current art : : :

Course Category			
Mathmatics and Basic Sciences	: 0	Education	: 0
Engineering	: 0	Science	: 80
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 20

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	General information, Effective communication in electronic environment, Introduction of some digital edu	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
2	Thermodynamic Equilibrium and Measuring Temperature, Temperature, Temperature - Thermometer, T _e	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
3	Heat Conduction, Conduction, Convection, Radiation, Ideal Gas, Avagadro s number and Mole concept, E	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
4	Thermodynamics, Zeroth Law of Thermodynamics, Work done by a gas, Internal Energy-First Law of Th	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
5	Kinetic Calculation of Gases - Continuation, Heat Engines, Efficiency, Gasoline Engine - Otto Cycle, Secor	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
6	Repetition and sample question solution	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
7	GEOMETRIC OPTICS, LIGHT, Structure of Light, Light Sources, Natural light sources, Artificial light sourc	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
8	Reflection of Light, Law of Reflection, What is a Mirror ?, Plane Mirrors - image formation and field of vie	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
9	Spherical Mirrors, Concave Mirror, Special Beams in Concave Mirrors, Image Drawing in Concave Mirrors	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
10	Convex Mirrors, Special Beams on Convex Mirrors, Image Drawing on Convex Mirrors, What are the dil	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
11	Refraction of Light, What is the cause of refraction in light?, Laws of Refraction, Index of Refraction, Sne	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
12	Lenses, Thin Edged Lenses, Special Beams in Thin Edged Lenses, Image Drawing in Thin Edged Lenses,	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
13	Wave Structure of Light, Interference, Young s Experiment and Interference in Double Slit, Geometry of	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas
14	General repetition and sample question solution	Relevant sections in lecture notes	Bu dersin işlenmesinde çeşitli bas

Course Learning Outcomes	
No	Learning Outcomes
C01	Understands of heat and temperature concepts
C02	Examines and understands the thermal conductivity mechanism

C03	Understands the determination of specific heat of various materials.
C04	Understands the laws of thermodynamics and conservation of energy
C05	Understands the working principles of heat engines and heat pumps
C06	Examines and understands the concepts of mirror and lens
C07	Reflection and refraction of light, study of events related to these
C08	Investigation of the working mechanisms of optical instruments
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	4	56
Quizzes	0	%0	Hours for off-the-c.r.stud	14	1	14
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	1	1
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	4	4	4	5	3	3	4	3	5	3	2	4	4	4	5	
C02	4	4	4	5	3	3	4	3	5	3	2	4	4	4	5	
C03	4	3	4	5	3	3	4	3	5	3	2	4	4	4	5	
C04	4	3	4	5	3	3	4	3	5	3	2	4	4	4	5	
C05	4	3	4	5	3	3	4	3	5	3	2	4	4	4	5	
C06	4	4	4	5	3	3	4	3	5	3	2	4	4	4	5	
C07	4	4	4	5	3	3	4	3	5	3	2	4	4	4	5	
C08	4	4	4	5	3	3	4	3	5	3	2	4	4	4	5	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	1	1
Total Work Load			72
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
3	FEN-207	Chemistry 3	2	3	3
Mode of Delivery		: Face to Face			
Language of Instruction		: Turkish			
Level of Course Unit		: Bachelor's Degree			
Work Placement(s)		: No			
Department / Program		: Department of Science Education			
Type of Course Unit		: Compulsory			
Objectives of the Course		: Generally, it is aimed to teach qualitative and quantitative analysis methods. These methods can be classified as gravimetric, titrimetric, electroanalytical and spectrophotometric methods. Analytical thinking, the ability to make chemical analyzes, to examine them and to reach results with the findings they produce.			
Teaching Methods and Techniques		: What is analytical chemistry; Errors in chemical analysis (Definitions of terms, types of errors in experimental data); Random and systematic errors in analysis (sources of random errors, Statistical evaluation of random errors, Statistical evaluation of systematic errors); Application of statistics to the analysis and evaluation of data (Confidence limits, use of statistics in hypothesis testing, comparison of the actual value with the experimental mean, comparison of the two experimental means) Gravimetric analysis methods (properties of precipitates and precipitators, chemical stoichiometry, gravimetric calculations, calculation of results from gravimetric data); Titrimetric analysis methods (Some general features of titrimetry, standard solutions, tridimetric calculations); Aqueous-solution chemistry (chemical balance, autoprotolysis and other equilibrium constants in aqueous solutions); Effect of electrolytes on ionic balances (Thermodynamic and concentration equilibrium constants, activity coefficients, Debye-Hückel equation); Application of equilibrium calculations to complex systems (Systematic method for solving multiple equilibrium problems, solubility calculations by systematic method, separation of ions by controlling the concentration of the precipitating reagent).			
Prerequisites and co-requisites		: -			
Course Coordinator					
Name of Lecturers					
Assistants					
Recommended or Required Reading					
Resources		: To learn about the content of analytical chemistry, quantitative and qualitative analysis.,Systematic determination of error sources in : Learning the mean, median, precision and accuracy,Determination of random error sources in chemical analysis. Understanding of s : Understanding the difference between organic and inorganic compounds Understanding of function-structure relationship To unders : : :			
Course Category					
Mathematics and Basic Sciences		: 0	Education		: 0
Engineering		: 0	Science		: 50
Engineering Design		: 0	Health		: 0
Social Sciences		: 0	Field		: 50
Weekly Detailed Course Contents					
Week	Topics	Study Materials	Materials		
1	Introduction of analytical chemistry	2. Basics of Analytical Chemistry,	İlgili öğretim üyesi tarafından veri		
2	Errors in chemical Analysis, Statistical evaluation	Examining Chapter 5 in Skoog, Ar	İlgili öğretim üyesi tarafından veri		
3	Application of statistics to data analysis and evaluation	Examining the chapter 6th of Skc	İlgili öğretim üyesi tarafından veri		
4	Confidence limits, using statistics in hypothesis testing, Comparison of real mean and experimental mear	Examining the chapter 7th of Skc	İlgili öğretim üyesi tarafından veri		
5	Gravimetric Analysis Methods, Properties of precipitates and precipitating reagents	Examining the chapter 12th of An	İlgili öğretim üyesi tarafından veri		
6	Chemical stoichiometry, Gravimetric calculations, Calculation of results from gravimetric data	Examining the chapter 12th of An	İlgili öğretim üyesi tarafından veri		
7	Titrimetric Analysis Methods, Some general aspects of volumetric titrimetry	Examining the chapter 13th of An	İlgili öğretim üyesi tarafından veri		
8	Standard solutions, Volumetric calculations	Examining Skoog, Analytical Chen	İlgili öğretim üyesi tarafından veri		
9	Aqueous-solution Chemistry, Chemical equilibrium in aqueous solutions, Autoprotolysis and other equilibi	Participation in the course by exai	İlgili öğretim üyesi tarafından veri		
10	The effect of Electrolytes on Ionic Equilibrium	Examining the chapter 10th of S	İlgili öğretim üyesi tarafından veri		
11	Application of equilibrium calculations to complex systems	Ensuring participation in the cour	İlgili öğretim üyesi tarafından veri		
12	A systematic method for solving multiple-equilibrium problems, The calculation of solubility by systemati	Examining Chapter 11 of Skoog, /	İlgili öğretim üyesi tarafından veri		
13	Çözünürlüğe hidroliz, ortam asitliği ve kompleksleşmenin etkileri	Examining Chapter 17 of Skoog, /	İlgili öğretim üyesi tarafından veri		
14	Separation of ions by control of the concentration of a precipitating reagent	Examining the chapter 11th of Skc	İlgili öğretim üyesi tarafından veri		
Course Learning Outcomes					
No	Learning Outcomes				
C01	1. Have knowledge about analytical chemistry and analysis methods and put them into practice.				

C02	2. Systematic error sources in chemical analysis, statistical methods such as mean, median, precision and accuracy are acquired.
C03	In chemical analysis, information is obtained about statistical terms such as random error sources, standart deviation, combined standard deviation, variance, relative standard deviation, coefficient
C04	Information is obtained about statistical calculations such as confidence interval, size of confidence interval, comparison of known value with experimental mean, t test, Q test, and doubtful value.
C05	Information about gravimetric analysis methods, properties of precipitates and precipitators, mechanism of precipitate formation, colloidal precipitates are acquired.
C06	Information is obtained about using the experimental results obtained in gravimetric analysis and making calculations.
C07	Information is acquired about titrimetric analysis (volumetric analysis) methods, titration, back titration, equivalence point concepts.
C08	Primary, secondary standard solutions; Information is obtained about the calculations used in volumetry.
C09	Information about neutralization titrations, strong acid-strong base titrations, titrations of weak acids, titrations of weak bases are acquired.
C10	Information on the effect of ionic strength, activity coefficients, Debye-Hückel equation, equilibrium calculations using activity coefficients is obtained.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
3	MBD-203	Teaching Principles and Methods	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : Providing the knowledge related to teaching principles, strategies, approaches, methods and techniques in order to realize Teaching Methods and Techniques : appropriate educational activities. Prerequisites and co-requisites : The place and importance of assessment and evaluation in education; basic concepts of assessment and evaluation; psychometric Course Coordinator : (validity, reliability, usefulness) properties of assessment instruments; development and evaluation of achievement tests; Name of Lecturers : interpretation of test results and giving feedback; analysis of test and item scores; evaluation and grading. Assistants : ncıples and Methods Prof. Hasan Hüseyin Özkan					

Recommended or Required Reading	
Resources	<ul style="list-style-type: none">Having the knowledge of teaching principlesHaving the knowledge of teaching approachesHaving the knowledge of teaching modelsHaving the knowledge of teaching strategiesHaving the knowledge of teaching techniquesUsing these strategies, models, approaches, methods and techniques effectively

Course Category	
Mathematics and Basic Sciences : 0	Education : 100
Engineering : 0	Science : 0
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 0

Week	Topics	Study Materials	Materials
1	Basic concepts in learning teaching process and teaching principles	reading and research	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
2	Teaching Strategies	reading and research	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
3	Teaching Approaches and Models	reading and research	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
4	Teaching Approaches and Models	reading and research	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
5	Teaching Approaches and Models	reading and research	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
6	Teaching Methods	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
7	Teaching Methods	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
8	Mid-term exam	okuma, araştırma ve uygulama	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
9	Teaching Techniques	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
10	Teaching Techniques	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
11	Concept Teaching Techniques	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
12	Concept Teaching Techniques	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
13	Learning Strategies and Styles	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)
14	Metacognition skills	reading, research and application	Textbooks / Additional Sources: Öğretimde Planlama ve Değerlendirme Öğretimde Planlama ve Değerlendirme KPSS Eğitim Bilimleri Seti (PEGEM Eğitimde Ölçme Ve Değerlendirme Eğitimde Ölçme Ve Değerlendirme)

Course Learning Outcomes	
No	Learning Outcomes
C01	Can explain the terms of learning-teaching theories
C02	Can explain teaching strategies
C03	Can explain teaching models
C04	Can explain teaching approaches
C05	Can explain the teaching principles
C06	Can explain teaching techniques
C07	Can explain the change of the student's role according to learning theories
C08	Can explain the change of teacher's role according to learning theories
C09	Can interpret the relationships between learning theories and instructional approaches
C10	Can use these strategies, models, approaches, methods and techniques effectively
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.

P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	2	10	20
Assignment	1	%0	Assignments	1	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	20	20
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P03	P04	P07	P13	P15
C01	2	3			5
C02	2	3			5
C03	2	3			5
C04	2	3			5
C05	2	3			5
C06	2	3			5
C07	2	3			5
C08	2	3			5
C09	2	3			5
C10	5	5	2	5	5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			102
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	FEN-204	Biology 3	2	3	4

Mode of Delivery	:	Face to Face
Language of Instruction	:	Turkish
Level of Course Unit	:	Bachelor's Degree
Work Placement(s)	:	No
Department / Program	:	Department of Science Education
Type of Course Unit	:	Compulsory
Objectives of the Course	:	The aim of this course is to provide the students with the basic knowledge of genetic evolution and the basic evolutionary mechanisms that cause genetic changes in population. to understand how biodiversity reacts to or against these mechanisms
Teaching Methods and Techniques	:	The meaning, fields, importance and historical development of genetics and biotechnology; birth of modern science of genetics, Mendelian Laws, full dominance, incomplete dominance, codominance, multiple alien, deviations from Mendel s laws; cytoplasmic inheritance, mutations, molecular biology, gene technology, molecular genetics, human genetics and genetic diseases, population genetics, opportunities provided by gene engineering to society, science and technology; basic principles of biotechnology, biotechnological practices, microbial biomass production (bread yeast, single cell protein), production of primary metabolites (citric acid, fumaric acid, acetic acid, amino acids, vitamins), fermentation (alcohol fermentation, lactic acid production, butyric acid, butanol, acetone), secondary metabolite production (antibiotic), enzyme production, gene biotechnology, environmental biotechnology; history of evolutionary biology; concepts of evolutionary biology; mechanisms of evolution: mutation, genetic drift, natural selection; macroevolution mechanisms: adaptation, speciation; history of life: pedigrees, fossil explorations; the first evolution of life in the world, the history of life, major evolutionary changes; applications of evolutionary biology: genetics and medicine and open and closed-ended experiments for these topics.
Prerequisites and co-requisites	:	
Course Coordinator	:	
Name of Lecturers	:	
Assistants	:	
FEN-204	Biology 3	Associate Prof.Dr. MUSTAFA KORKMAZ

Recommended or Required Reading

Resources	:	GENERAL BIOLOGY, PROF.DR. ADEM TATLI, 2009,BIOLOGY 3, LİSANS PUBLICATIONS,GENETICS AND BIOTECHNOLOGY, LİSANS
	:	The aim of this course is to teach the mechanism of genetics and the interaction between genes and to teach how the existing spec
	:	
	:	

Course Category

Mathmatics and Basic Sciences	:	0	Education	:	
Engineering	:		Science	:	
Engineering Design	:		Health	:	
Social Sciences	:		Field	:	100

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	The meaning, fields, importance and historical development of genetics and biotechnology and open anc	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
2	Birth of modern science of genetics, Mendelian Laws, Full dominance, incomplete dominance, codominar	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
3	Cytoplasmic inheritance, mutations and open and closed-ended experiments for these topics.	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
4	Molecular biology, gene technology, molecular genetics, human genetics and genetic diseases and open	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
5	Population genetics, opportunities provided by gene engineering to society, science and technology and	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
6	Basic principles of biotechnology, biotechnological practices and open and closed-ended experiments for	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
7	Microbial biomass production (bread yeast, single cell protein), production of primary metabolites (citric	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
8	Secondary metabolite production (antibiotic), enzyme production, gene biotechnology, environmental bic	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
9	History of evolutionary biology; concepts of evolutionary biology and open and closed-ended experiment	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
10	Mechanisms of evolution: mutation, genetic drift, natural selection and open and closed-ended experime	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
11	Macroevolution mechanisms: adaptation, speciation and open and closed-ended experiments for these tr	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
12	History of life: pedigrees, fossil explorations and open and closed-ended experiments for these topics.	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
13	The first evolution of life in the world and open and closed-ended experiments for these topics.	1. Skelton, P. 2000. Evolution: A Evolution and Genetics, Biotechn	
14	The history of life, major evolutionary changes; applications of evolutionary biology: genetics and medici v		Evolution and Genetics, Biotechn

Course Learning Outcomes

No	Learning Outcomes
C01	1. Understand the historical development of genetics and biotechnology, its current status and importance

C02	2. Comprehends the problems of modern genetics and Mendelian Genetics.
C03	3. Have knowledge about genetic engineering and biotechnology applications.
C04	4. Have information about evolutionary biology and mechanisms of evolution.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	14	2	28
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	0	0	0
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	14	2	28
Total		%100	Project	1	28	28

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	1	2	2	2	2	1	2	1	1	1		1	1	1	2	2
C02	2	2	2	2	2	2	1	1	1	1	1	2	2	2	1	1
C03	3	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2
C04	1	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			140
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	FEN-202	Science Teaching Programs	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of the course is to introduce the students to the general structure of science education program, to gain the ability to Teaching Methods and Techniques : analyze the changes in science education programs from past to present. Prerequisites and co-requisites : Basic concepts of curriculum; development of science curricula from past to present; the approaches, content, and skills to Course Coordinator : improve of modern science curricula; learning and sub-learning fields; distribution and limits of learning outcomes according to Name of Lecturers : classes, relation with other courses; relation to primary school and high school science curricula; methods, techniques, tools and Assistants : materials used; assessment and evaluation approach; teacher competences.					
FEN-202 Science Teaching Programs Asist Prof.Dr. Merve Lütfiye ŞENTÜRK					

Recommended or Required Reading	
Resources	: Karatay, R., Timur, S., & Timur, B. (2013). 2005 ve 2013 yılı fen dersi öğretim programlarının karşılaştırılması.,Gibson, H. L., & Chas : Teachers should have learned the structure of the Curriculum of Science Course at the end of this course and will be able to unders : **** : ***** : ****

Course Category	
Mathematics and Basic Sciences	:
Engineering	:
Engineering Design	:
Social Sciences	:
Education	:
Science	: 100
Health	:
Field	:

Weekly Detailed Course Contents		Study Materials	Materials
Week	Topics		
1	Basic concepts of curriculum	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
2	Development of science curricula from past to present	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
3	The approaches of modern science curricula	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
4	Content of modern science curricula	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
5	Skills to improve of modern science curricula	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
6	Learning and sub-learning fields	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
7	Distribution and limits of learning outcomes according to classes	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
8	Relation of learning outcomes with other courses	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
9	Relationship between primary school and modern science curricula	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
10	Relationship between high school and modern science curricula	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
11	Methods and techniques used in current science curriculum	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
12	Tools and materials used in current science curriculum	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
13	Assessment and evaluation approaches used in current science curriculum	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	
14	Teacher competences	1. Çepni, S. and Çil, E. (2009). Sc 1. Demirel, Ö. (2011). Curriculum	

Course Learning Outcomes	
No	Learning Outcomes
C01	By defining the basic concepts related to the curriculum; distinguishes the curriculum and curriculum concepts.
C02	Learns what kind of developments science education programs have been exposed to in the process from past to present.
C03	Uses the approach, content and skills that current science curricula aim to develop.
C04	Knows the learning and sub-learning areas in science curriculum.
C05	Discovers appropriate assessment and evaluation approaches to the methods and techniques used in science curriculum.

C06 Prepares a lesson plan by determining the appropriate teaching and evaluation method for the gains.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	12	1	12
Assignment	14	%28	Assignments	12	2	24
Attendance	0	%0	Presentation	13	2	26
Practice	0	%0	Mid-terms	1	0	0
Project	0	%0	Practice	0	0	0
Final examination	1	%0	Laboratory	0	0	0
Total		%28	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	3	4	4	3	3	3	2	2	3	2	2	2	2	2	2	
C02	3	3	3	3	5	3	3	4	3	3	3	3	3	3	3	
C03	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	
C04	3	3	3	3	4	4	3	3	3	4	3	4	3	3	3	
C05	4	4	4	4	5	4	4	4	4	4	4	4	4	3	4	
C06	4	4	5	4	5	5	5	4	5	5	4	5	4	4	5	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	MBD-615-B2	COMPARATIVE EDUCATION	2	2	4

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: Examine the differences of the education systems of different countries in the context of various elements.
Teaching Methods and Techniques	: Comparative education and its basic assumptions, the infrastructure of comparisons in education, the economic, political, social and historical context of comparisons in education, culture and education, gender and education, the Turkish education system
Prerequisites and co-requisites	: and different education systems.
Course Coordinator	:
Name of Lecturers	:
Assistants	: VİE EDUCATION
	: Yok

Recommended or Required Reading

Resources	: Know the basic features of comparative education.,Know how to make comparisons in education.,Explain the basic features of the F
	:
	:
	:

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 15
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 30
Health	: 40
Field	: 0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Comparative education and its basic assumptions	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
2	The infrastructure of comparisons in education	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
3	The economic, political, social and historical context of comparisons in education	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
4	Culture and education	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
5	Gender and education	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
6	Turkish education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
7	USA education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
8	German education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
9	French education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
10	English education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
11	Japan education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
12	Finland education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
13	Russia education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	
14	Canada education system	Examination of the documents (ar Arastaman, G. (2017). Karşılaştırr	

Course Learning Outcomes

No	Learning Outcomes
C01	Explain the basic assumptions of comparative education.
C02	Knows the background of comparisons in education.
C03	Knows the economic, political, social and historical context of comparisons in education.
C04	Knows the relationship between education and culture.
C05	Knows the relationship between gender and education.
C06	Knows the structure of the Turkish Education System.

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%20	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	1	10	10
Practice	0	%0	Mid-terms	1	20	20
Project	0	%0	Practice	0	0	0
Final examination	1	%30	Laboratory	0	0	0
Total		%50	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01				2				2		2			2		2	
C02				2				2		2			2		2	
C03				2				2		2			2		2	
C04				2				2		2			2		2	
C05				2				2		2			2		2	
C06				2				2		2			2		2	
C07				2				2		2			2		2	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	30	30
Total Work Load			116
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	MBD-201	Instructional Technologies	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: The aim of this course is to understand the role of instructional technologies in the learning process, to choose appropriate for the student level, to produce and apply them.
Teaching Methods and Techniques	: student level, to produce and apply them.
Prerequisites and co-requisites	: Basic concepts with instructional technology, theories in instructional technologies, technology integration in education, selection, preparation and evaluation of instructional materials, preparing e-portfolio, Khan Academy, preparing presentation tools and digital stories, concept maps and concept cartoons, worksheets and e-books preparation, game-based assessment.
Course Coordinator	: stories, concept maps and concept cartoons, worksheets and e-books preparation, game-based assessment.
Name of Lecturers	: stories, concept maps and concept cartoons, worksheets and e-books preparation, game-based assessment.
Assistants	: stories, concept maps and concept cartoons, worksheets and e-books preparation, game-based assessment.
	Technologies
	Yok

Recommended or Required Reading	
Resources	: 2) Explain the characteristics of instructional technologies : 3) Apply basic design principles in material development. : 4) Selects and uses materials and technology according to instructional objectives, student characteristics, subject area characteristics : 5) Develops materials appropriate to the characteristics of instructional technologies : 6) Develops visual, audio and printed materials suitable for subject area teaching. : 7) Evaluates instructional material according to design principles

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 50
Health	: 0
Field	: 50

Weekly Detailed Course Contents		
Week	Topics	Study Materials

1	Basic concepts in instructional technologies	
2	Instructional technologies design and models	
3	What is technology integration in education?	
4	Barriers and factors in the process of technology integration	
5	Selection, preparation and evaluation of instructional materials	
6	e-portfolio (weebly), Khan Academy, Edmodo	
7	Presentation Tools, Digital Storytelling	
8	Mid-term exam will be held	
9	Concept maps and concept cartoons	
10	Worksheets, puzzle, e-book preparation	
11	Simulation and animation preparation, augmented reality applications	
12	Game-based assessment (Kahoot and Plickers)	
13	Flipped class, STEM	
14	Social networks, QR Code	

Course Learning Outcomes	
No	Learning Outcomes
C01	1) Explain the concepts related to instructional technology and material development.
C02	2) Explain the characteristics of instructional technologies
C03	3) Apply basic design principles in material development.
C04	4) Selects and uses materials and technology according to instructional objectives, student characteristics, subject area characteristics, teaching methods and the structure of the teaching environment
C05	5) Develops materials appropriate to the characteristics of instructional technologies

C06 6) Develops visual, audio and printed materials suitable for subject area teaching.

C07 7) Evaluates instructional material according to design principles

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Empty box for additional information or notes.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	14	14
Total Work Load			110
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	GKD-719	Community Service Practices	1	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: To be able to exhibit a socially sensitive approach as a teacher candidate.
Teaching Methods and Techniques	: During the term, teacher candidates primarily plan on the issues that they can be beneficial to the society as a group or individually. Then they carry out their work on the subjects they have planned.
Prerequisites and co-requisites	: individually. Then they carry out their work on the subjects they have planned.
Course Coordinator	:
Name of Lecturers	: Service Practices
Assistants	: Asist. Prof. Dr. Deniz Türköz Altuğ

Recommended or Required Reading

Resources	: Information about the course is delivered to the student as a lecture note.
	: The information to be presented about the course is collected from various sources and delivered to the student.
	:
	:

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 50
Education	: 10
Science	: 0
Health	: 0
Field	: 40

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Community, social service practices and social responsibility concepts	1.Kuzucu, K., & Kamer, S. T. (200	
2	Community, social service practices and social responsibility concepts	1.Kuzucu, K., & Kamer, S. T. (200	
3	Social responsibility projects in terms of social and cultural values	1.Kuzucu, K., & Kamer, S. T. (200	
4	Social responsibility projects in terms of social and cultural values	1.Kuzucu, K., & Kamer, S. T. (200	
5	Identifying current social problems	1.Kuzucu, K., & Kamer, S. T. (200	
6	Identifying current social problems	1.Kuzucu, K., & Kamer, S. T. (200	
7	Preparing projects to solve the identified social problems;	1.Kuzucu, K., & Kamer, S. T. (200	
8	Taking part as a volunteer in social responsibility projects individually and as a group	1.Kuzucu, K., & Kamer, S. T. (200	
9	Taking part as a volunteer in social responsibility projects individually and as a group	1.Kuzucu, K., & Kamer, S. T. (200	
10	Joining social responsibility projects in various institutions and organizations	1.Kuzucu, K., & Kamer, S. T. (200	
11	Participate in scientific activities such as panels, conferences, congresses, symposiums as viewers, speak	1.Kuzucu, K., & Kamer, S. T. (200	
12	Participate in scientific activities such as panels, conferences, congresses, symposiums as viewers, speak	1.Kuzucu, K., & Kamer, S. T. (200	
13	To evaluate the results of social responsibility projects.	1.Kuzucu, K., & Kamer, S. T. (200	
14	To evaluate the results of social responsibility projects.	1.Kuzucu, K., & Kamer, S. T. (200	

Course Learning Outcomes

No	Learning Outcomes
C01	Topluma hizmet uygulamalarının önemini kavrama
C03	He/She Discusses the problems of society
C04	He/She Informs people who are non experts on social problems in this regard
C05	He/She Identifies current problems of society and prepare universal projects
C06	He/She To take part being volunteers in community service activities to develop positive attitudes
C07	He/She Communicates effectively while carrying out projects both with in the project and outside of the project

C08 He/She Participates panel discussions, conferences, congresses, and scientific activities as speakers, or regulator.

C09 He/She Understands the importance of community service

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	0	%0	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	0	0	0
Assignment	14	%14	Assignments	14	1	14
Attendance	0	%0	Presentation	14	3	42
Practice	0	%0	Mid-terms	0	0	0
Project	1	%3	Practice	0	0	0
Final examination	0	%0	Laboratory	0	0	0
Total		%17	Project	1	3	3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
All	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C01	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C03	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C04	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C05	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C06	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C07	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C08	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3
C09	5	5	1	5	3	5	4	5	1	2	2	3	4	1	5	3

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			101
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	MBD-202	Turkish Education History	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : Training individuals WHO are going to evaluate and analyze cases thoughts, experiences and development in education from old Teaching Methods and Techniques : Turkish communities to today. Prerequisites and co-requisites : Turkish education history start, perio and subjets. Course Coordinator : Name of Lecturers : Pre- Islamic Turkish education system (Huns, Gokturks, Uyghurs) Assistants : Accetance ist the Islamic religion of the Turks (Karahans, Seljuks). Educations in Ottomans (from founding to modernization, Tanzimat era, constitutional monarchy). MBD-202 Turkish Education History and tarining in Turkish repuclic period general evaluation. Prof.Dr. Selçuk UYGUN yok -yok					

Recommended or Required Reading	
Resources	: Uygun, Selçuk. Türkiyede eğitimde millilik yönelim ve yaklaşımları : : :

Course Category			
Mathematics and Basic Sciences	: 0	Education	: 0
Engineering	: 0	Science	: 20
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Turkish education history start, period and subject		Yahya Akyüz, Türk Eğitim Tarihi. !
2	Pre-Islamic education system (Huns)		Yahya Akyüz, Türk Eğitim Tarihi. !
3	Pre-Islamic education system (Göktürk, Uyghurs)		Yahya Akyüz, Türk Eğitim Tarihi. !
4	Acceptance is the Islamic religion of the Turks (Karahanlı)		Yahya Akyüz, Türk Eğitim Tarihi. !
5	Acceptance is the Islamic religion of the Turks (Seljuks)		Yahya Akyüz, Türk Eğitim Tarihi. !
6	Education in Ottomans (classical period)		Yahya Akyüz, Türk Eğitim Tarihi. !
7	Education in Ottomans (classical period)		Yahya Akyüz, Türk Eğitim Tarihi. !
8	Education in Ottomans (Tanzimat period)		Yahya Akyüz, Türk Eğitim Tarihi. !
9	Education in Ottomans (Tanzimat period)		Yahya Akyüz, Türk Eğitim Tarihi. !
10	Education in Ottomans (Constitutional monarchy period)		Yahya Akyüz, Türk Eğitim Tarihi. !
11	Education during the war of liberation		Yahya Akyüz, Türk Eğitim Tarihi. !
12	Education in Turkey (Atatürk's period)		Yahya Akyüz, Türk Eğitim Tarihi. !
13	Education in Turkey (multi-party period)		Yahya Akyüz, Türk Eğitim Tarihi. !
14	history of teacher training in Turkey		Yahya Akyüz, Türk Eğitim Tarihi. !

Course Learning Outcomes	
No	Learning Outcomes
C01	Understands the scope and content of the history of Turkish education.
C02	Students understand the meaning of education and teaching, the scope and content of the course.
C03	Students compare the pre-Islamic Turkish education system with the system after Islam.
C04	Students understand the general features of the Ottoman education system.

C05 Students explain the important educators in the history of Turkish education and their contribution to the education system.

C06 Students will be able to comprehend the developments in Turkish education system after 1970.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	2	%28	Course Duration	2	14	28
Quizzes	0	%0	Hours for off-the-c.r.stud	2	14	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	2	14	28
Project	0	%0	Practice	0	0	0
Final examination	2	%28	Laboratory	0	0	0
Total		%56	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07
All	5						
C01		5					
C02			5				
C03				5			
C04					5		
C05						5	
C06							5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	2	14	28
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
4	FEN-206	Geoscience	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : It is aimed to gain knowledge on rock types, engineering and environmental geology along with the developments in the field of earth science since the formation of the earth. Teaching Methods and Techniques : earth science since the formation of the earth. Prerequisites and co-requisites : Introduction of earth science, history of geology, introduction of basic branches of geology, mineral and rock formations, rock types and formations, tectonic structures, historical development of earth, mass movements, natural disasters, engineering Course Coordinator : geology and urbanization, hydrogeology and environmental geology Name of Lecturers : Assistants :					
Associate Prof.Dr. Şehnaz Şener Associate Prof.Dr. Şehnaz Şener					

Recommended or Required Reading	
Resources	Yavuz, E., 2015, Metamorfik Petrografi, 978-975-491-068-9 Doğal Afetler ve Türkiye Prof.Dr.CemalettinŞahin,Öğr.Gör.Şengün Sipahioğlu Ocak 2009 / 4. Baskı / 472 Syf. Tarihsel Jeoloji: Jeolojik Devirlerde Yaşam ve Önemli Evrim Adımları Yazar: Nurdan İnan, Yayınevi : Seçkin Yayıncılık Saha Jeolojisi Çalışma Yöntemleri, Tıpkı basım, 25 Mayıs 2016 Angela L. Coe (Eser Sahibi) Yılmaz, I. (2007). Mühendislik jeolojisi: ilkeler ve temel kavramlar. Teknik Yayınevi. Afşin, M., & Kayabalı, K. (2004). Uygulamalı Hidrojeoloji, 4. Baskı, Gazi Kitabevi, Ankara. Genel Jeoloji-Temel Kavramlar, Lutgens Ta

Course Category	
Mathematics and Basic Sciences : 0	Education : 0
Engineering : 50	Science : 50
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 0

Week	Topics	Study Materials	Materials
1	Introduction of earth science, concepts in earth science	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
2	The formation of the earth and the solar system	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
3	Earth s features	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
4	History of geology and basic branches of geology	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
5	mineral and rock formations, magmatic rocks	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
6	Formation and properties of sedimentary rocks	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
7	Formation and types of Metamorphic Rocks	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
8	Natural disasters	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
9	Plate Tectonics and Tectonism	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
10	Historical Geology and Geological Times	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
11	Engineering Geology, mass movements	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
12	Mass movements, engineering structures	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
13	The importance of water and water resources	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,
14	Water pollution and quality	The relevant section should be re	Yer bilimi Ders Notları Yavuz, E.,

Recommended Optional Programme Components

FEN-401 Interdisciplinary Science Teaching

Course Learning Outcomes

No	Learning Outcomes
C01	Explain the importance and fundamental branches of earth science.
C02	Explains mineral and rock types.
C03	Defines the importance of geology as engineering, environmental and naturalist.

C04 Defines the relationship between natural disasters and earth science.

C05 Defines the importance and formation of surface and groundwater.

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	15	15
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15
C01	2	1	1	5	5	5	2	1	4	1	1	4	5	2	5
C02	2	3	1	5	5	5	2	2	4	1	1	5	5	2	5
C03	5	4	2	5	5	5	1	2	5	1	1	4	5	2	5
C04	5	4	1	5	5	5	2	2	5	1	1	3	5	2	5
C05	5	3	1	5	5	5	2	2	5	1	1	3	5	2	5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			91
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	FEN-305	Astronomy	2	2	3

Mode of Delivery	:	Face to Face
Language of Instruction	:	Turkish
Level of Course Unit	:	Bachelor's Degree
Work Placement(s)	:	No
Department / Program	:	Department of Science Education
Type of Course Unit	:	Compulsory
Objectives of the Course	:	To ensure that preservice science teachers have basic knowledge of astronomy, to attract their interest in the field of astronomy, to create activities and to perform amateur studies in the field of astronomy in accordance with the science curriculum.
Teaching Methods and Techniques	:	Meaning of astronomy, basic concepts, astronomical units; branches of astronomy, historical development; the contributions of different civilizations to astronomy, the tools used in astronomy; Solar system, solar system models from past to present, movements of world, moon and sun; Kepler Laws, time-calendar-seasons, elements of the solar system, stars, sun as a star, sky coordinate system, constellations, galaxies, Milky Way Galaxy, the universe and structure of the earth, the formation of the universe and universe models from past to present, space technology, and the reflection of everyday life.
Prerequisites and co-requisites	:	
Course Coordinator	:	
Name of Lecturers	:	
Assistants	:	
FEN-305	Astronomy	Research Assist.Dr. Merve TAŞCAN

Recommended or Required Reading	
Resources	To ensure that prospective teachers are aware of the results of the real and visible movements of the Sun and relate to daily life : To make teacher candidates aware of their misconceptions about the subject.,To enhance the knowledge of teacher candidates about : To design an activity in accordance with the gains of the 6th grade secondary school curriculum regarding solar eclipse and to eliminate : To increase the knowledge of teacher candidates about lunar eclipse, to be able to design activities in accordance with the gains of : It is aimed that students will have detailed information about the planets and their characteristics, : Detailed information about the planet Earth we live on, Comets and flowing stars.,It is aimed that prospective teachers will obtain detailed It is expected that a prospective science teacher of this course will understand the science of astronomy as an indispensable field for

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 0
Field	: 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Meaning of astronomy, basic concepts and units in astronomy	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
2	Coordinate systems in astronomy	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
3	Visible motions of celestial bodies: Earth and real and visible motions of Earth	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
4	Visible motions of celestial bodies: Moon and real and visible motions of the Moon	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
5	Visible motions of celestial bodies: Phases of the Moon	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
6	Visible motions of celestial bodies: The Sun	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
7	Visible motions of celestial bodies: Visible Movements of the Sun (Seasons, Equinox, Solstice)	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
8	Sample activities on solar and lunar eclipses and visible movements of celestial bodies	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
9	History of astronomy	1. İlkçağlardan Günümüze Astron 1- Ünal, İ. ve Taşcan, M. (2022).	
10	Universal Law of Gravitation and Kepler's Laws	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
11	Solar System and Planets	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
12	Stars and Galaxies: The structure and evolution of the Sun and other stars	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
13	Stars and Galaxies: The structure and evolution of the Milky Way and other galaxies, the formation theories	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	
14	Sky observation	Course notes prepared by the lect 1- Ünal, İ. ve Taşcan, M. (2022).	

Course Learning Outcomes	
No	Learning Outcomes
C01	Values the astronomy science
C02	Knows basic astronomy information in international science standards and National Science Curriculum.
C03	Designs lessons for astronomy gains at primary and secondary level.
C04	Designs original activities related to basic astronomy topics.

C05	Applies learning and teaching approaches specific to basic astronomy topics.
C06	Develops measurement and evaluation methods specific to teaching basic astronomy subjects.
C07	Follows the current developments about astronomy and space sciences.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	3	42
Assignment	14	%42	Assignments	14	3	42
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	0	0
Project	0	%0	Practice	0	0	0
Final examination	1	%0	Laboratory	0	0	0
Total		%42	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15
All	4	4	4	5	5	4	2	2	4	2	1	5	4	2	
C01	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1
C02	3	2	1	1	1	1	3	1	3	1	1	3	5	1	3
C03	4	5	5	5	2	3	3	1	5	1	1	5	2	1	3
C04	5	3	3	3	1	2	4	1	3	1	1	5	2	1	3
C05	3	5	5	5	1	1	3	1	5	2	1	3	4	1	5
C06	5	5	3	3	4	3	3	1	3	1	1	5	3	1	3
C07	1	3	1	1	5	5	1	5	1	1	1	1	3	1	1

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	MBD-606-A	EDUCATIONAL HISTORY	0	2	4
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : Understanding the historical development of educational science Teaching Methods and Techniques : Education in antiquity, education in Europe, the foundations of Turkish education Prerequisites and co-requisites : Course Coordinator : Name of Lecturers : Prof. Dr. Selçuk UYGUN Assistants : yok					
Recommended or Required Reading					
Resources : Kanad, Halik Fikret. Pedagoji Tarihi : : :					
Course Category					
Mathematics and Basic Sciences : Education : Engineering : Science : Engineering Design : Health : Social Sciences : Field :					
Weekly Detailed Course Contents					
Week	Topics	Study Materials	Materials		
1	History, education history, purpose and function	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
2	Education in Ancient Civilizations (Education in Chinese and Indian Civilization)	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
3	Education in Ancient Civilizations (Education in Egyptians)	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
4	Education in Ancient Greek Civilization	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
5	Platon and Aristotle s Educational Thought and their school journey from Ancient Greece to Rome	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
6	Education in Medieval Europe	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
7	Education in the Renaissance and Enlightenment Times in Europe	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
8	The Thoughts of Some Enlightenment Educators (Montaigne, Wolfgang Ratge, Commenius)	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
9	The Thoughts of Some Enlightenment Educators (John Locke, Jean Jacques Rousseau, Pestalozzi)	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
10	ımları (yeni hümanizm eğitim akımı, In the 19th century, the understanding of education and some edu	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
11	The understanding of education in the 20th century and some educational movements (movement from	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
12	Educational views of some contemporary educators (John Dewey)	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
13	Westernization and Modernization Efforts in Ottoman Turkish Educational Thought and Selim Sabit Efenc	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
14	Westernization and Modernization Efforts in Turkish Educational Thought in the Republic Period and the	reading	H. A. Koçer, Eğitim TarihiK. Aytaç		
Course Learning Outcomes					
No	Learning Outcomes				
C01	To be able to comprehend contemporary developments in education in the world.				
Program Learning Outcomes					
No	Learning Outcome				
P01	To be able to apply field knowledge of science, technology and mathematics to various situations				
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings				
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.				

P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%14	Course Duration	2	14	28
Quizzes	0	%0	Hours for off-the-c.r.stud	2	14	28
Assignment	2	%28	Assignments	2	14	28
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	14	14
Project	0	%0	Practice	0	0	0
Final examination	1	%14	Laboratory	0	0	0
Total		%56	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02
All	5	
C01		5

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	14	14
Total Work Load			112
ECTS Credit of the Course			4

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	MBD-302	Measurement and Evaluation in Education	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: The aim of this course is to have knowledge of the basic concepts of measurement and evaluation, to understand these concepts and to prepare measurement tools used in education and to study the validity and reliability of these measurement tools.
Teaching Methods and Techniques	: Basic concepts of measurement, error and error types, scale and scale types, the place of measurement and evaluation in education system, evaluation types, qualifications sought in measurement tools; reliability and reliability calculation methods;
Prerequisites and co-requisites	: types of validity and its calculation, usefulness, traditional measurement tools, complementary measurement and evaluation tools, test and item statistics, technology based measurement and evaluation, grading.
Course Coordinator	
Name of Lecturers	
Assistants	
MBD-302	Measurement and Evaluation in Education
	Associate Prof.Dr. Serkan Aslan

Recommended or Required Reading	
Resources	: Baştürk, S. (2018). Eğitimde ölçme ve değerlendirme. Ankara: Nobel Akademi Yayıncılık Doğan, N. (2019). Eğitimde ölçme ve değerlendirme. Ankara: Nobel Akademi Yayıncılık
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	:
	:
	:

Course Category			
Mathematics and Basic Sciences	: 0	Education	: 80
Engineering	: 0	Science	: 0
Engineering Design	: 0	Health	: 0
Social Sciences	: 0	Field	: 20

Weekly Detailed Course Contents		
Week	Topics	Study Materials / Materials
1	Basic concepts in measurement and evaluation	
2	Measurement Error, Reliability	
3	Validity and Usability	
4	Classification of educational goals and measuring behavior	
5	Conventional measuring tools 1	
6	Conventional measuring tools 2	
7	Complementary measurement and evaluation approaches 1	
8	Exam will be held	
9	Complementary measurement and evaluation approaches 2	
10	Complementary measurement and evaluation approaches 3	
11	Test and item statistics 1	
12	Test and item statistics 2	
13	Technology supported measurement and evaluation	
14	Grading based on in-class measurement results	

Course Learning Outcomes	
No	Learning Outcomes
C01	Knows the basic concepts of measurement and evaluation.
C02	Explains the basic features of measurement tools.
C03	Compares traditional and complementary measurement and evaluation tools.
C04	Comprehends the basic principles and features of assessment, scoring and measurement tools.
C05	Examines the validity and reliability of the measurement and evaluation tools prepared.

C06 Performs test and item analysis of the multiple-choice assessment-evaluation tool they have developed.

C07 Designs traditional and complementary assessment-evaluation tools suitable for curricula.

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	14	14
Total Work Load			100
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	FEN-303	Science Teaching Laboratory Applications 1	1	2	4

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: To teach students scientific process skills. To understand and interpret the format of an experiment (purpose, material, experiment, recording of results). The main idea is to teach which of the basic rules of science fits and proves. Explain the stages of development of an experimental activity. To do experimental work, to record the results and to teach how to prepare the report. Secondary School 5-6 Designing, applying and applying the experiments related to the subjects covered in science, discussing the results. Students will be able to work individually or in groups.
Teaching Methods and Techniques	: The importance and purpose of laboratory in science education; the place of laboratory studies in the Science Program; safety precautions to be taken and applied in the laboratory: recognition of experiment materials, tools and equipment, use them according to safety regulations and guidelines; the place and use of technology in laboratories, planning, conducting and reporting of various experiments based on different laboratory approaches appropriate to the nature of physics, chemistry, biology, and life science topics covered in the science curriculum of the 5th and 6th grade science courses of the secondary school; experimenting with simple and inexpensive materials; the importance of scientific process skills in experiments; the approaches to be used in the evaluation of student performances (knowledge, skill, attitude-value) in experiments.
Prerequisites and co-requisites	
Course Coordinator	
Name of Lecturers	
Assistants	
FEN-303	Science Teaching Laboratory Applications Research Assist.Dr. Merve TAŞCAN

Recommended or Required Reading

Resources	: This course aims to teach students the importance of dimensional analysis and organizing data.,It is aimed that pre-service teachers : To provide experimental training in line with the objectives and objectives of the Ministry of National Education. To understand the : : :
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Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 0
Field	: 100

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	General information about the course, preparing an experiment report, dimensional analysis and graphic	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
2	1. Velocity and Speed 2. Heat and Temperature	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
3	1. Mass, Weight, Force 2. Fungi	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
4	1.Circulatory system, exercise and heart rate 2. Density	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
5	1. Reflection in the Plane Mirror	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
6	1. The brightness of the bulbs 2. Water pollution	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
7	1. Natural Disasters	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
8	1. Experiments on Enzymes	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
9	1. Umbra and penumbra	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
10	1. Sense organs	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
11	1. Conductive and insulating substances	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
12	1. Transmission of sound 2.The interaction of sound with matter	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
13	1. Particulate Structure of Matter	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
14	1. Heat Affect the Matter	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında

Course Learning Outcomes

No	Learning Outcomes
C01	Designs original experiments according to the gains defined in the science curriculum
C02	Understands scientific process skills and applies them in daily life.

C03	Values by realizing that nature and space are the natural laboratories.
C04	Distinguish whether the experiments that can be designed at the secondary and primary level are suitable for the student level.
C05	Uses science laboratory effectively and safely.
C06	Knows all learning and teaching approaches that can be applied in the laboratory.
C07	Designs and implements original experiments with simple and easily accessible materials used in daily life.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%3	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	6	84
Assignment	14	%14	Assignments	14	1	14
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	3	3
Project	0	%0	Practice	0	0	0
Final examination	1	%3	Laboratory	0	0	0
Total		%20	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	3	4	3	5	3	3	5	1	3	1	2	5	5	5	5	
C02	4	5	3	5	3	3	5	1	3	1	2	3	3	3	3	
C03	2	3	1	1	4	2	3	1	2	1	1	3	2	2	2	
C04	4	4	3	5	2	2	4	1	4	1	2	5	2	2	5	
C05	1	2	1	2	2	1	5	1	1	1	1	2	2	5	5	
C06	5	5	5	5	3	4	5	1	5	1	1	5	4	2	5	
C07	5	5	4	5	3	1	5	1	4	1	1	5	1	5	5	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	3	3
Total Work Load			146
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	FEN-301	Teaching Science 1	3	3	6
Mode of Delivery		: Face to Face			
Language of Instruction		: Turkish			
Level of Course Unit		: Bachelor's Degree			
Work Placement(s)		: No			
Department / Program		: Department of Science Education			
Type of Course Unit		: Compulsory			
Objectives of the Course		: To be able to understand current learning methods and techniques in science teaching			
Teaching Methods and Techniques		: The aims of science teaching, science literacy; learning theories commonly used in science teaching; common misconceptions in science; teaching strategies, methods, techniques, materials and applications (expository teaching approach, discovery learning approach, cooperative learning, demonstration); laboratory techniques, laboratory safety, the use of simple materials in science teaching, concept teaching and the use of graphical tools (concept map, v-diagram, I know-I wonder-what I learned charts, etc.)			
Prerequisites and co-requisites		: science; teaching strategies, methods, techniques, materials and applications (expository teaching approach, discovery learning approach, cooperative learning, demonstration); laboratory techniques, laboratory safety, the use of simple materials in science teaching, concept teaching and the use of graphical tools (concept map, v-diagram, I know-I wonder-what I learned charts, etc.)			
Course Coordinator		: teaching technique with analogies (bridging analogies, etc.), the use of scientific models in science teaching; preparation and implementation of lesson plans based on the use of teaching methods and techniques.			
Name of Lecturers					
Assistants					
FEN-301	Teaching Science 1				
		Yok.			

Recommended or Required Reading	
Resources	: Understanding the aims of science teaching,Developing understanding of science literacy,Understanding the relationship between science and society,Understanding concept mapping technologies,Having knowledge about V-diagram, what I know-what I wonder-what I learned charts, etc. : It is aimed to educate prospective teachers who will explain the importance and purpose of science education. : : :

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 0
Health	: 0
Field	: 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	The aims of science teaching	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
2	Science literacy	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
3	Learning theories commonly used in science teaching	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
4	Common misconceptions in science	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
5	Teaching strategies, methods, techniques, materials and applications: Expository teaching approach	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
6	Teaching strategies, methods, techniques, materials and applications: Discovery learning approach	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
7	Teaching strategies, methods, techniques, materials and applications: Cooperative learning, demonstration	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
8	Laboratory techniques, laboratory safety, the use of simple materials in science teaching	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
9	Concept teaching and the use of graphical tools: Concept map	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
10	Concept teaching and the use of graphical tools: V-diagram, I know-I wonder-what I learned charts, etc.	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
11	Teaching technique with analogies (bridging analogies, etc.)	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
12	The use of scientific models in science teaching	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
13	Preparation of lesson plans based on the use of teaching methods and techniques.	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	
14	Implementation of lesson plans based on the use of teaching methods and techniques.	Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları, Fen Eğitiminde Özel Öğretim Yönt Dersin öğretim üyesi tarafından hazırlanan ders notları	

Course Learning Outcomes	
No	Learning Outcomes
C01	Expresses the characteristics of scientifically literate individuals by defining the concept of scientific literacy.
C02	Explains the features of general and special teaching methods and techniques that can be used in science teaching and the points that need to be considered while using them in the classroom.
C03	Understands the importance of using laboratory in science teaching.
C04	Understands the importance of using educational technologies in the science teaching process.

C05 Develops examples suitable for the methods and techniques used in effective concept teaching.

C06 Prepare lesson plans for different topics in science by using the special teaching methods learned during the semester.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	0	%0	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	3	42
Assignment	14	%42	Assignments	14	3	42
Attendance	0	%0	Presentation	14	3	42
Practice	0	%0	Mid-terms	0	0	0
Project	0	%0	Practice	0	0	0
Final examination	0	%0	Laboratory	7	2	14
Total		%42	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	1	1	1	2	5	3	1	1	3				1	1	2	
C02	4	4	4	4	5	4	4	2	4	3	3	4	3	4	4	
C03	3	3	3	4	5	3	4	3	2	3	3	2	3	4	3	
C04	3	3	4	4	5	4	4	3	3	3	3	4	4	4	4	
C05	5	5	5	5	5	5	3	3	4	3	3	4	5	5	5	
C06	4	4	5	4	5	5	4	3	5	4	2	5	4	4	5	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			182
ECTS Credit of the Course			6

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	MBD-304	Turkish Education System and School Management	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	:
Teaching Methods and Techniques	:
Prerequisites and co-requisites	:
Course Coordinator	:
Name of Lecturers	: ation System and School Management
Assistants	: Yok

Recommended or Required Reading	
Resources	: Know the main objectives of the Turkish Education System.,Know the Legal Regulations about the Turkish Education System.,Explai :

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 20
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 60
Health	: 10
Field	: 0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Aims and Basic Principles of Turkish Education System	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
2	Legal Regulations on Turkish Education System	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
3	General Structure and Organization of Turkish Education System	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
4	Management and Management Theories	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
5	Management Processes	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
6	School Organization and Management	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
7	School Manager and Leadership	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
8	Human Resources Management in School	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
9	Student Affairs in School Management	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
10	Management of Education and Training Services in School	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
11	Corporate Business Management in School	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
12	School-Family-Environment Relationships	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
13	Human Relations in School Management	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	
14	Problems of the Turkish Education System and ethic directions	Examination of the documents (ar Akın, U. (2015). Türk Eğitim Siste	

Course Learning Outcomes

No	Learning Outcomes
C01	Compare approaches and philosophies based on educational management.
C02	Explain the management models.
C03	Ability to notice things that affect educational systems.
C04	Analyze the education systems.
C05	Develop to effective school management skills of students.
C06	Explain purpose of Turkish school system.

C07 Explain the structure and progress of Turkish Education System.

C08 Exhibits an ethical management paradigm.

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%20	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	20	20
Project	0	%0	Practice	0	0	0
Final examination	1	%20	Laboratory	0	0	0
Total		%40	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01		2								2					2	
C02															2	
C03										2					2	
C04										2					2	
C05										2			2		2	
C06										2					2	
C07										2					2	
C08								4		2					2	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			96
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
6	FEN-306	Scientific Reasoning Skills	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of the course, the characteristics of scientific reasoning and its relationship with science achievement; scientific reasoning and concept teaching; Teaching Methods and Techniques : abstract operations period features; identifying and controlling variables, relational thinking; combinational thinking; probability thinking; proportional thinking; hypothetical thinking; estimation-observation-explanation method with scientific reasoning; The aim of this course is to gain the skills of accelerating cognitive development through science education. Prerequisites and co-requisites : The nature of scientific reasoning and its relation to science achievement; scientific reasoning and concept teaching; properties of abstract operations period; identifying and controlling variables (dependent and independent variable, controlled variable, etc.); relational thinking; combinatorial thinking; probable thinking; proportional thinking; hypothetical thinking; scientific reasoning with prediction-observation-explanation method; activities to accelerate cognitive development through science education. Course Coordinator : Name of Lecturers : Associate Prof. Süleyman AKÇAY Assistants :					

Recommended or Required Reading	
Resources	: Özmen, H., & Karamustafaoğlu, O. (2019). Eğitimde araştırma yöntemleri. Ankara: Pegem Akademi. : At the end of this course, it is aimed that teacher candidates gain scientific reasoning skills. : : :

Course Category	
Mathematics and Basic Sciences	: Education
Engineering	: Science
Engineering Design	: Health
Social Sciences	: Field
	: 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	The nature of scientific reasoning	yayınlanan makaleler, Tez bölümü	Dökme, İ. (Ed.). (2019). Bilimsel I
2	Characteristics of scientific reasoning	yayınlanan makaleler, Tez bölümü	
3	relation to science achievement of scientific reasoning	yayınlanan makaleler, Tez bölümü	
4	Scientific reasoning	yayınlanan makaleler, Tez bölümü	
5	Concept teaching	yayınlanan makaleler, Tez bölümü	
6	Properties of abstract operations period	yayınlanan makaleler, Tez bölümü	
7	Identifying and controlling variables (dependent and independent variable, controlled variable	yayınlanan makaleler, Tez bölümü	
8	Relational thinking	yayınlanan makaleler, Tez bölümü	
9	Combinatorial thinking	yayınlanan makaleler, Tez bölümü	
10	Probable thinking	yayınlanan makaleler, Tez bölümü	
11	Proportional thinking	yayınlanan makaleler, Tez bölümü	
12	Hypothetical thinking	yayınlanan makaleler, Tez bölümü	
13	Scientific reasoning with prediction-observation-explanation method	yayınlanan makaleler, Tez bölümü	
14	Activities to accelerate cognitive development through science education.	yayınlanan makaleler, Tez bölümü	

Recommended Optional Programme Components	
FEN-404 Nature of Science and Teaching	
MBD-611 Critical and Analytical Thinking	
MBD-204 research methods in education	

Recommended Optional Programme Components	
GKD-704-B2 SCIENCE AND RESEARCH ETHICS	
GKD-703-B3 HISTORY AND PHILOSOPHY OF SCIENCE	
Course Learning Outcomes	
No	Learning Outcomes
C01	Explains the characteristics of scientific reasoning and its relation to science achievement,
C02	Gives examples of relational thinking, combinatorial thinking, and probabilistic thinking processes.
C03	thinking; proportional thinking; hypothetical thinking; tells the properties of prediction-observation-explanation methods.
C04	Explains how cognitive development can be increased through science education.
C05	Explains dependent, independent and control variables and explains it through an example problem statement.
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria		
In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	1	%30
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		%130

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Course Duration	14	2	28
Hours for off-the-c.r.stud	5	2	10
Assignments	2	5	10
Presentation	2	12	24
Mid-terms	1	1	1
Practice	0	0	0
Laboratory	0	0	0
Project	1	10	10

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
All	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4
C01	4	4	3	3	3	3	3	3	3	4	4	4	4	4	4	4
C02	4	4	4	4	4	4	4	3	3	3	3	3	3	3	4	4
C03	4	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4
C04	3	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4
C05	4	3	3	3	3	4	4	4	4	4	4	3	3	4	4	4

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	1	1
Total Work Load			84
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
6	MBD-303	Morality and Ethics in Education	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : To acquire the theoretical and practical equipment necessary for the students to gain awareness of Ethics and Ethics for Teaching Methods and Techniques : Education, business voice. Prerequisites and co-requisites : Basic concepts and theories of morality and ethics; ethical principle, ethical rule, business and professional ethics / ethics; the Course Coordinator : teaching profession with its social, cultural, moral and ethical aspects; ethical principles in the education, training, learning and Name of Lecturers : evaluation process of the right to education and learning Assistants : Ethics in Education Instructor Akif Fatih KILIÇ Instructor Akif Fatih KILIÇ					

Recommended or Required Reading	
Resources	: The scope and objective of the course is to teach prospective teachers the professional skills of defining the basic concepts of moral : : :

Course Category	
Mathematics and Basic Sciences : 0	Education : 100
Engineering : 0	Science : 0
Engineering Design : 0	Health : 0
Social Sciences : 0	Field : 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials

1	Morals and ETHICS (Conceptual Framework)	Publications on Ethics and ETHICS	
2	Morals and ETHICS (Conceptual Framework) Continuing from week 1....- Relationship of Ethics, Morality	- Publications on the Relationship	
3	Business and Professional Ethics	Publications on Business and Prof	
4	Business and Professional Ethics	Publications on Business and Prof	
5	Professional Competencies, Culture and Values ??Related to Teaching	Publications on Teaching Professik	
6	The Right to Education and Learning and Ethical Principles Regarding Teaching	Publications on the Right to Educ	
7	Ethics in School and Learning Process-1	Publications on Ethics in School ar	
8	Ethics in School and Learning Process-2	Publications on Ethics in School ar	
9	Ethical Principles in Teachers Relations with Stakeholders	Publications on Ethical Principles i	
10	Ethical Principles in Teachers Relations with Stakeholders -2	Publications on Ethical Principles i	
11	Unethical Behaviors, Ethical Dilemmas, Problems in School and Education	Publications on Unethical Behavio	
12	Ethics and Ethics Education at School	Publications on Ethics and Ethics I	
13	Headmaster and Teacher as an Ethical Leader	Publications on the subject of Sch	
14	Unethical Behaviors in Business and Professional Life	Publications on Unethical Behavio	

Course Learning Outcomes	
No	Learning Outcomes
C01	Knows and explains the difference between ethics and morals.
C02	Can distinguish and distinguish unethical behaviors in business and professional life.
C03	Have an understanding of moral and ethical responsibility in education.
C04	Can propose solutions to the problems that may be encountered in education within the understanding of scientific ethics.
C05	Knows the importance and importance of a teacher or school administrator in his / her in-school and out-of-school attitudes and acts accordingly.

C06 Explain the moral / ethical responsibilities of administrators, parents and students.

C07 Analyzes the teaching profession with its social, cultural, moral and ethical aspects.

C08 Analyzes the problems related to morality and ethics in education.

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	0	%0	Course Duration	14	1	14
Quizzes	0	%0	Hours for off-the-c.r.stud	14	4	56
Assignment	2	%100	Assignments	2	10	20
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	0	0	0
Project	0	%0	Practice	0	0	0
Final examination	0	%0	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11
C01	1	2	2	1			2				
C02	1	2		1	1	1	2				
C03	1		2	1			2				
C04	1	2			1	1					5
C05	1	2		1			2				5
C06	1		2	1		1	2			3	
C07	3	2	2		1		2			3	
C08	1		2	1	1					3	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
6	FEN-304	Science Teaching Laboratory Applications 2	1	2	4
Mode of Delivery		: Face to Face			
Language of Instruction		: Turkish			
Level of Course Unit		: Bachelor's Degree			
Work Placement(s)		: No			
Department / Program		: Department of Science Education			
Type of Course Unit		: Compulsory			
Objectives of the Course		: The aim of this course is to enable pre-service teachers to carry out various experiments in physics, chemistry and biology			
Teaching Methods and Techniques		: subjects of 7th and 8th grades in Science Education Curriculum. It also aims to reinforce their ability to prepare reports for these			
Prerequisites and co-requisites		: experiments.			
Course Coordinator		: Experiments with simple and inexpensive materials: examples of physics, chemistry and biology materials that can be used in			
Name of Lecturers		: these experiments; experimenting with simple and inexpensive materials; the place and use of technology in the laboratory;			
Assistants		: determining the scientific process skills to be gained in experiments; Planning, conducting and reporting of various experiments			
FEN-304	Science Teaching Laboratory Applications 2	based on different laboratory approaches appropriate to the nature of physics, chemistry, biology, environment, location science subjects covered in science curriculum of the 7th and 8th grade science courses; the approaches to be used in the evaluation of student performances (knowledge, skill, attitude-value) in experiments.			
		Research Assist.Dr. Merve TAŞCAN			

Recommended or Required Reading	
Resources	: Science teacher candidates; to make closed-ended experiments on mixtures and their separation methods and to understand by wh : The aim of this course is to enable pre-service teachers to carry out various experiments in physics, chemistry and biology subjects : : :

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 0
Science	: 100
Health	: 0
Field	: 0

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Experiments with simple and inexpensive materials: examples of physics, chemistry and biology material	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
2	The place and use of technology in the laboratory	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
3	Determining the scientific process skills to be gained in experiments, the approaches to be used in the e	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
4	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
5	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
6	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
7	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
8	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
9	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
10	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
11	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
12	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
13	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında
14	Planning, conducting and reporting of various experiments based on different laboratory approaches app	1.	M. Aydoğdu, Y. Üns Öğrencilere dersin teorik kısmında

Course Learning Outcomes	
No	Learning Outcomes
C01	Teachers can experiment with simple vbe economic materials
C02	Reinforces the place and use of technology in the laboratory.
C03	Gain scientific process skills through experiments.

C04 They can plan, apply and write a variety of experiments based on different laboratory approaches appropriate to the nature of the science subjects covered by the Science Program.

C05 During the experiment, prospective teachers can also learn the evaluation processes and reinforce their application.

Program Learning Outcomes

No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	0	%0	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	14	%42	Assignments	14	3	42
Attendance	0	%0	Presentation	14	2	28
Practice	0	%0	Mid-terms	0	0	0
Project	0	%0	Practice	0	0	0
Final examination	0	%0	Laboratory	0	0	0
Total		%42	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15
All	5	5	4	5	5	4	5	4	5	3	4	5	5	5	5
C01	3	5	5	5	4	3	5	2	3	1	2	5	3	5	4
C02	2	2	3	3	2	3	2	1	2	1	1	2	2	3	3
C03	4	2	2	5	3	2	3	1	4	1	2	5	3	2	2
C04	3	5	5	5	4	3	5	2	3	1	2	5	3	5	4
C05	3	5	5	5	4	3	5	2	3	1	2	5	3	5	4

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			140
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
6	FEN-302	Science Teaching 2	3	3	6
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of this course is to gain the knowledge, skills, attitudes and behaviors about pre-service science teachers. Teaching Methods and Techniques : Teaching strategies, methods, techniques, materials and applications commonly used in science teaching; (scientific process, thinking, life, engineering and design skills: importance and development, instructional strategy based on research and inquiry, argumentation, concept cartoons, forecasting-observing-explaining, learning cycle (5E and 7E); problem based teaching method, project based teaching method; teaching method based on case study; role-playing, drama, context-based learning in science teaching, etc.); preparation and implementation of lesson plans based on the use of teaching methods and techniques; Prerequisites and co-requisites : examination of Competencies of Science Teacher, current teaching approaches in science teaching. Course Coordinator : Name of Lecturers : Assistants : FEN-302 Science Teaching 2 Asist Prof.Dr. Merve Lütfiye ŞENTÜRK					

Recommended or Required Reading	
Resources	: Dökme, İ. (2005). Milli eğitim bakanlığı (MEB) ilköğretim 6. sınıf fen bilgisi ders kitabının bilimsel süreç becerileri yönünden değerlendirilmesi. : It is aimed that a prospective teacher who takes the course is planning to use his / her own course in the best way by using content. : : : :

Course Category	
Mathematics and Basic Sciences : Engineering : Engineering Design : Social Sciences :	Education : Science : 100 Health : Field :

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Teaching strategies, methods, techniques, materials and applications commonly used in science teaching	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
2	Scientific process, thinking, life, engineering and design skills: importance and development	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
3	Instructional strategy based on research and inquiry	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
4	Argumentation	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
5	Concept cartoons, forecasting-observing-explaining	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
6	Learning cycle (5E and 7E)	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
7	Problem based teaching method	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
8	Project based teaching method	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
9	Teaching method based on case study	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
10	Role-playing, drama	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
11	Context-based learning in science teaching	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
12	Preparation and implementation of lesson plans based on the use of teaching methods and techniques	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
13	Examination of Competencies of Science Teacher	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L
14	Current teaching approaches in science teaching.	Çepni, S. 2009. (Ed). Kuramdan L	Çepni, S. 2009. (Ed). Kuramdan L

Course Learning Outcomes	
No	Learning Outcomes
C01	1. scientific process, thinking, life, engineering and design skills: importance and development,
C03	et-opt-in, the learning cycle (5E and 7E); problem based teaching method, project-based teaching
C04	method, sample event-based teaching method, role playing, drama; context in science teaching
C05	(life) based learning etc. know and apply strategy method techniques.

C06 2. Prepare and implement a lesson plan based on the use of teaching methods and techniques.

C07 3. Knows the qualifications of science teachers and knows the current teaching approaches in science teaching.

C08 research and inquiry-based teaching strategy, argumentation, concept cartoons, estimation

Program Learning Outcomes

No Learning Outcome

P01 To be able to apply field knowledge of science, technology and mathematics to various situations

P02 To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings

P03 To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.

P04 To use scientific thinking, creativity and scientific research methods and techniques.

P05 To be enthusiastic about learning and teaching content of science and technology

P06 To be able to exhibit an interdisciplinary approach in science teaching.

P07 To be able to design and apply science laboratory activities

P08 To realise the subject of morality and ethics in science and education.

P09 To be able to design a lesson plan aimed at teaching components of nature of science.

P10 To realise importance fields of classroom management, guidance and psychological counseling and special education

P11 To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.

P12 To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.

P13 To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.

P14 To be able to use laboratory safely in science courses.

P15 To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.

P20 Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	0	0	0
Total Work Load			182
ECTS Credit of the Course			6

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
6	MBD-301	Classroom Management	2	2	3
Mode of Delivery		: Face to Face			
Language of Instruction		: Turkish			
Level of Course Unit		: Bachelor's Degree			
Work Placement(s)		: No			
Department / Program		: Department of Science Education			
Type of Course Unit		: Compulsory			
Objectives of the Course		: In order to provide effective teaching and learning environment in the classroom, to regulate student behaviors, to provide			
Teaching Methods and Techniques		: motivation, to use time effectively, to organize the physical environment and to create a positive communication environment to			
Prerequisites and co-requisites		: recognize the necessary elements and to have the ability to apply.			
Course Coordinator		: Basic concepts of classroom management, different aspects and basic features of classroom management in providing discipline			
Name of Lecturers		: in classroom, communication and interaction in classroom, regulation of physical environment of classroom, classroom			
Assistants		: management and discipline models, developing and implementing rules in classroom, teaching levels (primary, secondary, high			
MBD-301	Classroom Management	in classroom, conflict management in classroom, learning and teaching management in classroom, functional use of educational			
		technology in classroom, teacher behaviors in creating a positive classroom environment			
		Yok			

Recommended or Required Reading	
Resources	: Explain the factors to be considered in the physical arrangement of the classroom.,Know the features of disciplinary models,Know the
	:
	:
	:
	:

Course Category	
Mathematics and Basic Sciences	: 0
Engineering	: 0
Engineering Design	: 0
Social Sciences	: 0
Education	: 100
Science	: 0
Health	: 0
Field	: 0

Weekly Detailed Course Contents		Study Materials	Materials
Week	Topics		
1	Basic concepts of classroom management	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
2	Different aspects of classroom management in providing discipline in classroom	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
3	Classroom communication and interaction	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
4	Regulation of the physical environment of the classroom	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
5	Classroom management and discipline models	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
6	Develop and apply rules in the classroom	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
7	The importance of multicultural education	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
8	Motivation in the Classroom	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
9	The school as a violence place	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
10	Time management in the classroom	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
11	Conflict management in the classroom	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
12	Functional use of educational technology in classroom environment	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
13	Teacher behaviors in creating a positive classroom environment suitable for learning	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	
14	Review of the term	Examination of the documents (a1 Küçükahmet, L. (2003). Sınıf yöne	

Course Learning Outcomes	
No	Learning Outcomes
C01	Knows the basic concepts of classroom management.
C02	Realizes the importance of classroom communication.
C03	Regulates the physical environment of the class.

C04	Applies the discipline models used in classroom management.
C05	Knows motivation increasing approaches.
C06	Manages time effectively in the classroom.
C07	Effectively manages conflicts in the classroom.
C08	Uses educational technologies effectively.

Program Learning Outcomes	
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No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	20	20
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P20
C01	2				2	3	2			3	4	
C02	2				2	3	2			3	3	
C03						2				2	2	
C04						2				2	2	
C05						2				2	2	
C06						2				2	2	
C07						2				2	2	
C08						2				2	2	

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			96
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
7	FEN-403	Environmental Education	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: To learn the concepts related to environmental biology and to develop solutions to problems.
Teaching Methods and Techniques	: Basic ecological concepts and principles, ecosystems, food chains, food web, habitat, competition; common life and mutual life, energy flow, circulation of material, population increase, ecological impact, erosion, soil and water resources, environmental
Prerequisites and co-requisites	: sensitivity, studies related to environmental sensitivity in the world; institutions and organizations; environmental education in
Course Coordinator	: primary education programs.
Name of Lecturers	
Assistants	af Education
	Associate Prof.Dr. Süleyman AKÇAY

Recommended or Required Reading	
Resources	: To have knowledge about species formation and biodiversity : To contribute to the conservation of biological properties of species : To identify the problems that occur in the population to have information to correct them : To learn environmental agreements : Taking part in commissions related to species protection : To be able to identify and eliminate environmental problems : To be able to work in international conservation studies

Course Category	
Mathematics and Basic Sciences	: Education
Engineering	: Science
Engineering Design	: Health
Social Sciences	: Field
	: 100

Weekly Detailed Course Contents		
Week	Topics	Materials
1	Basic ecological concepts	Ekoloji ve çevre kitapları
2	Basic ecological principles	Ekoloji ve çevre kitapları
3	Ecosystems	Ekoloji ve çevre kitapları
4	Food chains, food web	Ekoloji ve çevre kitapları
5	Habitat, competition	Ekoloji ve çevre kitapları
6	Common life and mutual life	Ekoloji ve çevre kitapları
7	Energy flow	Ekoloji ve çevre kitapları
8	Circulation of material	Ekoloji ve çevre kitapları
9	Population increase, ecological impact	Ekoloji ve çevre kitapları
10	Erosion, soil and water resources	Ekoloji ve çevre kitapları
11	Environmental sensitivity	Ekoloji ve çevre kitapları
12	Studies related to environmental sensitivity in the world	Ekoloji ve çevre kitapları
13	Institutions and organizations	Ekoloji ve çevre kitapları
14	Environmental education in primary education programs.	Ekoloji ve çevre kitapları

Recommended Optional Programme Components
FEN-203 Biology 2
FEN-204 Biology 3
FEN-206 Geoscience
FEN-108 Biology 1

Course Learning Outcomes	
No	Learning Outcomes
C01	Explain what the basic concepts of environmental biology mean
C02	To give examples and explain the functioning of ecological cycles.
C03	Defining the concept of ecosystem and giving examples of its elements
C04	To make an explanatory presentation about the biodiversity of our country
C05	To give examples of matter cycles and energy flows and to explain the relationships between them.
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	1	1
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
7	FEN-401	Interdisciplinary Science Teaching	2	2	4
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : The aim of the course is to make sure that prospective teachers do not approach the science as a single science field, because they are related to many fields of science by their nature and to get rid of their non-scientific ideas about socio-scientific issues. Teaching Methods and Techniques : Interdisciplinary learning, perceiving knowledge in different fields of science and skills used, understanding the nature of Prerequisites and co-requisites : interdisciplinary knowledge, valuing and developing interdisciplinary perspectives; the use of interdisciplinary knowledge in science Course Coordinator : science teaching Name of Lecturers : teaching; local, national and global events, product and model development, process and system design, project development, Assistants : inventing and personal development, career choice and its importance; interdisciplinary skills, engineering and design, decision making, high-level thinking, information-communication and collaboration, innovative thinking, entrepreneurship, science, technology, society and environment and interactions: environment, culture, science and technology policies; teaching of socio-scientific issues, being a citizen with responsibility, attitude and worth, who make and perform reasonable decisions about socio-scientific issues. Asist Prof.Dr. Merve Lütfiye ŞENTÜRK					

Recommended or Required Reading	
Resources	: Korkmaz, H., & Konukaldı, I. (2015). İlköğretim Fen ve Teknoloji Eğitiminde Disiplinlerarası Tematik Öğretim Yaklaşımının Öğrenciler : It is aimed that a prospective teacher who has taken this course will have a universal understanding of ethics, have high-level thinki : : :

Course Category	
Mathematics and Basic Sciences	: Education : 100
Engineering	: Science : 100
Engineering Design	: Health : 100
Social Sciences	: Field : 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Interdisciplinary learning, perceiving knowledge in different fields of science and skills used	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
2	Understanding the nature of interdisciplinary knowledge, valuing and developing interdisciplinary persp	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
3	The use of interdisciplinary knowledge in science teaching; local, national and global events, product anc	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
4	Project development, inventing and personal development, career choice and its importance	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
5	Interdisciplinary skills	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
6	Engineering and design, decision making, high-level thinking	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
7	Information-communication and collaboration	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
8	Innovative thinking, entrepreneurship	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
9	Science, technology, society and environment and interactions: environment, culture, science and techn	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
10	Teaching of socio-scientific issues	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
11	Being a citizen with responsibility, attitude and worth, who make and perform reasonable decisions abou	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
12	Cognitive, affective, intuitive, moral and ethical reasoning	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
13	Teaching methods and strategies for socio-scientific issues.	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal
14	Application of teaching methods and strategies for socio-scientific issues.	Ders notları, tez bölümleri makale	Konu ile ilgili tez bölümleri ve mal

Course Learning Outcomes	
No	Learning Outcomes
C01	1. Develops a high-level perspective on interdisciplinary learning and understands its importance.
C03	use of knowledge in science teaching; local, national and global events, product and model

C04	development, process and system design, project development, invention-and personal development, career
C05	selection and importance; interdisciplinary skills, engineering and design, decision making, high-level thinking,
C06	information-communication and cooperation, innovative thinking, entrepreneurship, science, technology, society and environment
C07	comprehend the interaction between
C08	3. to take and make reasonable decisions about socio-scientific issues, responsibility, attitude and value
C09	being a citizen; cognitive, affective, intuitive, moral and ethical reasoning; sosyobilimsel
C10	2. interdisciplinary

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			140
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
7	MBD-404	Counseling in Schools	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : Course goal : At the end of this course, students will understand the importance of guidance and counseling services and their place in Education, understand the roles of school counselors, teachers, and principals in guidance practices, understand the guidance and counseling needs of different age level students, understand the process of helping and developing skills in dealing with the needs of students, their parents, and community Teaching Methods and Techniques : Prerequisites and co-requisites : Course Coordinator : Name of Lecturers : Introduction to Guidance and Counseling in Schools: Basic Concepts, Aims and Principles, Development of Guidance and Assistants : Counseling in Turkey and in the World Guidance and Counseling Services in Schools The Role and Function of the School Counselor The Roles of the School Personnel Counseling: Counseling with Individuals, Counseling Groups and Group Guidance Activities Techniques of Human Assessment : Standardized Testing and Human Assessment, Nonstandardized Techniques of Human Assessment Evaluation of the Guidance Programs MBD-404 Counseling in Schools Asist Prof.Dr. Ece Kara					

Recommended or Required Reading	
Resources	1. To explain basic concepts and principles in psychological counselling and guidance 2. To comprehend the importance and place of psychological counselling and guidance in education 3. To be distinguished from differences and similarities between services of psychological counselling and guidance differences and 4. To develop understanding and basic attitudes in the guidance 5. According to relevant regulations to comprehend responsibilities and duties in guidance services of teachers

Course Category	
Mathematics and Basic Sciences	Education
Engineering	Science
Engineering Design	Health
Social Sciences	Field
	: 100

Weekly Detailed Course Contents		
Week	Topics	Materials
1	Introduction, course description, Student Personality Services and Guidance in Contemporary Education	1.Aydın, Betül (2007). Rehberlik. . 2. Erkan, Serdar(2005). Örnek Gru 3. Güven, Mehmet (2008). Psikolo 4.Selçuk, Ziya, Güner, Nedret (200 5. Kaya, Alim (2004). Psikolojik Da
2	Main Service Types of Counseling and Guidance Services	1.Aydın, Betül (2007). Rehberlik. . 2. Erkan, Serdar(2005). Örnek Gru 3. Güven, Mehmet (2008). Psikolo 4.Selçuk, Ziya, Güner, Nedret (200 5. Kaya, Alim (2004). Psikolojik Da
3	Counseling Services in Schools	1.Aydın, Betül (2007). Rehberlik. . 2. Erkan, Serdar(2005). Örnek Gru 3. Güven, Mehmet (2008). Psikolo 4.Selçuk, Ziya, Güner, Nedret (200 5. Kaya, Alim (2004). Psikolojik Da
4	Educational Guidance	1.Aydın, Betül (2007). Rehberlik. . 2. Erkan, Serdar(2005). Örnek Gru 3. Güven, Mehmet (2008). Psikolo 4.Selçuk, Ziya, Güner, Nedret (200 5. Kaya, Alim (2004). Psikolojik Da
5	School and Family Cooperation	1.Aydın, Betül (2007). Rehberlik. .
6	Preventive Guidance	1.Aydın, Betül (2007). Rehberlik. .
7	Personal Guidance	1.Aydın, Betül (2007). Rehberlik. .
8	Personal Guidance Activity Practices	1.Aydın, Betül (2007). Rehberlik. .
9	Educational and Vocational Guidance	1.Aydın, Betül (2007). Rehberlik. .
10	Educational and Vocational Guidance Activity Practices	1.Aydın, Betül (2007). Rehberlik. .
11	Individual Recognition Techniques	1.Aydın, Betül (2007). Rehberlik. .
12	Individual Recognition Techniques and Applications	1.Aydın, Betül (2007). Rehberlik. .
13	Conflict Resolution Styles and Peer Mediation	1.Aydın, Betül (2007). Rehberlik. .

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
14	Organization and Staff in Guidance		1.Aydın, Betül (2007). Rehberlik.
Course Learning Outcomes			
No	Learning Outcomes		
C01	1. BASIC CONCEPTS AND PRINCIPLES IN PSYCHOLOGICAL COUNSELLING AND GUIDANCE		
C03	3. DIFFERENCES AND SIMILARITIES BETWEEN SERVICES OF PSYCHOLOGICAL COUNSELLING AND GUIDANCE		
C04	4. BASIC ATTITUDES AND UNDERSTANDINGS IN PSYCHOLOGICAL COUNSELLING AND GUIDANCE		
C05	2. PRACTICE OF PSYCHOLOGICAL COUNSELLING AND GUIDANCE IN EDUCATION		
Program Learning Outcomes			
No	Learning Outcome		
P01	To be able to apply field knowledge of science, technology and mathematics to various situations		
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings		
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.		
P04	To use scientific thinking, creativity and scientific research methods and techniques.		
P05	To be enthusiastic about learning and teaching content of science and technology		
P06	To be able to exhibit an interdisciplinary approach in science teaching.		
P07	To be able to design and apply science laboratory activities		
P08	To realise the subject of morality and ethics in science and education.		
P09	To be able to design a lesson plan aimed at teaching components of nature of science.		
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education		
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.		
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.		
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.		
P14	To be able to use laboratory safely in science courses.		
P15	To be able to create convenient learning environments to improve students' critical, creative thinking and problem solving skills.		
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme		

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	3	42
Quizzes	0	%0	Hours for off-the-c.r.stud	14	1	14
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	1	15	15
Practice	0	%0	Mid-terms	1	6	6
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P20
All	3	3	2	2	3	3	3	2	3	2	3	3	3
C01	3	3	3	3	3	3	3	3	3	3	3	3	3
C03	3	2	3	2	3	3	3		2	3	3	3	3
C04	2	2	2	2	2	2	3	2	3	2	2	3	2
C05	2	2	2	2	2	2	3	2	2	3	3	2	2

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	10	10
Total Work Load			87
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
7	FEN-405	Teaching Practice 1	2	5	12
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : In this course, teacher candidates as early as possible, under the supervision of an application teacher, students and teaching Teaching Methods and Techniques : profession in various ways to recognize and participate in the process is intended to do. Prerequisites and co-requisites : Making observations about teaching methods and techniques specific to the field; making individual and group micro-teaching Course Coordinator : practices in which specific teaching methods and techniques specific to the field are used; field specific activity and material Name of Lecturers : development; preparing teaching environments, classroom management, measuring, evaluating and reflecting. Assistants : Practice 1 Asist Prof.Dr. Merve Lütfiye ŞENTÜRK					

Recommended or Required Reading	
Resources	: Öğretmenlik Uygulaması Kılavuzu : The aim of this course is to examine the situation of a student in school, to observe the work done by teachers in the school, to learn : : : :

Course Category	
Mathematics and Basic Sciences	: Education
Engineering	: Science
Engineering Design	: Health
Social Sciences	: Field

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials

1	Making observations about teaching methods and techniques specific to the field and presenting reflectiv		
2	Making individual and group micro-teaching practices in which specific teaching methods and techniques		
3	Making group micro-teaching practices		
4	Field specific activity and material development and presentation of the materials		
5	Field specific activity and material development and presentation of the materials		
6	Preparing teaching environments and presentation of reflective diaries		
7	Discussing issues related to classroom management		
8	Presenting and discussing the measurement methods and strategies used in the class		
9	Presenting and discussing the evaluation methods and strategies used in the class		
10	To prepare a report about the school management and to recognize the organizational structure of the s		
11	Preparing report on the tasks and processes that the teacher should do in school and presenting them t		
12	Gathering data and presenting them to the class in relation to applied guidance practices for students		
13	Interviewing teachers in different disciplines and collecting data on teaching profession then presenting t		
14	Collecting Students' opinions about the processing of the lessons and presenting them to class		

Course Learning Outcomes	
No	Learning Outcomes
C01	1) To have a systematic approach to the school's organizational structure, functioning and teaching,
C03	3) Recognition of other activities in the classroom and school by observation,
C04	4) To know the teaching methods used in the courses given in vocational schools,
C05	5) Preparing the term plan of the course given in vocational schools,
C06	6) Recognition of the roles and responsibilities of the stakeholders such as students, teachers, schools, classrooms / laboratories, school management, which have a role in the realization of these a

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	8	112
Quizzes	0	%0	Hours for off-the-c.r.stud	14	10	140
Assignment	14	%56	Assignments	14	4	56
Attendance	0	%0	Presentation	14	2	28
Practice	0	%0	Mid-terms	1	0	0
Project	1	%28	Practice	0	0	0
Final examination	1	%0	Laboratory	0	0	0
Total		%84	Project	1	28	28

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15
C01	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
C03	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
C04	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
C05	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
C06	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
C07	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			364
ECTS Credit of the Course			12

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
8	FEN-404	Nature of Science and Teaching	2	2	3

Mode of Delivery	: Face to Face
Language of Instruction	: Turkish
Level of Course Unit	: Bachelor's Degree
Work Placement(s)	: No
Department / Program	: Department of Science Education
Type of Course Unit	: Compulsory
Objectives of the Course	: Developing pre-service science teachers' perceptions about definition, properties, history and philosophy of science and their
Teaching Methods and Techniques	: competencies for epistemological and ontological arguments about science as an enterprise.
Prerequisites and co-requisites	: Philosophy of science (meaning and interest, paradigms, philosophical movements and the influence of the development of
Course Coordinator	: science); the nature of knowledge (ontology, epistemology, nature of scientific concepts, scientific knowledge and characteristics);
Name of Lecturers	: the concepts of nature of science and teaching approaches (science, scientific knowledge and characteristics, scientific literacy and
Assistants	: the nature of science, the place of nature of science in science curricula, teaching nature of science); in-class activities in the
FEN-404	Nature of Science and Teaching Prof. Dr. Halil Turgut

Recommended or Required Reading	
Resources	: Dilworth, C. (2006). The metaphysics of science: An account of modern science in terms of principles, laws and theories (2nd ed.). I : İrez, S., Turgut, H. (2008). Nature of Science in the Context of Science Education. In Ö. Taşkın (Ed.), New Approaches in Science and : : :

Course Category			
Mathematics and Basic Sciences	: 0	Education	: 20
Engineering	: 0	Science	: 20
Engineering Design	: 0	Health	: 0
Social Sciences	: 30	Field	: 30

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Definitions of Modern Science and Basic Concepts	Reading related documents	
2	Aims and Basic Features of Modern Science	Reading related documents	
3	Developmental Process of Modern Science	Reading related documents	
4	Introduction to History of Modern Science and Scientific Revolution	Reading related documents	
5	Logical Positivism	Reading related documents	
6	Falsification	Reading related documents	
7	Scientific Revolution and Paradigm Shift	Reading related documents	
8	Scientific Research Programs	Reading related documents	
9	Nature of Science and Its Subdimensions	Reading related documents	
10	Nature of Science and Its Subdimensions	Reading related documents	
11	Nature of Science and Its Subdimensions	Reading related documents	
12	Nature of Science Teaching	Reading related documents	
13	Nature of Science Teaching	Reading related documents	
14	Nature of Science Teaching	Reading related documents	

Recommended Optional Programme Components	
GKD-703-B3 HISTORY AND PHILOSOPHY OF SCIENCE	

Course Learning Outcomes	
No	Learning Outcomes
C01	Able to define modern science with its dynamics as a way of knowing
C02	Able to argue the developmental process of modern science in the light of its phases

C03	Able to explain the philosophical schools of thought with their main features
C04	Able to critically evaluate the naive understandings and beliefs about the nature of science
C05	Able to compare science and other ways of knowing in terms of their epistemological and ontological basis
C06	Able to develop lesson plan for nature of science teaching
Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%40	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	13	2	26
Assignment	0	%0	Assignments	0	0	0
Attendance	0	%0	Presentation	0	0	0
Practice	0	%0	Mid-terms	1	16	16
Project	0	%0	Practice	0	0	0
Final examination	1	%60	Laboratory	0	0	0
Total		%100	Project	0	0	0

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P20
C01	1	3	1	4	2	3	3	4	5	1	2	5	1	2	4	1
C02	1	2	1	4	2	3	3	4	5	1	2	4	1	2	5	1
C03	1	2	1	4	2	3	4	4	5	1	2	5	1	2	5	1
C04	1	2	1	4	2	3	4	4	5	1	2	5	1	2	5	1
C05	1	2	1	4	2	3	4	4	5	1	2	5	1	2	5	1
C06	1	2	1	4	2	3	4	4	5	1	2	5	1	2	5	1

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ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	20	20
Total Work Load			90
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
8	FEN-402	Non-formal Learning Environments in Science Teaching	2	2	4
Mode of Delivery : Face to Face					
Language of Instruction : Turkish					
Level of Course Unit : Bachelor's Degree					
Work Placement(s) : No					
Department / Program : Department of Science Education					
Type of Course Unit : Compulsory					
Objectives of the Course : The aim of this course is to teach the concept of non-school learning and how to use it in science education.					
Teaching Methods and Techniques : Scope of out-of-school learning, science teaching in non-school settings; teaching methods and techniques suitable for non-school learning environments (project based learning, station technique, etc.) and materials; non-school learning environments					
Prerequisites and co-requisites : (museums, science centers, zoo gardens, botanical gardens, planetarium, industrial establishments, national parks, science festivals, science camps, natural environments, etc.); the planning, implementation and evaluation of non-school learning					
Course Coordinator : activities.					
Name of Lecturers : Asist Prof.Dr. Merve Lütfiye ŞENTÜRK					
Assistants :					

Recommended or Required Reading	
Resources	: GÜRSOY, G. (2018). FEN ÖĞRETİMİNDE OKUL DIŞI ÖĞRENME ORTAMLARI. Electronic Turkish Studies, 13(11).,Demirel, R., & Özca : Students will understand and gain ability that what informal education is and how we teach science and how we can apply student- : : :

Course Category	
Mathematics and Basic Sciences	: Education
Engineering	: Science
Engineering Design	: Health
Social Sciences	: Field

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Scope of out-of-school learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
2	Science teaching in non-school settings	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
3	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
4	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
5	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
6	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
7	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
8	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
9	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
10	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
11	Teaching methods and techniques suitable for non-school learning environments (project based learning	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
12	Non-school learning environments (museums, science centers, zoo gardens, botanical gardens, planetari	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
13	The planning of non-school learning activities	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	
14	Implementation and evaluation of non-school learning activities	Philip Bell, Bruce Lewenstein, And Philip Bell, Bruce Lewenstein, And	

Course Learning Outcomes	
No	Learning Outcomes
C01	Students will be able to understand informal education and science learning in non-formal settings
C03	Students will be able to understand and apply how conduct science lesson in non-formal settings as a teacher
C04	Students will be able to aware of current literature of informal science education studies
C05	Students will be able to understand what effect of science teaching in non-formal settings on kids-adults-family learnings

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Assessment Methods and Criteria			ECTS Allocated Based on Student Workload			
In-Term Studies	Quantity	Percentage	Activities	Quantity	Duration	Total Work Load
Mid-terms	1	%0	Course Duration	14	2	28
Quizzes	0	%0	Hours for off-the-c.r.stud	14	2	28
Assignment	14	%28	Assignments	14	2	28
Attendance	0	%0	Presentation	14	2	28
Practice	0	%0	Mid-terms	1	0	0
Project	1	%28	Practice	0	0	0
Final examination	1	%0	Laboratory	0	0	0
Total		%56	Project	1	28	28

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15
C01	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3
C03	4	4	4	4	4	4	4	2	4	4	4	4	4	4	4
C04	3	3	4	4	4	4	3	2	3	4	4	4	4	4	3
C05	3	4	4	4	4	4	3	2	3	3	3	3		4	3

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			140
ECTS Credit of the Course			5

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
8	FEN-406	Teaching Practice 2	2	5	12
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : In this course, teacher candidates under the supervision of an application teacher, guidance counselor and other candidate Teaching Methods and Techniques : teachers who make observations in the classroom, assessing the course by completing the deficiencies and educational tools are intended to recognize. Prerequisites and co-requisites : Course Coordinator : Observing the specific teaching methods and techniques specific to the field; making micro-teaching applications by using special Name of Lecturers : teaching methods and techniques specific to the field; planning a course independently; developing activities and materials related Assistants : to the course; preparing teaching environments; classroom management, measurement, evaluation and reflection					
Asist Prof.Dr. Merve Lütfiye ŞENTÜRK					

Recommended or Required Reading	
Resources	: Öğretmenlik Uygulaması Yönergesi : The aim of this course is to examine the situation of a student in school, to observe the work done by teachers in the school, to learn : :

Course Category	
Mathematics and Basic Sciences	: Education : 100
Engineering	: Science : 100
Engineering Design	: Health : 100
Social Sciences	: Field : 100

Weekly Detailed Course Contents			
Week	Topics	Study Materials	Materials
1	Observing the specific teaching methods and techniques specific to the field	Ders izlencesinin temin edilmesi	
2	Observing the specific teaching methods and techniques specific to the field	İlgili konuları araştırma ve okuma	
3	Making micro-teaching applications by using special teaching methods and techniques specific to the field	İlgili konuları araştırma ve okuma	
4	Making micro-teaching applications by using special teaching methods and techniques specific to the field	İlgili konuları araştırma ve okuma	
5	Planning a course independently	İlgili konuları araştırma ve okuma	
6	Planning a course independently	İlgili konuları araştırma ve okuma	
7	Developing activities and materials related to the course	İlgili konuları araştırma ve okuma	
8	Developing activities and materials related to the course	İlgili konuları araştırma ve okuma	
9	Preparing teaching environments	İlgili konuları araştırma ve okuma	
10	Preparing teaching environments	İlgili konuları araştırma ve okuma	
11	Classroom management	İlgili konuları araştırma ve okuma	
12	Classroom management	İlgili konuları araştırma ve okuma	
13	Measurement, evaluation and reflection	İlgili konuları araştırma ve okuma	
14	Measurement, evaluation and reflection	İlgili konuları araştırma ve okuma	

Course Learning Outcomes	
No	Learning Outcomes
C01	1) To have a systematic approach to the school's organizational structure, functioning and teaching,
C03	3) Recognition of other activities in the classroom and school by observation,
C04	4) To know the teaching methods used in the courses given in vocational schools,
C05	5) Preparing the term plan of the course given in vocational schools,
C06	6) Recognition of the roles and responsibilities of the stakeholders such as students, teachers, schools, classrooms / laboratories, school management, which have a role in the realization of these

Program Learning Outcomes	
No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

Empty box for notes or comments.

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	0	0
Total Work Load			364
ECTS Credit of the Course			12

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant



Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
8	MBD-402	Special Education and Inclusion	2	2	3
Mode of Delivery : Face to Face Language of Instruction : Turkish Level of Course Unit : Bachelor's Degree Work Placement(s) : No Department / Program : Department of Science Education Type of Course Unit : Compulsory Objectives of the Course : At the end of the course, students will learn disabilities confronted in special education and the causes of disabilities, define the characteristics of disabilities, realize the important points in rehabilitation of disabilities, learn about the problems experienced in our countered regarding special education, learn counseling services for students with disability and for their family and review the literature in the field of special education. Teaching Methods and Techniques : Prerequisites and co-requisites : Course Coordinator : Name of Lecturers : Assistants : MBD-402 Special Education and Inclusion management. Associate Prof.Dr. Seraceddin Levent ZORLUOĞLU					
Recommended or Required Reading					
Resources : Mertol, H., Zorluoğlu, S. L., & Akkanat, Ç. (Eds.). (2019). Özel eğitimde fen ve sosyal bilgiler öğretimi. Nobel Akademi. : : :					
Course Category					
Mathematics and Basic Sciences	:	Education	:	70	
Engineering	:	Science	:	10	
Engineering Design	:	Health	:		
Social Sciences	:	Field	:	20	
Weekly Detailed Course Contents					
Week	Topics	Study Materials	Materials		
1	Principles Of Special Education	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
2	Principles, Rules of Government, Process of Diagnosis, Interaction of Families and specialist	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
3	Mental Disorders	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
4	Hearing Disabilities	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
5	Visual impairments	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
6	Midterm Exam	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
7	Special Education in Early Childhood	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
8	Learning Disabilities	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
9	Conduct and Affective Disorders	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
10	Autism	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
11	Communication Disorders	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
12	Wunderkind and Gifted Children	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
13	Orthopedic Disabilities	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
14	Final Exam	Akçamete,G. 2009;Genel Eğitim C Akçamete,G. 2009;Genel Eğitim C			
Recommended Optional Programme Components					
MBD-609-B2 PROGRAM DEVELOPMENT IN EDUCATION					
Course Learning Outcomes					
No	Learning Outcomes				
C01	Define Special Education				

C03	Improve definition skills of children who are need special education
C04	Know kinds of disabilities and improve activities about them
C05	Recognize Special Education Institutes
C06	Improve activities for families who have children with disabilities
C07	Define Principles of Special Education

Program Learning Outcomes	
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No	Learning Outcome
P01	To be able to apply field knowledge of science, technology and mathematics to various situations
P02	To be able to apply general competencies of teaching profession and special field competencies of science teaching in outdoor and indoor settings
P03	To be able to prepare a lesson plan by taking into consideration learning skills and developmental specialities of pupils.
P04	To use scientific thinking, creativity and scientific research methods and techniques.
P05	To be enthusiastic about learning and teaching content of science and technology
P06	To be able to exhibit an interdisciplinary approach in science teaching.
P07	To be able to design and apply science laboratory activities
P08	To realise the subject of morality and ethics in science and education.
P09	To be able to design a lesson plan aimed at teaching components of nature of science.
P10	To realise importance fields of classroom management, guidance and psychological counseling and special education
P11	To have knowledge about healthy lifestyle, nutrition and first aid and to be able to implement by taking due precautions in daily life.
P12	To be able to prepare activities to teach importance of lifelong learning, scientific knowledge and nature of knowledge.
P13	To be able to use subject matter knowledge by creating in-field and interdisciplinary teamwork in educational studies.
P14	To be able to use laboratory safely in science courses.
P15	To be able to create convenient learning environments to improve students critical, creative thinking and problem solving skills.
P20	Fen, teknoloji ve matematik konu alan bilgisini çeşitli durumlara uygulayabilme

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Final examination	1	1	1
Total Work Load			84
ECTS Credit of the Course			3

Contribution of Learning Outcomes to Programme Outcomes

Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant