|  |  |  |  |  |  |
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| **Elementary Science Education Graduate Program Courses** | | | | | |
| **Fall** | | | | | |
| **Code** | **Course Name** | **ECTS** | **T+A+C** | **C/E** | **Language** |
| 545801010 | Research Methods in Education I | 7,5 | 3–0–3 | Z | Turkish |
| 545801011 | Education Statistics I | 7,5 | 3–0–3 | Z | Turkish |
| 545801012 | Environmental Pollution in Turkey | 7,5 | 3–0–3 | S | Turkish |
| 545801013 | Theories of Science Teaching | 7,5 | 3–0–3 | S | Turkish |
| 545801014 | Human, Nature and Science | 7,5 | 3–0–3 | S | Turkish |
| 545801015 | Challenges of Science Teaching | 7,5 | 3–0–3 | S | Turkish |
| 545801016 | Atmospheric Physics and Climate | 7,5 | 3–0–3 | S | Turkish |
| 545801017 | Science Literacy and Scientific Process Skills | 7,5 | 3–0–3 | S | Turkish |
| 545801018 | Life-based Learning Applications | 7,5 | 3–0–3 | S | Turkish |
| 545801019 | Scale Development and Adaptation | 7,5 | 3–0–3 | S | Turkish |
| **Total Credit** | | **30** | **15** |  |  |
| **Spring** | | | | | |
| **Code** | **Course Name** | **ECTS** | **T+A+C** | **C/E** | **Language** |
| 545802010 | Seminar | 7,5 | 0–3–0 | Z | Turkish |
| 545802011 | Research Methods in Education II | 7,5 | 3–0–3 | S | Turkish |
| 545802012 | Education Statistics II | 7,5 | 3–0–3 | S | Turkish |
| 545802013 | New Approaches in Science Education | 7,5 | 3–0–3 | S | Turkish |
| 545802014 | Turkey's Water Resources | 7,5 | 3–0–3 | S | Turkish |
| 545802015 | Astronomy Education in Turkey | 7,5 | 3–0–3 | S | Turkish |
| 545802016 | The Nature of Science and Instruction | 7,5 | 3–0–3 | S | Turkish |
| 545802017 | Alternative Learn-Teach Processes at Science Education | 7,5 | 3–0–3 | S | Turkish |
| 545802018 | Reflections of Popular Science on Science | 7,5 | 3–0–3 | S | Turkish |
| **Total Credit** | | **30** | **12** |  |  |
| **Fall** | | | | | |
| **Code** | **Course Name** | **ECTS** | **T+A+C** | **C/E** | **Language** |
| 545801901 | Special Topics | 5 | 3–0–0 | Z | Turkish |
| 541502701 | Master Thesis | 25 | 0–1–0 | Z | Turkish |
| **Total Credit** | | **30** | **0** |  |  |

**Course Load and Graduation:** In order for students in master's programmes with thesis to pass to the thesis stage, they must be successful in a minimum of ‘60’ ECTS credits, consisting of at least 7 compulsory and elective courses and seminar courses and covering at least two semesters, as stipulated by the Head of EABD / EASD. Courses over 60 ECTS taken and passed in the course phase are not included in the ECTS calculation required for graduation. In the thesis phase, the student must be successful in at least 60 ECTS credits consisting of at least two semesters of Specialisation Area Course and Master's Thesis Study courses.

<https://ebe.ogu.edu.tr/Storage/EgitimBilimleriEnstitusu/Uploads/lisanustuesaslar_20240329.pdf>

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 545801010 | **COURSE NAME** | Research Methods in Education I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| I | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
|  | | %100 | | | |  | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | | 1 | | 30 |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 20 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | The main purpose of this course is to examine the research process (problem identification, data collection, data analysis and interpretation of results), to review certain scientific research methods (experimental method, survey method, relational method etc.) and to ensure that students learn the techniques of finding literature, collecting data, evaluating data and writing reports required for conducting research on a specific subject. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The purpose of this course is to provide the ability to conduct a quantitative research in all its dimensions and to act in accordance with ethical rules. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | At the end of this course focuses on teaching the students are expected to improve awareness of science and the nature of science. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Defines basic concepts and principles related to research methods.  Determines research problems, selects appropriate research model for the problem, determines the universe and sample.  Collects data with data collection tools appropriate to the research model, analyzes the data, and interprets the analysis results.  Prepares research reports in accordance with science, research and publication ethics. | | | | | | | |
| **TEXTBOOK** | | | | | •Fraenkel, J., Wallen, N., & Hyun, H. (1993). How to Design and Evaluate Research in Education 10th ed. McGraw-Hill Education. | | | | | | | |
| **OTHER REFERENCES** | | | | | •Büyüköztürk, Ş., Çakmak E. K., Akgün, Ö. E., Karadeniz, Ş., Demirel, F. (2022). Bilimsel Araştırma Yöntemleri, Ankara: Pegema Yayıncılık  •Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. New York: Routledge.  •Karasar, N. (2000). Bilimsel Araştırma Yöntemi. (10. Basım). Ankara: Nobel Yayın Dağıtım  •McMillan, J. H., & Schumacher, S. (2006). Research in education: Evidence based inquiry. Boston, MA: Brown and Company.  •McMillan, J. H., & Schumacher, S. (2006). Research in education: Evidence based inquiry. Boston, MA: Brown and Company.  •Muijs, D. (2004). Doing quantitative research in education: With SPSS. London: Sage  •Neuman, W. L. (2016). Toplumsal Araştırma Yöntemleri (Çev. S. Özge). Ankara: Yayın Odası.  •Patton, M. Q. (2005). Qualitative research. John Wiley & Sons, Ltd. | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| --- | --- |
| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Basic Principles of Educational Research |
| 2 | Problem/Purpose |
| 3 | Literature Review |
| 4 | Qualitative Research Designs |
| 5 | Quantitative Research Designs |
| 6 | Sampling |
| 7 | Survey research – Correlational research |
| 8 | MID-TERM EXAM |
| 9 | Survey Research – Correlational Research |
| 10 | Data Collection Tools |
| 11 | Quantitative and Qualitative Measurement |
| 12 | Quantitative and Qualitative Data Analysis |
| 13 | Ethical Issues in Research |
| 14 | Writing and Evaluating the Research Report |
| 15 | Writing and Evaluating the Research Report |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics |  |  |  |
| 12 |  |  |  |  |
| 13 |  |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

|  |  |
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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Autumn |

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| **COURSE CODE** | 545801011 | **COURSE NAME** | Education Statistics I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| I. | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| % 40 | | % 20 | | | |  | | | | | % 40 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | | 1 | | 25 |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 25 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | | Apply | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Basic concepts related to statistics, universe and sample, types of variables, classification of data, measures of central tendency, measures of prevalence, conversion of raw scores to standard scores, normal distribution, Z distribution, statistical error, hypothesis testing and decision, one-sample t-test, chi-square test, significance control of the difference between means (unrelated sample t-test, related t-test, one-way analysis of variance , non -parametric methods), correlation and regression analysis . | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Knowledge of basic concepts related to statistics, classifying data, calculating measures of central tendency and prevalence, converting raw scores to standard scores, understanding statistical error, applying hypothesis tests and making decisions. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | It enables students to become statistically literate in writing theses and articles. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Knows the basic concepts of statistics, calculates centrality and prevalence measures of distributions, converts raw scores to standard scores, applies hypothesis tests and makes decisions. | | | | | | | |
| **TEXTBOOK** | | | | | Şener Büyüköztürk, Handbook of Data Analysis for Social Sciences, Pegem Academy Publishing. | | | | | | | |
| **OTHER REFERENCES** | | | | | OTHER RESOURCES RELATED TO STATISTICAL DATA ANALYSIS | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction, introduction to the course. |
| 2 | Basic concepts, universe, sample, variable types, classification of data |
| 3 | Normal distribution, Z distribution, statistical error and decision |
| 4 | Introduction of statistical package program, database creation |
| 5 | Obtaining frequency distribution, measures of central tendency and measures of prevalence |
| 6 | Types of hypotheses, hypothesis testing |
| 7 | Chi-square test, one-sample t-test |
| 8 | MID-TERM EXAM |
| 9 | Unrelated t test |
| 10 | One-way analysis of varişance (ANOVA) |
| 11 | Correlated t test |
| 12 | Analysis |
| 13 | Correlation |
| 14 | Simple linear regression |
| 15 | Multiple linear regression |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
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| 18 |  |  |  |  |
| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

|  |  |
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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 545801012 | **COURSE NAME** | Environmental Pollution in Turkey |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| I | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | Science Education | | | | | **Social Science** | |
|  | |  | | | | x | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 50 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | | Homework | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | None | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Environmental pollution in Turkey: Water, soil, air, radioactive pollution and other pollution sources, environmental literacy and sustainability, environmental organizations and activities, environmental education. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Understanding the negative effects of environmental pollution. Developing environmental awareness and literacy. Developing activities to prevent environmental pollution | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | To contribute to vocational education by designing activities related to environmental problems and solution proposals at the secondary school level by designing activities related to environmental problems and solutions, starting from the immediate environment and becoming aware of all environmental problems. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.Explains the relationship between human and environment.  2.Explains water pollution.  3.Explains soil pollution.  4.Explains air pollution.  5.Explains noise pollution  6.Explains image and light pollution  7.Explains radioactive pollution  8.Knows environmental wastes and waste management and can suggest appropriate activities.  9.Recognizes environmental literacy and sustainability.  10.Knows, recognizes, evaluates and offers solutions to environmental pollution problems in Turkey.  11.Knows how environmental education takes place in schools in the science 5-8 curriculum and can suggest activities using different teaching methods.  12.Knows out-of-school learning environments and authentic learning in environmental education and can suggest activities. | | | | | | | |
| **TEXTBOOK** | | | | | Activity Based Environmental Education, Ed. ANAGÜN, ŞengülS.,ERCANÖZAYDIN, Türkan, Eğiten Kitap Yayıncılık, ,2023 | | | | | | | |
| **OTHER REFERENCES** | | | | | Yılmaz, O., Boone, W.J. and Anderson, H.O., 2004, Views of Elementary and Middle School Turkish Students toward Environmental Issues. International Journal of Scienece Education.  Yoth Eco-Parliament (2007, 23 Nisan), http://www.eyep.info/indexol.asp.  Yücel, A. S. ve Morgil, \_., 1999, Development of Environmental Education, Journal of BAU Institute of Science and Technology  Yüksel S. ve Tokay S., 2004, Environment and Human, Milli Egitim Publications: 3842, İstanbul.  Wong, K.K., 2003, The Environmental Awareness of University Students in Beijing, China, Journal of Contemporary China  Worsley, A., Skrzypiec, G., 1998, Environmental Attitudes of Senior Secondary School Students in South Australia, Global Environmental Change  Yeung, S.P.M., 1998, Environmental Consciousness among Students in Senior Secondary Schools: The Case of Hong Kong, Environmental Education Research  Yıldız, K., Baykal, T., ve Altın, M., 2002, A Sample Wetland Study for the Recognition and Understanding of the Importance of the Environment, Journal of Gazi Faculty of Education.  Yılmaz, A., Morgil., Aktug, P. ve Göbekli., 2002, Secondary School and University Students' Knowledge and Suggestions on Environment, Environmental Concepts and Problems, Hacettepe University Faculty of Education.  Yılmaz, O., Boone, W.J. and Anderson, H.O., 2004, Views of Elementary and Middle School Turkish Students toward Environmental Issues. International Journal of Scienece Education | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer, Projector, Smart Board | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | The relationship between human and environment. |
| 2 | Water pollution |
| 3 | Soil pollution |
| 4 | Air pollution |
| 5 | Noise pollution |
| 6 | Visual and light pollution |
| 7 | Radioactive contamination |
| 8 | MID-TERM EXAM |
| 9 | Environmental waste and waste management |
| 10 | Environmental literacy and sustainability |
| 11 | Environmental pollution problems in Turkey |
| 12 | Solution proposals and activities for environmental pollution problems in Turkey |
| 13 | Environmental education and activities in science 5-8 curriculum |
| 14 | Environmental education and activities in science 5-8 curriculum |
| 15 | Out-of-school learning environments and authentic learning in environmental education |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

**ESOGU Department of Educational Sciences**

**Course Information Form**

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 545801013 | **COURSE NAME** | Theories of Science Teaching |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **ECTS** | **TYPE** | | **LANGUAGE** |
| FALL | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY ( ) ELECTIVE (X ) | | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | **Primary School Teaching**  [if it contains considerable design, mark with (√) ] | | | | | **Social Science** |
| %60 | | %40 | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | | **Quantity** | **%** |
| Mid-Term | | | | | 1 | 30 |
| Quiz | | | | |  |  |
| Homework | | | | | 1 | 20 |
| Project | | | | |  |  |
| Report | | | | |  |  |
| Others (………) | | | | |  |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | 21st century skills and science teaching; What are the current approaches in science teaching and what kind of activities can be used in accordance with these approaches; Inquiry-based science teaching, Argumentation-based science teaching, Problem-based science teaching, Project-based science teaching, Science teaching based on the 6 sigma method, Context-based science teaching based on the REACT strategy, Interdisciplinary science teaching: STEM Education, Science teaching based on the Assure model, Science teaching with educational games including science stories, Science teaching with creative drama, Science teaching based on socio-scientific issues.  Competencies included in the Curriculum; Communication in the mother tongue, Communication in foreign languages, Mathematical competence and basic competencies in science / technology, Digital competence, Learning to learn, Social and citizenship-related competencies, Taking initiative and entrepreneurship, Cultural awareness and expression.  Flipped Classrooms, Design-Based Learning, Virtual and Augmented Reality, Use of Web 2.0 Tools in Science Education, Blended Learning, Digital Gamification and Game-Based Learning, Entrepreneurship and Innovation in Science Education, Artificial Intelligence. | | | | | | |
| **COURSE OBJECTIVES** | | | | | It is aimed to analyze the approaches, models, strategies, methods and techniques used recently in teaching the field, together with the scientific foundations on which they are based, and the activities aimed at application; to examine the competencies included in the curriculum, web tools in science education, entrepreneurship and innovation, artificial intelligence, etc. together with the critique. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | |  | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. Establishes a relationship between science concepts and 21st century skills,  2. Learns about the applications of teaching principles, theories, strategies, methods and techniques in science classes,  3. Learns the effects of technological developments on science teaching,  4. Learns about new approaches used in science teaching (argumentation, inquiry-based learning-teaching process, etc.),  5. Increases knowledge and skills in science teaching by examining activities and studies on new approaches used in science teaching.  6. Establishes a relationship between project-based learning and STEM education,  7. Knows the skills that an entrepreneurial individual should have.  8. Conducts research on innovative thinking. | | | | | | |
| **TEXTBOOK** | | | | | 1. Karamustafaoğlu, O. ve Yaman S. (2006). *Fen Eğitiminde Özel Öğretim Yöntemleri I-II*. Anı Yayıncılık, 2. Fen Eğitimi alanında yapılmış çalışmalar ve metod kitapları. | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Taşkın, Ö. (2008). *Fen ve teknoloji öğretiminde yeni yaklaşımlar.* Ankara: PegemA 2. Chaille, C., & Britain, L. (2003). *The young child as scientist.* New York: A & B 3. Çepni, S.(2005). *Kuramdan Uygulamaya Fen ve Teknoloji Öğretimi*. Ankara: PegamA, 4. Şimşek, N., ve Çınar, Y. (2008). *Fen ve Teknoloji Öğretimi.* Ankara: Anı Yayıncılık 5. Ülgen, Gülten (2001). *Kavram Geliştirme Kuramlar ve Uygulamalar.* PegemA Yayıncılık 6. Topsakal, Sebahattin (2000). *Fen Bilgisi Öğretimi*. Alfa Yayıncılık 7. Temizyürek Kamil (2003). *Fen Öğretimi ve Uygulamaları*. Nobel Yayın Dağıtım 8. Aşağıda adı geçen kitaplardan tercihe göre okunması tavsiye edilmektedir.   Margaret Muckenhoupt. (1997).*Bilinçdışının Kaşifi: Sigmund Freud*. Ankara: TÜBİTAK  Sargun. A. Tont (1997). *Sulak Bir Gezegenden Öyküler*. Ankara: TÜBİTAK  L. Vlasov., & D. Trifonov. (1977). *107 Kimya Öyküsü*. Ankara: TÜBİTAK  Jane Bingham. *Bilimsel Deneyler*. TÜBİTAK  Peter Adamczyk – Paul Francis Law. *Elektrik ve Manyetizma*. TÜBİTAK  Daniel Todes. (2000). *Hayvan Makinesi Araştırırken: Ivan Pavlov*. Ankara: TÜBİTAK  Bobbi Searle. *Şaşırtıcı Fen Projeleri*. Altın Kitaplar Yayınevi | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | 21st century skills and science teaching |
| 2 | Argumentation-based science teaching |
| 3 | Inquiry-based science teaching |
| 4 | Problem-based science teaching |
| 5 | Project-based science teaching |
| 6 | Interdisciplinary science teaching: STEM Education |
| 7 | Interdisciplinary science teaching: STEM Education |
| 8 | MID-TERM EXAM |
| 9 | Science teaching based on 6 sigma method |
| 10 | Context-based science teaching based on REACT strategy |
| 11 | Science teaching based on Assure model |
| 12 | Science teaching with educational games including science stories |
| 13 | Socioscientific issue-based science teaching |
| 14 | Students researching and examining the competencies in the Curriculum and discussing them in a classroom environment -under the guidance of a faculty member |
| 15 | Students researching and examining the competencies in the Curriculum and discussing them in a classroom environment -under the guidance of a faculty member |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, | **x** |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  | **x** |  |
| 3 | Gain the ability to relate information across disciplines, | **x** |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, | **x** |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  | **x** |  |
| 6 | Examines and applies the science curriculum, |  | **x** |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  | **x** |  |
| 8 | Suggests solutions to the problems encountered in science teaching, | **x** |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  | **x** |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  | **x** |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  | **x** |  |
| **1: No contribution. 2: Partial contribution. 3: Full contribution.** | | | | |

**Instructor(s):** Prof. Dr. M. Zafer BALBAĞ

**Signature**: **Date:** 14.01.2025

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Autumn |

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| **COURSE CODE** | 545801014 | **COURSE NAME** | Human, Nature and Science |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| I. | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| 20 | | 60 | | | |  | | | | | 20 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 50 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | | Apply | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Relationship between science, nature, man and society, sociological foundations of science and knowledge, importance of society and education in scientific development, philosophy of science, relationship between science and sociology, education and science policies, formation of knowledge and truth in society, science and contemporary society, science and social change, science and society. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To examine the relationship between science, nature, humans and society,  To discuss the sociological foundations of science and knowledge,  Examining the relationship between | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | |  | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. To understand the relationship between science, humans and nature.  2. Questioning the relationship between science and power.  3. To generate ideas on the concepts of autonomy, freedom and authority in education and science.  4. To examine education and science policies.  5. Understanding the relationship between science and social change.  6. To become aware of the sociological foundations of science and knowledge.  7. Questioning the relationship between criticism in science and society and developing scientific thinking skills.  To gain critical thinking skills | | | | | | | |
| **TEXTBOOK** | | | | | - | | | | | | | |
| **OTHER REFERENCES** | | | | | - | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Definition of science and its reflections on education |
| 2 | Sociological foundations of science and knowledge, |
| 3 | Sociological foundations of science and knowledge, |
| 4 | Philosophy of science |
| 5 | Philosophy of science |
| 6 | Education and science |
| 7 | Education and science |
| 8 | MID-TERM EXAM |
| 9 | Science and Society |
| 10 | Science and Society |
| 11 | Curriculum and Science |
| 12 | Science and Science Relationship |
| 13 | Science and Science Relationship |
| 14 | APPLY |
| 15 | APPLY |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
| 13 |  |  |  |  |
| 14 |  |  |  |  |
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| 18 |  |  |  |  |
| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

**ESOGU Department of Educational Sciences**

**Course Information Form**

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 545801015 | **COURSE NAME** | Challenges of Science Teaching |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **ECTS** | **TYPE** | | **LANGUAGE** |
| FALL | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY ( ) ELECTIVE (X ) | | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | **Primary School Teaching**  [if it contains considerable design, mark with (√) ] | | | | | **Social Science** |
| %40 | | %60 | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | | **Quantity** | **%** |
| Mid-Term | | | | | 1 | 30 |
| Quiz | | | | |  |  |
| Homework | | | | | 1 | 30 |
| Project | | | | |  |  |
| Report | | | | |  |  |
| Others (………) | | | | |  |  |
| **FINAL EXAM** | | | | | Final exam | | | | | 1 | 40 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Science education concept, and science literacy, structure of science education and teaching and general status in the world and encountered difficulties. Structure of science education and teaching and general status in Tukey and encountered difficulties(content, technique, time, facilities, design of materials, using laboratory, measurement and evaluation, personal discrepancies in the classroom, evaluation studies, applications, counseling of teacher, etc.). Comparison of science teaching in Turkey and in the world (discrepancies and similarities). Teacher, student and curator tasks for realizing of efficient and abundant science teaching, teaching and learning process and to be discussed of problems which originating from education system, alternative solution ways in the light of new orientations in science education and to be discussed of suggestions. | | | | | | |
| **COURSE OBJECTIVES** | | | | | To determine of challenges of science education and teaching in the world and in Turkey and to generate the solution ways to challenges in this area. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Remain in possession of the challenges of science education and teaching, and has a solution skills about encountered challenges in this area in his/her | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.Determine of structure of science education and teaching and general status and encountered difficulties in the world and in Turkey  2. Gain to comparison skills of science teaching in Turkey and in the world  3.Suggest to solutions encountered difficulties in science education  4. Confirm to teaching and learning process and to be discussed of problems which originating from education system | | | | | | |
| **TEXTBOOK** | | | | | 1. International articles about subject**s**  2. Topsakal, S., Fen ve Teknoloji Öğretimi, Nobel yayıncılık, 2006.  3.Editör: Aydoğdu, M. Kesecioğlu, T., İlköğretimde Fen ve Teknoloji Öğretimi, Anı Yayıncılık, 2005.  4.Editör: Taşkın, Ö., Fen ve Teknoloji Öğretiminde Yeni Yaklaşımlar, Pegem Yayıncılık, 2008.  5 .Karamustafaoğlu, O., Yaman, S., Fen Eğitiminde Özel Öğretim Yöntemleri I-II, Anı Yayıncılık, 2006.  6. Topsakal, S., Fen Öğretimi, Nobel yayınevi, 2. Baskı, Şubat 2006. | | | | | | |
| **OTHER REFERENCES** | | | | | 7. İnternet Sources | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Science education concept, and science literacy |
| 2 | Structure of science education and teaching and general status in the world and encountered difficulties |
| 3 | Structure of science education and teaching and general status in the world and encountered difficulties |
| 4 | Structure of science education and teaching and general status in the world and encountered difficulties |
| 5 | Structure of science education and teaching and general status in Tukey and encountered difficulties(content, technique, time, facilities, design of materials, using laboratory, measurement and evaluation, personal discrepancies in the classroom, evaluation studies, applications, counseling of teacher, etc.) |
| 6 | Structure of science education and teaching and general status in Tukey and encountered difficulties(content, technique, time, facilities, design of materials, using laboratory, measurement and evaluation, personal discrepancies in the classroom, evaluation studies, applications, counseling of teacher, etc.) |
| 7 | Structure of science education and teaching and general status in Tukey and encountered difficulties(content, technique, time, facilities, design of materials, using laboratory, measurement and evaluation, personal discrepancies in the classroom, evaluation studies, applications, counseling of teacher, etc.) |
| 8 | MID-TERM EXAM |
| 9 | Structure of science education and teaching and general status in Tukey and encountered difficulties(content, technique, time, facilities, design of materials, using laboratory, measurement and evaluation, personal discrepancies in the classroom, evaluation studies, applications, counseling of teacher, etc.) |
| 10 | Comparison of science teaching in Turkey and in the world(discrepancies and similarities) |
| 11 | Teacher, student and curator tasks for realizing of efficient and abundant science teaching, teaching and learning process and to be discussed of problems which originating from education system |
| 12 | Teacher, student and curator tasks for realizing of efficient and abundant science teaching, teaching and learning process and to be discussed of problems which originating from education system |
| 13 | Alternative solution ways in the light of new orientations in science education and to be discussed of suggestions |
| 14 | Alternative solution ways in the light of new orientations in science education and to be discussed of suggestions |
| 15 | Alternative solution ways in the light of new orientations in science education and to be discussed of suggestions |
| 16-17 | FINAL EXAM |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, | **x** |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  | **x** |  |
| 3 | Gain the ability to relate information across disciplines, | **x** |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, | **x** |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  | **x** |  |
| 6 | Examines and applies the science curriculum, |  | **x** |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  | **x** |  |
| 8 | Suggests solutions to the problems encountered in science teaching, | **x** |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  | **x** |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  | **x** |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  | **x** |  |
| **1: No contribution. 2: Partial contribution. 3: Full contribution.** | | | | |

**Instructor(s):** Prof. Dr. M. Zafer BALBAĞ

**Signature**: **Date:** 14.01.2025

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 545801016 | **COURSE NAME** | Atmospheric Physics and Climate |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| Spring | 3 | | 0 | 0 | | | 3 | 7.5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | Science Education | | | | | **Social Science** | |
| X | |  | | | | X | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 5 | | 30 |
| Project | | | | | 1 | | 20 |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Structure of the atmosphere, atmospheric thermodynamics, atmospheric dynamics, clouds, precipitation, winds, weather analysis and forecasting, atmospheric electricity, atmospheric optics, regional climate global climate changes. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To learn the principles of physics underlying atmospheric phenomena and to explain meteorological phenomena | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | Recognising the atmosphere we live in and understanding the atmospheric events that affect our daily lives and the ability to explain this to third parties | | | | | | | |
| **COURSE OUTCOMES** | | | | | Learns the principles of physics that form the basis of atmospheric phenomena,  Establishes a relationship between atmospheric phenomena and other related disciplines  Understands how atmospheric phenomena occur | | | | | | | |
| **TEXTBOOK** | | | | | Atmospheric Sciences, Wallace J. M.,and Hobbs P. V. Academic Press 1977  Fundamentals of Meteorology , L. J. Battan, Prentice –Hall, Inc. | | | | | | | |
| **OTHER REFERENCES** | | | | | ABueche, F., Technical Physics | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projector | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction, Informing about homework and project |
| 2 | Structure and Properties of the Atmosphere |
| 3 | Layers of the Atmosphere |
| 4 | Atmospheric pressure |
| 5 | Cloud formation |
| 6 | Cloud Types |
| 7 | Precipitation |
| 8 | MID-TERM EXAM |
| 9 | Precipitation Types |
| 10 | Air masses, weather fronts and cyclones |
| 11 | Winds; Formation and types |
| 12 | Atmospheric Optics |
| 13 | Atmospheric Electricity |
| 14 | Regional and Global Climate |
| 15 | Global Climate Change |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
| 13 |  |  |  |  |
| 14 |  |  |  |  |
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| 16 |  |  |  |  |
| 17 |  |  |  |  |
| 18 |  |  |  |  |
| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

|  |  |
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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | FALL/SPRNG |

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| **COURSE CODE** | 545801017 | **COURSE NAME** | Scince Literacy and Scientific Process Skills |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| FALL/  SPRING | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | TURKISH |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
|  | | X | | | |  | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 20 |
| Project | | | | |  | |  |
| Report | | | | | 1 | | 30 |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Dimensions of science literacy (nature of science, science concepts, high level thinking skills, scientific methods and processes, technology, attitudes and values towards science) and its importance | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this course is to educate students who  1. will be able to define the components of science literacy,  2. will be able to relate science, scientific knowledge and the characteristic nature of a scientist with scientific literacy,  3. will be able to plan and develop activities for the acquisition and evaluation of knowledge and skills related to the scientific method and process,  4. will be able to realize the importanceof the attitude towards science and technology in science literacy  5. are literary literate related to the field. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | It's thought that at the end of this course, the necessary knowledge and skills will be acquired for effective and efficient teaching and awareness of science and scientific thinking will be developed | | | | | | | |
| **COURSE OUTCOMES** | | | | | Students  define science literacy and its components and comprehends the importance of science literacy,  establih relations between the nature of science and scientific literacy,  know what scientific thought and methods are,  define and use scientific process skills and design activities for the acquisition and evaluation of skills,  evaluate the literature critically,  has awareness for the development and use of high level thinking skills | | | | | | | |
| **TEXTBOOK** | | | | | Hansen, A., Drews, D., Dudgeon, J., Lawton, F., & Surtees, L. (201Rezba, J., Spraque, C., Fiel, R., Funk, H., Okey, J., & Jaus, H., (1995). Learning and Assessing Science Process Skills Kendall/Hunt Publishing Company.  Chambers, A. (2007). What is this thing called science. (Çev. Hüsamettin Arslan) Vadi Editions, Ankara  International/ National articles ve projects | | | | | | | |
| **OTHER REFERENCES** | | | | | Westfall, R. S. (1977). Formation of Modern Science. (Tran. İsmail Hakkı Duru). TÜBİTAK editions, Ankara | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Defining scientific literacy, its components and the characteristic features of scientific literate people |
| 2 | The importance of reasoning, analytical, holistic and critical thinking skills in scientific literacy |
| 3 | The importance of questioning and evaluating situations, events and problems from a scientific perspective |
| 4 | The importance of concepts in scientific literacy. |
| 5 | Identifying the nature of science, scientific knowledge and the characteristic features of the scientist |
| 6 | Analyzing the learning outcomes of science literacy and scientific process skills. |
| 7 | Analyzing the learning outcomes of science literacy and scientific process skills. |
| 8 | MID TERM |
| 9 | Science process skills (Basic skills) |
| 10 | Science process skills (Experimental skills) |
| 11 | Relationship science process skills with science literacy |
| 12 | The role of inquiry-based activities and science process skills-based teaching in providing correct understanding of the nature of science |
| 13 | Analyzing and evaluating literature related with scince process skills critically |
| 14 | Preparing and Evaluating scientific discussion oriented activities aiming at scien literacy and covering scince process skills and the nature of science |
| 15 | Preparing and Evaluating scientific discussion oriented activities aiming at scien literacy and covering scince process skills and the nature of science |
| 16-17 | FINAL |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theory, strategy, method and technologies in science courses, |  |  |  |
| 2 | Has a scientific and analyticalmidset and is a practionar of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate knowledge across disciplines |  |  |  |
| 4 | Have knowledge about impact of technological developments on science teaching |  |  |  |
| 5 | Have knowledge about multi-versatile assesment and evaluation in science course |  |  |  |
| 6 | Examines and applies the science curriculum |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world |  |  |  |
| 8 | Suggestsık solutions to the problems encountered in science teaching |  |  |  |
| 9 | To be able to follow the new developments in in the field and interpretthem in line with national values and country relities, |  |  |  |
| 10 | Follows national and international studies carried in the field, defines a problem encountered, designs and conducts research, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics |  |  |  |
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| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

**ESOGÜ Eğitim Bilimleri Enstitüsü**

**Ders Bilgi Formu**

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| **SEMESTER** | Fall |

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| **COURSE CODE** |  | **COURSE NAME** | Life-Based Learning Applications |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **EKTS** | **TYPE** | | **LANGUAGE** |
| II | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY ( ) ELECTIVE ( X ) | | Türkçe |
| **COURSE CATEGORY** | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** |
| x | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID - TERM** | | | | | **Evaluation Type** | | | | | **Quantitiy** | **%** |
| **Mid-Term** | | | | |  |  |
| Quiz | | | | |  |  |
| Homework | | | | | 1 | 50 |
| Project | | | | |  |  |
| Report | | | | |  |  |
| Others (………) | | | | |  |  |
| **FİNAL EXAM** | | | | |  | | | | | 1 | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | |
| **COURSE DESCRIPTION** | | | | | In life-based learning theory, individuals should be able to interpret the events they encounter in daily life with the information they learn, interpret simple scientific articles and daily radio and television news, and teach the subjects that take place in daily life. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Associating scientific concepts with selected events from daily life, making them aware of the relationship between real life subjects and science  It aims to enable them to see and realize the relationships between life-based materials and their daily life and science lessons at school. | | | | | | |
| **ADDITIVE OF THE COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | Teachers' contribution to the existence of science in our daily life, its relations with our lives, where and how to find answers to which questions, understanding and explaining theoretical knowledge in different contexts | | | | | | |
| **COURSE OUTCOMES** | | | | | Explains the life-based learning approach.  To associate scientific concepts with selected events from daily life.  Growing up as scientific literate individuals. | | | | | | |
| **TEXTBOOK** | | | | | Bennett, J. (2003). Teaching and learning science. London: Bookcraft.  Çepni, S., & Özmen, H. (2012). Yaşam (bağlam) temelli ve beyin temelli öğrenme kuramları ve fen bilimleri öğretimindeki uygulamaları. Çepni (Ed.), Kuramdan uygulamaya fen ve teknoloji öğretimi. Ankara: Pegem A. | | | | | | |
| **OTHER REFERENCES** | | | | | Ar, M. E. (2019). *Fen bilimleri öğretmenlerine yönelik geliştirilen nitelikli yaşam temelli açık uçlu soru hazırlama kursunun uygulanması ve değerlendirilmesi* (Doctoral dissertation, Bursa Uludag University).  Can, H. (2016). *Yaşam temelli ısı ve sıcaklık konusu öğretiminin sekizinci sınıf öğrencilerinin kavramsal anlamalarına etkisi* (Master's thesis, Balıkesir Üniversitesi Fen Bilimleri Enstitüsü).  Çelik, B. & Öner Armağan, F. (2021). Fen bilgisi öğretmen adaylarının bağlam temelli öğrenme uygulamaları hakkındaki görüşlerinin belirlenmesi. Journal of Social and Humanities Sciences Research, 8(67), 748-766. http://dx.doi.org/10.26450/jshsr.2313  Hoşbaş, A. A. (2018). *Fen bilimleri öğretiminde yaşam temelli öğrenme yaklaşımının öğrenme ürünleri üzerine etkisi* (Master's thesis, Kırıkkale Üniversitesi)  Ilhan, N., DOĞAN, Y., & Çiçek, Ö. (2015). Fen bilimleri öğretmen adaylarının “özel öğretim yöntemleri” dersindeki yaşam temelli öğretim uygulamaları. *Bartın University Journal of Faculty of Education*, *4*(2), 666-681.  Kabuklu, Ü. N., & Kurnaz, M. A. (2019). Fen eğitimi alanında Türkiye’de yapılmış bağlam temelli öğretim konulu çalışmaların tematik incelemesi. *Asya Öğretim Dergisi*, *7*(1), 32-53.  Kabuklu, Ü. N., Yüzbaşıoğlu, M. K., & Kurnaz, A. (2019). Fen Eğitimiyle Alakalı Araştırmalarda Bağlam Temelli Soru Yazma Ölçütlerinin Belirlenmesi. *Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi Tam Metin Kitabı*, 227-232.  YILDIRIM, B. (2018). Bağlam temelli öğrenmeye uygun olarak hazirlanmiş STEM uygulamalarinin etkilerinin incelenmesi. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi*, (36), 1-20. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Bilgisayar ve projeksiyon cihazı | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPİCS** |
| 1 | Meeting, presentation of the lesson. |
| 2 | Conceptual explanation of life-based learning approach |
| 3 | Examination of sample articles on life-based learning approach |
| 4 | Examination of sample articles on life-based learning approach |
| 5 | Interpreting scientific writing samples |
| 6 | Interpreting daily radio and television news |
| 7 | Interpreting daily radio and television news |
| 8 | **Mid-Term** |
| 9 | Scientific analysis of cartoons |
| 10 | Scientific study of digital games |
| 11 | Examination of applications in the immediate environment (science experiment center) |
| 12 | Examination of applications in the immediate environment (playgrounds) |
| 13 | Use of Life-Based Learning model to eliminate misconceptions |
| 14 | To examine the effect of life-based learning approach on students' scientific process skills. |
| 15 | Application study of life-based learning environments |
| 16-17 | FINAL |

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| **No** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  | X |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, | X |  |  |
| 3 | Gain the ability to relate information across disciplines, |  | X |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, | X |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  | X |  |
| 6 | Examines and applies the science curriculum, | X |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  | X |
| 8 | Suggests solutions to the problems encountered in science teaching, |  | X |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  | X |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  | X |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, | X |  |  |
|  | **1: No contribution. 2: Partial contribution. 3: Full contribution.** |  |  |  |

**Date:16.01.2024**

**İnsructor:**

**Signature**:

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | FALL |

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| **COURSE CODE** |  | **COURSE NAME** | SCALE DEVELOPMENT AND ADAPTATION |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| FALL | 3 | | 0 | 0 | | | 3 | 10 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
|  | | X | | | |  | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID – TERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Mid-Term | | | | | 1 | | 30 |
| Quiz | | | | |  | |  |
| Homework | | | | | 3 | | 20 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Psychometric qualities that should be found in measurement tools, types of measurement tools, scaling techniques, scale development process, scale adaptation process, item analysis and test statistics, observed problems and solution suggestions | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this course is to provide an understanding of the important principles and methods of scale development and adaptation process, to decide on the developed / adapted measurement tool in accordance with the measurement standards when needed for an effective evaluation or to gain basic competencies to transfer knowledge to practice by following the stages of scale development and adaptation. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | It aims to provide technical knowledge, skills, scientific attitudes and behaviors in terms of compliance with ethical standards for data collection tools that they will need in their professional practices. It is aimed to be aware of what kind of problems are caused by the information pollution caused / to be caused by carelessly developed / adapted scale development and adaptation studies and to gain the competence to be selective in terms of psychometric quality of scales. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. Knows the psychometric qualities that measurement tools should have.  2. Knows the differences between data collection tools (questionnaire, scale, test, inventory, battery).  3. Knows the criteria used in selecting the appropriate data collection tool.  4. Establishes a relationship between test theories that are the basis for developing measurement tools and psychometric qualities of measurement tools.  5. Develops scales in accordance with measurement standards.  6. Examines measurement tools developed in different cultures according to adaptation processes.  7. Evaluates the scales in the literature in terms of their compliance with the development / adaptation stages (measurement standards).  8. Uses statistical techniques related to scale development and adaptation process.  9. Evaluates the findings obtained from statistical analysis related to scale development and adaptation process from a critical perspective. | | | | | | | |
| **TEXTBOOK** | | | | | Acar Güvendir, M. & Özer Özkan, Y. (2022). Tüm yönleriyle ölçek geliştirme süreci. Pegem Yayıncılık.  Hambleton, R. K (2005). Eğitimde ve psikolojide kullanılan testlerin kültürlerarası değerlendirme amacıyla uyarlanması (N. Koç ve A. Yıldırım, Çev.) Pegem Akademi Yayınları. (2017).  Kline, P. (1993). The handbook of psychological testing. Routledge. | | | | | | | |
| **OTHER REFERENCES** | | | | | Baykul, Y. (2000). Eğitimde ve Psikolojide ölçme: Klasik test teorisi ve uygulanması. Ankara: ÖSYM yayınları.  Cohen, R. J., Swerdlik, M. E. Ve Phillips, S. M. (1998). Psychological testing and assessment: An introducation to tests and masurement. California: Mayfield Publishing.  Demirtaşlı, Ç. N. (2007). Psikolojik ölçmelere ilişkin doğru bilinen yanlışlar. Türk Psikoloji Bülteni, 13 (41), 65-68.  Deniz, K. Z. (2007). Psikolojik ölçme aracı uyarlama. Ankara Üniversitesi, Eğitim Bilimleri Fakültesi Dergisi, 40(1), 1-16.  Erkuş, A. (2003). Psikometri üzerine yazılar. Ankara: Türk Psikologlar Derneği yayınları. Guilford, J., P. (1954). Psychometric methods. New York: McGraw-Hill Book  Hambleton, R. K. (1994). Guidelines for adapting educational and psychological tests: A progress report. European Journal of Psychological Assessment, 10, 229-240.  Hambleton, R.K. ve Patsula, L. (1999). Increasing the validity of adapted tests: Myths to be avoided and guidelines for improving test adaptation practices. Journal of Applied Testing Technology, 1(1), 1-30.  Tavşancıl, E. (2006). Tutumların Ölçülmesi ve SPSS ile Veri Analizi, Ankara:Nobel Yayın Dağıtım. | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer, Statistical Software Programs | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Information about the course and basic concepts |
| 2 | Psychometric properties of measurement tools |
| 3 | Classification of data collection tools |
| 4 | Scaling techniques |
| 5 | Scale development stages |
| 6 | Scale adaptation stages |
| 7-8 | Midterm exam |
| 9 | Item writing/translation process |
| 10 | Item analysis |
| 11 | Evidence of validity-I |
| 12 | Evidence of validity-II |
| 13 | Evidence of reliability |
| 14 | Points to be considered in the reporting process |
| 15-16 | Current debates on Measurement Instruments in Education and Psychology |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science and technology curriculum. |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 545802010 | **COURSE NAME** | Seminar |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| II | 0 | | 3 | 0 | | | 0 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| %40 | | %40 | | | |  | | | | | %20 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 30 |
| Project | | | | | 1 | | 30 |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 40 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | In this course, students prepare a study with responsible instructor for the course using the scientific method on a given problem, and share work in the classroom. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of the course is to gain skills like as accessing scientific data, using data, making an assessment and preparing a presentation before they pass thesis stage | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | - | | | | | | | |
| **COURSE OUTCOMES** | | | | | By the end of this course students will be able to:  1. notice a problem in the relevant field.  2. effectively use the scientific process.  3. develop alternative solutions about this problem.  4. write a scientific report.  5. effectively.present their resarch reports . | | | | | | | |
| **TEXTBOOK** | | | | | APA (2009). Amerikan psikoloji derneği yayım kılavuzu. İstanbul: Kaknüs Yayınları. | | | | | | | |
| **OTHER REFERENCES** | | | | | Türkiye Bilimler Akademisi (2002). Bilimsel araştırmada etik ve sorunları. Ankara: TUBA | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Current developments and problems in the field |
| 2 | Determining a problem |
| 3 | The literature review |
| 4 | Preparing a research proposal |
| 5 | Preparing a research proposal |
| 6 | Data collection |
| 7 | Data collection |
| 8 | MID-TERM EXAM |
| 9 | Data analysis |
| 10 | Data analysis |
| 11 | Results |
| 12 | Conclusions and recommendations |
| 13 | Writing research report |
| 14 | Writing research report |
| 15 | Presentation of researh report |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
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| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 545802002 | **COURSE NAME** | Research Methods in Education II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| II | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
|  | | %100 | | | |  | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | | 1 | | 30 |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 20 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | - Theoretical foundations of different qualitative research methods,  - Qualitative research designs,  - Basic stages of qualitative research,  - Application of qualitative data analysis,  - Qualitative research methods in education,  - Examining a qualitative research topic in education,  - Ethical issues in research  constitute the scope of this course. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this course is to provide students with knowledge and skills in understanding and explaining theoretical and conceptual knowledge about qualitative research techniques, developing a research proposal, implementing a developed proposal, interpreting, reporting, and research and publication ethics. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | |  | | | | | | | |
| **COURSE OUTCOMES** | | | | | At the end of this course, students will be able to;  1. Know the theoretical foundations of different qualitative research methods.  2. Learn qualitative research designs.  3. Understand the basic stages of qualitative research.  4. Apply and interpret qualitative data analysis.  5. Use qualitative research methods effectively in education.  6. Independently conduct a qualitative research topic in education.  7. Plan their research in accordance with science, research and publication ethics. | | | | | | | |
| **TEXTBOOK** | | | | | •Merriam, S. B. (2014). Qualitative research: A guide to design and implementation. John Wiley & Sons. | | | | | | | |
| **OTHER REFERENCES** | | | | | •Bogdan, R. C., & Biklen, S. K. (1998). Qualitative research in education. An introduction to theory and methods.  •Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. New York: Routledge.  •Creswell, J. W. (2013). Qualitative inquiry and research design: Choosing among five approaches. Sage.  •Davis, K. A. (1995). Qualitative theory and methods in applied linguistics research. Tesol Quarterly, 29(3), 427-453.  •Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (1993). How to design and evaluate research in education (Vol. 7). New York: McGraw-Hill.  •Glaser, B. G., & Strauss, A. L. (2009). The discovery of grounded theory: Strategies for qualitative research. Transaction Publishers.  •Miles, M. B. & Huberman, A. M. (1994). An Expanded Sourcebook: Qualitative Data Analysis. Sage: London.  •Neuman, W. L. (2008). Toplumsal araştırma yöntemleri. 1-2 : Nitel ve Nicel Yaklaşımlar. İstanbul: Yayınodası Yayıncılık.  •Patton, M. Q. (2005). Qualitative research. John Wiley & Sons, Ltd.  •Punch, Keith F. (2005). Sosyal araştırmalara giriş: Nitel ve nicel yaklaşımlar. İstanbul: Siyasal Kitapevi.  •Yıldırım, A ve Şimşek, H. (1994). Sosyal Bilimlerde Nitel Araştırma Yöntemleri. Ankara. | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Basic Principles of Educational Research |
| 2 | What is Qualitative Research? What are the Types of Qualitative Research? |
| 3 | Research Design and Sample Selection |
| 4 | Data Collection Tools in Qualitative Research |
| 5 | Effective Management of Interviews |
| 6 | Be a Careful Observer |
| 7 | Document Analysis |
| 8 | MID-TERM EXAM |
| 9 | Qualitative Data Analysis |
| 10 | Descriptive and Content Analysis |
| 11 | Validity, Reliability and Ethics in Qualitative Research |
| 12 | Ethical Issues in Research |
| 13 | Writing a Qualitative Research Report |
| 14 | Writing a Qualitative Research Report |
| 15 | Evaluation of the Qualitative Research Report |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 545801012 | **COURSE NAME** | Education Statistics II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| II | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| % 40 | | % 40 | | | |  | | | | | % 20 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 50 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | | Apply | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | - Basic concepts related to statistics,  - Sampling methods,  - Theoretical distributions,  - Measures that describe distributions and measures that show prevalence,  - Correlation and regression analyses  - Hypothesis analysis constitutes the content of this course. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim is for students to be able to calculate descriptive statistics regarding the variables covered in the training and to examine and interpret the relationships between variables using hypothesis tests. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | It enables students to become statistically literate in writing theses and articles. | | | | | | | |
| **COURSE OUTCOMES** | | | | | At the end of this course, students will;  1. Understands the basic concepts of statistics (universe, sample, parameter, statistics, variable, variable types, measurement, scale, scale types, distribution),  2. Understand sampling methods,  3. Knows theoretical distributions (Normal distribution, binomial distribution),  4. Understands the measures that define distributions (measures that show location: means, peak value, median and measures that show prevalence: range , standard deviation, variance , standard error, coefficient of variation),  5. Learn correlation and regression analysis,  6. Knows hypothesis testing (parametric and nonparametric tests, multivariate statistics). | | | | | | | |
| **TEXTBOOK** | | | | | 1. Alpar, R. (2001). Applied Statistics in Sports Sciences. Nobel Publications, Ankara.  2. Arıcı, H. (2005). Statistical Methods. Meteksan , Ankara. | | | | | | | |
| **OTHER REFERENCES** | | | | | 3. Baykul , Y. (1997). Statistics, Methods and Applications. Anı Publishing, Ankara.  4. Büyüköztürk, Ş. (2007). Handbook of Data Analysis for Social Sciences. 8th Edition, Pegem A Publications, Ankara.  5. Hovardaoğlu , S. (1994). Statistics for Behavioral Sciences. Hatipoğlu Publications, Ankara.  6. Karasar , N. (2000). Scientific Research Method: Concepts, Principles, Techniques. 10th Edition, Nobel Publications, Ankara.  7. Ozdamar, K. (1999). Statistical Data Analysis with Package Programs. Kaan Bookstore, Eskisehir.  8. Siegel , S. (1977). Nonparametric Statistics for Behavioral Sciences. Translated by: Yurdal Topsever , Ankara University Faculty of Language, History and Geography Publications, Ankara.  9. Tatlıdil , H. (1992). Applied Multivariate Statistical Analysis. Ankara. | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction and information about course content |
| 2 | Basic concepts related to statistics (universe, sample, parameter, statistics, variable, types of variables, measurement, scale, types of scales, distribution) |
| 3 | Theoretical distributions (Normal distribution, binomial distribution |
| 4 | Introduction of statistical package program, database creation |
| 5 | Measures that describe distributions (measures that show location: means, peak value, median and measures that show prevalence: range , standard deviation, variance , standard error, coefficient of variation |
| 6 | Measures that describe distributions (measures that show location: means, peak value, median and measures that show prevalence: range , standard deviation, variance , standard error, coefficient of variation) |
| 7 | Measures that describe distributions (measures that show location: means, peak value, median and measures that show prevalence: range , standard deviation, variance , standard error, coefficient of variation) |
| 8 | MID-TERM EXAM |
| 9 | Correlation analysis |
| 10 | Regression analysis |
| 11 | Hypothesis testing (parametric and nonparametric tests, multivariate statistics) |
| 12 | Descriptive statistics calculations |
| 13 | Descriptive statistics calculations |
| 14 | Course evaluation |
| 15 | Course evaluation |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 545802013 | **COURSE NAME** | New Approaches in Science Education |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| II | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | Science Education | | | | | **Social Science** | |
|  | |  | | | | x | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 50 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | | Homework | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | None | | | | | | | |
| **COURSE DESCRIPTION** | | | | | New approaches used in science education (Out-of-School Learning Environments, STEM Education, Argumentation, Problem Solving and Problem-Based Learning in Science Education, Research Inquiry-Based Learning, Definition and General Characteristics of Socio-Scientific Subjects, Cooperative Learning, Creative Drama, Role Playing Technique, Concept Teaching and Misconceptions in Science Teaching, Concept Cartoons, Concept Maps, Station Technique, Mind Map Technique, Flipped Science Learning Environments, Mobile Learning Applications in Science Teaching, Use of Real and Virtual Laboratories in Science Teaching, Games and Learning, Robotics and Coding, Artificial Intelligence) | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Examining new approaches in science education. To recognize new approaches. To explain the basic philosophy and principles of the approaches. Applying new approaches. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | At the end of this course, the student will have the necessary knowledge and skills to realize an effective and efficient teaching. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.To be able to comprehend the importance of science teaching.  2.To have knowledge about contemporary approaches in this field.  3. To be able to synthesize the information learned and create new suggestions for teaching in the field.  4. To be able to develop a positive attitude towards the field. | | | | | | | |
| **TEXTBOOK** | | | | | New Approaches in Science Education with Applied Activities, Ed. KELEŞ, Ö., Pegem AKADEMİ, 2014 | | | | | | | |
| **OTHER REFERENCES** | | | | | New Approaches in Science Teaching; Ed. Argun,E.,Nobel Akademik Yayıncılık  New Approaches in Science Teaching 1,Ed. Bağ, H., Pegem AKADEMİ, 2019  Journey to 21st Century Skills: Current Approaches in Science Teaching and Life Skills, Ed. Bakırcı, H., Duvar Kitabevi  New Approaches in Science Teaching, Ed.Soylu,H.,Nobel Yayıncılık, 2004  New Approaches in Science Teaching, Ed.Karakaş, A., | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer, Projector, Smart Board | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Importance and Necessity of Science Teaching New Approaches in Science Teaching |
| 2 | New Approaches in Science Teaching |
| 3 | New Approaches in Science Teaching |
| 4 | New Approaches in Science Teaching |
| 5 | New Approaches in Science Teaching |
| 6 | Scientific Research on New Approaches in Science Teaching (Articles, Theses, Publications, Projects) |
| 7 | Scientific Research on New Approaches in Science Teaching (Articles, Theses, Publications, Projects) |
| 8 | MID-TERM EXAM |
| 9 | Sample Activities and Applications Related to New Approaches in Science Teaching |
| 10 | Examining the Reflections of Science Teaching Approaches to the Field |
| 11 | Examining the Reflections of Science Teaching Approaches to the Field |
| 12 | Designing Reflections of Science Teaching Approaches to the Field |
| 13 | Designing Reflections of Science Teaching Approaches to the Field |
| 14 | Evaluation of the Reflections of Science Teaching Approaches to the Field |
| 15 | Evaluation of the Reflections of Science Teaching Approaches to the Field |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
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| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

**ESOGU Department of Educational Sciences**

**Course Information Form**

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 545802005 | **COURSE NAME** | Turkey's Water Resources |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **ECTS** | **TYPE** | | **LANGUAGE** |
| 2 | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY ( ) ELECTIVE (X ) | | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | **Science Education** | | | | | **Social Science** |
|  | |  | | | | X | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | | **Quantity** | **%** |
| Mid-Term | | | | | 1 | 30 |
| Quiz | | | | |  |  |
| Homework | | | | | 1 | 10 |
| Project | | | | | 1 | 10 |
| Report | | | | |  |  |
| Others (………) | | | | |  |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | The definition and importance of water,Water and Health, Water cycle, Distribution of Water Quantity and Water Resources of the World, .Water Pollution and Water Resources in Turkey ,Increasing Water Problems of the World and Turkey , Water Legislation, Water awareness and water education in primary education, Materials Development for Water Education | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of the course is to provide information to the students about importance of water for life, water cycle, our country water pollution and water resources, water legislation, increasing water problems in our country , water awareness and water education in primary education. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Water is the essential element of life and this fact will be consolidated. The required skills for water education will be gained | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.be able to learn environment and historical development of environmental science.  2. Information about the importance of water is reinforced.  3. He/She would have the skills necessary for water education  4. He/She offers suggestions for solution of current environment problems. | | | | | | |
| **TEXTBOOK** | | | | | Türkiye’nin Suyu 81 İlin Su Kaynakları/Potansiyeli ve Kalitesi Dr. Eşref Atabey Sarmal Yayınevi, 2024 *Dünyada ve Ülkemizde Su , Atila TÜRKYILMAZ, ANKARA 2010* | | | | | | |
| **OTHER REFERENCES** | | | | | Water quality : diffuse pollution and watershed management Vladimir Novotny Hoboken, N.J. : J. Wiley, c2003  Water quality and treatment : a handbook of community water supplies / American Water Works Association ; Raymond D. Letterman. New York : McGraw-Hill, c1999 | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer, Projector | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | The definition and importance of water |
| 2 | Water Standarts |
| 3 | Water cycle |
| 4 | Water and Health |
| 5 | Distribution of Water Quantity and Water Resources of the World |
| 6 | Water Resources in Turkey |
| 7 | Water Resources in Turkey |
| 8 | Midterm Exam |
| 9 | Sectoral use of water resourcesin the world and our country |
| 10 | Losses of water the world and our country |
| 11 | Water pollution and wastewater recycling |
| 12 | Increasing Water Problems of the World and Turkey |
| 13 | Water awareness and water education in primary education |
| 14 | Materials Development for Water Education |
| 15-16 | Final exam |

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| **No** | **Program Çıktıları** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  | x |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  | x |  |
| 3 | Gain the ability to relate information across disciplines, |  | x |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  | x |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  | x |
| 6 | Examines and applies the science curriculum, | x |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  | x |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  | x |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, | x |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, | x |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, | x |  |  |
|  | **1: No contribution. 2: Partial contribution. 3: Full contribution.** |  |  |  |

**Instructor(s)** Prof.Dr. Cansu FİLİK İŞÇEN

**Signature**: **Date:** 13/01/2025

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 545802015 | **COURSE NAME** | Astronomy Education in Turkey |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| Spring | 3 | | 0 | 0 | | | 3 | 7.5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | | Science Education | | | | | **Social Science** | |
| X | |  | | | | X | | | | |  | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 5 | | 30 |
| Project | | | | | 1 | | 20 |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | History of science and Astronomy, Basic concepts of Astronomy, Contributions of Turkish scientists to Astronomy, Astronomy, Astrophysics and Cosmology, Recent discoveries in Astronomy, Examination of primary and secondary education curricula in terms of astronomy, Higher education programmes and Astronomy. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To gain field knowledge to follow the latest discoveries related to astronomy, to comprehend the difference between Astronomy, Astrophysics and Cosmology, to examine the adequacy of astronomy education in Turkey | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | Understanding the reflections of developments in the field of astronomy on education and how they change our daily lives and the ability to explain this to third parties | | | | | | | |
| **COURSE OUTCOMES** | | | | | Recognises the concept of space-time,  Have knowledge about the theory of general relativity,  Understands the relationship between astronomy, particle physics and cosmology,  Understands the latest discoveries in astronomy in the world, analyses astronomy education in Turkey and compares it with the developed countries in the field of astronomy | | | | | | | |
| **TEXTBOOK** | | | | | Astronomy-The Universe At a Glance, Eric Chaisson, Steve McMillan, Nobel Yaşam, 2016 | | | | | | | |
| **OTHER REFERENCES** | | | | | Acelesi Olanlar İçin Astrofizik, Neil de Grasse Tyson, 2023, Nova Kitap  Askın, Z., Aydın, C., vd. Astronomi ve Uzay Bilimleri, Tekışık Yayıncılık, Ankara, 1996.,  Hawking, S.W., Zamanın Kısa Tarihi: Büyük patlamadan kara deliklere Doğan Kitapçılık İstanbul, 1988.  Blanco V.M. ve McCuskey S.W.,Güneş sisteminin temel fiziği, Ankara Üniversitesi Fen Fakültesi Yayınları,1978  Atkinson, S.; Astronomi, (Çev: M.Alev), TUBİTAK, Popüler Bilim Kitapları, Ankara, 1998.  Lightman, A.; Yıldızların Zamanı, (Çev: M.Alev), TUBİTAK, Popüler Bilim Kitapları, Ankara, 1996.  Silk, J.; Evrenin Kısa Tarihi, (Çev: M.Alev), TUBİTAK, Popüler Bilim Kitapları, Ankara 1997.  Esin, F.; Görsel Uzay ve Kozmolojiye Giriş, İ.Ü. Fen Fakültesi Basımevi, İstanbul, 1993.  İnan, Y.; Kozmos'dan Kuantum' a, Ankara, 1996 | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projector | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction, History of Science and Astronomy |
| 2 | History of Astronomy |
| 3 | Basic concepts of astronomy-Understanding the structure of the universe |
| 4 | Galaxies, Stars and Stellar Evolution |
| 5 | Dark Matter and Black Holes |
| 6 | General Relativity Theory |
| 7 | Astronomy, Astrophysics and Cosmology |
| 8 | MID-TERM EXAM |
| 9 | The Big Bang and its Evidence |
| 10 | Astronomy, Particle Physics and CERN |
| 11 | Recent Discoveries in Astronomy |
| 12 | Contributions of Turkish Scientists to Astronomy |
| 13 | Analysing primary and secondary education curricula in terms of astronomy |
| 14 | Analysing primary and secondary education curricula in terms of astronomy |
| 15 | Higher Education Programmes and Astronomy |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 541502007 | **COURSE NAME** | The Nature of Science and Instruction |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| II | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
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| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | | 1 | | 30 |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 30 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 40 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Teaching the nature of science | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main purpose of this course to help students obtaining knowledge and skills regarding, approaches to the teaching of the natural sciences, common misconceptions regarding the nature of science, activities used in teaching the nature of science, | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | At the end of this course focuses on teaching the students are expected to improve awareness of science and the nature of science. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. Have knowledge about the development of science.  2. Have information about the nature of scientific knowledge.  3. Be aware of the approaches of teaching the nature of science.  4. Have knowledge common misconceptions about the nature of science.  5. Have knowledge about the activities used in the teaching of the nature of science. | | | | | | | |
| **TEXTBOOK** | | | | | •Doğan, N., Çakıroğlu, J., Bilican, K., & Çavuş, S. (2012). Bilimin doğası ve öğretimi. Ankara: Pegem Akademi. | | | | | | | |
| **OTHER REFERENCES** | | | | | •Demirbaş, M. (2016). Fen Bilimleri Öğretiminde Bilimin Doğası. Ankara: Pegem Akademi.  •McComas, W. F. (2002). The principal elements of the nature of science: Dispelling the myths. In The nature of science in science education (pp. 53-70). Springer Netherlands.  •Sönmez, V. (2008). Bilim Felsefesi. Ankara: Anı Yayıncılık.  •Sönmez, V. (2009). Eğitim Felsefesi. Ankara: Anı Yayıncılık.  •Topdemir, H. G. (2011). Felsefe. Ankara: Pegem Yayıncılık.  •Yıldırım, C. (2010). Bilim Felsefesi. İstanbul: Remzi Kitabevi.  •Yıldırım, C. (2012). Bilimin Öncüleri. Ankara: Tübitak Popüler Bilim Kitapları. | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Philosophy of Science |
| 2 | What is Science and What is It Not? |
| 3 | Epistemology, Nature of Scientific Concepts, Scientific Knowledge and Its Properties |
| 4 | The Nature, Development and Changing Face of Science |
| 5 | The Nature of Science and the Relationship between Science-Technology-Society-Environment |
| 6 | Characteristics of Human Sciences |
| 7 | Characteristics of Human Sciences |
| 8 | MID-TERM EXAM |
| 9 | Approaches from Theory to Practice in Teaching the Nature of Science |
| 10 | Teaching the Nature of Science with a Historical Approach |
| 11 | Teaching Nature of Science with Indirect Approach |
| 12 | Teaching Nature of Science with an Open Thought-Provoking Approach |
| 13 | Activities Used in Teaching Nature of Science |
| 14 | Evaluation of Learning Products Related to the Nature of Science |
| 15 | Evaluation of Learning Products Related to the Nature of Science |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

|  |  |
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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 545802017 | **COURSE NAME** | Alternative Learning and Teaching Processes in Science Education |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| II. | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| 40 | | 40 | | | |  | | | | | 20 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 25 |
| Project | | | | | 1 | | 25 |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | | Apply | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Determining alternative teaching and learning activities (project-based learning, out-of-school learning, process-based learning, etc.) in science education and implementing them within the program. Designing and implementing alternative activities within the scope of the course for their professional life. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | It is expected that teacher candidates will provide a rich learning environment when they start their professional lives. For this reason, it is aimed to create content that will enable them to carry out alternative learning and teaching activities under all conditions and to transfer it to the teacher candidates in a practical way. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | At the end of this course, teacher candidates will have the necessary knowledge and skills for their professions in planning alternative teaching and learning activities (project-based learning, out-of-school learning, process-based learning, STEM Approach, etc.) to carry out effective and efficient teaching, different approaches used in organizing learning processes, and the implementation of teaching strategies, methods and techniques. They will also be able to carry out activities suitable for different conditions and social structures in their professional lives.  Teaching Methods That Can Be Used: Lecture, Question and Answer, Discussion, Drill and Practice, Group Work, Brainstorming, Case Study, Individual Study, Problem Solving, Project Based Learning. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. Understands the need for alternative learning and teaching processes.  2. Knows the contributions of alternative learning and teaching processes to science education.  3. Knows the application of the project cycle to alternative learning environments.  4. Prepares activity environments appropriate to the purpose, content and student characteristics.  5. Discusses the importance of planning alternative learning and teaching activities that can be created.  6. Knows the positive and negative aspects of an alternative learning activity and produces solutions.  7. Designs and implements learning activities appropriate to his/her field using teaching strategies, methods and techniques appropriate for alternative learning environments.  8. Provides alternative assessment and evaluation opportunities for alternative learning. | | | | | | | |
| **TEXTBOOK** | | | | | -Ekici, G. & Güven, M. (2013). Learning - teaching approaches and application examples. Ankara: PegemA Publishing  Karademir, E. (2017). Interdisciplinary Skill Interaction in Example and Application Supported Science Teaching. PegenA Publishing. | | | | | | | |
| **OTHER REFERENCES** | | | | | Doğan, N., Çakıroğlu, J., Bilican, K., & Çavuş, S. (2012). The nature of science and its education. Ankara: Pegem Academy.  Karademir, E. (2014). My Science Project, TUBITAK 4004.  Karademir, E. (2014). “Determination of Teacher Candidates’ Perceptions of Out-of-School Science Education with Science Center and Space House Activities”, 2nd Turkey Science Centers Symposium with International Participation, 2014, Bursa.  Karademir, E. (2013). Determination of the purposes of teachers and teacher candidates in carrying out out-of-school learning activities within the scope of science and technology course through planned behavior theory (Unpublished Doctoral Thesis). Hacettepe University Institute of Social Sciences, Ankara.  Duman, B. (2000). Learning Teaching Theories and Process Based Education. Ankara: Anı Publishing.  Laçin Şimşek, C. (2011) (Ed.). Out-of-school learning environments in science education. Ankara: Pegem A Publishing.  Bahar, M. (2006) (Ed.). Science and technology education. Ankara: PegemA Publishing.  Çepni, S. (2009) (Ed.). Science and Technology Education from Theory to Practice. Ankara: PegemA Publishing.  Aydoğdu, M. & Kesercioğlu, T. (2005). Science and Technology Education in Primary Education. Ankara: Anı Publishing.  Şahan, M. (2005). Museum and Education. Journal of Turkish Educational Sciences. Volume III (4), 487-501.  Bozdoğan, AE (2007). The Place and Importance of Science and Technology Museums in Science Education. Ankara: Gazi University (Unpublished doctoral dissertation- | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | It will be determined according to the structure of the event that can be implemented. | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introducing alternative learning and teaching activities |
| 2 | Literature and practice examples on out-of-school learning activities |
| 3 | Discovering out-of-school learning environments that can be implemented in Science curriculums, designing activities and lesson plans |
| 4 | Understanding the relationship between project cycle, project-based learning and out-of-school learning |
| 5 | Discussing and determining out-of-school and project-based activities that can be carried out within the scope of the course |
| 6 | Discuss and determine STEM-based activities that can be carried out within the scope of the course. |
| 7 | Discuss and determine STEM-based activities that can be carried out within the scope of the course. |
| 8 | MID-TERM EXAM |
| 9 | Literature and practice examples on interdisciplinary learning activities |
| 10 | Discovering process-based learning environments that can be implemented in science curriculums and designing activities and lesson plans |
| 11 | Implementation of designed alternative learning activities |
| 12 | Implementation of designed alternative learning activities |
| 13 | Implementation of designed alternative learning activities |
| 14 | Implementation of designed alternative learning activities |
| 15 | Implementation of designed alternative learning activities |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

**ESOGÜ Eğitim Bilimleri Enstitüsü**

**Ders Bilgi Formu**

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| **SEMESTER** | Spring |

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| **COURSE CODE** |  | **COURSE NAME** | Reflections of Popular Science on Science |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **EKTS** | **TYPE** | | **LANGUAGE** |
| II | 3 | | 0 | 0 | | | 3 | 7,5 | COMPULSORY ( ) ELECTIVE ( X ) | | Türkçe |
| **COURSE CATEGORY** | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** |
| x | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID - TERM** | | | | | **Evaluation Type** | | | | | **Quantitiy** | **%** |
| **Mid-Term** | | | | |  |  |
| Quiz | | | | |  |  |
| Homework | | | | | 1 | 50 |
| Project | | | | |  |  |
| Report | | | | |  |  |
| Others (………) | | | | |  |  |
| **FİNAL EXAM** | | | | |  | | | | | 1 | 50 |
| **PREREQUIEITE(S)** | | | | | Yok | | | | | | |
| **COURSE DESCRIPTION** | | | | | Scientific videos, science books, science journals, current technological news, experimental applications and planning reflect the reflections of popular science in science teaching. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Popular science studies in science aim to establish the relationship of social and technological changes and transformations with science and the natural environment in raising scientifically literate individuals. | | | | | | |
| **ADDITIVE OF THE COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | It enables the theoretical knowledge learned in the courses to be associated with popular science. | | | | | | |
| **COURSE OUTCOMES** | | | | | Examines the science curriculum  Gains information about the biographies of scientists  Explains today's science and technological development news  Explain the emergence of scientific developments and interesting events of the period  Knows how to benefit from informal learning environments outside the classroom  Can make fun experimental applications | | | | | | |
| **TEXTBOOK** | | | | | Güler, M.P.D.(2017); Fen Bilimleri Öğretimi. Ankara: Pegem Akademi. | | | | | | |
| **OTHER REFERENCES** | | | | | Akoğlu, A. (2005). Popüler bilim yayıncılığı ve gökyüzü gözlem etkinlikleri.  Baybars, M. G. (2018). Fen bilgisi öğretmen adaylarının bilim insanı farkındalıklarının belirlenmesi. *Trakya Üniversitesi Eğitim Fakültesi Dergisi*, *8*(3), 564-577.  Çalık, Ş., Ayşe, K. O. Ç., Şenel, T., Erhan, Z. O. R., & ASLAN, O. Nanobilim ve Nanoteknolojinin TÜBİTAK Popüler Bilim Dergilerine Yansımaları. *Uluslararası Türk Eğitim Bilimleri Dergisi*, *2021*(17), 90-113.  Demirkuş, N., Erhan, A. C. A. R., & Gülen, S. (2018). Popüler teknoloji kavramlarının eğitiminde görsel materyal geliştirme çalışması. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, *15*(1), 723-748.  Eroğlu, B., & Sağlam, H. İ. (2020). Popüler Bilim Kitapları Etkili Bir Öğretim Aracı Olarak Kullanılabilir mi?. *Cumhuriyet Uluslararası Eğitim Dergisi*, *9*(3), 656-678.  Küçük, S. (2013). Türkiye’de bilimin popülerleştirilmesi sürecinde süreli yayıncılığın rolü:“Fen alemi” örneği (1925-1926). *Cumhuriyet Tarihi Araştırmaları Dergisi*, *9*(17), 187-218.  Korkmaz, H., & Kavak, G. (2010). İlköğretim öğrencilerinin bilime ve bilim insanına yönelik imajları. *İlköğretim Online*, *9*(3), 2-26.  Yavuzoğlu, Ç., & Pektaş, M. (2020). Süreli çocuk yayınlarındaki fen bilimleri içeriklerinin bilim tarihi açısından incelenmesi. *Türk Akademik Yayınlar Dergisi (TAY Journal)*, *4*(1), 1-16. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Bilgisayar ve projeksiyon cihazı | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPİCS** |
| 1 | Meeting, presentation of the lesson. |
| 2 | Examining the science curriculum |
| 3 | Biographies of scientists |
| 4 | The place and effects of scientific developments in our daily life |
| 5 | News from today's science and technology developments |
| 6 | The emergence of scientific developments and interesting events of the period |
| 7 | The emergence of scientific developments and interesting events of the period |
| 8 | **Mid-Term** |
| 9 | Video images (documentary videos, science fiction movies, scientific competition programs) |
| 10 | Video images (documentary videos, science fiction movies, scientific competition programs) |
| 11 | popular science books |
| 12 | Popular science magazines |
| 13 | Informal learning environments outside the classroom |
| 14 | Experimental applications with simple materials |
| 15 | Experimental applications with simple materials |
| 16-17 | FINAL |

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| **No** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  | X |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  | X |  |
| 3 | Gain the ability to relate information across disciplines, | X |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, | X |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  | X |
| 6 | Examines and applies the science curriculum, |  | X |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  | X |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  | X |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, | X |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research, |  | X |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, | X |  |  |
|  | **1: No contribution. 2: Partial contribution. 3: Full contribution.** |  |  |  |

**Date:16.01.2024**

**İnsructor:**

**Signature**:

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Special Topics |

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| **COURSE CODE** | 541501901 | **COURSE NAME** | Special Topics |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| III/IV | 3 | | 0 | 0 | | | 0 | 5 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| %40 | | %40 | | | |  | | | | | %20 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 50 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Taking the lead for master student, “The Specialization Field Course” ensures students to acquire knowledge, skills and attitude. The content of the course is as follows: defining a problem statemant and research topic related to the thesis, exposuring the purpose and importance of the study, process of guidance for choosing a suitable method for the implementation, developing a reference list and in addition to the aforementioned concerns, knowledge regarding the initial draft plan of the study. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Evaluations and discussions of the new developments and articles in the study fields of the students who are progressing their master thesis. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | - | | | | | | | |
| **COURSE OUTCOMES** | | | | | By the end of this module students will be able to:  1. Choose a problem statemant and define it within the context of theoretical and / or social affects,  2. Understand the relationship between research topic and the research problem,  3. Understand and explain the importance and purpose of the study,  4. Choose one of the suitable methods devoted to the research problem and search the literature,  5. Develop an initial draft plan within the context of thesis proposal, devoted to estimated general situation of the study. | | | | | | | |
| **TEXTBOOK** | | | | | Karasar, N. (1996). Araştırmalarda rapor hazırlama yöntemi. Ankara: Pars Matbaacılık. | | | | | | | |
| **OTHER REFERENCES** | | | | | Ekiz. D. (2003). Eğitimde araştırma yöntem ve metotlarına giriş. Ankara: Anı Yayıncılık.  Kuş, E. (2003). Nicel-nitel araştırma teknikleri. Ankara: Anı Yayıncılık.  Marshall, C. ve Rossman G. (1989). Designing qualitive research. London: Sage Publications.  Miles, M. B. ve Huberman, A. M. (1994). An expanded sourcebook qualitative data analysis. (Second Edition). California: Sage Publications, Inc. | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Computer and projection equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Subject of the thesis research |
| 2 | Literature on the subject follow-up |
| 3 | Evaluation |
| 4 | Report preparation and presentation |
| 5 | Follow-up of the literature |
| 6 | Article review |
| 7 | Article review |
| 8 | MID-TERM EXAM |
| 9 | Source review |
| 10 | Evaluation |
| 11 | Follow-up of the literature |
| 12 | Article review |
| 13 | Evaluation |
| 14 | Report preparation and presentation |
| 15 | Report preparation and presentation |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
| 12 |  |  |  |  |
| 13 |  |  |  |  |
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| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**

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|  | **T.C.**  **ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ**  **EĞİTİM BİLİMLERİ ENSTİTÜSÜ**  **DERS BİLGİ FORMU (İngilizce)** |

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| **SEMESTER** | Fall/Spring |

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| **COURSE CODE** | 541502701 | **COURSE NAME** | Master Thesis |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | | **LANGUAGE** |
| III / IV | 0 | | 1 | 0 | | | 0 | 25 | COMPULSORY  ELECTIVE | | | Turkish |
| **COURSE CATEGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Educational Science** | | | |  | | | | | **Social Science** | |
| %40 | | %40 | | | |  | | | | | %20 | |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MIDTERM** | | | | | **Evaluation Type** | | | | | **Quantity** | | **%** |
| Midterm | | | | |  | |  |
| Quiz | | | | |  | |  |
| Homework | | | | | 1 | | 50 |
| Project | | | | |  | |  |
| Report | | | | |  | |  |
| Others (     ) | | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | The content of this course includes determining the problem and research topic for the master's thesis, revealing the purpose and importance of the study, guiding processes for determining the method, creating a working bibliography, and in addition to all the descriptive items mentioned, information on the draft plan envisaged in writing the thesis and a work plan.. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To guide graduate students in their thesis work and to ensure that the student gains knowledge, skills and attitudes regarding the master's thesis. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | - | | | | | | | |
| **COURSE OUTCOMES** | | | | | Defines basic concepts and principles related to research methods.  Determines research problems, selects appropriate research model for the problem, determines the universe and sample.  Collects data with data collection tools appropriate to the research model, analyzes the data, and interprets the analysis results.  Prepares research reports in accordance with science, research and publication ethics. | | | | | | | |
| **TEXTBOOK** | | | | | Büyüköztürk,Ş.(2008). Sosyal bilimler için veri analizi el kitabı. Ankara: Pegem Akademi. | | | | | | | |
| **OTHER REFERENCES** | | | | | Ekiz. D. (2003). Eğitimde araştırma yöntem ve metotlarına giriş. Ankara: Anı Yayıncılık.  Karasar, N. (1996). Araştırmalarda rapor hazırlama yöntemi. Ankara: Pars Matbaacılık.  Kuş, E. (2003). Nicel-nitel araştırma teknikleri. Ankara: Anı Yayıncılık.  Marshall, C. ve Rossman G. (1989). Designing qualitive research. London: Sage Publications. | | | | | | | |
| **TOOLS AND EQUIPMENT REQUIRED** | | | | | Textbook | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Subject of the thesis research |
| 2 | Literature on the subject follow-up |
| 3 | Literature Review |
| 4 | Report preparation and presentation |
| 5 | Follow-up of the literature |
| 6 | Follow-up of the literature |
| 7 | Article review |
| 8 | MID-TERM EXAM |
| 9 | Source review |
| 10 | Evaluation |
| 11 | Follow-up of the literature |
| 12 | Article review |
| 13 | Evaluation |
| 14 | Report preparation and presentation |
| 15 | Report preparation and presentation |
| 16-17 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Knowledge of the application of teaching principles, theories, strategies, methods and techniques in science courses, |  |  |  |
| 2 | Has a scientific and analytical mindset and is a practitioner of scientific research methods and techniques in his/her studies, |  |  |  |
| 3 | Gain the ability to relate information across disciplines, |  |  |  |
| 4 | Have knowledge about the effects of technological developments on science teaching, |  |  |  |
| 5 | Have knowledge about multidimensional measurement and evaluation in science courses, |  |  |  |
| 6 | Examines and applies the science curriculum, |  |  |  |
| 7 | Gains the ability to compare science teaching in Turkey and in the world, |  |  |  |
| 8 | Suggests solutions to the problems encountered in science teaching, |  |  |  |
| 9 | To be able to follow new developments in the field and interpret them in line with national values and country realities, |  |  |  |
| 10 | Follows national and international studies carried out in the field, defines a problem encountered, designs and conducts research,, |  |  |  |
| 11 | Demonstrates behaviour in accordance with the principles of science, research and publication ethics, |  |  |  |
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| 18 |  |  |  |  |
| 19 |  |  |  |  |
| 20 |  |  |  |  |
| **1**: None **2**: Partially contribution **3**: Completely contribution | | | | |

**Date:**

**Instructor(s):**

**Signature:**