Tarih: 24 Ağustos 2025 13:22

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

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
İMEAE 202	MIDDLE SCHOOL MATHEMATICS TEACHING PROGRAMS	2.00	0.00	0.00	2.00	3.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	Bachelor
Course Type	:	Compulsory
Preconditions	:	Not
Objectives of the Course	:	The aim of this course is to provide basic concepts related to the curriculum, the approach and content of the curriculum, and the skills (learning and sub-learning areas, etc.) aimed to be developed.
Course Contents	:	This course covers the basic concepts of curricula; development of secondary school mathematics curriculum from past to present; the approach and content of the current secondary school mathematics curriculum, the skills it aims to develop; learning and sub-learning areas; distribution and limits of achievements according to classes, their relationship with other courses; the relationship of secondary school mathematics curriculum with primary and high school mathematics curriculum; the methods, techniques, tools and materials used; assessment and evaluation approach; covers teacher competencies.
Recommended or Required Reading	:	As part of the course, primary resources will include lecture notes and supplementary materials. Additionally, visual and digital tools such as interactive whiteboards or projectors will be utilized during instruction. The Türkiye Yüzyılı Maarif Modeli Mathematics Curriculum will be used as the foundation for understanding and analyzing the current content of instructional programs. Furthermore, to align with international standards and best practices in mathematics education, the Principles and Standards for School Mathematics (NCTM, 2000) will be examined. In addition to these core references, current academic publications, research articles, and national/international educational reports related to mathematics instruction are recommended as supplementary resources. Recommended Resources: (1) Ministry of National Education (MoNE) (2024). Türkiye Yüzyılı Maarif Modeli Mathematics curriculum. Ankara: Board of Education and Discipline. (2) Özmantar, M. F., Akkoç, H., Kayıran, B. K., & Özyurt, M. (Eds.). (2021). A historical examination of middle school mathematics curricula (4th Edition). Ankara: Pegem Academy Publishing. (3) Baykul, Y. (2021). Mathematics teaching in middle school (Grades 5-8) (5th Edition). Ankara: Pegem Academy Publishing.
Planned Learning Activities and Teaching Methods	:	This course explores fundamental concepts related to curriculum design, tracing the historical development of middle school mathematics curricula. It examines the approach, content, and competencies targeted by the current middle school mathematics curriculum, as well as its learning and sub-learning domains. The distribution and scope of learning objectives across grade levels and their connections with other subjects are analyzed in detail. Additionally, the relationship between the middle school mathematics curriculum and those of elementary and high school mathematics is evaluated. The course also addresses the instructional methods, techniques, tools, and materials employed in the curriculum, along with assessment and evaluation approaches. Furthermore, the professional competencies required of mathematics teachers will be discussed. Throughout the course, various instructional methods and techniques, including lectures, discussions, structured group work, question-and-answer sessions, brainstorming, literature review, and collaborative learning, will be utilized.
Recommended Optional Programme Components	:	To ensure the effective delivery of this course and to enhance the learning experience, the following considerations are recommended: Regular Attendance and Engagement: Consistent participation is essential for comprehending the course content and actively contributing to discussions. Students are expected to engage in in-class activities and group work. Preparation and Use of Resources: Reviewing relevant materials before class and being prepared for discussions will support the learning process. Recommended academic publications and educational reports should be used as reference guides. Critical Thinking and Discussion Culture: A critical approach to evaluating curricula and instructional strategies is encouraged. Students should develop their own perspectives and actively contribute to class discussions. Effective Use of Technological Tools: Digital resources, interactive whiteboards, projectors, and other technology-supported instructional tools will be integrated into the course. Students are expected to use these tools effectively. Active Participation in Assessment and Evaluation: Individual and group assignments, as well as class presentations and applications, are integral to reinforcing learning objectives. Students should engage actively in assessment activities throughout the course. Collaborative Work and Academic Integrity: A collaborative approach is encouraged in group projects and teamwork. Students are expected to adhere to academic ethics, maintain integrity in their work, and properly cite sources when using external references. By adhering to these guidelines, students will enhance their learning experience and contribute to achieving the course objectives more effectively.
Instructors	:	Prof. Dr. Şenol Kartal
Instructor's Assistants	:	There is no teaching assistant assigned for this course.
Presentation Of Course	:	This course will be conducted using a variety of instructional methods and techniques aimed at fostering a student-centered and interactive learning environment. The teaching strategies will include lectures, discussions, question-and-answer sessions, brainstorming, structured group work, collaborative learning, and literature review. Students are encouraged to actively participate in class discussions and develop their critical thinking skills regarding the topics covered. Throughout the course, visual and digital tools (such as interactive whiteboards and projectors) will be utilized to enhance the learning process and facilitate access to technology-supported instructional materials. Additionally, the analysis and evaluation of curricula will be integrated into the course content through the use of up-to-date academic resources and internationally recognized educational standards. Students are expected to actively participate in individual and group activities, discussions, practical applications, and assessment tasks throughout the course. This approach ensures that the course content is delivered not only theoretically but also through an applied and participatory methodology.
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Course Outcomes

Upon the completion of this course a student :

1 Can explain the basic concepts of curricula.
2 Can explain the development of middle school mathematics curriculum from past to present.
3 Will be able to interpret the approach of the middle school mathematics curriculum.
4 Can summarize the content of the current middle school mathematics curriculum and the skills that the program aims to develop.
5 Can summarize the learning and sub-learning areas of the current middle school mathematics curriculum.
6 Can summarize the distribution and limits of the current middle school mathematics curriculum according to classes.
7 Can interpret the relationship between the current middle school mathematics curriculum and other courses.
8 Can interpret the relationship between middle school mathematics curriculum and primary and high school mathematics curriculum.
9 Can summarize the methods, techniques, tools and materials used in the current middle school mathematics curriculum.
10 The assessment and evaluation approach of the current middle school mathematics curriculum can be summarized.
11 Can interpret the teacher competencies adopted in the current middle school mathematics curriculum.

Preconditions

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS

Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Fundamental concepts related to curriculum design			*During the introduction, the syllabus will be examined, and fundamental concepts of curriculum development will be discussed. Read Chapter 1: Fundamental Components of Middle School Mathematics Curricula in the Context of Curriculum Development Process from the book Middle School Mathematics Curricula. This section explains the curriculum development process, key elements (objectives, content, learning activities, and assessment), and fundamental components of curricula. Examine the approaches used in curriculum development and take notes on these components.	*This week, fundamental concepts related to curriculum development will be discussed. The purpose, scope, and structure of curricula will be introduced to students. The lecture method will be used to present fundamental knowledge, followed by the question-answer method to assess students' prior knowledge. Group discussions will be conducted on fundamental concepts related to curricula.	Ö.Ç.1 Ö.Ç.2 Ö.Ç.2
2.Week	*Basic concepts regarding curriculum and general structure of curriculum			*This week, fundamental concepts related to curricula will be examined. Read Chapter 2: An Overview of Middle School Mathematics Curricula in the Republican Era from the book Middle School Mathematics Curricula. Compare the changes that occurred in mathematics curricula during the Republican period and evaluate their impact on educational processes.	*This week, fundamental concepts related to curricula will be examined. The concepts of objectives, learning outcomes, content, teaching processes, and assessment in curricula will be explored. The lecture method will be used to provide a theoretical framework, and the case study method will be applied to analyze examples from different curricula. The discussion method will be used to evaluate various aspects of curricula.	Ö.Ç.2 Ö.Ç.3
3.Week	*The historical development of middle school mathematics curricula			*The general objectives of middle school mathematics curricula will be discussed. Read Chapter 3: General Objectives of Middle School Mathematics Curricula from the book Middle School Mathematics Curricula. Analyze the general objectives of curricula and examine how they have evolved over time.	*This week, the historical development of middle school mathematics curricula will be examined. Changes in mathematics curricula over time will be explained. The lecture method will be used to present the historical development timeline, and the comparative analysis method will be applied to evaluate differences between past and present curricula. Group work will focus on analyzing selected periods of curricula and sharing findings.	Ö.Ç.2 Ö.Ç.3
4.Week	*The historical development of middle school mathematics curricula			*This week, the fundamental principles of middle school mathematics curricula will be examined. Read Chapter 4: Analyzing Middle School Mathematics Curricula from the Perspective of Teaching Principles from the book Middle School Mathematics Curricula. Investigate the impact of teaching principles on mathematics education and compare the principles adopted in different periods.	*This week, the historical development of middle school mathematics curricula will continue. The reasons for curriculum changes and national and international trends will be discussed. The lecture method will be used to explain the theoretical foundations, while brainstorming will be conducted to gather students' opinions on curriculum changes. Small group research will be conducted to evaluate the impact of these changes on student success.	Ö.Ç.2 Ö.Ç.3

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
5.Week	*The approach, content, and targeted skills of the current middle school mathematics curriculum			*This week, the teaching strategies, methods, and techniques used in the current middle school mathematics curricula will be discussed. Read Chapter 5: Teaching Strategies, Methods, and Techniques in Middle School Mathematics Curricula from the book Middle School Mathematics Curricula. Compare the findings with Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)) and analyze how teaching methods have evolved.	*This week, the fundamental features of the current middle school mathematics curriculum will be discussed. The core components, content structures, and instructional approaches will be evaluated. The lecture method will be used to explain the curriculum structure, and the hands-on learning method will be applied for students to analyze learning outcomes for specific topics and understand the logic of the program.	Ö.Ç.4 Ö.Ç.5 Ö.Ç.6
6.Week	*The approach, content, and targeted skills of the current middle school mathematics curriculum			*This week, the structure of the number learning domain in middle school mathematics curricula will be examined. Read Chapter 6: A Comparative Analysis of the Number Learning Domain in Middle School Mathematics Curricula from the book Middle School Mathematics Curricula. Examine the changes in the number learning domain in the context of Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)).	*This week, the fundamental components of middle school mathematics curricula will be examined. The vision, mission, learning domains, and assessment processes of the curriculum will be discussed. The lecture method will introduce the components of the curriculum, while the discussion method will be used to evaluate the relationships between these components. Group work will focus on analyzing how each component contributes to instruction.	Ö.Ç.4 Ö.Ç.5 Ö.Ç.6
7.Week	*The learning and sub-learning domains of the current middle school mathematics curriculum			*This week, the role of algebraic thinking in curricula will be examined. Read Chapter 7: Approaches to Algebraic Thinking in Curricula from the book Middle School Mathematics Curricula. Compare past algebraic thinking approaches with Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)).	*This week, an in-depth study of the core components of middle school mathematics curricula will be conducted. Comparisons will be made with mathematics curricula from different countries, highlighting strengths and weaknesses. The lecture method will be used to explain different curriculum models, while the comparative analysis method will be applied to examine examples from international curricula.	Ö.Ç.5 Ö.Ç.6 Ö.Ç.7
8.Week	*Midterm exam week			*Midterm exam week	*Midterm exam week	
9.Week	*The distribution, scope, and connections with other subjects of the learning outcomes in the current middle school mathematics curriculum			*This week, reform movements in the geometry learning domain will be examined. Read Chapter 8: The Impact of Reform Movements on the Geometry Learning Domain in Middle School Mathematics Curricula from the book Middle School Mathematics Curricula. Compare the findings with Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)) and analyze changes in geometry teaching.	*This week, the distribution of learning outcomes by grade level, their limitations, and their relationship with other subjects in the current middle school mathematics curriculum will be discussed. Students will learn how learning outcomes transition across grade levels and how they are implemented in teaching processes. The lecture method will be used to explain the process of determining learning outcomes, and group work will focus on analyzing outcomes at different grade levels.	Ö.Ç.6 Ö.Ç.7 Ö.Ç.8
10.Week	*The distribution, scope, and connections with other subjects of the learning outcomes in the current middle school mathematics curriculum			*This week, the data and probability learning domain will be discussed. Read Chapter 9: A Comparative Overview of Data and Probability Learning Domain in Curricula from the book Middle School Mathematics Curricula. Examine updates in data and probability teaching within the framework of Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)).	*This week, the discussion on the distribution of learning outcomes by grade level, their limitations, and their relationship with other subjects in the current middle school mathematics curriculum will continue. The structuring of learning outcomes across grade levels and their interdisciplinary integration will be explored. The lecture method will be used to provide a theoretical framework, and the application method will involve students creating learning outcomes for a specific topic.	Ö.Ç.6 Ö.Ç.7 Ö.Ç.8

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
11.Week	*The relationship between the middle school mathematics curriculum and the elementary and high school mathematics curricula			*This week, mathematics education in the context of information and communication technologies will be examined. Read Chapter 10: Examination of Middle School Mathematics Curricula in the Context of Information and Communication Technologies from the book Middle School Mathematics Curricula. Compare technology integration in mathematics teaching with Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)).	*This week, the relationship between the middle school mathematics curriculum and the elementary and high school mathematics curricula will be discussed. Ensuring continuity in mathematics education and how students can build upon prior knowledge will be explored. The lecture method will explain the connections between mathematics curricula at elementary, middle, and high school levels, and the comparative analysis method will be used to evaluate how continuity is ensured across different levels.	Ö.Ç.8 Ö.Ç.9
12.Week	*The methods, techniques, tools, and materials used in the current middle school mathematics curriculum			*This week, the role of concrete materials in mathematics teaching will be discussed. Read Chapter 11: Use of Concrete Materials in Middle School Mathematics Curricula from the book Middle School Mathematics Curricula. Analyze how teaching materials are structured within the framework of Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)).	*This week, the methods, techniques, tools, and materials used in the current middle school mathematics curriculum will be examined. Effective teaching methods and the use of technological tools in mathematics education will be analyzed. The lecture method will be used to explain different instructional techniques, hands-on activities will be conducted to explore teaching materials, and students will design their own materials.	Ö.Ç.9 Ö.Ç.10
13.Week	*The assessment and evaluation approach of the current middle school mathematics curriculum			*This week, assessment and evaluation approaches will be examined. Read Chapter 12: Assessment and Evaluation Approaches in Middle School Mathematics Curricula from the book Middle School Mathematics Curricula. Compare past and present assessment methods within the framework of Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)) and analyze current evaluation approaches.	*This week, the assessment and evaluation approach in the current middle school mathematics curriculum will be examined. Students will be introduced to the methods and tools used in the assessment process. The lecture method will explain assessment and evaluation approaches, and through practical activities, students will analyze assessment tools and develop their own evaluation instruments.	Ö.Ç.9 Ö.Ç.10
14.Week	*The teacher competencies adopted in the current middle school mathematics curriculum			*This week, the middle school mathematics curricula will be examined in the context of relational thinking. Read Chapter 13: Examination of Middle School Mathematics Curricula in the Context of Relational Thinking Skills from the book Middle School Mathematics Curricula. Analyze new approaches to relational thinking within the framework of Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)).	*This week, the teaching competencies adopted in the current middle school mathematics curriculum will be discussed. The professional competencies required of mathematics teachers and their adaptation to contemporary teaching approaches will be examined. The lecture method will introduce teacher competencies, and the case study method will be used to analyze successful teaching practices.	Ö.Ç.10 Ö.Ç.11

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
15.Week	*General evaluation of middle school mathematics curricula			*This week, a general evaluation of mathematics curricula will be conducted. Read Chapter 14: The Application of Mathematics and Mathematical Modeling in Middle School Mathematics Curricula from the Declaration of the Republic to the Present from the book Middle School Mathematics Curricula. Compare mathematical modeling processes with the past within the framework of Current Mathematics Curricula (Ministry of National Education, Türkiye Century Maarif Model (https://tymm.meb.gov.tr/ogretim-programlari)) and evaluate their contribution to mathematics curricula.	*This week, the overall evaluation of the middle school mathematics curriculum will be conducted. A comprehensive analysis of the strengths and areas for improvement in the curriculum will be presented to students. The lecture method will be used to review the core components of the curriculum, and group activities will allow students to assess specific aspects of the program and develop alternative suggestions.	Ö.Ç.9 Ö.Ç.10 Ö.Ç.11

Assesment Methods %

1 Ara Sınav : 40.000

4 Final : 0.000

5 Ödev : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	1.00	1.00
Ara Sınav Hazırlık	7	2.00	14.00
Ders Öncesi Bireysel Çalışma	14	3.00	42.00
Derse Katılım	14	2.00	28.00
Ödev	7	2.00	14.00
Rapor	1	1.00	1.00
		Total :	100.00
		Sum of Workload / 30 (Hour) :	3
		ECTS :	3.00

Program And OutcomeRelation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O.
L.O. 1	4	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 2	5	0	0	5	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 3	0	0	0	0	5	0	0	4	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0
L.O. 4	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0
L.O. 5	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 6	4	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 7	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 8	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 9	4	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 10	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0
L.O. 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	5	0	0
Avarage	2.64	0	0.36	0.82	0.45	2.18	0.36	1.55	0	0.82	0	0.36	0.36	0	0.36	1.45	0	0.36	0	0	0	0.45	0	0

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

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