

COURSE OUTLINE

(1) GENERAL

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| SCHOOL | School of Humanities | | |
| ACADEMIC UNIT | Department of Sciences of Preschool Education and Educational Design Postgraduate Studies Programme, Children's Book and Educational Material | | |
| LEVEL OF STUDIES | Postgraduate Studies (Level 7) | | |
| COURSE CODE | MK5 | SEMESTER | A' |
| COURSE TITLE | Children's Book, Educational Material and Mathematics | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i> | | | |
| | 3 | 6 | |
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| <i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i> | | | |
| COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i> | Special background | | |
| PREREQUISITE COURSES: | None | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS: | Greek | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | No | | |
| COURSE WEBSITE (URL) | https://pms-pvpy.aegean.gr/en/mathimata-kormou/ | | |

(2) LEARNING OUTCOMES

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| <p>Learning outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B • Guidelines for writing Learning Outcomes |
| <ul style="list-style-type: none"> -To develop the ability to recognize and read Mathematics in children's books and educational materials - To recognize basic principles of learning and teaching of school mathematics in children's books and educational material - To know and apply methods of analysis of mathematical texts using appropriate methodological tools -To develop the ability to evaluate the role of Mathematics in children's books and educational materials |
| <p>General Competences</p> <p><i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma</i></p> |

Supplement and appear below), at which of the following does the course aim?

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| Search for, analysis and synthesis of data and information, with the use of the necessary technology | Project planning and management |
| Adapting to new situations | Respect for difference and multiculturalism |
| Decision-making | Respect for the natural environment |
| Working independently | Showing social, professional and ethical responsibility and sensitivity to gender issues |
| Team work | Criticism and self-criticism |
| Working in an international environment | Production of free, creative and inductive thinking |
| Working in an interdisciplinary environment | |
| Production of new research ideas | Others... |
| | |

- Adapting to new situations
- Production of free, creative and inductive thinking
- Respect for difference and multiculturalism
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Working independently
- Team work
- Working in an interdisciplinary environment
- Criticism and self-criticism

(3) SYLLABUS

The purpose of the course is to understand the distinct image of mathematics and the different readings of its content in texts intended for education and in literary texts.

1. Introduction to the recognition and readability of Mathematics in educational and literary books
2. Contemporary theoretical approaches to the nature, learning and teaching of school mathematics
3. Methods of analysis of mathematical texts intended for educational materials (school textbooks)
4. Interactions of Mathematics and Literature and their relationship with education

(4) TEACHING and LEARNING METHODS - EVALUATION

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| DELIVERY <i>Face-to-face, Distance learning, etc.</i> | Face-to-face | |
| | Distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i> | Use of ICT in teaching, communication with students, in laboratory practice of texts' analysis | |
| TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i> | Activity | Semester workload |
| | Lectures (18 hours) | 27 hours |
| | PPT's production and presentation of analysis of bibliography (12 hours) | 54 hours |
| | Laboratory practice (6 hours) | 18 hours |
| | Preparation and writing of individual and group work (final report) | 51 hours |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | | |

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| <p><i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p> | <ul style="list-style-type: none"> -Greek language -Formative evaluation -Individual written work -Public presentation of group work (two presentations) -Final report <p>The use of GenAI tools within the context of the course is governed by Senate Decision No. 45/20.02.2026 of the University of the Aegean, as well as by the specific guidelines provided by the teaching staff member. The teaching staff member determines the applicable level of GenAI use (1–5) for the course, along with the conditions for its permissible use and disclosure and informs students accordingly at the beginning of the semester.</p> <p>The GenAI usage policy may vary from one academic year to another and/or between courses, depending on the learning objectives and requirements of each course.</p> |
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(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Boaler, J. (1999). Participation, knowledge and beliefs: a community perspective on mathematics learning. *Educational Studies in Mathematics, 40*, 259-281.
2. Dowling, P. (1996). A sociological analysis of school mathematics texts. *Educational Studies in Mathematics, 31*, 389-415.
3. Fan, L. & Zhu, Y. (2007). Representation of problem-solving procedures: A comparative look at China, Singapore, and US mathematics textbooks. *Educational Studies in Mathematics, 66*, 61-75.
4. Fan, L. Xiong, B., Zhao, D. & Niu, W. (2018). How is cultural influence manifested in the formation of mathematics textbooks? A comparative case study of resource book series between Shanghai and England. *ZDM, 50*, 787-799.
5. Newton, D. & Newton, L. (2006). Could elementary mathematics textbooks help give attention to reasons in the classroom? *Educational Studies in Mathematics, 64*, 69-84.
6. Österholm, M. (2005) Characterizing Reading Comprehension of Mathematical Texts. *Educational Studies in Mathematics, 63*, 325-346.
7. Wijaya, A., van den Heuvel-Panhuizen, M. & Doorman, M. (2015). Opportunity-to-learn context-based tasks provided by mathematics textbooks. *Educational Studies in Mathematics, 89*, 41-65.
8. Καφούση, Σ. & Σκουμπουρδή, Χ. (2008). *Τα μαθηματικά των παιδιών 4-6ετών. Αριθμοί και χώρος*. Εκδόσεις Πατάκη, Αθήνα.
9. Καφούση, Σ., Σκουμπουρδή, Χ. & Τάτσης, Κ. (2009). Αναλύοντας ένα σχολικό εγχειρίδιο των Μαθηματικών: η περίπτωση της Α΄ Δημοτικού. *Ευκλείδης Γ΄, 71*, 42-62.
10. Καφούση, Σ. & Χαβιάρης, Π. (2013). *Σχολική τάξη, οικογένεια, κοινωνία και μαθηματική εκπαίδευση*. Εκδόσεις Πατάκη, Αθήνα.
11. Κολέζα, Ε. (2017). *Θεωρία και πράξη στη διδασκαλία των μαθηματικών*. Εκδόσεις Gutenberg, Αθήνα.
12. Τάτσης, Κ. & Σκουμπουρδή, Χ. (2009). Μελέτη του Πλαισίου των Δραστηριοτήτων του Σχολικού Εγχειριδίου των Μαθηματικών της Α΄ Δημοτικού. *Πρακτικά 3^{ου} Συνεδρίου Εν.Ε.Δι.Μ. Πανεπιστήμιο Αιγαίου, Ρόδος*.
13. Davis, P. J. & Hersh, R. *Η μαθηματική εμπειρία*. Εκδόσεις Τροχαλία
14. Van de Walle, J. et al. (2017). *Μαθηματικά από το Νηπιαγωγείο ως το Γυμνάσιο*. Επιμ. Τ. Α. Τριανταφυλλίδης. Εκδόσεις Gutenberg, Αθήνα.
15. Απόστολος Δοξιάδης. *Ο Θείος Πέτρος και η εικασία του Γκόλντμπαχ*. Εκδόσεις Καστανιώτη
16. Τεύκρος Μιχαηλίδης. *Αιχμές, ο γιος του φεγγαριού*. Εκδόσεις Πόλις

17. Edwin Abbott. *Flatland: η Επιπεδοχώρα*, Μτφ. Φωτεινή Μοράκη. Εκδόσεις Αιώρα
18. Ντενί Γκετζ. *Το θεώρημα του παπαγάλου*, Μτφ. Τεύκρος Μιχαηλίδης. Εκδόσεις Πόλις
19. Carlo Frabetti. *Καταραμένα μαθηματικά : Η Αλίκη στη χώρα των αριθμών*, Μτφ Κρίτων Ηλιόπουλος. Εκδόσεις Opera
20. Ogawa Yoko. *Ο αγαπημένος τύπος του καθηγητή*, Μτφ .Παναγιώτης Ευαγγελίδης. Εκδόσεις Άγρα

- *Related academic journals:*

Euclid c (in Greek)

Research in Didactics of Mathematics (in Greek)

Educational Studies in Mathematics (ESM)

For the learning of mathematics (FLM)

International Electronic Journal of Mathematics Education (IEJME)

International Journal for Mathematics in Education (HMS i JME)

Journal of Mathematics Teacher Education (JMTE)

Journal for Research in Mathematics Education (JRME)

Journal of Research in Mathematics Education (REDIMAT)

ZDM Mathematics Education (ZDM)