# 1. OVERVIEW

FACULTY	FACULTY OF HUMANITIES AND SOCIAL SCIENCES					
SECTION	DEPARTMENT OF PRIMARY EDUCATION					
LEVEL OF STUDY	UNDERGRADUATE					
COURSE TITLE						
Lesson Design and Implementation in Primary School Mathematics						
COURSE CODE	MA1305	SEMESTER	5, 7			
HOURS per WEEK	3	ECTS	4			
COURSE CATEGORY	Elective	COURSE TYPE	Scientific area			
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	Modern Greek	PREREQUISITES	MA0303			
OFFERED TO ERASMUS	YES	ECLASS PAGE	https://eclass.uth.gr/courses/PRE_U_233/			

# 2. LEARNING OUTCOMES

#### Learning Outcomes

Upon successful completion of the course, students are expected to:

After completing the course, students should be aware that in preparing a lesson in mathematics, a teacher relies on a wide range of knowledge. Knowledge of the subject matter of mathematics and pedagogy, as well as the teacher's beliefs about mathematics itself, the general aims of the mathematics curriculum, and the way in which it should be taught, constitute the teacher's foundational knowledge. In addition, students will have practiced the transformation of this foundational knowledge, through the selection of teaching tools, representations and examples, into pedagogically powerful forms that will support the learning of the content of the teaching. Finally, students will be able to design mathematics lessons, as well as to implement and evaluate these lessons.

General Competencies

Data and information search, analysis and synthesis, using IT as needed

Adaptability to new situations

**Decision-making** 

Teamwork

Respect for diversity and multiculturalism

Demonstration of social, professional and moral responsibility and sensitivity to gender issues

Critical and self-critical thinking

### 3. CONTENT

The palette of teacher knowledge and mathematics education.

Unpacking Pedagogical Content Knowledge: the Shulman theoretical framework for teacher knowledge.

Knowledge Quartet: Rowland's theoretical framework for teacher knowledge in mathematics.

The shift from what teachers know to what teachers do in the mathematics classroom: Ball's theoretical framework for teacher knowledge in mathematics.

Lesson study as a practice for improving teaching and learning in mathematics.

Applying lesson study in mathematics to the preparation and implementation of teaching experiments in the primary school. Evaluation of teaching experiments

### 4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING MODE	In person
USE OF ICT	Teaching and learning: Slide show / specialized applications

	Laboratory Training: use of computer				
	Communication: Webmail / eClass / MSteams				
COMPULSORY ATTENDANCE	NO MAXIMUM NUMBER OF ABSENCES:				
TEACHING ORGANIZATION	Activity		Semester Workload (hours)		
	Lectures	15			
	Tutorial	15			
	Laboratory exercise	25			
	Literature study & analysis	30			
	Portfolio	25			
	Course total	110			
EVALUATION					
	Туре	Format	Weighting		
	Intermediate written	Open-Ended Questions	10%		
	examination (mid-term)				
	Written assignment / report / performance / portfolio		80%		
	Public presentation / viva		10%		
		mathed / Evolution establish			
	Description of other evaluation method / Evaluation criteria:				
	The language of the assessment, as well as of the course, is Modern Greek.				
	Preparation of short essays during the semester (participation is compulsory)				
	Preparation, implementation and evaluation of teaching scenarios in mathematics.				
	The assessment procedure is announced in the first meetings of the course as well as in the online classroom .				

# 5. RECOMMENDED BIBLIOGRAPHY

Core textbooks (available through the *Eudoxus* service)

Other books / Notes

Scientific journals

Research in Mathematics Education (https://ejournals.epublishing.ekt.gr/index.php/enedim)

### **Scientific articles**

L., & Forzani, F. M. (2009). The Work of Teaching and the Challenge for Teacher Education. Journal of Teacher Education, 60: 497-511. (DOI: 10.1177/0022487109348479)

Robinson, N. & Leikin, R. (2012). International Journal of Science and Mathematics Education, 10: 139. (DOI: 10.1007/s10763-011-9282-3)

Fernandez, C. (2002). Learning from Japanese Approaches to Professional Development. Journal of Teacher Education, 53: 393-405. (DOI: 10.1177/002248702237394)

Rowland, T., & K. Ruthven (Eds) (2011). Mathematical Knowledge in Teaching. Springer: Netherlands.

Rowland, T., Turner, F., Thwaites, A., & P. Huckstep (2009). Developing Primary Mathematics Teaching Reflecting on Practice with the Knowledge Quartet. New Delhi: Sage Publications Ltd.

Rowland, T., Huckstep, P., & A. Thwaines (2005). Elementary teachers' mathematics subject knowledge: the knowledge quartet and the case of Naomi. Journal of Mathematics Teacher Education, 8: 255–281. (DOI 10.1007/s10857-005-0853-5).

Other

https://app.dwo.nl/wisweb/?header=less&hash=#s:603083

https://mathigon.org/activities

https://polypad.amplify.com/

https://illuminations.nctm.org/

https://nrich.maths.org/

http://photodentro.edu.gr/aggregator/