

**STUDY GUIDE**

POSTGRADUATE PROGRAM

**« *Educational Studies and New Technologies* »**

DEPARTMENT OF PRIMARY EDUCATION

UNIVERSITY OF WESTERN MACEDONIA

**2019-2020**

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## **Information on the history and the aims of the *Programme***

The Postgraduate Programme of the Department of Primary Education in Florina was established in 1995 (Government Gazette 482 / 31-5-95). The Program was designed to serve the needs of teachers and those professionals – scientists with an interest on educational issues.

After four years of operation, the first formal amendment was made in 2000 (Government Gazette No. 938 / 28-07-2000). This amendment led to the creation of two directions: 1) School Pedagogy and 2) Humanities (Language - History - Culture). The first semester of studies included four courses, common for both directions, regarding research methodology as well as basic courses of the Master's Degree in Education. Efforts have been made to make Information Technologies a key feature of the revised programme. Therefore in the 2<sup>nd</sup> and 3<sup>rd</sup> semester one of the three courses offered was on Information Technologies. It was a common course in both directions. Fourteen (14) students were admitted, seven (7) in each direction. The exams were different for the direction courses and joint for the disciplines of Pedagogy and Foreign Language. Success in foreign language exams is considered a prerequisite for taking other exams.

In 2005 there was another amendment to the Postgraduate Programme (Government Gazette No. 1660 / 29-11-2005) as a third direction, entitled "Sciences", was added to the other two existing ones. This direction aimed to fill a gap as far as specialization offered in Sciences is concerned. Eighteen (18) students are admitted, 6 in each direction, by taking different exams.

The candidates and postgraduate students are mainly unemployed teachers and in-service teachers in the Sector of Primary and Secondary Education. They are graduates of the Departments of Primary or Pre-Primary Education or graduates of other departments of Teacher Education (eg. Language and Literacy Departments, Foreign Languages Departments, Mathematics, Biology, Physics, etc.). The last amendment/reform to the Postgraduate Programme was made in 2009 (Government Gazette No. 284 / 17-02-2009). It mainly concerned the Master's Degree title as well as the titles of the directions offered, as follows:

Master's Degree:

Postgraduate Diploma of Specialization in Education Sciences:

- Pedagogy and Information Technologies
- Humanities and Information Technologies
- Sciences and Information Technologies

Duration: 4 academic semesters

The Postgraduate Programme of the Department of Primary Education of the University of Western Macedonia in Florina aims at training scientists and researchers in the field of Education Sciences, focusing on the areas of research and the application of Information Technologies in Education. It provides postgraduate students with opportunities to specialize in the following sectors:

1. Pedagogy and Information Technologies (Modern/Innovative Teaching Methods , Teacher Training, Educational Policy, Educational Leadership and Management).
2. Humanities and Information Technologies (Language -History - Culture).
3. Sciences and Information Technologies (Mathematics-Physics).

Graduates could be employed in a number of professional fields related to education. In addition, the Postgraduate Programme aims at training executives in curricula development, designing educational policies, as well as undertaking counseling and educational management tasks.

## **Regulation of the Postgraduate Study Programme**

The Department of Primary Education of the University of Western Macedonia organizes and runs the Postgraduate Programme of Studies titled "Education Sciences and Information Technologies" since the academic year 2018-2019. The following directions are offered: a) "Pedagogy and Information Technologies", b) "Humanities and Information Technologies", c) "Sciences and Information Technologies", according to the provisions of the amended and valid Law 4485/2017.

The Postgraduate Programme is run by the Department of Primary Education of the University of Western Macedonia. It has been operating since the academic year 1995-96, according to the Government Gazette no. 482 / 31-5-1995 and resumed its operation with the Government Gazette No: 938 / 28-7-2000, 1660 / 20-11-2005, 284 / 17-2-2009 and 1409 / 3-6; 2014.

### **Purpose – Duration**

According to article 30 of Law 4485 par. a & b, the academic programmes aim "to further promote knowledge, contribute to the development of research and the arts, as well as to the satisfaction of educational, research, social, cultural, educational and developmental needs of the country, by training high-level scientists capable of contributing to the theoretical and applied areas of specific disciplines, specific thematic units or sub-disciplines of the first cycle of studies of their Departments".

#### **1. Scope of the Postgraduate Programme**

The scope of the Postgraduate Programme "Education Studies and Information Technologies" of the University of Western Macedonia, Florina, Greece (UOWM) is to provide specialized training to professionals-scientists-researchers in the field of Education. They will be able to design, evaluate and use innovative learning environments by utilizing Information Technologies. The term "technologies" describes both analogue and digital technologies and refers to the dynamic introduction and utilization of technologies that can meet the modern needs of holistic, innovative teaching and learning environments, both in formal and informal education.

#### **2. Purpose of the Postgraduate Programme**

The purpose of the Postgraduate Programme "Education Sciences and Information Technologies" of the UOWM is the cultivation and promotion of knowledge and research, concerning the design of holistic innovative learning environments and educational

practices. Moreover, it aspires to provide postgraduate students with specialized knowledge in order to become critical teachers, capable of responding to the needs originating from the use of the Information Technologies, as well as to the innovative pedagogical principles that support them.

### **3. Specialization/ expertise and aims**

The Postgraduate Programme of the Department of Primary Education, UOWM provides students with the opportunity to specialize in three directions:

#### **1) Pedagogy and Information Technologies.**

The aim of this direction of specialization is to promote research on the pedagogical specific context and the educational principles that can support teaching and learning, by utilizing Information Technologies. The research interest is also focused on two sectors: teacher education and organization/management of education.

#### **2) Humanities and Information Technologies.**

The aim of this direction of specialization is to promote research on learning and teaching subjects related to humanities, by utilizing Information Technologies.

#### **3) Sciences and Information Technologies.**

The aim of this direction of specialization is to promote research on learning and teaching of subjects related to Sciences, by utilizing Information Technologies.

More specifically, the Postgraduate Programme awards a Postgraduate Diploma (Master's Degree) entitled "Education Studies and New Technologies" in the following directions/ fields of expertise:

1. Pedagogy and Information Technologies ((Modern/Innovative Teaching Methods , Teacher Training, Educational Policy, Educational Leadership and Management)).
2. Humanities and Information Technologies (History - Culture).
3. Sciences and Information Technologies (Mathematics-Physics).

More specifically, the holders of Master Degree in " Education Studies and New Technologies" of the UOWM should be able to:

- utilize fundamental learning theories related to individual and collaborative learning, in formal and informal learning environments, as well as related to lifelong learning
- apply modern approaches to teaching design by using information technologies
- apply research data and innovative approaches to their teaching practice

- design action research and share the results of their research to the educational community
- utilize a number of educational technology tools
- recognize and highlight the role of information technologies in different educational and social contexts
- discuss and negotiate learning and teaching processes and their effect on education when information technologies are integrated
- expand in theoretical and practical issues regarding the fields of Sciences, Humanities and Education
- critically reflect on the research data in their field of expertise
- develop and evaluate educational material concerning a variety of learning tasks in their field of expertise
- research educational issues by considering their sociological, psychological and philosophical perspectives.

The Postgraduate Programme will be operating from the academic year 2018-2019 on for five (5) years. After that time the possibility of continuing its operation will be examined in accordance with the provisions of paragraph 8 of article 32 of Law 4485/2017 (Government Gazette 114 / v. A').

## Master Degree

The Postgraduate Programme awards a Master's Degree entitled "Education Studies and New Technologies" in the following fields of expertise:

1. Pedagogy and Information Technologies ((Modern/Innovative Teaching Methods , Teacher Training, Educational Policy, Educational Leadership and Management).
2. Humanities and Information Technologies Language -(History - Culture).
3. Sciences and Information Technologies (Mathematics-Physics).

## Postgraduate Programme's Administration

(Articles 31, 44 and 45 of the Law 4485/2017)

The bodies responsible for the administration, organization and operation of the Postgraduate Programme are:

- I. **The Senate of the Institution** is the body responsible for the academic, administrative, organizational and financial affairs of the Postgraduate Programme.
- II. **The Assembly of the Department** holds the powers specified in paragraph 3 of the article 31 according to the Law 4485/2017.

- III. The Coordinating Committee (CC)** of the Postgraduate Programme consists of five (5) members, Academic Staff of the Department. Those members are elected by the Assembly of the relevant Department for a two-year tenure. The CC is responsible for monitoring and coordinating the operation of the Postgraduate Programme. The Director of the Postgraduate Programme chairs the CC and his/ her tenure may be renewed once. Upon the expiry of his/ her tenure, the Board of Directors, under the responsibility of the outgoing Director, compiles a detailed report of the research and educational work of the Postgraduate Programme. It also concludes its supplementary activities, with the aim of upgrading postgraduate studies, utilizing human resources, optimizing existing infrastructure and using the available resources in a beneficial way (Article 44, par. 2).
- IV. The Postgraduate Studies Committee.** The proposal of the Assembly of the Department is forwarded to the Senate through the Postgraduate Studies Committee, responsible for considering its appropriateness and fullness. In case the proposal is found to be incomplete, it is resubmitted to the Assembly (Article 32, par. 5).
- V. The Director of the Postgraduate Program** is a member of the Academic Staff, in the ranks of a Professor or an Assistant Professor, of the same or a related subject. S/he is nominated together with his/ her deputy, according to the decision of the Assembly of the Department for a two-year tenure and should meet the requirements of par. 8, Article 31 of the Law 4485/2017. The Director, who is also a member and the Chair of the Coordinating Committee, may not hold his/ her position for more than two (2) consecutive times and is not entitled to any additional remuneration for his/ her administrative work.
- VI. The Scientific Advisory Committee (SAC)** is responsible for the external academic evaluation of the Postgraduate Programme (par. 3, Article 44 of the Law 4485/2017).

## **Candidates**

**(Article 34 par. 1, 7 and 8 of the Law 4485/2017)**

The Candidates, in order to be accepted in the Postgraduate Programme "Education Sciences and Information Technologies", must hold a degree of Tertiary Education Institutions in Greece or abroad. Graduates of Departments of Technological Institutions may also be accepted if the subject of their studies is related to Education Sciences. Degrees held in foreign countries should be certified by DOATAP (Hellenic National Academic Recognition Information Center) regarding their equivalence and correspondence. Greek language proficiency for applicants from other countries is certified when: a) the candidate has completed upper Secondary Education in Greece or attended a Greek-speaking school abroad; b) holds a degree in Greek Language and Literature by an equivalent Institution abroad c) has completed a full cycle of undergraduate studies in Greek Tertiary Education or in a Greek Technological Institution or has a certificate of successful attendance of at least two (2) years in a Greek Tertiary Education Institution and d) holds a Greek language



proficiency certificate from an institution recognized by the state concerning the provision of such certificates to foreigners.

### **Number of candidates admitted**

**(Articles 34 and 45 of the Law 4485/2017)**

The maximum number of candidates admitted, per year, to the program is thirty (30). Members of the Special Education Staff, the Laboratory Teaching Staff and Special Technical Laboratory Staff, may be registered as supernumerary ones, provided that they meet the requirements of the first subparagraph of par. 1, Article 34. Only one person per year can be admitted, provided that they serve in the relevant Department that runs the Postgraduate Programme.

Candidates may also be graduates who have successfully completed their undergraduate studies before the expiration of the deadline for enrollment and meet all the requirements for admission to the Postgraduate Programme. The maximum number of postgraduate students is three (3) per tutor (article 45, par. 1b of the Law 4485/2017).

### **Duration of studies and students' obligations**

**(Articles 33, 34 and 45 of the Law 4485/2017)**

1. The Programme lasts for four (4) semesters, including the time for composing master dissertation. The maximum time allowed upon the completion of studies is double (8 semesters).
2. In exceptional cases, based on a decision made by the Assembly of the Department, it can be allowed to suspend course attendance for a period not exceeding two (2) consecutive semesters. Suspension time is not counted up to the maximum duration of studies. Upon completion of the suspension, the graduate student is obliged to attend all courses, seminars, etc. for which s/he has not been successfully assessed prior to his suspension.
3. The Assembly of the Department takes decisions on review issues of the courses or deletions, upon the proposal of the CC.
4. Some of the reasons for cancellation may be the following:
  - inadequate progress of the student (failure to participate in the educational process, attendance of courses and examinations)
  - failure to fulfill other obligations as outlined in the present Study Guide (exceeding the maximum study time)
  - an application made by the postgraduate student himself/ herself
  - behavior that violates academic ethics, e.g. plagiarism.
5. Postgraduate students are provided with:

- An academic identity
- An email account at the Department of Primary Education, UOWM
- Access to an electronic database, to which the UOWM subscribes (Hellenic Academic Libraries Association)

The Department has to provide postgraduate students with disabilities or special educational needs with facilities in order to be able to uneventfully study at the Postgraduate Programme.

#### Postgraduate Students' Obligations

Postgraduate students enrolled in the Programme are expected to:

- Regularly attend the courses and activities of the current curriculum.
- Submit the required course work within the given deadlines
- Respect the decisions made by the bodies of the Postgraduate Programme, as well as the academic ethics
- Participate in educational activities, conferences, workshops, symposia etc. organized by the Postgraduate Programme
- Participate in colloquia (at least 15 during their 2 years of study), where dissertations are presented
- Students who received a scholarship are also obliged to provide supportive work in courses, workshops, research according to the decision made the Assembly of the Department.

## **Modules and Assessment**

**(Articles 34 and 45 of the Law 4485/2017)**

A total of one hundred twenty (120) ECTS is required upon the successful completion of the Postgraduate Programme "Education Sciences and Information Technologies". The Programme lasts for four (4) academic semesters. More specifically, thirty (30) ECTS are credited for the modules of each semester -1st, 2nd and 3rd semester- and thirty (30) (ECTS) upon the successful completion of the master dissertation. Each module corresponds to 26 teaching hours and a workload of 7.5 study hours or 10 ECTS. The lectures of the Programme are given in either Greek or English. The master dissertation can be written either in Greek or in English.

The modules taught per semester are the following:

## Modules of the Postgraduate Programme

### 1<sup>st</sup> Semester

Modules offered in all directions

Order Number	Compulsory Modules	Semester	ECTS
1	Methodology of Educational Research	1 <sup>st</sup>	7,5
2	Dynamic Teaching Methods	1 <sup>st</sup>	7,5
3	Applied Statistics	1 <sup>st</sup>	7,5
4	Psychological aspects of learning	1 <sup>st</sup>	7,5
<b>Total</b>			<b>30</b>

### 2<sup>nd</sup> Semester

#### A) Pedagogy and Information Technologies

Order Number	Specialization Modules	Semester	ECTS
1	ICT in Education	2 <sup>nd</sup>	10
2	Cognitive Science and Technology	2 <sup>nd</sup>	10
3	Teacher Education in ICT	2 <sup>nd</sup>	10
<b>Total</b>			<b>30</b>

#### B) Humanities and Information Technologies

Order Number	Specialization Modules	Semester	ECTS
1	ICT in Education	2 <sup>nd</sup>	10
2	History and History Teaching : non-formal forms of education	2 <sup>nd</sup>	10
Specialization Modules (students are required to choose one of the two courses)			
3	Teaching approaches in Language and Literature based on critical Literacy	2 <sup>nd</sup>	10
4	The pedagogical current affairs	2 <sup>nd</sup>	10

	of the Fathers' thought		
Total			30

C) Sciences and Information Technologies

Order Number	Specialization Modules	Semester	ECTS
1	ICT in Education	2 <sup>nd</sup>	10
2	Research and Teaching in Sustainable Education with ICT	2 <sup>nd</sup>	10
3	Teaching and Learning Science on Innovative Research Issues	2 <sup>nd</sup>	10
Total			30

**3<sup>rd</sup> Semester**

Modules offered in each direction

A) Pedagogy and Information Technologies

Order Number	Specialization Modules	Semester	ECTS
1	Design, development and evaluation of educational technologies	3 <sup>rd</sup>	10
2	Information and Communication Technologies in Educational Management	3 <sup>rd</sup>	10
3	Innovative institutions in Education	3 <sup>rd</sup>	10
Total			30

B) Humanities and Information Technologies

Order Number	Specialization Modules	Semester	ECTS
1	Design, development and evaluation of ubiquitous educational technologies	3 <sup>rd</sup>	10
2	Innovative language teaching approaches in multilingual/multicultural environments	3 <sup>rd</sup>	10
3	Research and Teaching Issues on history and culture	3 <sup>rd</sup>	10
Total			30

C) Sciences and Information Technologies

Order Number	Specialization Modules	Semester	ECTS
1	Design, development and evaluation of ubiquitous educational technologies	3 <sup>rd</sup>	10
2	Epistemology and History of Exact Sciences	3 <sup>rd</sup>	10
3	Mathematics Education and ICT Use	3 <sup>rd</sup>	10
Total			30

After a reasoned decision made by the Assembly of the Department (description of the teaching method and means), part of the Programme may be carried out by distance learning (up to 35% of the courses taught).

The Winter Semester starts at the beginning of October while the Spring Semester at the end of February. Every semester lasts for thirteen (13) full weeks. Courses are taught on weekdays' afternoons at the University of Western Macedonia premises. Courses may be also taught on Saturday and/ or Sunday, after decision of the Assembly of the Department.

The curriculum may be modified and redistributed based on the decision made by the Assembly of the Department.

### **Article 8**

#### **Postgraduate students' assessment**

Students are assessed by the tutor of each of the courses offered in the manner s/ he has assigned prior to the beginning of the lectures (exams, assignment ora combination of the aforementioned). Performance is evaluated on a scale of 1-10 (5 is the minimum passing grade). A student failing to pass the exam/ assignment retakes the exam/ resubmits the assignment in September.

A postgraduate student failing the exam, therefore considered not to have successfully completed the Programme with respect to the principles outlined in the Studies Guide, shall, upon his/ her request, be examined by a three-member board consisting of academic staff members, set after a decision made by the Assembly of the Department. Their field of expertise should be the same or related to the subject under consideration. The examiner is excluded from this Committee (Article 34, par. 6).

Tutors are obliged to make the results of the students' exams or assignments available to students in no later than thirty (30) days after the exam/ assignment submission.

Postgraduate students are obliged to attend the lectures and perform other tasks, as specified for each of the courses offered. In case of absence for more than 8 teaching hours per course, whether the student's absence is justified or not, the Assembly of the Department decides if the student is to repeat the course or even to be excluded from the Postgraduate Programme.

## Master's Dissertation

1. At the beginning of the 3<sup>rd</sup> Semester and after having successfully completed all the modules, the student submits an application to the Assembly of the Department in order for his/ her dissertation topic and the supervisor of his/her dissertation to be approved. Supervisors should be members of the academic staff who have full- or part-time award to the Postgraduate Programme. The supervisor is responsible for monitoring the progress of the work, as well as evaluating if the objectives and specifications of the research are met.
2. **The field of expertise of the three-member board should be in the same or relevant field to the subject of the Dissertation.**
3. The dissertation may be submitted in a foreign language, upon the agreement with the supervisor and the approval of the Assembly of the Department.
4. The subject of the dissertation can be changed within four months after its approval, following a decision made by the Assembly of the Department and a reasoned recommendation on the part of the supervisor. Changing the subject of the postgraduate dissertation does by no reason entail the extension of the abovementioned deadlines. In exceptional cases, if there is an objective weakness or a significant reason, the supervisor or a member of the three-member selection board may be replaced, following a decision of the Assembly of the Department in question.
5. The length of the dissertation should be between 20,000 and 25,000 words. The dissertation requirements are determined in accordance with the dissertation writing guide of the Postgraduate Programme. Upon completion of the writing process and its approval and acceptance by the three-member assessment board, a timescale is set for: a) the final evaluation from the part of the three-member board, b) the oral presentation of his/ her research work at a viva presentation meeting.
6. Upon submission of the master dissertation the student is responsible for its writing as well as for plagiarism. Plagiarism is considered as the action where the contents of someone's work, published or not, are partially or fully copied or used, without proper, precise and clear reference to the source. The use of documentation material, even derived from studies of the candidate himself, without any relevant, precise and clear reference is also considered as plagiarism. Plagiarism is a serious academic offense. In cases of plagiarism, following a reasoned recommendation made by the supervisor, the Assembly of

the Department may decide to permanently delete the candidate from the Postgraduate Programme.

7. The minimum time for the submission of the postgraduate dissertation is five (5) months after the beginning of the fourth semester.
8. The maximum time for submitting the postgraduate dissertation is twelve (12) months after the beginning of the fourth semester. In special cases, upon request of the student concerned and upon the Assembly's approval, there could be an extension for one (1) year. In any case should this time be extended for more than the maximum time allowed for the completion of the studies.
9. The viva presentations take place during the end of the three examination periods (March, June and November of each academic year).
10. Following its approval by the three-member board, the dissertation should definitely be posted on the Faculty's website and the IKEE (Hellenic Institutional Repository of Scientific Works) of the University of Western Macedonia (<https://dspace.uowm.gr/gr>).
11. The overall grade of the Master's Degree is calculated on a 10-scale, as the weighted average of the grades achieved for each module and the postgraduate dissertation (weighting coefficients are calculated). The grade awarded is: "Excellent" (8.5-10), "Very Good" (6.5-8.49) and "Good" (5-6.49).

## Teaching Staff

The academic staff that teaches at the Postgraduate Programme is assigned by the Assembly of the Department of Primary Education. The criteria for the selection of the tutors are based upon the relevance of their field of expertise, their experience, their teaching and their research work relevant to the modules of the Postgraduate Programme.

## Parallel educational and research activities

During the Postgraduate Programme, in addition to the teaching courses, parallel educational and research activities, such as lectures, conferences etc. may take place. A certificate is issued for the participants attending the parallel educational activities of the Programme.

## Description of the Modules

### *1<sup>st</sup> Semester*

<b>Course Title</b>	<b>Methodology of Educational Research</b>
<b>Name of the tutor</b>	<b>EleniTsakiridou</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	1 <sup>st</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10 ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Bibliographic study and analysis: 50-60 hours (2 ECTS) Research/ field study: 30 hours (1 ECTS) Preparing for and writing a short assignment: 45-60 hours (2 ECTS) Preparingfor, writing and presenting one's assignment/ research work: 100-120 hours (4 ECTS)
<b>Educational Results</b>	<p>This course is an introductory one concerning Educational Research and Educational Research Methodology.</p> <p>Students become aware of and are able to understand issues of Educational Research Methodology, utilizing and enhancing knowledge acquired during their core studies. At the same time, they gain the basic knowledge and opportunities to originally develop and implement ideas through research activity required in the course. They also</p>



	<p>come up with the latest developments in research methods and their use in Education. In particular, students learn the key elements of the research process, as well as to clearly identify the research subject and research questions, and select the appropriate research data. They also gain insights into the structure of scientific work and the bibliographic search for it.</p>
<b>General skills</b>	<p>Searching, analyzing and synthesizing data and information, utilizing the appropriate Information Technologies. Adaptation to new situations. Decision making. Independent work. Working in groups. Working in an interdisciplinary environment. Generation of new research ideas. Research planning and management. Evaluation and self-evaluation. Promoting free, creative and inductive thinking.</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<p>The aim of this course is to introduce graduate students to basic concepts of quantitative research methods in order they to be able to: a. be familiar with basic methods for collecting and processing research data; b. be able to present research results; c. be able to study and understand scientific papers based on research results; and d. be able to follow scientific developments in educational research in Special and General Education.</p>
<b>Assessment methods</b>	<p>Participating during lectures and keeping a “learning journal” (10%)</p> <p>Assessment of a short synthesis assignment (10%)</p> <p>Assessment of an individual’s assignment at the end of the semester (80%)</p>
<b>Indicative bibliography</b>	<ol style="list-style-type: none"> <li>1. Babbie, E. (2011). Εισαγωγή στην Κοινωνική Έρευνα, Αθήνα: Κριτική.</li> <li>2. Creswell, W. J. (2011). Η Έρευνα στην Εκπαίδευση. Σχεδιασμός, Διεξαγωγή και Αξιολόγηση της Ποσοτικής και Ποιοτικής Έρευνας, Αθήνα: Ίων.</li> <li>3. Fairclough, N. (2003). Analyzing Discourse: Textual Analysis for Social Research. London: Routledge.</li> <li>4. Miles, M. &amp; Huberman, M. (1994). Qualitative Data Analysis. London: SAGE publications.</li> <li>5. Morrison, K., Manion, L. &amp; Cohen, L. (2008). Μεθοδολογία Εκπαιδευτικής Έρευνας, Αθήνα: εκδ. Μεταίχμιο.</li> </ol>

6. Rainer Schnell, Paul B. Hill & Elke Esser, Μέθοδοι εμπειρικής κοινωνικής έρευνας, Αθήνα Εκδ. Προπομπός
7. Ζαφειροπουλος, Κ. (2012). Ποσοτική εμπειρική έρευνα και δημιουργία στατιστικών μοντέλων, Αθήνα: εκδ. Κριτική.
8. Τσάντας, Ν., Μωυσιάδης, Χ., Μπαγιάτης, Ντ. & Χατζηπαντελής, Θ. (1999). Ανάλυση δεδομένων με τη βοήθεια στατιστικών πακέτων, Θεσσαλονίκη: εκδ. Ζήτη.

<b>Course Title</b>	<b>Applied Statistics</b>
<b>Name of the tutor</b>	<b>Eleni Tsakiridou</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	1 <sup>st</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10 ECTS
<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (1 ECTS)</p> <p>Bibliographic study and analysis: 50-60 hours (2 ECTS)</p> <p>Research/ field study: 30 hours (1 ECTS)</p> <p>Preparing for and writing a short assignment: 45-60 hours (2 ECTS)</p> <p>Preparing for, writing and presenting one's assignment/ research work: 100-120 hours (4 ECTS)</p>
<b>Educational Results</b>	<p>Students are able to understand issues of Educational Research and Statistics Methodology, utilizing and enhancing the knowledge they acquired during their core studies, combining concepts and perspectives that emerge through the contemporary developments of the applications of statistics in education. At the same time, they acquire the basic concepts and opportunities for originality in the development and implementation of ideas through research activity required in the course. They also come up with the latest developments in research methods and their use in</p>

	Education. Students are able to distinguish among appropriate methods for statistical processing of research data, to explain research results, to interpret the conditions under which the research results can be generalized, as well as to clearly formulate the conclusions drawn by statistical controls.
<b>General skills</b>	Searching, analyzing and synthesizing data and information, using the appropriate Information Technologies. Adapting to new situations. Decision making. Working autonomously and in groups. Working in an interdisciplinary environment. Generating of new research ideas. Data planning and management. Promoting free, creative and inductive thinking.
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	Basic research concepts and statistics. Sampling. Measuring scales. Types of variables. Descriptive statistics. Description of qualitative variables. Frequency and relative frequency tables. Double entry boards. Bar charts. Circular charts. Description of quantitative variables. Numerical descriptive measures. Histograms. Statistical Conclusions. Case checks. Independence check X <sup>2</sup> . Normal distribution. Control for the average value of a population. Control for the mean values of two populations (independent samples). Control for the mean of two populations (dependent samples). One and two factor analysis of variance. Repeated measurements. Parametric and non-parametric techniques. Correlation of two variables. Applications of educational research.
<b>Assessment methods</b>	Participating during lectures and keeping a “learning journal” (10%) Assessment of a short synthesis assignment (10%) Assessment of an individual’s assignment at the end of the semester (80%)
<b>Indicative bibliography</b>	<ol style="list-style-type: none"> <li>1. Κατσής, Α., Σιδερίδης, Γ., &amp; Εμβαλωτής, Α. (2011). Στατιστικές μέθοδοι στις Κοινωνικές Επιστήμες, Αθήνα: εκδ. Τόπος.</li> <li>2. Τσάντας, Ν., Μωυσιάδης, Χ., Μπαγιάτης, Ντ &amp; Χατζηπαντελής, Θ. (1999). Ανάλυση δεδομένων με τη βοήθεια στατιστικών πακέτων, Θεσσαλονίκη:</li> </ol>

εκδ. Ζήτη.

3. Γιαλαμάς, Β. (2005). Στατιστικές Τεχνικές και Εφαρμογές στις Επιστήμες της Αγωγής, Αθήνα: εκδ. Πατάκη.
4. Κατσιλλής, Ι. (1997). Περιγραφική στατιστική εφαρμοσμένη στις κοινωνικές επιστήμες και την εκπαίδευση, Αθήνα: εκδ. Gutenberg.
5. Diamond, I. & Jefferies, J. (2006). Αρχίζοντας τη Στατιστική. Μια εισαγωγή για κοινωνικούς επιστήμονες, Αθήνα: εκδ. Παπασωτηρίου.
6. Van Blerkom, M. (2009). Measurement and Statistics for Teachers, New York: Routledge.

<b>Course Title</b>	<b><i>Psychological aspects of learning</i></b>
<b>Name of the tutor</b>	<b>Dimitris Pnevmatikos</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	1 <sup>st</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	7,5ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Bibliographic study and analysis: 50-60 hours (2 ECTS) Research/ field study: 30 hours (1 ECTS) Laboratory Practice: 45-60 hours (2 ECTS) Preparing for and writing a short assignment: 50-60 hours (2 ECTS) Preparing for, writing and presenting one's assignment/ research work: 100-120hours (4 ECTS)
<b>Educational Results</b>	Students will be able to:

	<p>-identify and interpret contemporary theories and research findings of child psychology.</p> <p>-understand contemporary theories and relate them to learning through the use of educational technology in educational practice.</p> <p>-pose new research questions and hypotheses regarding applications and intervention programs based on psychological theories, utilizing Information Technologies.</p> <p>-choose appropriate psychological theories to support their choices as far as designing innovative learning environments is concerned, using educational technology that responds to their level of readiness, interests and their individual needs.</p> <p>-collect research data from children, following ethical rules.</p> <p>-research/ study and critically approach teaching and intervention programs by using new technologies.</p> <p>-take the role of culture in learning into account.</p>
<b>General skills</b>	<p>Respect diversity and multiculturalism</p> <p>Decision making</p> <p>Project planning and management</p> <p>Working in an interdisciplinary environment</p> <p>Working autonomously and in groups</p> <p>Generating new research ideas</p> <p>Searching for, collecting, analyzing and synthesizing information, using the appropriate Information Technologies</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<p>This course aims at systematically training students on the psychological conditions of learning, by using Information Technologies.</p> <p>Different theoretical frameworks and how these can contribute to the design, development, implementation and evaluation of courses by using new technologies are examined and analyzed in depth.</p>
<b>Assessment methods</b>	<p>Assessment of a short assignment and of its presentation (20%)</p> <p>Assessment of an individual's assignment (theoretical background, research questions, hypotheses, research instruments, process) (20%)</p> <p>Assessment of participation in a small scale intervention</p>

	(20%)
	Written exam at the end of the semester (40%)
<b>Indicative bibliography</b>	<p>Βοσνιάδου, Σ. (1997). <i>Γνωσιακή Ψυχολογία</i>. Αθήνα: Gutenberg.</p> <p>Cole, M. &amp; Cole, S. (2000). <i>Η ανάπτυξη των παιδιών</i>, Τόμος Α' &amp; Β'. Αθήνα: Τυπωθήτω – Γ. Δαρδανός.</p> <p>Δημητρίου, Α. (1993). <i>Γνωστική ανάπτυξη: Μοντέλα, Μέθοδοι – Εφαρμογές</i>. Τόμος Ι: Piaget &amp; Νεοπιαζετιανοί. Θεσσαλονίκη: ArtofText.</p> <p>Ντάβου, Μ. (2007). Εισαγωγή: Περί μεθόδου στην επιστημονική έρευνα. Στο L.B. Christensen, Η <i>Πειραματική μέθοδος στην επιστημονική έρευνα</i>. Αθήνα: Παπαζήση.</p> <p>Morrow, V. &amp; Richards, M. (1996). The ethics of social research with children: An Overview. <i>Children &amp; Society, 10</i>, 90-105.</p> <p>Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. <i>American Psychologist, July</i>, 513-531.</p> <p>Wellman, H. &amp; Liu, D. (2004). Scaling of Theory of Mind Tasks. <i>Child Development, 75</i>(2), 523-541.</p> <p>Makris, N. &amp; Pnevmatikos, D. (2007). Children's understanding of the human and supernatural mind. <i>Cognitive Development, 22</i>, 365-375.</p> <p>Πλατσίδου, Μ. &amp; Δημητρίου, Α. (1995). Το σύστημα επεξεργασίας πληροφοριών: Μια μελέτη της δομής και της ανάπτυξής του. <i>Ψυχολογία, 2</i>(1), 41-67.</p> <p>Pnevmatikos, D. (2002). Conceptual Changes in Religious Concepts of Elementary Schoolchildren: The case of the house where God lives. <i>Educational Psychology, 22</i>(1), 91-110.</p> <p>Πνευματικός, Δ. (2004). Νους και πολιτισμός. Στο Ν. Μακρής και Δ. Δεσλή (επμ.), <i>Η Γνωστική Ψυχολογία σήμερα: Γέφυρες για τη μελέτη της νόησης</i>, Πρακτικά του 1ου Πανελληνίου Συνεδρίου Γνωστικής Ψυχολογίας (σσ. 275-280). Αθήνα: Δαρδανός.</p> <p>Nisbett, R., Peng, K., Choi, I., and Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. <i>Psychological Review, 108</i>(2), 291-310.</p> <p>Norenzayan, A. &amp; Nisbett, R. (2000). Culture and Causal Cognition. <i>Current Directions in Psychological Science, 9</i>(4), 132-135.</p> <p>Morris, M. &amp; Peng, K. (1994). Culture and cause: American</p>

and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology*, 67, 949-971.

Zoupidis, A. Pnevmatikos, D., Spyrtou, A. & Kariotoglou, P. (2016). The impact of procedural and epistemological knowledge on conceptual understanding: The case of density and floating-sinking phenomena. *Instructional Science*, 44, 315-334.

## **2<sup>nd</sup> Semester**

### **COURSES OFFERED FOR** **ALL DIRECTIONS OF SPECIALIZATION**

<b>Course Title</b>	<i>ICT in Education</i>
<b>Name of the tutor</b>	<b>Georgios Palaigeorgiou</b>
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	2 <sup>nd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10 ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Weekly workload: 30 hours (1 ECTS) Preparing for and writing a short assignment or participating in a study: 75-90 hours (3 ECTS) Preparing for and presenting a synthesis assignment: 75-90 hours (3 ECTS) Preparing for and taking an exam: 50-60 hours (2 ECTS)
<b>Educational Results</b>	Students should be able to: - understand the problem of learning about computers - know and improve their personal computer learning strategies - improve the efficiency of employing computer systems - analyze the main advantages and disadvantages of the new model of learning interactions using Web 2.0 - utilize the features of different Web 2.0 applications concerning the design of teaching activities - evaluate the suitability of different web 2.0 applications regarding different learning requirements



<b>General skills</b>	<ul style="list-style-type: none"> <li>-Searching, analyzing and synthesizing data and information using the appropriate Information Technologies</li> <li>-Working in groups</li> <li>-Evaluation and self-evaluation</li> </ul>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<ul style="list-style-type: none"> <li>- The ecology of learning about computers <ul style="list-style-type: none"> <li>o The problem of learning about computers</li> <li>o The ecology of learning</li> <li>o The paradox of the average user</li> <li>o Review of the basic computer skills</li> </ul> </li> <li>- Web 2.0 in the educational process <ul style="list-style-type: none"> <li>o Participatory web</li> <li>o Connectivism</li> <li>o Wiki</li> <li>o Blogs,</li> <li>o Micro-histories</li> <li>o Podcasting- Videocasting</li> <li>o Social networks</li> <li>o Personal Learning Environments</li> <li>o Distance learning applications</li> <li>o Comics applications, collaborative writing, conceptual mapping, digital storytelling</li> </ul> </li> </ul>
<b>Assessment methods</b>	Constant assessment, presentation of a topic, participation in a study, synthesis assignment, written exam

## Indicative bibliography

- O'Reilly T., & Battelle J. (2009). Web Squared: Web 2.0 Five Years On. Web 2.0 Summit
- Conole G. & Alevizou, P. (2010). A literature review of the use of Web 2.0 tools in Higher Education. A report commissioned by the Higher Education Academy, Open University, UK.
- CLEX - Committee of Inquiry into the Changing Learner Experience (2009). Higher Education in a Web 2.0
- Vassileva J. (2008). Toward Social Learning Environments. IEEE Transactions on Learning Technologies, 1(4), 199-214.
- Charles Crook (2008) BECTA: Web 2.0 technologies for learning at Key Stages 3 and 4
- McLoughlin C. & Lee M. J. W. (2008). The 3 P's of Pedagogy for the Networked Society: Personalization, Participation, and Productivity. International Journal of Teaching and Learning in Higher Education, 20(1), 10-27
- Nina Bonderup Dohn (2009). Web 2.0: Inherent tensions and evident challenges for education. Computer-Supported Collaborative Learning 4, 343-363.
- Jenkins H., Purushotma R., Weigel M., Clinton K., Robison A. (2009). Confronting the Challenges of Participatory Culture: Media Education for the 21st Century, MacArthur Foundation, MacArthur Foundation, MIT Press.
- Mizuko Ito et al (2010). Kids Living and Learning with New Media. MacArthur Foundation, MIT Press
- Brown J. & Adler, R. (2008). Minds on Fire: Open Education, the Long Tail, and Learning 2.0. EDUCAUSE Review, 43(1), 16-32.
- Lim, Wei-Ying, So, Hyo-Jeong and Tan, Seng-Chee (2010) 'eLearning 2.0 and new literacies: are social practices lagging behind?', Interactive Learning Environments, 18: 3, 203-218.
- Brown S. (2010). From VLEs to learning webs: the implications of Web 2.0 for learning and teaching. Interactive Learning Environments, 18(1), pp.1-10
- Gouseti A. (2011). Web 2.0 and education: not just another case of hype, hope and disappointment? Learning, Media and Technology, 35(3), 351-356.
- Bruns, A. & Schmidt J.-H. (2011). Prodisage: a closer look at continuing developments. New Review of Hypermedia and Multimedia, 17(1), 2011, 3-7.

## SPECIALIZATION DIRECTION :

### Pedagogy and Information Technologies

Course Title	<i>Cognitive Science and Technology</i>
Name of the tutor	<b>Dimitris Pnevmatikos</b>
Type of the Course	Compulsory Course

<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (1 ECTS)</p> <p>Bibliographic study and analysis: 50-60 hours (2 ECTS)</p> <p>Preparing for and writing a short assignment:25-30 hours (1 ECTS)</p> <p>Preparingfor, writingand presenting a research assignment: 100-120hours (4 ECTS)</p> <p>Preparing for and taking an exam: 50-60 hours (2 ECTS)</p>
<b>Educational Results</b>	<p>Students, among others, should be able to:</p> <ul style="list-style-type: none"> <li>-be aware of Cognitive Science as an interdisciplinary approach to the mind and its processes.</li> <li>-comprehend Cognitive Science models for representation, perception, memory, attention, planning and thinking.</li> <li>-understand the role of emotions and warm perception in the knowledge building process, especially by using technology.</li> </ul>
<b>General skills</b>	<p>Decision making</p> <p>Project planning and project management</p> <p>Working in an interdisciplinary environment</p> <p>Working autonomously and in groups</p> <p>Generating new research ideas</p> <p>Searching, collecting, analyzing and synthesizing information using the appropriate Information Technologies</p>
<b>Prerequisite courses</b>	<b><i>Psychological requirements of new technology- based learning</i></b>
<b>Content of the course</b>	<p>This course aims at systematically training students in issues of Cognitive Science and in particular in the areas of knowledge acquisition processes by using technology. Cognitive Science is an interdisciplinary approach concerning the mind and its processes. The fundamental principle is that thinking can be better understood in terms of structures of mind representation and the computational processes that operate these structures. In particular, it studies the nature, work and functions of the mind by focusing on how the nervous system represents, processes, and transmits</p>

	<p>information.</p> <p>Mind as a computer system, knowledge representation, concepts and hierarchical organization of concepts, executive functions, perception and attention, multi-sensory perception and attention, principles of tangible learning, computational cognitive models, artificial neural networks, dual processing theories. Social robots, human interaction with robots, use of eye movement. Organization, implementation and presentation of psychological studies.</p>
<b>Assessment methods</b>	<p>Assessment of an individual's synthesis assignment and its presentation (20%)</p> <p>Assessment of the design, writing and presentation of a research work (40%)</p> <p>Written exam at the end of the semester (40%)</p>
<b>Indicative bibliography</b>	<p>Βοσνιάδου, Σ. (1997). Γνωσιακή Ψυχολογία. Αθήνα: Gutenberg. Vosniadou, S., Pnevmatikos, D., Makris, N., Lepenioti, D., Eikospentaki, K., Chountala, A., &amp; Kyrianakis, G. (2018). The Recruitment of Shifting and Inhibition in On-line Science and Mathematics Tasks. <i>Cognitive Science</i>, 42(6), 1860-1886.</p> <p>Vosniadou, S., Pnevmatikos, D., Makris, N. (2018). The role of executive function in the construction and employment of Scientific and Mathematical concepts that require conceptual change learning. <i>Neuroeducation Journal: Special Issue on Executive Functions and Academic Learning</i>, 5(2), 62-72.</p> <p>Fachantidis N., Dimitriou, A., Pliasa, S., Dagdilelis, V., Pnevmatikos, D., Perlantidis, P., Papadimitriou, A. (2018). Android OS Mobile Technologies Meets Robotics for Expandable, Exchangeable, Reconfigurable, Educational, STEM-Enhancing, Socializing Robot. In M., Auer and T. Tsiatsos (eds), Interactive Mobile Communication Technologies and Learning. IMCL 2017. <i>Advances in Intelligent Systems and Computing</i>, vol 725, (pp. 487-497). Springer, Cham, Part of Springer Nature.</p> <p>Pnevmatikos, D., Christodoulou, P. &amp; Fachantidis, N. (2018). Promoting critical thinking dispositions in children and adolescents through Human-Robot Interaction with Socially Assistive Robots. In a Special Track of the Tech-Edu 2018. Thessaloniki, Greece.</p> <p>Pnevmatikos, D. &amp; Trikkaliotis, I. (2013). Intraindividual differences in Executive Functions during childhood:</p>

The role of emotions. *Journal of Experimental Child Psychology*, 115(2), 245-261.

<b>Course Title</b>	<b><i>Teacher Education in ICT</i></b>
<b>Name of the tutor</b>	<b>VasilikiPapadopoulou</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS)

	<p>Bibliographic study and analysis: 50-60 hours (2 ECTS)</p> <p>Research/ field study: 30 hours (1 ECTS)</p> <p>Preparing for and writing a short assignment: 45-60 hours (2 ECTS)</p> <p>Preparing for, writing and presenting a research assignment: 100-120 hours (4 ECTS)</p>
<b>Educational Results</b>	The aim of the course is to: a) outline the basic principles of teacher education and b) delve into the specific issues, dimensions and parameters of it at a systematic, historical and comparative level, c) enhance the studies related to issues of teacher education in new technologies.
<b>General skills</b>	<p>Decision making</p> <p>Project planning and project management</p> <p>Working in an interdisciplinary environment</p> <p>Working autonomously and in groups</p> <p>Generating new research ideas</p> <p>Evaluation and self-evaluation</p>
<b>Prerequisite courses</b>	<b><i>Psychological aspects of learning</i></b>
<b>Content of the course</b>	<p>Some of the thematic axes of the course are the following:</p> <ul style="list-style-type: none"> <li>- The teacher's role in today's school: dimensions of his/ her professional role in relation to the functions of modern education systems and the characteristics of modern post-modern societies.</li> <li>-Basic teacher education models, disadvantages and advantages of each model and corresponding academic and educational policy developments.</li> <li>-European and international trends in teacher education.</li> </ul>
<b>Assessment methods</b>	<p>Assessment of the participation in the learning process (20%)</p> <p>Assessment of the presentation of an individual's assignment (20%)</p> <p>Assessment of an individual's assignment at the end of a semester (50%)</p>
<b>Indicative bibliography</b>	<p>Αβούρης, Ν κ.α.(επιμ.) (2009) <i>Συνεργατική Τεχνολογία</i>, Αθήνα: Κλειδάριθμος</p> <p>Ανδρεαδάκης, Ν., κ.α.(επιμ)(2012) <i>Εκπαίδευση Εκπαιδευτικών. Σύγχρονες τάσεις και ζητήματα</i>, Αθήνα: Εκδοτικός Όμιλος Ιων</p>

Anderson, L. W. (Ed..)(1995) *International Encyclopedia of Teaching and Teacher Education*, Oxford:Pergamon.

Αντωνίου, Χ.(2009)*Εκπαίδευση Εκπαιδευτικών*, Αθήνα: Ελληνικά Γράμματα

Cochran-Smith, M. &Feiman-Nemser, Sh. et.al(ed)(2008)*Handbook of research on teacher education. Enduring Questions in Changing Contexts*, 3<sup>rd</sup>edt, New York/London:Routledge

Darling-Hammond, L.&Bransford, J.(eds)(2005) *Preparing Teachers for a Changing World*,San Francisco: Jossey-Bass

Ζμας, Α.& Παπαδοπούλου, Β.(2007) «Η σχέση θεωρίας-πράξης από φιλοσοφική σκοπιά και οι προεκτάσεις της στην εκπαίδευση υποψήφιων εκπαιδευτικών». *Επιστήμες Αγωγής*, 4, 229-242

Day, C.(2003) *Η εξέλιξη των εκπαιδευτικών. Οι προκλήσεις της Δια Βίου μάθησης*, μετφ. Ανθή Βακάκη, Αθήνα: Τυπωθήτω-Γ.Δαρδανός,

Μπουζάκης, Σ(2012)(επιμ)*Συγκριτική Παιδαγωγική*, Αθήνα:Gutenberg

Μπουζάκη, Σ- Χ. Τζήκας(1996): *Η κατάρτιση των Δασκάλων-Διδασκαλισσών και των Νηπιαγωγών στην Ελλάδα., τομ Α΄: Η περίοδος των Διδασκαλείων*, Αθήνα: Gutenberg

Μπουζάκη, Σ- Χ. Τζήκας- Κ. Ανθόπουλος(1997): *Η κατάρτιση των Δασκάλων-Διδασκαλισσών και των Νηπιαγωγών στην Ελλάδα., τομ Β΄: Η περίοδος των Παιδαγωγικών Ακαδημιών και των Σχολών Νηπιαγωγών:1933-1990*. Αθήνα: Gutenberg

Ξωχέλλης,Π.(2005) *Ο εκπαιδευτικός στο σύγχρονο κόσμο. Ο ρόλος και το επαγγελματικό του προφίλ σήμερα η εκπαίδευση και η αποτίμηση του έργου του*, Αθήνα: Τυπωθήτω-Γ.Δαρδανός.

### **SPECIALIZATION DIRECTION:**

### **Humanities and Information Technologies**

Course Title

***History and History Teaching: non-formal forms of education***

<b>Name of the tutor</b>	<b>Andreas P. Andreou, Sofia Iliadou-Tahou, Kostas Kasvikis</b>
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	2 <sup>nd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (2 ECTS) Bibliographic study:40-50 hours (3 ECTS) Preparingfor, writingand presenting a research assignment: 65-75hours (5 ECTS)
<b>Educational Results</b>	Upon completion of this course students will be familiar with the theoretical framework as well as the contemporary theoretical directions of historiography. They will be aware of the key features of school history in the context of formal education and the conditions for producing and shaping students' historical consciousness. They will be able to know andutilize the opportunities offered by alternative historical learning environments and informal forms of education, such as the museum, the historical landscape, cinema and art, so as to develop teaching approaches for shaping students' historical understanding and historical thinking. Finally, students will be able to organize specific educational scenarios and applications aiming to shape students' historical thinking and culture.
<b>General skills</b>	Democratic citizenship Critical thinking Decision making Generating new research ideas Searching for, collecting, analyzing and synthesizinginformation using the appropriate Information Technologies
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	The course introduces students to theoretical issues in the epistemology of history, contemporary research approaches to historiography (social and cultural history, present-day history, local history, micro-history, oral history, history-memory relation. The contemporary epistemological context of teaching history and its features in the context of formal



	education (school history, curricula, textbooks, official state policy and dominant ideology) is also presented. The course concludes by examining alternative forms of historical education in non-formal and informal learning environments.
<b>Assessment methods</b>	<p>Participation in the learning process (40%)</p> <p>Assessment of the presentation of bibliography and an individual's assignment (20%)</p> <p>Assessment of an individual's longer synthesis assignment (60%)</p>
<b>Indicative bibliography</b>	<p>Ανδρέου, Α., Κακουριώτης, Σπ., Κόκκινος, Γ., Λεμονίδου, Ε., Παπανδρέου, Ζ., Πασχαλούδη, Ε. (επιμ.) <i>Η δημόσια ιστορία στην Ελλάδα. Χρήσεις και καταχρήσεις της ιστορίας</i>. Επίκεντρο: Θεσσαλονίκη.</p> <p>Ανδρέου, Α. (επιμ). (2008). <i>Η διδακτική της ιστορίας και η έρευνα στα σχολικά εγχειρίδια</i>. Αθήνα: Μεταίχμιο.</p> <p>Cannadine, D. (2007), <i>Τι είναι ιστορία σήμερα</i>; Αθήνα: Νήσος.</p> <p>Carretero, M., Berger, St. Grever, M.(2017) eds., <i>Palgrave Handbook of Research in Historical Culture and Education</i>. Basingstoke: Palgrave MacMillan.</p> <p>De Groot, J. (2009). <i>Consuming History: Historians and Heritage in Contemporary Popular Culture</i>. London and New York: Routledge.</p> <p>Henson, D., Stone, P. and Corbishley, M. eds. (2004) <i>Education and the historic environment</i>. London and New York: Routledge.</p> <p>Hooper-Greenhill, E. (1994) <i>Museum and gallery education</i>. Leicester, London and New York: Leicester University Press.</p> <p>Ίγκερς, Γ. (1999) <i>Η ιστοριογραφία στον 20<sup>ο</sup> αιώνα</i>. (μτφρ. Π. Ματαλάς), Νεφέλη: Αθήνα.</p> <p>Καρ, Ε. Χ. (1999) <i>Τι είναι η ιστορία</i>; (μτφρ. Α. Παππάς), Εκδόσεις «Γνώση»: Αθήνα.</p> <p>Κόκκινος, Γ., Αθανασιάδης, Η., Βούρη, Σ., Γατσωτής, Π., Thuillier, G. – Tulard, J. (1992) <i>Οι ιστορικές σχολές</i>. (μετ. Κ. Καψαμπέλη) Καρδαμίτσας: Αθήνα</p> <p>Τραντάς, Π., Στέφος, Ε. (2005) <i>Ιστορική κουλτούρα και συνείδηση</i>, Νοόγραμμα Εκδοτική, Αθήνα.</p> <p>Κόκκινος, Γ. (2012). <i>Η σκουριά και το πυρ. Προσεγγίζοντας τη σχέση ιστορίας, τραύματος και μνήμης</i>. Αθήνα: Gutenberg</p> <p>Κιμουρτζής, Π.Γ. (επιμ.) (2013). <i>Cinescience. Ο Κινηματογράφος στον φακό της Επιστήμης</i>. Αθήνα: Gutenberg</p> <p>Λε Γκοφ, Ζ. (1998) <i>Ιστορία και μνήμη</i> (μτφρ. Γ. Κουμπουρλής). Νεφέλη: Αθήνα.</p> <p>Νικονάνου, Ν. και Κασβίκης, Κ. επιμ. (2008), <i>Εκπαιδευτικά ταξίδια στο χρόνο, Εμπειρίες και ερμηνείες του παρελθόντος</i>. Πατάκης: Αθήνα.</p>

Passerini, L. (1998) Σπαράγματα του 20ου αιώνα: η ιστορία ως βιωμένη εμπειρία. Νεφέλη: Αθήνα.  
 Sebba, J. (2000), Ιστορία για όλους. Διδακτικές προτάσεις για το μάθημα της Ιστορίας στο Δημοτικό και το Γυμνάσιο, Αθήνα, Μεταίχμιο.  
 Thompson, P. (2002), *Φωνές από το παρελθόν. Προφορική Ιστορία*, Αθήνα: Πλέθρον.

<b>Course Title</b>	<b><i>Teaching approaches in Language and Literature based on critical Literacy</i></b>
<b>Name of the tutor</b>	<b>Alexandros N. Akritopoulos, Aggeliki Sakellariou</b>
<b>Type of the Course</b>	Elective Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Bibliographic study and analysis:50-60 hours (2 ECTS) Research/ field study: 30 hours (1 ECTS) Preparing for and writing a short assignment: 45-60 hours (2 ECTS) Preparingfor, writingand presenting a research assignment: 100-120hours (4 ECTS)
<b>Educational Results</b>	A' LITERATURE (Alexandros N. Akritopoulos) Upon successful completion of the course students will be able to: -Be aware of the theory of Child-Youth Literature. -Understand the importance of literacy for the social and political development of the adolescent child. -Study, critically process and research literacy and literacy programs, as well as to develop teaching scenarios.  Students will acquire general and specific skills, such as: -to search, analyze and synthesize data, using the

	<p>appropriate Information Technologies,          -to generate new research ideas,          - to show respect for diversity and multiculturalism.          -to able to think creatively and inductively.</p> <p><b>B' SECOND LANGUAGE (Angeliki Sakellariou)</b>          Upon successful completion of the course students will be able to:</p> <p>-Identify and interpret contemporary theories related to the acquisition / learning of a second/ foreign in multicultural classes.          -Understand contemporary communication and interaction theories and their impact on effective language teaching in multicultural classes.</p> <p>-Apply innovative teaching practices for the language development of bilingual / multilingual learners that respond to their interests and individual needs.          -Organize learning environments to enhance language acquisition / learning and intercultural communication strategies.          -Research/ study and critically approach curricula regarding teaching Greek as second / foreign language.          -Create material for teaching language in multicultural environments.</p>
<b>General skills</b>	<p>Democratic citizenship          Critical thinking          Decision making          Generating new research ideas          Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies</p>
<b>Prerequisite courses</b>	<p>Compulsory Course (Y 207) GREEK CHILDREN' S AND YOUNG' S LITERATURE</p>
<b>Content of the course</b>	<p><b>A'</b>          Presentation of contemporary teaching of child-adolescent literature based on curricula, taking into consideration the Critical Literary Literature and the theory of literary genres.</p> <p><b>B'</b>          This course aims to systematically train students in language teaching regarding mixed multilingual or multicultural classes.</p>

<p><b>Assessment methods</b></p>	<p>A'. Assessment of an individual's learning scenario as presented in class (PowerPoint) (40%)</p> <p>Assessment of an individual's written assignment based on the thematic areas examined during the course and given bibliography (60%)</p> <p>B' Participating during lectures and keeping a "learning journal" (20%)</p> <p>Assessment of a short synthesis assignment (20%)</p> <p>Assessment of the presentation of an individual's assignment (10%)</p> <p>Assessment of an individual's assignment at the end of the semester (50%)</p>
<p><b>Indicative bibliography</b></p>	<p><i>Appleyard, J. A. (1991). Becoming a Reader, The experience of Fiction from Childhood to Adulthood, New York, Cambridge University Press.</i></p> <p><i>Ακριτόπουλος, Α. Ν. (2013). Τέρψεις και ιστορίες. Κριτικές, φιλολογικές και παιδαγωγικές προσεγγίσεις της λογοτεχνίας του παραμυθιού, Θεσσαλονίκη, Εκδόσεις Γράφημα.</i></p> <p><i>Cohen, L. &amp; Manion, L. (1994). Μεθοδολογία εκπαιδευτικής έρευνας. Αθήνα: Μεταίχμιο.</i></p> <p><i>Ζερβού, Α. (1993). Λογοκρισία και αντιστάσεις στα κείμενα των παιδικών μας χρόνων (2 εκδ.). Αθήνα, Οδυσσέας.</i></p> <p><i>Hunt, P. (2006). Κατανοώντας τη Λογοτεχνία για Παιδιά, μτφρ. Χ. Μητσοπούλου, Αθήνα, Μεταίχμιο.</i></p> <p><i>Αποστολίδου, Β., Καπλάνη, Β. &amp; Χοντολίδου, Ε. (2000) (επιμ.). Διαβάζοντας λογοτεχνία στο σχολείο... Μια νέα πρόταση διδασκαλίας. Αθήνα: Τυπωθήτω - Γ. Δαρδανός.</i></p> <p><i>Τζίνα Καλογήρου-Κική Λαλαγιάννη (Επιμ.) ΆνταΚατσίκη-Γκίβαλου (εισαγωγή). (2005). Η λογοτεχνία στο σχολείο. Μια νέα πρόταση διδασκαλίας, Αθήνα: Τυπωθήτω- Γ. Δαρδανός.</i></p> <p><i>Φρυδάκη, Ε. (2000). Η θεωρία της λογοτεχνίας στην πράξη της διδασκαλίας. Αθήνα: Κριτική.</i></p> <p><i>Bennett, C. (2010). Comprehensive multicultural education:</i></p>

theory and practice. *London: Pearson.*

*Byram, M., Gribkova, B. & Starkey, H. (2002).* Developing the intercultural dimension in language teaching. A practical introduction for teachers. *Strasbourg: Council of Europe.*

*Byram, M. (1997).* Teaching and Assessing Intercultural Language Communicative Competence. *Bristol: Multilingual Matters Ltd.*

*Coelho, E. (2007).* Διδασκαλία και μάθηση στα πολυπολιτισμικά σχολεία, Στο *Ε. Τρέσσου & Σ. Μητακίδου (επιμ).* Θεσσαλονίκη: Επίκεντρο.

*European Commission (2015).* Language teaching and learning in multilingual classrooms. *Brussels: Directorate-General for Education and Culture.*

*Faerch, C. & Kasper, G. (2003).* Strategies in interlanguage communication. *New York: Longman.*

*Griva, E. & Zorbas, V. (2017).* Multicultural and citizenship awareness through language: cross thematic practices in language pedagogy. *New York: Nova Science Press.*

*Schulz, R. A. (2007).* *The challenge of assessing cultural understanding in the context of foreign language instruction.* *Foreign Language Annals*, 40(1), 9-26.

*Τζακώστα, Μ. (2015).* Γλωσσική Εκμάθηση και Διδασκαλία σε Πολυπολιτισμικά Περιβάλλοντα. *Αθήνα: Gutenberg*

*White, K., Lewis, K. & Fletcher-Campbell, F. (2006).* Raising the Achievement of Bilingual Learners in Primary Schools: Evaluation of the Pilot/Programme. *National Foundation for Educational Research for DfE, UK.*

<b>Course Title</b>	<b><i>The pedagogical current affairs of the Fathers' thought</i></b>
<b>Name of the tutor</b>	<b>Archimandrite Irineos Chatziefrimidis</b>
<b>Type of the Course</b>	Elective Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	2 <sup>nd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS

<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (1 ECTS)</p> <p>Bibliographic study and analysis: 50-60 hours (2 ECTS)</p> <p>Research/ field study: 30 hours (1 ECTS)</p> <p>Preparing for and writing a short assignment: 45-60 hours (2 ECTS)</p> <p>Preparing for, writing and presenting a research assignment: 100-120 hours (4 ECTS)</p>
<b>Educational Results</b>	<p>Students become acquainted with the pedagogical perceptions of Saint Vassilios and these of other Fathers. They analyze and critically approach these perceptions.</p>
<b>General skills</b>	<p>Respect towards multiculturalism</p> <p>Respect towards the student's personality</p> <p>Working in an interdisciplinary environment</p> <p>Working autonomously and in groups</p> <p>Generating new research ideas</p> <p>Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<ul style="list-style-type: none"> <li>- The purposes of Education</li> <li>- The Importance and necessity of Education</li> <li>- The possibilities and the limits of Education</li> <li>- Educational factors</li> <li>- Self-education</li> <li>- Modern problems in Education in the light of Saint Basil's thought.</li> </ul>
<b>Assessment methods</b>	<p>Participating during lectures and keeping a "learning journal" (20%)</p> <p>Assessment of a short synthesis assignment (20%)</p> <p>Assessment of the presentation of an individual's assignment (10%)</p> <p>Assessment of an individual's assignment at the end of the semester (50%)</p>

**SPECIALIZATION DIRECTION:**

**Sciences and Information Technologies**

<b>Course Title</b>	<b>Research and Teaching in Sustainable Education with ICT</b>
<b>Name of the tutor</b>	<b>Pinelopi Papadopoulou</b>
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	2 <sup>nd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Weekly workload:60 hours (2 ECTS) Organizing a research study, collecting and processing research data: 100-120hours (4 ECTS) Preparing for and presenting a final assignment: 70-90 hours (3 ECTS)
<b>Educational Results</b>	Postgraduate students become acquainted with the main features of education regarding sustainability, as well as the basic research traditions with the aim to be able to teach and study contemporary sustainability issues.
<b>General skills</b>	
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	-Basic principles of teaching about sustainability -Contemporary issues in teaching about sustainability -Research regarding teaching about sustainability
<b>Assessment methods</b>	1) Every student should present a topic relevant to sustainable development, based on the UNO texts, following the PechaKucha (20X20) format.  2) Every student should present a topic relevant to education about sustainable development, based on the UNO texts.
<b>Indicative bibliography</b>	Arslan, HarikaOzge, Ceyhan Cigdemoglu, και Christine Moseley (2012 ). 'A Three-Tier Diagnostic Test to Assess Pre-Service Teachers' Misconceptions about Global Warming, Greenhouse Effect, Ozone Layer Depletion, and

Acid Rain'. *International Journal of Science Education* 34(11): 1667–1686. doi:10.1080/09500693.2012.680618.

Caleon, Imelda S., και R. Subramaniam (2009). 'Do Students Know What They Know and What They Don't Know? Using a Four-Tier Diagnostic Test to Assess the Nature of Students' Alternative Conceptions'. *Research in Science Education* 40(3): 313–337. doi:10.1007/s11165-009-9122-4.

ESD EXPERT NET (2018) *Teaching the Sustainable Development Goals*. Bonn: ENGAGEMENT GLOBAL (gGmbH)[https://www.iau-hesd.net/sites/default/files/documents/teaching\\_the\\_sustainable\\_development\\_goals.pdf](https://www.iau-hesd.net/sites/default/files/documents/teaching_the_sustainable_development_goals.pdf)

Heimlich, Joe, and Nicole Ardoin (2008). "Understanding Behavior to Understand Behavior Change: a Literature Review." *Environmental Education Research* 14(3): 215–237. doi:10.1080/13504620802148881.

Hollweg, K. S., Taylor, J. R., Bybee, R. W., Marcinkowski, T. J., McBeth, W. C., & Zoido, P. (2011). *Developing a framework for assessing environmental literacy*. Washington, DC: North American Association for Environmental Education. Available at <http://www.naaee.net/framework>, accessed March 10, 2013.

Kilinc, Ahmet, and Abdullah Aydin (2011). "Turkish Student Science Teachers' Conceptions of Sustainable Development: A Phenomenography." *International Journal of Science Education*, June 27: 1–22. doi:10.1080/09500693.2011.574822.

Kollmuss, Anja, and Julian Agyeman (2002). "Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to Pro-environmental Behavior?" *Environmental Education Research* 8(3): 239–260. doi:10.1080/13504620220145401.

McNaughton, Marie Jeanne (2004). "Educational Drama in the Teaching of Education for Sustainability." *Environmental Education Research*. 10(2):139–155. doi:10.1080/13504620242000198140.

McNichol, Heidi, Julie Margaret Davis, και Katherine R. O'Brien (2011). 'An ecological footprint for an early learning centre: identifying opportunities for early childhood sustainability education through interdisciplinary research'. *Environmental Education Research*, 17(5): 689–704. doi:10.1080/13504622.2011.572161.

Moseley, Christine, Blanche Desjean-Perrotta, and Julianna Utley (2010). "The Draw-An-Environment Test Rubric (DAET-R): Exploring Pre-service Teachers' Mental Models of the Environment." *Environmental Education Research*, 16(2): 189–208. doi:10.1080/13504620903548674.

O'Gorman, Lyndal, και Julie Davis (2013). 'Ecological footprinting: its potential as a tool for change in preservice teacher education'. *Environmental Education Research*,



19(6):779-791. doi:10.1080/13504622.2012.749979.

Robelia, Beth, and Tony Murphy (2012). "What Do People Know About Key Environmental Issues? A Review of Environmental Knowledge Surveys." *Environmental Education Research*, 18(3): 299–321. doi:10.1080/13504622.2011.618288.

Sleurs, W. (2008). *Competencies for ESD (Education for Sustainable Development) teachers. A framework to integrate ESD in the curriculum of teacher training institutes*, Brussels. Available at [http://www.unece.org/fileadmin/DAM/env/esd/inf.meeting.docs/EGonInd/8mtg/CSCT%20Handbook\\_Extract.pdf](http://www.unece.org/fileadmin/DAM/env/esd/inf.meeting.docs/EGonInd/8mtg/CSCT%20Handbook_Extract.pdf). Accessed March 25 2013.

UN (2017) *The Sustainable Development Goals Report 2017*. New York: United Nations. <https://unstats.un.org/sdgs/files/report/2017/TheSustainableDevelopmentGoalsReport2017.pdf>

UNESCO (2017). *Education for Sustainable Development Goals Learning Objectives*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000247444>

UNESCO (2018). *Issues and trends in Education for Sustainable Development*. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000261445>

<b>Course Title</b>	<b><i>Learning Science on Innovative Research Issues (Laboratory)</i></b>
<b>Name of the tutor</b>	<b>Anna Spirtou</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	1 <sup>st</sup> Year
<b>Semester</b>	2 <sup>nd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Bibliographic study and analysis: 150-175 hours (7 ECTS) Preparing for the presentation of assignments: 50-60 hours (2 ECTS)
<b>Educational Results</b>	Upon completion of the course students, among others, will

	<p>be able to:</p> <ul style="list-style-type: none"> <li>-develop and implement original lesson plans and innovative educational activities in the field of Sciences</li> <li>-design courses on Research and Innovation in the light of STEAM</li> <li>-synthesize knowledge to make educational suggestions.</li> </ul>
<b>General skills</b>	<p>Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies</p> <p>Decision making</p> <p>Designing and managing projects</p> <p>Working in an interdisciplinary environment</p> <p>Working autonomously and in groups</p> <p>Generating new research ideas</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	Critical study and comparison of current trends in Sciences education, an interdisciplinary approach to the content of science in the light of STEAM, development of critical thinking skills and teaching skills.
<b>Assessment methods</b>	<p>Participating during lectures (20%)</p> <p>Assessment of the presentation of short assignments (40%)</p> <p>Assessment of an individual's assignment at the end of the semester (40%)</p>
<b>Indicative bibliography</b>	

### ***3<sup>rd</sup> Semester***

#### **COURSES OFFERED TO ALL SPECIALIZATION DIRECTIONS**

<b>Course Title</b>	<b><i>Design, development and evaluation of educational technologies</i></b>
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<b>Name of the tutor</b>	<b>George Palegeorgiou</b>
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (1 ECTS)</p> <p>Weekly workload: 30 hours (1 ECTS)</p> <p>Preparing for and presenting a short assignment or participating in a research: 75-90 hours (3 ECTS)</p> <p>Preparing for and presenting a synthesis assignment: 75-90 hours (3 ECTS)</p> <p>Preparing for an exam and taking it: 50-60 hours (2 ECTS)</p>
<b>Educational Results</b>	<p>Upon completion of the course students will be able to:</p> <ul style="list-style-type: none"> <li>-describe the value of tangible interactions (electronic and non-electronic)</li> <li>-evaluate electronic and physical training interfaces</li> <li>-design physical interface learning environments</li> <li>-plan basic educational interactions</li> <li>-create original physical interfaces</li> <li>-evaluate tangible interactions.</li> </ul>
<b>General skills</b>	<p>Designing and managing projects</p> <p>Working in an interdisciplinary environment</p> <p>Working in groups</p> <p>Generating new research ideas</p> <p>Adapting to new situations</p> <p>Decision making</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<ul style="list-style-type: none"> <li>- Mixed reality environments</li> <li>- Mobile educational interfaces</li> <li>- Tangible learning</li> <li>- Game-based interactive spaces</li> <li>- Creation of prototypes</li> <li>- Programming in Scratch</li> </ul>

<b>Assessment methods</b>	<p>Constant assessment</p> <p>Presenting a topic</p> <p>Participating in a research</p> <p>Synthesis assignment</p> <p>Written exams</p>
<b>Indicative bibliography</b>	<p>Abrahamson, D. (2014). Building educational activities for understanding: an elaboration on the embodied-design framework and its epistemic grounds. <i>International Journal of Child-Computer Interaction</i>, 2(1), 1-16.</p> <p>Abrahamson, D., Lee, R. G., Negrete, A. G., &amp; Gutiérrez, J. F. (2014). Coordinating visualizations of polysemous action: Values added for grounding proportion. <i>ZDM—Mathematics Education</i>, 46(1), 79-93.</p> <p>Anderson, Janice L., and Steven D. Wall. (2015) "Kinecting Physics: Conceptualization of Motion Through Visualization and Embodiment." <i>Journal of Science Education and Technology</i>: 1-13.</p> <p>Antle, A. N. (2012). Exploring how children use their hands to think: an embodied interactional analysis. <i>Behaviour &amp; Information Technology</i>, 32, 938–954.</p> <p>Antle, A. N., &amp; Wise, A. F. (2013). Getting down to details: Using theories of cognition and learning to inform tangible user interface design. <i>Interacting with Computers</i>, 25(1), 1-20.</p> <p>Bakker, S., Antle, A., &amp; van den Hoven, E. (2011). Embodied metaphors in tangible interaction design. <i>Personal Ubiquitous Computer</i>, 16, 433–449.</p> <p>Dougherty, D. (2012). The maker movement. <i>innovations</i>, 7(3), 11-14.</p> <p>Erkut C., Rajala-Erkut, A. &amp; Dahl S. (2014) Exploring Felt Qualities of Embodied Interaction with Movement and Sound. <i>Proc. Conf. Arts and Technology (ArtsIT)</i>, Istanbul, Turkey, 145:77–85. doi: 10.1007/978-3-319-18836-2_10</p> <p>Hatton, S., Birchfield, D., &amp; Megowan-Romanowicz, M. C. (2008). Learning metaphor through mixed-reality game design and game play. In <i>Proceedings of the 2008 ACM SIGGRAPH symposium on Video games</i> (pp. 67-74). ACM.</p> <p>Lindgren, R., &amp; Johnson-Glenberg, M. (2013). Emboldened by embodiment six precepts for research on embodied learning and mixed reality. <i>Educational Researcher</i>, 42(8), 445-452.</p> <p>Manches, A., O'Malley, C., &amp; Benford, S. (2010). The role of physical representations in solving number problems: A comparison of young children's use of physical and virtual materials. <i>Computers &amp; Education</i>, 54(3), 622-640.</p>

**SPECIALIZATION DIRECTION:**

## **PEDAGOGY AND INFORMATION TECHNOLOGIES**

<b>Course Title</b>	<b><i>Information and Communication Technologies in Educational Management</i></b>
<b>Name of the tutor</b>	<b>Georgios Iordanidis</b>
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Weekly workload: 55-60 hours (2 ECTS) Preparing for and presenting a short assignment or participating in a research: 75-90 hours (3 ECTS) Preparing for and presenting a synthesis assignment: 100-120 hours (4 ECTS)
<b>Educational Results</b>	-
<b>General skills</b>	Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies Adapting to new situations Working autonomously Working in groups Decision making Working in an international environment Designing and managing projects Working in an interdisciplinary environment Generating new research ideas Respect towards diversity and multiculturalism Respect towards the natural environment Showing social, ethical and professional sensitivity towards issues of sex Evaluating and self-evaluating Promoting a free, creative and inductive way of thinking
<b>Prerequisite courses</b>	-

<b>Content of the course</b>	<p>Upon completion of the course students will be able to:</p> <ul style="list-style-type: none"> <li>-become acquainted with the current trends, challenges and solutions that ICTs bring to education and management.</li> <li>-use ICTs to organize the school environment.</li> <li>-understand the concept of Management Information System, so as to design and implement corresponding solutions.</li> <li>-design tools and procedures for recording educational data and making educational decisions.</li> <li>-utilize the opportunities offered by the Internet as well as the Pan-Hellenic School Network in the management of education field</li> <li>-acquire multiple-level management skills of human resources</li> <li>-learn how to gain access to up-to-date information on research and technology issues in the management of education field by using ICTs.</li> </ul>
<b>Assessment methods</b>	<p>Lectures, discussions, presenting assignments</p> <p>Research groups are formed or students are asked to write and present their assignments</p>
<b>Indicative bibliography</b>	<p><i>Bernhardt, V. (2013). Data analysis for continuous school improvement. Larchmont, 3rd Ed, NY: Routledge</i></p> <p><i>Dessler, G. (2005). Human Resource Management. 10th edition, Pearson Prentice Hall.</i></p> <p><i>Law, S., &amp; Glover, D. (2000). Educational leadership and learning: practice, policy, and research. Buckingham: Open University Press.</i></p> <p><i>Law, N., Pelgrum, W.J., &amp; Plomp, T. (2006). Pedagogy and ICT use in schools around the world: Findings from the IEA Sites 2006 study. Springer, CERC TheUniversityofHongKong</i></p> <p><i>Selwood, I.D., Fung, A.C.W., &amp; O'Mahony C. (2003). Management of Education in the Information Age - The Role of ICT, Boston:Kluwer.</i></p> <p><i>Δημητριάδης, Α. (2013). Διοίκηση-Διαχείριση Πληροφοριακών Συστημάτων. Αθήνα» Εκδόσεις Νέων Τεχνολογιών.</i></p> <p><i>Δουκίδης, Γ. (2011). Καινοτομία, στρατηγική, ανάπτυξη και πληροφοριακά συστήματα. Αθήνα: Εκδόσεις Ι. Σιδέρης.</i></p>

Ριγόπουλος, Γ. (2009) Πληροφοριακά συστήματα και ομαδικές αποφάσεις. Αθήνα: Εκδόσεις Νέων Τεχνολογιών.

<b>Course Title</b>	<b><i>Innovative institutions in education</i></b>
<b>Name of the tutor</b>	<b>IoannisThoidis</b>
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Bibliographic study and analysis: 50-60 hours (2 ECTS) Field study/ research: 60 hours (2 ECTS) Studying, preparing for and presenting a research study: 45-60 hours (2 ECTS) Preparing for and taking a final written exam: 60-90 hours (3 ECTS)
<b>Educational Results</b>	The purpose of this course is to critically present the theoretical background (principles, purpose, philosophy) of all-day education and all-day school and to evaluate their practical application through relevant studies and research.
<b>General skills</b>	Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies Working autonomously Working in groups Generating new research ideas Respect towards diversity and multiculturalism Respect towards the natural environment Critical thinking
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	a. Contemporary social and educational data

	<ul style="list-style-type: none"> <li>b. Combining formal and informal education, curricular and extracurricular learning</li> <li>c. All-dayschool</li> </ul>
<b>Assessment methods</b>	<p>Participation in lectures and presenting assignments (25%)</p> <p>Working in a group do research (15%)</p> <p>Taking a final exam (40%)</p> <p>Attending lectures (20%)</p>
<b>Indicative bibliography</b>	<p>Coelen, T., &amp; Otto, H-U. (Hrsg.) (2008). GrundbegriffeGanztagsbildung. Wiesbaden: VS Verlagfuer Sozialwissenschaften.</p> <p>Coffield (2000). The Nesessity of Informal learning. Bristol. (ΠΤΔΕΦλώρινας)</p> <p>Ecarius, J., Klieme, E., Stecher, L., &amp; Woods, J. (Hrsg.) (2013). Extended Education - an International Perspective. Proceedings of the International Conference on Extracurricular and Out-of-School Time Educational Research. Leverkusen: Barbara Budrich (ΠΤΔΕΦλώρινας)</p> <p>McGivney, V. (1999). Informal learning in the Community. Leister. (ΠΤΔΕΦλώρινας)</p> <p>Sivan, A./Ruskin, H. (Eds.) (2000). Leisure Education, Community Development and Populations with Special Needs. Wallingford, UK. (ΠΤΔΕΦλώρινας).</p> <p>Plantenga, J., &amp;Remery, C. (2013). Childcare services for schoolage children. A comparative review of 33 countries. European Commision. Justice.</p> <p>Thoidis, I., Gregoriadis, A., &amp;Krousorati, K. (2018). The contribution of all-day school to the development of social skills of pubils: The case of transition from preschool to primary school. European Journal of Education Studies, 4(5), 10-24. Available on -line at: <a href="http://www.oapub.org/edu">www.oapub.org/edu</a>.</p> <p>Thoidis, I.,&amp;Chaniotakis, N. (2015). All-day School: A School in Crisis or a Social Pedagogigal Solution to the Crisis? International Journal of Social Pedagogy – Special Issue “Social Pedagogy in Times of Crisis in Greece” 4(1), 137-149.</p> <p>Θωίδης Ι., &amp; Χανιωτάκης Ν. (2018). Ολοήμερο σχολείο. Παιδαγωγικές και κοινωνιολογικές διαστάσεις. Γ΄ έκδοση. Αφοι Κυριακίδη ΕΚΔΟΣΕΙΣ Α.Ε.: Θεσσαλονίκη.</p> <p>Κορωναίου, Α. (2001). Εκπαιδεύοντας εκτός σχολείου. Μεταίχμο: Αθήνα.</p> <p>Μπέτσας, Γ. (2007). Η Κοινωνική διάσταση στην εκπαίδευση. Θεσσαλονίκη: ΑδελφοίΚυριακίδη.</p>



**SPECIALIZATION DIRECTION:**

**HUMANITIES AND INFORMATION TECHNOLOGIES**

<b>Course Title</b>	<b><i>Innovative language teaching approaches in multilingual/multicultural environments</i></b>
<b>Name of the tutor</b>	
<b>Type of the Course</b>	Specialization Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	Lectures: 26 hours (1 ECTS) Bibliographic study and analysis: 50-60 hours (2 ECTS) Field study/ research: 30 hours (1 ECTS) Preparing for and writing a short assignment: 45-60 hours (2 ECTS) Preparing for, writing and presenting a study/ assignment individually: 100-120 hours (4 ECTS)
<b>Educational Results</b>	Students are able to  -identify and interpret contemporary theories applicable to the acquisition and learning of a foreign/ second language in multicultural classes. -understand contemporary communication and interaction theories and their impact on effective language teaching in multicultural classes. -apply innovative teaching practices for the development of bilingual/ multilingual learners that respond to their level of readiness, interests and individual needs. -organize learning environments to enhance language acquisition/ learning and intercultural communication strategies. -research/ study and critically approach curricula of Greek as

	foreign/ second language and various manuals for learning Greek as a foreign/ second language. -create material for language teaching in multicultural environments.
<b>General skills</b>	Respect towards diversity and multiculturalism Decision making Design and implement projects Working in an interdisciplinary environment Working autonomously Working in groups  Generating new research ideas Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	This course aims to systematically train students in language teaching in mixed multilingual/ multicultural classes.
<b>Assessment methods</b>	Participation in lectures and keeping a “learning journal” (20%) Assessment of a short synthesis assignment (20%) Assessment of an individual’s presentation of a short assignment (10%) Assessment of an individual’s assignment at the end of the semester (50%)
<b>Indicative bibliography</b>	Bennett, C. (2010). Comprehensive multicultural education: theory and practice. London: Pearson. Byram, M., Gribkova, B. & Starkey, H. (2002). Developing the intercultural dimension in language teaching. A practical introduction for teachers. Strasbourg: Council of Europe. Byram, M. (1997). Teaching and Assessing Intercultural Language Communicative Competence. Bristol: Multilingual Matters Ltd. Coelho, E. (2007). Διδασκαλία και μάθηση στα πολυπολιτισμικά σχολεία, Στο Ε. Τρέσσου & Σ. Μητακίδου (επιμ). Θεσσαλονίκη: Επίκεντρο. European Commission (2015). Language teaching and learning in multilingual classrooms. Brussels: Directorate-General for Education and Culture. Faerch, C. & Kasper, G. (2003). Strategies in interlanguage communication. New York: Longman. Griva, E. & Zorbas, V. (2017). Multicultural and citizenship

	<p>awareness through language: cross thematic practices in language pedagogy. New York: Nova Science Press.</p> <p>Schulz, R. A. (2007). The challenge of assessing cultural understanding in the context of foreign language instruction. <i>ForeignLanguageAnnals</i>, 40(1), 9-26.</p> <p>Τζακώστα, Μ. (2015). <i>Γλωσσική Εκμάθηση και Διδασκαλία σε Πολυπολιτισμικά Περιβάλλοντα</i>. Αθήνα: Gutenberg</p> <p>White, K., Lewis, K. &amp; Fletcher-Campbell, F. (2006). <i>Raising the Achievement of Bilingual Learners in Primary Schools: Evaluation of the Pilot/Programme</i>. NationalFoundation for EducationalResearch for DfE, UK.</p>
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<b>Course Title</b>	<b><i>Research and Teaching Issues on history and culture</i></b>
<b>Name of the tutor</b>	<b>Andreas P. Andreou, Sofia Iliadou-Tachou, Kostas Kasvikis</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (2 ECTS)</p> <p>Bibliographic study: 30 hours (2 ECTS)</p> <p>Field study/ research: 60 hours (2 ECTS)</p> <p>Preparing for and presenting a short assignment: 45-45hours (2 ECTS)</p> <p>Preparing for and writing a synthesis assignment: 65-75hours (4 ECTS)</p>
<b>Educational Results</b>	<p>During this course students approach issues of theory of history, historical research and history teaching in school in order to:</p> <ul style="list-style-type: none"> <li>- to understand the epistemological context of historiography both simultaneously and over time</li> <li>- deal with the basic cultural concepts and describe the basic principles of modern cultural theory</li> </ul>

	<ul style="list-style-type: none"> <li>- critically interpret the sources and to develop historical skills</li> <li>- recognize the importance of developing critical historical thinking skills, as well as historical literacy</li> <li>- utilize modern tools to design teaching approaches that meet the demands of historical education in the 21st century.</li> </ul>
<b>General skills</b>	<p>Critical thinking  Decision making  Working autonomously  Working in groups  Generating new research ideas  Searching for, collecting, analyzing and synthesizing bibliographic data  Democratic citizenship</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<p>The course consists of:  (a) a theoretical part, examining methodological issues in the epistemology of history and historiography;  (b) a part dealing with research issues in history, focusing on the study and interpretation of historical sources; and  (c) a part that summarizes the contemporary theoretical framework of historical education.</p>
<b>Assessment methods</b>	<p>Participation in lectures (40%)  Assessment of an individual's synthesis assignment (20%)  Assessment of an individual's synthesis assignment (20%)  Assessment of the presentation of the bibliography and an individual's assignment (20%)</p>
<b>Indicative bibliography</b>	<p>Andreou, A., Sofialiadou-Tachou, S., Mpetsas, I. (2012). <i>Frederica's Children or Marshall Plan's Kids?: Students of the Royal Educational Institutions in Post-War Greece</i>. LAP Lambert Academic Publishing.  Arthur, J. and Phillips, R. (eds.) 2000, <i>Issues in history teaching</i>, New York: Routledge  Barton, K. C. – Levstik, L. S. (2009) <i>Διδάσκοντας ιστορία για το συλλογικό αγαθό</i> (μτφρ. Α. Θεοδωρακάκου), Μεταίχμιο: Αθήνα.  Burke, P. (2004) <i>Αυτοψία. Οι χρήσεις των εικόνων ως ιστορικών μαρτυριών</i>. (μτφρ. Α. Ανδρέου), Μεταίχμιο: Αθήνα.  Chapman, A. and A. Wilschut 2015 (eds.), <i>Joined-up History. New directions in history education research</i>, Charlotte, NC: Information Age Publishing, inc.  Counsell, Ch., Burn, K. and Chapman, A. (eds.) 2016,</p>

*MasterClass in History Education. Transforming teaching and learning.* Bloomsbury: London.

Husbands, Ch. (2004) *Τισημαίνει διδασκαλία της ιστορίας; Γλώσσα, ιδέες και νοήματα.* Μεταίχμιο: Αθήνα.

Κόκκινος, Γ. (1998). Από την ιστορία στις ιστορίες. Αθήνα: Ελληνικά Γράμματα.

Κόκκινος, Γ. (2003) *Επιστήμη, ιδεολογία και ταυτότητα.* Μεταίχμιο: Αθήνα

Κόκκινος, Γ. & Νάκου, Ε. (2006) επιμ. *Προσεγγίζοντας την Ιστορική Εκπαίδευση στις αρχές του 20ού αιώνα.* Αθήνα: Μεταίχμιο.

Κόκκινος, Γ. (2012). *Η σκουριά και το πυρ. Προσεγγίζοντας τη σχέση ιστορίας, τραύματος και μνήμης.* Αθήνα: Gutenberg.

Lévesque, S. (2008) *Thinking Historically. Educating Students for the Twenty-First Century.* Toronto: University of Toronto Press.

Λιάκος, Α. (2007) *Πώς το παρελθόν γίνεται ιστορία;* Εκδόσεις Πόλις, Αθήνα.

Λιάκος, Α. (2011), *Αποκάλυψη, ουτοπία και ιστορία. Οι μεταμορφώσεις της ιστορικής συνείδησης.* Πόλις: Αθήνα.

Μαυροσκούφης, Δημ. Κ. (2005) *Αναζητώντας τα ίχνη της ιστορίας. Ιστοριογραφία, διδακτική μεθοδολογία και ιστορικές πηγές.* Αφοί Κυριακίδη: Θεσσαλονίκη.

Μπουζάκης, Σ. επιμ. (2011), *Πανόραμα ιστορίας της εκπαίδευσης.* Αθήνα: Gutenberg.

Noiriel, Gerard (2005) *Τι είναι η σύγχρονη ιστορία;* (μτφρ, Μαρία Κορασίδου), Gutenberg: Αθήνα.

Seixas, P. and Morton, T. (2013) *The Big Six Historical Thinking Concepts.* Toronto: Nelson Education.

Levstik, Linda. S., and Keith C. Barton (2001), *Doing History: Investigating with Children in Elementary and Middle Schools*, 2ed. Mahwah, NJ: Lawrence Erlbaum.

Stearns, Peter, Peter Seixas, and Sam Wineburg, (2000) ed. *Knowing, Teaching and Learning History: National and International Perspectives.* New York: New York University Press.

Φωτιάδης, Κ. - Ηλιάδου-Τάχου, Σ. (2013). *Εκπαίδευση και πολιτισμός στις ελληνικές κοινότητες της τσαρικής Ρωσίας.* Θεσσαλονίκη: Κυριακίδης.

### **SPECIALIZATION DIRECTION:**

### **SCIENCES AND INFORMATION TECHNOLOGIES**

<b>Course Title</b>	<i><b>Epistemology and History of Exact Sciences</b></i>
<b>Name of the tutor</b>	<b>Kostas Nikolantonakis</b>
<b>Type of the Course</b>	Compulsory Course
<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (1 ECTS)</p> <p>Bibliographic study and analysis: 50-60 hours (2 ECTS)</p> <p>Field study/ research: 30 hours (1 ECTS)</p> <p>Preparing for, writing and presenting an individual' s assignment: 50-60hours (2 ECTS)</p> <p>Preparing for a written exam: 100hours (4 ECTS)</p>
<b>Educational Results</b>	The aim of the course is students to understand the historical evolution of basic mathematical and scientific ideas, as well as the different philosophical views regarding mathematics and science.
<b>General skills</b>	<p>Respect towards diversity and multiculturalism</p> <p>Decision making</p> <p>Design and managing projects</p> <p>Working in an interdisciplinary environment</p> <p>Working autonomously</p> <p>Working in groups</p> <p>Generating new research ideas</p> <p>Searching for, collecting, analyzing and synthesizing information using the appropriate Information Technologies</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	The aim of the course is students to be able to understand the historical evolution of basic mathematical and scientific ideas, as well as the different philosophical views regarding the nature of mathematics and science. Philosophical and epistemological questions that influence the teaching and learning of mathematics and sciences are addressed.
<b>Assessment methods</b>	Assessment of the presentation of an individual's assignment

	<p>(20%)</p> <p>Assessment of an individual's assignment at the end of the semester (40%)</p> <p>Written exam (40%)</p>
<p><b>Indicative bibliography</b></p>	<ol style="list-style-type: none"> <li>1. Ackerknecht, E.A. (1998), <i>Ιστορία της Ιατρικής</i>, μετάφραση Β. Πασχάλης, Γ. Ηλιάδης, Β. Καρατζούλης, επιμέλεια Β. Πασχάλης, Αθήνα: Εκδόσεις Μαραθιά.</li> <li>2. Alessio, F. (2007), <i>Ιστορία της Μεσαιωνικής Φιλοσοφίας</i>, μετάφραση Α. Μεσσάρη, Γ. Καρούζος, Αθήνα: Τραυλός.</li> <li>3. Besnier, J-M. (2001), <i>Ιστορία της νεωτερικής και σύγχρονης φιλοσοφίας. Φυσιογνωμίες και έργα</i>, μετάφραση Κ. Παπαγιώργης, Αθήνα: Καστανιώτης.</li> <li>4. Biagioli, M. (2006), <i>Ο Γαλιλαίος αυλικός: Η πρακτική της επιστήμης στο πλαίσιο της κουλτούρας της απολυταρχίας</i>, μετάφραση Η. Καρκάνης, επιμέλεια Μ. Ασημακόπουλος, Αθήνα: Κάτοπτρο.</li> <li>5. Blair Bolles, E. (2004), <i>Η «Εντολή» του Γαλιλαίου</i>, μετάφραση Δ. Γιαννίμπας, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.</li> <li>6. BrookeHedley, J. (2008), <i>Επιστήμη και Θρησκεία</i>, μετάφραση Β. Βακάκη, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.</li> <li>7. Brown, H.I. (1993), <i>Αντίληψη, Θεωρία, Δέσμευση</i>, μετάφραση Α. Λευιτικός, Ε. Μαχαίρα, Δ. Παπαγιαννάκος και Χ. Συμσάρης, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.</li> <li>8. BrowneJ. (2007), <i>Δαρβίνος. Η προέλευση των ειδών</i>, μετάφραση Α. Γολέμη, Αθήνα: Ελληνικά Γράμματα</li> <li>9. Butterfield, H. (1988), <i>Η Καταγωγή της Σύγχρονης Επιστήμης (1300-1800)</i>, μετάφραση Ι. Αρζόγλου, Α. Χριστοδουλίδης, Αθήνα: Μορφωτικό Ίδρυμα Εθνικής Τραπέζης.</li> <li>10. Chalmers, A. F. (1996), <i>Τι είναι αυτό που το λέμε Επιστήμη;</i>, μετάφραση Γ. Φουρτούνης, επιμέλεια Α. Μπαλτάς, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.</li> <li>11. Cipolla, C. M. (1988), <i>Η Ευρώπη πριν από τη Βιομηχανική Επανάσταση. Κοινωνία και οικονομία 1000-1700</i>, μετάφραση Π. Σταμούλης, Αθήνα: Θεμέλιο.</li> <li>12. Copenhover, B. P., Schmitt, Ch. B. (2007), <i>Η Φιλοσοφία της Αναγέννησης</i>, μετάφραση Χ. Γεμελιάρης, Αθήνα: Πολύτροπον</li> <li>13. Cottingham, J. (2003), <i>Φιλοσοφία της Επιστήμης Α': Οι ορθολογιστές</i>, μετάφραση Σ. Τσούρτη, Αθήνα: Πολύτροπον.</li> <li>14. Crombie, A.C. (1992), <i>Από τον Αυγουστίνο στον Γαλιλαίο</i>, μετάφραση Μ. Ιατρίδου, Δ. Κούρτοβικ, τόμοι Α' και Β', Αθήνα: Μορφωτικό Ίδρυμα Εθνικής Τραπέζης.</li> <li>15. Cushing, J. (2003), <i>Φιλοσοφικές Έννοιες στη Φυσική</i>, μετάφραση Μ. Ορφανού, Σ. Γιαννέλης, Αθήνα:</li> </ol>

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16. DarwinCh. (2007), *Η Καταγωγή των Ειδών*, μετάφραση Α. Πάγκαλος, Αθήνα: Γκοβόστης [κυκλοφορεί και από τις εκδόσεις του Πανεπιστημίου Πατρών σε μετάφραση μελών ΔΕΠ του τμήματος Βιολογίας (1997)]
17. Debus, A. (1997), *Άνθρωπος και φύση στην Αναγέννηση*, μετάφραση Τ. Τσιαντούλας, επιμέλεια Κ. Γαβρόγλου, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.
18. Drake, S. (1993), *Γαλιλαίος*, μετάφραση Τ. Κυπριανίδης, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.
19. Duby, G. (1988), *Μεσαιωνική Δύση: Κοινωνία και Ιδεολογία*, μετάφραση Ο. Βαρών και Ρ. Μπενβενίστε, Αθήνα: Εταιρεία Μελέτης Νέου Ελληνισμού – Μνήμων.
20. Duhem, P. (2007), *Σώζειν τα Φαινόμενα*, εισαγωγή, μετάφραση-επιμέλεια Δ. Διαλέτης, Γ. Χριστιανίδης, Αθήνα: Νεφέλη.
21. FergusonK. (2009), *Τίχο-Κέπλερ, Οι θησαυροί της Αστρονομίας*, μετάφραση Μ. Καρτσωνάκης, Αθήνα: Τραυλός.
22. Feyrabend, P. (1982), *Ενάντια στη Μέθοδο*, μετάφραση Γρ. Καυκαλάς, Γ. Γκουνταρούλης, Θεσσαλονίκη: Σύγχρονα Θέματα.
23. Feyrabend, P. (2002), *Αποχαιρετισμός στο λόγο*, μετάφραση Π. Μπουρλάκης, Αθήνα: Εκκρεμές.
24. Gillispie, C.C. (1986), *Στην Κόψη της Αλήθειας: Η εξέλιξη των επιστημονικών ιδεών από το Γαλιλαίο ως τον Einstein*, μετάφραση Δ. Κούρτοβικ, Αθήνα: Μορφωτικό Ίδρυμα Εθνικής Τραπέζης.
25. Gingerich, O., (2005), *Στα Ίχνη του Κοπέρνικου*, μετάφραση Ε. Πισσία, Αθήνα: Τραυλός
26. Grant, E. (1994), *Οι Φυσικές Επιστήμες τον Μεσαίωνα*, μετάφραση Ζ. Σαρίκας, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.
27. Hankins T.L. (1998), *Επιστήμη και Διαφωτισμός*, μετάφραση Γ. Γκουνταρούλης, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.
28. Hanson, N.R. (2002), *Πρότυπα ανακάλυψης*, μετάφραση Γ. Παρασκευόπουλος, Δ. Παπαγιαννάκος, Β. Κιντή, Ηράκλειο: Πανεπιστημιακές εκδόσεις Κρήτης.
29. Kenny, A. (επιμ.) (2005), *Ιστορία της δυτικής φιλοσοφίας*, μετάφραση Δέσποινα Ρισσάκη, Αθήνα: Νεφέλη.
30. Κογρέ, Α. (1989), *Από τον Κλειστό Κόσμο στο Άπειρο Σύμπαν*, μετάφραση Π. Λάμψα, Αθήνα: Ευρύαλος.
31. Κογρέ, Α. (1991), *Δυτικός Πολιτισμός*, μετάφραση Β. Κάλφας και Ζ. Σαρίκας, Αθήνα: Υψιλον.
32. Kraft, V. (1986), *Ο κύκλος της Βιέννης και η γένεση του νεοθετικισμού*, μετάφραση Γ. Μανάκου, Αθήνα: Γνώση.
33. Kuhn, T.S. (1987), *Η δομή των επιστημονικών επαναστάσεων*, εισαγωγή-επιμέλεια Β. Κάλφας, μετάφραση Γ. Γεωργακόπουλος, Β. Κάλφας, Θεσσαλονίκη: Σύγχρονα Θέματα.



34. Lakatos, I. (1986), *Μεθοδολογία των Προγραμμάτων Επιστημονικής Έρευνας*, μετάφραση Αιμ. Μεταξόπουλος, Θεσσαλονίκη: Σύγχρονα Θέματα.
35. Le Goff, J. (1993), *Ο πολιτισμός της μεσαιωνικής Δύσης*, μετάφραση Ρ. Μπενβενίστε, Θεσσαλονίκη: Βάνιας.
36. LeGoff, J. (2002), *Οι Διανοούμενοι στο Μεσαίωνα*, μετάφραση Μ. Παραδέλλη, Αθήνα: Κέδρος.
37. Lindberg, D. (1997), *Οι Απαρχές της Δυτικής Επιστήμης*, μετάφραση Η. Μαρκολέφας, Αθήνα: Πανεπιστημιακές Εκδόσεις ΕΜΠ
38. Luscombe, D. (2007), *Η Μεσαιωνική Σκέψη*, μετάφραση Χ. Γεμελιάρης, Αθήνα: Πολύτροπον
39. Mayr, E. (1991), *Ο Δαρβίνος και η Γένεση της Σύγχρονης Εξελικτικής Σκέψης*, μετάφραση Σ. Σφενδουράκης, Αθήνα: Σύναλμα.
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Course Title	<b>Mathematics education and ICT use</b>
Name of the tutor	<b>Charalambos Lemonidis</b>
Type of the Course	Compulsory Course

<b>Year of Studies</b>	2 <sup>nd</sup> Year
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Language used during lectures and exams</b>	Greek
<b>Number of ECTS</b>	10ECTS
<b>Outline of the course and workload</b>	<p>Lectures: 26 hours (1 ECTS)</p> <p>Bibliographic study and analysis: 50-60 hours (2 ECTS)</p> <p>Field study/ research: 30 hours (1 ECTS)</p> <p>Preparing for and presenting a short assignment: 45-60hours (2 ECTS)</p> <p>Preparing for, writing and presenting an individual's assignment: 100-120hours (4 ECTS)</p>
<b>Educational Results</b>	<p>Upon completion of the course students will be able to:</p> <ul style="list-style-type: none"> <li>-Use technology to teach mathematics</li> <li>-develop a teaching scenario employing new technologies.</li> <li>-apply design research methodology</li> <li>-apply technology to the teaching of various contents</li> <li>-design, develop and evaluate teaching by using digital storytelling.</li> </ul>
<b>General skills</b>	<p>Using ICTs in teaching Mathematics</p> <p>Working autonomously</p> <p>Working in groups</p> <p>Generating new research ideas</p> <p>Searching for, collecting, analyzing and synthesizing information by using the appropriate Information Technologies</p>
<b>Prerequisite courses</b>	-
<b>Content of the course</b>	<ul style="list-style-type: none"> <li>-Teacher training and TRACK technology</li> <li>-Design research methodology</li> <li>-Using mobile devices in teaching mathematics</li> <li>-Using technology to teach fractions</li> <li>-Using storytelling and digital storytelling in teaching</li> </ul>
<b>Assessment methods</b>	<p>Assessment of a group's assignment (25%)</p> <p>Assessment of the presentation of a group's assignment (5%)</p> <p>Assessment of the presentation of an individual's assignment</p>

	(5%) Assessment of an individual's assignment (65%)
<b>Indicative bibliography</b>	<p>Albano, G., &amp; Pierri, A. (2016). Digital storytelling in mathematics: a competence-based methodology. <i>Journal of Ambient Intelligence and Humanized Computing</i>, 1-12.</p> <p>Aldon, G. (2014). Didactic Incidents: A Way to Improve the Professional Development of Mathematics Teachers. In Clark-Wilson, A., Robutti, O. and Sinclair, N. (editors). <i>The mathematics teacher in the digital era</i>. Springer, pp. 318-343.</p> <p>Crompton, H., &amp; Traxler, J. (2015). <i>Mobile Learning and Mathematics</i>. Routledge.</p> <p>Domingo, M. G. &amp; Gargante, A. B. (2016). Exploring the use of educational technology in primary education: Teachers' perception of mobile technology learning impacts and applications' use in the classroom. <i>Computers in Human Behavior</i>, Vol. 56, 21-28.</p> <p>IstemicStarčić, A., Cotic, M., Solomonides, I. and Volk, M. (2016). Engaging preservice primary and preprimary school teachers in digital storytelling for the teaching and learning of mathematics. <i>British Journal of Educational Technology</i>, 47: 29–50. doi: 10.1111/bjet.12253.</p> <p>Λεμονίδης, Χ. (2017). <i>Στηντροχιάτωνρητών</i>. Εκδόσεις Κυριακίδη, Θεσσαλονίκη.</p> <p>Pamuk, S. (2011). Understanding preservice teachers' technology use through TPACK framework. <i>Journal of Computer Assisted Learning</i>, 28(5), pp.425-439.</p> <p>Ruthven, K. (2014). Frameworks for analyzing the expertise that underpins successful integration of digital technologies into everyday teaching practices. In A. Clark-Wilson, O. Robutti, &amp; N. Sinclair (Eds.), <i>The mathematics teacher in the digital age</i> (pp. 373-393). New York, NY: Springer.</p> <p>Schuck, S. (2016). Enhancing Teacher Education in Primary Mathematics with Mobile Technologies. <i>Australian Journal of Teacher Education</i>, 41(3), n3.</p>