VNIVERSITAT ֍ DVALÈNCIA

COURSE DATA

Data Subject

Code	34148
Name	Basic mathematics
Cycle	Grade
ECTS Credits	6.0
Academic year	2019 - 2020

Study (s)

Degree	Center	Acad. year	Period
1107 - Degree in Mathematics	Faculty of Mathematics	1	First term

Subject-matter

Degree	Subject-matter	Character
1107 - Degree in Mathematics	1 - Mathematics	Basic Training

Coordination

Name	Department
PEREZ RAMOS, M DOLORES	363 - Mathematics
SANUS VITORIA, LUCIA	363 - Mathematics

SUMMARY

The subject *"Basic Mathematics"* is conceived as an essential subject that serves as a basis for the subsequent subjects of the degree, providing an adequate training for understanding of the mathematical language and the most fundamental concepts.

Some of the contents of this subject are well known for high school students, although they might not have seen them with the rigor that we require. No previous knowledge is needed at this subject.

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PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

None.

OUTCOMES

1107 - Degree in Mathematics

- Capacity for analysis and synthesis.

- Ability to work in teams.

- Learn autonomously.

- Possess and understand the mathematical knowledge.

- Expressing mathematically in a rigorous and clear manner.

- Reason logically and identify errors in the procedures.

- Capacity of abstraction and modeling.

- Knowing the time and the historical context in which occurred the great contributions of women and men in the development of mathematics.

LEARNING OUTCOMES

GENERAL OBJETIVES:

- Acquainting the student with the elementary vocabulary of mathematics.
- Helping the student to acquire and develop intuition in mathematics.
- Ability to reproduce reasoning and mathematical-deductive arguments.
- Ability to recognize mistakes in the reasoning.

SOCIAL SKILLS:

- Ability to work in a team.
- Capability for planning and organizing work.
- Ability to search for updated documentation on a problem.
- Ability to express, orally and in writing, his/her reasoning and the decisions to which they lead.
- Ability to criticize in front of the conclusions obtained in his/her work or at the others' work.

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DESCRIPTION OF CONTENTS

1. Statements and proof in Mathematics.

2. Elementary set theory. Mappings.

3. Numerability. Denumerable sets.

4. Equivalence relations and order relations.

5. Definitions and examples of basic algebraic structures: Groups, rings and fiels.

6. Integers and divisibility. Algorithms.

7. Polynomials. Factoring polynomials.

8. Complex numbers.

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WORKLOAD

ACTIVITY	Hours	% To be attended
Classroom practices	30,00	100
Theory classes	30,00	100
Other activities	7,50	100
Preparation of evaluation activities	30,00	0
Preparing lectures	22,50	0
Preparation of practical classes and problem	30,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

In this subject, it will be used some teaching and learning methodologies in order to introduce students into the mathematical reasoning. The theoretical part takes place in master classes, where the professor will introduce progressively the topics and the mathematical method.

In each topic, in addition to the theoretical knowledge, it will be included numerous examples, as well as the resolution of standard problems related to it. In addition, at the end of each topic it will be provided some exercises in order to be solved by the students.

In the practical part and seminars, work will be done in groups of students.

EVALUATION

Evaluation of learning the knowledge and skills acquired by students will be continuous assessment, and it will consist of the following:

1. 10% for participation in the seminars/tutorials.

2. 15% for evidence of continuous assessment.

3. 75% for the final exam, with theoretical and practical contents, in which it will be necessary to obtain at least a rating of 4 over 10 to pass the subject.

To pass you must obtain a minimum grade of 4 out of 10 on the final exam.

 Rating in the Second Call.

There will only be offered a final exam and the criteria to obtain the final grade will be the same as in the First Call. (I.e. with the grades of paragraphs 1 and 2 obtained during the course.) The participation in the seminars/tutorials and the continuous assessment will not be recoverable in the Second Call.

REFERENCES

Basic

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Referencia b1:   Eccles,P.J. An introduction to mathematical reasoning, Cambridge Univ. Pess,1970

Referencia b2:   Gerstein,L.J. Mathematical structures and proofs, John and Barlett Publ. Springer, 1996

Referencia b3:   Halmos, P. Naive set theory, Princeton, Van Nostrand Company Inc, 1960

Referencia b4:   Hungerford, T. H. Algebra, Springer-Verlag, 1974

Referencia b5:   Liebeck M. A Concise introduction to Pure Mathematics, Taylor&Francis Group, 2016

Referencia b6:   Navarro, G. Un curso de números,   Publicacions Universitat de València, 2007

Referencia b7:   Navarro, G. Un curso de Álgebra, 2a ed., Publicacions Universitat de València, 2016

Referencia b8:   Stillwell, J. Numbers and Geometry, Springer, 1998

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

English version is not available