

Academic Year: ( 2022 / 2023 )

Review date: 19-05-2022

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: MUÑOZ MERINO, PEDRO JOSE

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

## DESCRIPTION OF CONTENTS: PROGRAMME

- 1 - Introduction to learning analytics and educational data mining
  - 1.1 Definitions and purpose
  - 1.2 Educational platforms and services
  - 1.3 Reference architectures and frameworks
  - 1.4 Learning analytics life cycle
- 2 - Collection of educational data
  - 2.1 Types of data
  - 2.2 Storage formats
  - 2.3 Interoperability. CAM, xAPI, IMS Calliper specifications
  - 2.4 Combination of data from different sources in distributed services
- 3 - Detection of student skills
  - 3.1 Item Response Theory
  - 3.2 Bayesian models
  - 3.3 Knowledge spaces
- 4 - Detection of student behaviors
  - 4.1 Preferences
  - 4.2 Help-seeking
  - 4.3 Gaming the system
  - 4.4. Others
- 5 - Visual analytics for the learning process
  - 5.1 Existing tools
  - 5.2 Video and exercise visualizations
  - 5.3 Social interaction visualizations
  - 5.4 Other high-level visualizations
  - 5.5 Analysis and interpretation of visualizations from different situations
  - 5.6 Interventions in the learning process
- 6 - Prediction of learning outcomes
  - 6.1 Prediction of dropout
  - 6.2 Prediction of learning gains
  - 6.3 Prediction of interactions in services

<b>% end-of-term-examination:</b>	60
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	40