

Course guides

804252 - ADA - Data Analysis

Last modified: 18/09/2021

Unit in charge: Image Processing and Multimedia Technology Centre
Teaching unit: 804 - CITM - Image Processing and Multimedia Technology Centre.

Degree: BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Compulsory subject).

Academic year: 2021 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: Loepfe, Lasse

Others: Loepfe, Lasse

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

TEACHING METHODOLOGY

The teaching methodology is divided in four parts:

- Sessions for the content's exposition at classroom
- Practical working sessions at classroom
- Practical development of applications with special reference to the Dashboard project
- Autonomous work to study and carry out exercises and activities

LEARNING OBJECTIVES OF THE SUBJECT

- Learning and use of the analytical approach applied to the development of video games
- Knowledge of the main processes necessary for "game analytics"
- Understanding of common problems in the analytical approach, their detection and means for their solution
- Understanding with the main concepts and KPIs used in the industry
- Knowledge of the most common tools used in the industry, including web applications, installable applications, languages, file formats, etc ...
- Ability to understand and use the most widespread analytical visualizations
- Ability to express yourself for clear and effective communication in reports
- Use of the most common basic analytics techniques
- Familiarity with the most popular and widespread advanced analytics techniques
- Familiarity with the fundamental equations of the sector
- Knowledge of the structured approach of an analytics department



STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	20.00
Hours medium group	18,0	12.00
Self study	90,0	60.00
Guided activities	12,0	8.00

Total learning time: 150 h

CONTENTS

1. Introduction

Description:

- 1.1 Planning
- 1.2 Adquisition & Storage
- 1.3 Analytics
- 1.4 Presentation

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 10h

Theory classes: 2h
Guided activities: 2h
Self study : 6h

2. KPIs

Description:

Overview of the most commonly used indicators in game analytics
Number of users: DAU, MAU
Retention: DAU/MAU, D1,D3,D7
Monetisation: ARPU, ARPPU
Marketing: CPI
Community: Virality
Performance: FPS, Crashes

Full-or-part-time: 10h

Theory classes: 4h
Self study : 6h



3. Data bases

Description:

- 3.1 Events
- 3.2 Server structure
- 3.3 SQL
 - 3.3.1 Tables
 - 3.3.2 Queries
 - 3.3.3 Views

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 30h

Theory classes: 4h
Guided activities: 8h
Self study : 18h

4. Visualization

Description:

- 4.1 General considerations of visualization
- 4.2 Business intelligence software

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 20h

Theory classes: 2h
Guided activities: 6h
Self study : 12h

5. Case studies

Description:

- 5.1 Level progression
- 5.2 Spatial Data
- 5.3 Level Design
- 5.4 IAP

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 40h

Theory classes: 4h
Laboratory classes: 12h
Self study : 24h

6. Statistics

Description:

- 6.1 Sampling
- 6.2 Regressions
- 6.3 Classification
- 6.4 Networks

Full-or-part-time: 20h

Theory classes: 4h
Guided activities: 4h
Self study : 12h

7. Machine Learning and Big Data

Description:

- 7.1 Uses and abuses of ML
- 7.2 Supervised vs unsupervised learning
- 7.3 Cost function and its optimisation
- 7.4 Regressions
- 7.5 Decision trees
- 7.6 Neural Networks
- 7.7 Support Vector Machine
- 7.8 ML-Agents in Unity

Full-or-part-time: 20h

Theory classes: 4h
Laboratory classes: 4h
Self study : 12h

ACTIVITIES

Data Analysis

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 18h

Self study: 18h

Predictive Models

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 24h

Self study: 24h



Dashboard

Related competencies :

CEVJ 12. Analitzar i interpretar les diverses dades que aportin les mètriques i indicadors d'un joc per millorar la seva balanceig quant a disseny i el seu rendiment econòmic.

Full-or-part-time: 48h

Self study: 48h

GRADING SYSTEM

Practice 1 (Case study 1): 15%

Practice 2 (Case study 2): 20%

Midterm exam: 20%

Final exam: 35%

Participation and attitude towards learning: 10%

In case of suspending the subject through continuous evaluation, you will have the option to perform a recovery exam of the theoretical part, corresponding to 55% of the subject's grade.

BIBLIOGRAPHY

Basic:

- Luton, Will. Free 2 play: making money from games you give away. Upper Saddle River: Pearson Education, 2013. ISBN 9780321919014.

- Lovell, Nicholas; Fahey, Rob. Design rules for free-to-play games. London: GAMESbrief, 2012.

- Drachen, Anders; Seif El-Nasr, Magy; Canossa, Alessandro, eds. Game analytics: maximizing the value of player data. London: Springer, 2013. ISBN 9781447147688.

RESOURCES

Hyperlink:

- Game Analytics 101. <https://www.raywenderlich.com/2972-game-analytics-101>