Course guides
804252 - ADA - Data Analysis

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: 2020   ECTS Credits: 6.0   Languages: Catalan, English, Spanish

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

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STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided activities</td>
<td>12,0</td>
<td>8.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>18,0</td>
<td>12.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## CONTENTS

### 1. Introduction

**Description:**
- 1.1 Planning
- 1.2 Acquisition & 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. Analyze and interpret the different data that contribute to the metrics and indicators of a game to improve its balance in terms of design and its economic performance.

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. Analyze and interpret the different data that contribute to the metrics and indicators of a game to improve its balance in terms of design and its economic performance.

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): 5%
Practice 2 (Case study 2): 10%
Practice 3 (Case study 3): 20%
Mid-term exam: 20%
Final exam: 35%

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:

RESOURCES

Hyperlink: