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: 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

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STUDY LOAD

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