## Course Syllabus

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| **Code - Course Title** | **OGP228 - Mobile Game Development** |
| **Course Type** | IV. SEMESTER |
| **Laboratory + Practice** | 2+2 |
| **ECTS** | **6.0** |
| **Language of Instruction** | Türkçe |
| **Course Type** | Area Elective Courses |
| **Course Instructor(s)** | ÖĞR. GÖR. GÜVENÇ USANMAZ |

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| **Mode of Delivery** | This course is delivered through face-to-face instruction. Theoretical lectures, laboratory sessions and project work are integrated throughout the semester. The default engine for practical work is Unity; the instructor may prefer an equivalent approach (e.g., Godot, native Android/Kotlin or Flutter). |
| **Prerequisites** | There are no prerequisites or co-requisites for this course. |
| **Courses Recomended** | It is recommended to have completed OGP104 Programming II, XXX7954 Game Engine Technologies and OGP108 2D Game Development Studio before taking this course. Basic Unity/C# knowledge and game engine experience will facilitate the learning process. |
| **Recommended Resources** | Unity. Mobile development documentation: https://docs.unity3d.com/Manual/MobileDevelopment.htmlGoogle Play Console Help: https://support.google.com/googleplay/android-developer/Apple Developer: https://developer.apple.com/documentation/ |
| **Work Placement** | This course has no internship or placement requirement. |

## Course Syllabus

| Weeks | Learning Outcomes | Topics | Teaching Methods |
|---|---|---|---|
| **Week - 1** | | Introduction to mobile platforms: Android/iOS, hardware constraints; development environment and Unity mobile build setup. | |
| **Week - 2** | | Touch controls: virtual joystick, touch/gesture detection, multi-touch. | |
| **Week - 3** | | Accelerometer and gyroscope: tilt-based control; sensor data reading and calibration. | |
| **Week - 4** | | Mobile graphics: resolution independent design, Canvas Scaler, safe area and notch support. | |
| **Week - 5** | | Screen ratios, orientation (portrait/landscape); UI scaling and accessibility. | |
| **Week - 6** | | Performance optimization: profiling, draw calls, batching; mobile GPU/CPU limits. | |
| **Week - 7** | | Battery consumption and thermal management; update loop and reducing unnecessary computation. | |
| **Week - 8** | | Memory management: asset compression, object pooling, reducing GC pressure. | |
| **Week - 9** | | Data saving: local storage (PlayerPrefs, JSON/SQLite); save/load architecture. | |

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|---|---|---|---|
| Week - 10 | | Cloud synchronization basics; offline/online game state management. | |
| Week - 11 | | Advertising and revenue models: in-app purchases (IAP), rewarded and banner ads; SDK integration concepts. | |
| Week - 12 | | Sensor integration: location services, camera access; location-based and AR-lite examples. | |
| Week - 13 | | Publishing processes: store rules, certificate/signing, APK/AAB and TestFlight builds. | |
| Week - 14 | | End-of-term mobile game prototype presentation; store page draft and course wrap-up. | |

## Learning Outcomes

| # | Learning Outcome |
|---|---|
| 1 | Explains hardware and software constraints of mobile platforms in a game development context. |
| 2 | Designs and implements touch and sensor-based control schemes for mobile games. |
| 3 | Creates resolution-independent mobile UI and graphics layout. |
| 4 | Applies battery, memory and frame rate optimization through mobile performance profiling. |
| 5 | Uses local and cloud-based save architectures in a mobile game. |
| 6 | Applies in-app purchase and ad integration concepts in example scenarios. |
| 7 | Integrates sensors such as location, camera and gyroscope into game mechanics. |
| 8 | Produces signed builds for Android or iOS and plans the store publishing process. |

## Sustainable Development Goals

*No content has been provided.*

## Course Theme

*No content has been provided.*

## AKTS Workload

| Activity | Duration (Hour) | Count | Workload |
|---|---|---|---|
| Teorik Derse Katılım | 0 | 0 | 0 |
| Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı) | 0 | 0 | 0 |
| Ödevler | 0 | 0 | 0 |
| Proje - Rapor - Sunum Hazırlama | 0 | 0 | 0 |
| Ara Sınav Hazırlığı (sınav süresi dahil) | 0 | 0 | 0 |
| Final Sınavı Hazırlığı (sınav süresi dahil) | 0 | 0 | 0 |
| Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.) | 0 | 0 | 0 |
| Staj Uygulaması | 0 | 0 | 0 |
| | | **Calculated ECTS** | **0** |

## Assessment Method and Passing Requirements

*No content has been provided.*