**Content**

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
|---|---|---|---|---|---|---|---|
| INF432 | Computer Graphics | 7 | 3 | 0 | 0 | 3 | 5 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | French |
| Course Type | Elective |
| Course Level | Bachelor Degree |
| Objective | |
| Content | 1. Introduction to OpenGL Programming<br><br>2. 3D Graphics System<br><br>3. 2D and 3D Object Representation<br><br>4. Object Modeling and Visualization<br><br>5. Object Transformation Functions, Projection Designs<br><br>6. Object Animation<br><br>7. Animation Models<br><br>8. Midterm Exam<br><br>9. Object-Oriented Graphic Design<br><br>10. Interactive OpenGL Programming<br><br>11. Introduction to Different OpenGL Derivatives: WebGL, OpenGLES, GLSL, JavaScript<br><br>12. Game Engine Architectures<br><br>13. 3D Scene Design, Ray Tracer<br><br>14. Projects |
| References | 1- Computer Graphics with Open GL, Hearn Baker Carithers, Fourth Edition, Pearson, 2014<br>2- 3D Computer Graphics, A Mathematical Introduction with OpenGL, Samuel R. Buss, Cambridge University Press 2003<br>3- WebGL Programming Guide: Interactive 3D Graphics Programming with WebGL, Kouichi Matsuda, Rodger Lea Addison Wesley, 2013<br>4-Mathematics for 3D Game Programming and Computer Graphics Third Edition, Eric Lengyel, Course Technology, 2012 |

**Theory Topics**

| Week | Weekly Contents |
|---|---|
| 1 | Introduction to OpenGL Programming |

| Week | Weekly Contents |
|---|---|
| 2 | 3D Graphics System |
| 3 | 2D and 3D Object Representation |
| 4 | Object Modeling and Visualization |
| 5 | Object Transformation Functions, Projection Designs |
| 6 | Object Animation |
| 7 | Animation Models |
| 8 | Midterm Exam |
| 9 | Object-Oriented Graphic Design |
| 10 | Interactive OpenGL Programming |
| 11 | Introduction to Different OpenGL Derivatives: WebGL, OpenGLES, GLSL, JavaScript |
| 12 | Game Engine Architectures |
| 13 | 3D Scene Design, Ray Tracer |
| 14 | Projects |

| Week | Weekly Contents |
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| 2 | 3D Graphics System |
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