UNIVERSITAS MATARAM

(University of Mataram)

FAKULTAS TEKNIK

(Faculty of Engineering)

PROGRAM STUDI TEKNIK INFORMATIKA

(Department of Informatics Engineering)

MODULE HANDBOOK DESCRIPTION

Game Programming (P22C08)

Module designation	Game Programming
Semester(s) in which the module is taught	*6 / third year*
Person responsible for the module	*Raphael Bianco Huwe, S.T., M.T.*
Language	*Indonesian*
Relation to curriculum	*Compulsory*
Teaching methods	*Lectures, Hands-on Labs, Project-Based Learning, Discussions*
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester including Evaluation ● 2 x 50 minutes lecturer/week ● 2 x 60 minutes class exercise/week ● Self Study hours = 120 minutes/week Total workload 340 minutes/week
Credit points	*2 (~ 3,2 ECTS)*
Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	This course aims to equip students with the technical knowledge and programming skills required to develop video games. Upon completing this course, students are expected to: Understand the fundamental principles of game programming, including game loops, rendering, and input handling. Implement core game mechanics, such as collision detection, physics simulation, character movement, and animations. Develop 2D and 3D games using game engines like Unity or Unreal Engine, utilizing scripting languages such as C# or C++. Utilize sound and visual effects to enhance player experience, including real-time rendering techniques. Deploy and publish games on different platforms, including PC, mobile, and consoles.
Content	1. Introduction to Game Programming 2. Game Architecture and Frameworks 3. Graphics and Rendering Techniques 4. Character Control and Animation 5. Multiplayer and Networking in Games 6. Audio and Sound Design in Games 7. Game Optimization and Debugging 8. Game Deployment and Publishing 9. Final Project
Examination forms	*Assignments, Quiz, Project*
Study and examination requirements	*Quiz and Assignments 30%,* *Mid Exam 35%* *Final Exam 35%*
Reading list	1. Schell, J. (2019). The Art of Game Design: A Book of Lenses (4th Edition). CRC Press. 2. Nystrom, R. (2014). Game Programming Patterns. Genever Benning. 3. Unity Technologies. Unity Documentation and Tutorials – https://docs.unity3d.com 4. Unreal Engine. Unreal Engine Documentation – https://www.unrealengine.com/en-US/documentation 5. Eberly, D. H. (2007). Game Physics Engine Development. Morgan Kaufmann. 6. Millington, I. (2019). Artificial Intelligence for Games (3rd Edition). CRC Press.