# Description: OSPI logo for white bground

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| **Course: Game Design and Programming 2** | | **Total Framework Hours up to: 90** |
| **CIP Code:** | **Exploratory  Preparatory** | **Date Last Modified: 29 June 2018** |
| **Career Cluster:** | | **Cluster Pathway:** |

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| **Unit 0: Introduction – The Impact of Games In the World** | |
| **COMPONENTS AND ASSESSMENTS** | |
| **Performance Assessments:** | |
| **Leadership Alignment:** | |
| **Standards and Competencies** | |
| **Standard/Unit:** | |
| **Competencies:** | **Total Learning Hours for Unit: 4** |
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| **Unit 1: Thinking Like a Machine** | |
| **COMPONENTS AND ASSESSMENTS** | |
| **Performance Assessments:**  Working from a paper prototype or problem description develop a computational model and abstractions to emulate “real-world” phenomena or to solve a problem. Express the model in C# like pseudocode using the building blocks of sequence, selection, and iteration. Verify the pseudocode in pair-programming teams by translating it into a running program in Code.org’s Code Studio or a similar tool – optionally write the programs in C#. Assess using:   * Designer’s notebook * Knowledge and vocabulary tests * Parsons problems (rearrange out of order code) * Pseudocode | |
| **Leadership Alignment:**  Students will **think creatively** and **reason effectively** to **solve problems**, **accessing and evaluating information** as needed to **be self-directed learners** while employing computational thinking skills as they develop algorithms and abstractions. They will **communicate clearly** and **interact effectively** as they **collaborate with** and **guide and lead others** while pair programming. | |
| **Standards and Competencies** | |
| **Standard/Unit: Developing computational models** | |
| **Competencies:**   * Explaining abstraction and the building blocks of algorithms. * Presenting (and debating) algorithms and abstractions and their application to solving a particular problem or modeling phenomena in the “real-world.” * Writing pseudocode to express and test algorithms. * Translating pseudocode into runnable code. | **Total Learning Hours for Unit: 10** |
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| **Unit 2: Creating Game Components In Unity** | |
| **COMPONENTS AND ASSESSMENTS** | |
| **Performance Assessments:** | |
| **Leadership Alignment:** | |
| **Standards and Competencies** | |
| **Standard/Unit: Writing and testing Unity scripts in C#** | |
| **Competencies:** | **Total Learning Hours for Unit: 14** |
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| **Unit 3: From Game Prototype to First Release** | |
| **COMPONENTS AND ASSESSMENTS** | |
| **Performance Assessments:** | |
| **Leadership Alignment:** | |
| **Standards and Competencies** | |
| **Standard/Unit: Identifying the elements of a releasable game.** | |
| **Competencies:** | **Total Learning Hours for Unit: 7** |
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| **Unit 4: Game Jam 2.0** | |
| **COMPONENTS AND ASSESSMENTS** | |
| **Performance Assessments:**  Working on a team create a complete first release of a game (playable with a UI and multiple levels or the equivalent) using an iterative design process that includes the use of rapid prototyping techniques and intentional playtesting. The assessed elements of the project are:   * Project management:   + Managing scope   + Task breakdown   + Roles & responsibilities   + Managing workload   + Maintaining an accurate schedule (burn down list, velocity). * Project documentation:   + Game design document   + Code documentation (comments)   + Test plan   + Asset credits   + Issue tracking * Source management   + Code is in a revision control system (Git/GitHub)   + Code reviews   + Changes are tracked and merged * Game state at deadline   + Relative to project requirements   + Relative to the team’s project plan   The elements will be assessed on an ongoing basis during the project. | |
| **Leadership Alignment:**  Students will **collaborate** on a **diverse team** to **solve problems** they encounter while attempting to create a releasable game. This will require them to **be flexible** and **adapt to change** as they **manage goals and time** to **produce results** in the form of a complete game. They will need to **work independently** and **be self-directed learners** who can help to **guide and lead** the team and who **are responsible to others.** | |
| **Standards and Competencies** | |
| **Standard/Unit: Working on a team to produce a finished game in a limited timeframe.** | |
| **Competencies:**   * Using an iterative design process * Setting goals and develop schedules * Creating rapid prototypes to efficiently test ideas * Developing computational models of real life processes and phenomenon * Designing and implement algorithms and abstractions * Conducting code reviews * Using a revision control system to manage source code. * Working collaboratively on a team | **Total Learning Hours for Unit: 21** |
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| Unit 5: Project Presentations & Evaluation | |
| **COMPONENTS AND ASSESSMENTS** | |
| **Performance Assessments:**  After completing the digital game, the team will present their project and an assessment of their process to the class. The assessed items for this unit are:   * Presentation:   + Demo of game   + Description of team roles & project plan   + Description of individual contributions   + Lessons learned about group process – advice for the future * Individual reflection * Constructive feedback to peers * Group proposal and rationale for allocating of scores | |
| **Leadership Alignment:**  Students will **reason effectively** and **make judgements and decisions** as they reflect individually and as a group on their ability to **be flexible** and **adapt to change**, to **manage a project** to **produce results** as they **manage goals and time** while helping to **guide** and be **responsible to others** as they **work in diverse teams**. | |
| **Standards and Competencies** | |
| **Standard/Unit:** Evaluating the work of a project team | |
| **Competencies:**   * Reflect on and assess the success of a project in terms of its initial goals. * Reflect on and assess one’s individual contributions to a team effort. * Constructively critique the group process and make suggestions for improvement. | **Total Learning Hours for Unit: 5** |
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| **Aligned Washington State Standards** | |
| **Arts** |  |
| **Computer Science** |  |
| **Educational Technology** |  |
| **Health and Fitness** |  |
| **Language** |  |
| **Math** |  |
| **Reading** |  |
| **Science** |  |
| **Social Studies** |  |
| **Speaking and Listening** |  |
| **Writing** |  |

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| **21st Century Skills** | | |
| Check those that students will demonstrate in this course: | | |
| **LEARNING & INNOVATION**  **Creativity and Innovation**  Think Creatively  Work Creatively with Others  Implement Innovations  **Critical Thinking and Problem Solving**  Reason Effectively  Use Systems Thinking  Make Judgments and Decisions  Solve Problems  **Communication and Collaboration**  Communicate Clearly  Collaborate with Others | **INFORMATION, MEDIA & TECHNOLOGY SKILLS**  **Information Literacy**  Access and Evaluate Information  Use and Manage Information  **Media Literacy**  Analyze Media  Create Media Products  **Information, Communications and Technology (ICT Literacy)**  Apply Technology Effectively | **LIFE & CAREER SKILLS**  **Flexibility and Adaptability**  Adapt to Change  Be Flexible  **Initiative and Self-Direction**  Manage Goals and Time  Work Independently  Be Self-Directed Learners  **Social and Cross-Cultural**  Interact Effectively with Others  Work Effectively in Diverse Teams  **Productivity and Accountability**  Manage Projects  Produce Results  **Leadership and Responsibility**  Guide and Lead Others  Be Responsible to Others |