



SCHOOL DISTRICT NO. 73
(Kamloops-Thompson)

Board/Authority Authorized Course Framework Template

School District/Independent School Authority Name: School District No. 73 (Kamloops-Thompson)	School District/Independent School Authority Number (e.g. SD43, Authority #432): SD73
Developed by: Andres Ruberg	Date Developed: Mar. 1, 2019
School Name: Sa-Hali Secondary School	Principal's Name: Rachael Sdoutz
Superintendent Approval Date (for School Districts only):	Superintendent Signature (for School Districts only):
Board/Authority Approval Date:	Board/Authority Chair Signature:
Course Name: SD73 Tech Academy 12D	Grade Level of Course: 12
Number of Course Credits: 4	Number of Hours of Instruction: 120

Board/Authority Prerequisite(s):

None

Special Training, Facilities or Equipment Required:

Instructor should have Computer Science background, or experience in similar area. Facilities should include a computer lab with a digital projector and computers purchased within the last 5 years, each equipped with dedicated video cards. Additionally, 2D/3D art generation software, a programming environment with a 2D game creation library, and 2D/3D digital game-making software need to be installed on all computers.

Course Synopsis:

This course is the fourth of four courses that make up the SD73 Tech Academy Program. This academy is a unique opportunity for students to gain experience working in a collaborative, inquiry-based environment where they develop the skills necessary to create video games.

The abilities developed are a blend of generic skills that will serve them in almost any future opportunity (project management, collaborative problem-solving, time management, and creative expression) and industry-specific skills (computer science, programming, mathematics, physics, digital animation, game design, and user interface design). Students finishing the Academy will have a strong sense of whether or not they are interested in pursuing future opportunities in the digital arts or software development industries, and have an awareness of the opportunities that are available in these fields.

This fourth course is unique in that it does not require all students to achieve the same outcomes. Rather, in the context of a team, students are encouraged to specialize in a specific area of interest and develop the skills required by their team to build a project that they have collectively envisioned.

Goals and Rationale:

Rationale:

British Columbia is rapidly attracting a concentration of video game production companies. Employment and compensation opportunities provided in this industry are among the fastest growing in Canada's knowledge-based economy. This academy will provide our students with an opportunity to participate in curriculum that can be tied to nearly any future employment opportunity, while gaining skills specific to the fields of video game creation, digital animation and programming. Additionally, students will develop cross-curricular knowledge and skills in disciplines such as Mathematics, Science, and Art. Additionally, this academy connects students to post-secondary institutes that offer either scholarship opportunities or dual credit for Computer Science courses.

Goals:

- 2D and 3D digital art generation in addition to 3D and 2D animation
- Programming principles common to every programming language
- Game design concepts that create enjoyable experiences
- Principles of art and animation that create a pleasing aesthetic
- Proficiency in using a modern game engine to create a video game
- Time-management and project-management strategies
- Collaborative problem-solving
- Mathematics and Physics concepts utilized to create real-time interactive simulations (video games)

Aboriginal Worldviews and Perspectives:

The opportunities to explore aboriginal perspectives within Art and Game Design are significant. This is a heavily project-based course with numerous opportunities to explore topics of personal or societal interest. Students will be encouraged to both incorporate aboriginal artistic elements in their projects as well as to explore culturally relevant topics.

Aboriginal speakers can be invited into the classroom to comment on the appropriateness of integrating their culture into a product such as a video game and the considerations students would want to take into account when developing projects inspired by aboriginal cultural elements.

Some of the First Peoples Principles of Learning closely tied to this course include:

- Learning is holistic, reflexive, reflective, experiential and relational
- Learning involves recognizing the consequences of one's actions
- Learning is embedded in memory, history and story
- Learning involves patience and time
- Learning requires exploration of one's identity

Course Name: SD73 Tech Academy 12D

Big Ideas

Game design is a complex process requiring thoughtful planning and time management	Working with a team requires compromise and regular communication in order to achieve collective goals	How others perceive and interact with our products should shape how those products are developed and evolve over time	Digital media is a large industry with a wide variety of career opportunities	Developing a complex project generally involves working with a team of individuals, each of whom have unique talents and personalities
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Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <p>Programming:</p> <ul style="list-style-type: none"> Communicate ideas using common technical language that will be understood by anyone with a fundamental understanding of programming Learn and apply programming skills necessary to develop required project elements, seeking out expertise both within and beyond the classroom <p>Design:</p> <ul style="list-style-type: none"> Communicate ideas using language and terminology that will be understood by anyone with a fundamental understanding of game design Produce a finished product that matches group vision, regularly checking in with group members for feedback and seeking outside input in order to create a fun and accessible experience <p>Art:</p> <ul style="list-style-type: none"> Communicate ideas using language and terminology that will be understood by anyone with a fundamental understanding of art and design principles Produce artwork that is aligned with group vision, potentially learning new techniques and software, while regularly checking in with group members for feedback <p>Project Management:</p> <ul style="list-style-type: none"> Develop project pipeline that ensure all members of a group are able to contribute their skills and abilities meaningfully throughout the duration of a project Build a team charter with group members that reflects 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> fundamental elements of a group charter communication and conflict management strategies basic presentation skills and software copyright laws “Waterfall” and “agile” project management models

<p>the values and priorities of all group members</p> <ul style="list-style-type: none"> • Present final product to industry experts in a presentation that includes both audio and visual elements • Organizing group tasks using Scrum project management methodology <p>Mathematics & Physics:</p> <ul style="list-style-type: none"> • Learn and apply mathematics necessary to develop required project elements, seeking out expertise both within and beyond the classroom 	
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Big Ideas – Elaborations
None

Curricular Competencies – Elaborations
None

Content – Elaborations
None

Recommended Instructional Components:

- Direct Instruction
- Demonstration
- Modeling
- Peer Teaching
- Experiential Learning
- Reflective Writing
- Project-based Learning

Recommended Assessment Components: Ensure alignment with the [Principles of Quality Assessment](#)

- Journaling
- Self-assessment
- Performance Assessment
- Skills-based Assessment
- Formative feedback

- Iterative Assessment

One Working Model:

Students will be given formative feedback during the instructional components of the course. This feedback is to help students understand their areas of strength and areas of challenge so that they can properly scope their projects and identify areas in which they may need to seek additional assistance and/or resources.

During formal assessments and projects, key skills will be identified to students at the project outset along with levels of proficiency within each of those skills. Each level of proficiency will have descriptive statements of what a student needs to demonstrate in order to achieve that level. Students will be reminded of this document throughout a project so that they can plan accordingly. At the conclusion of the project students will be asked to self-assess themselves and indicate what proficiency level they believe they have achieved for each skill attached to that project. For each skill students will be asked to provide evidence for the indicated level. The student self-assessment will be considered alongside teacher observations and in the event of a discrepancy the student and teacher will engage in dialogue to ensure a fair outcome.

Skills can be re-assessed at any time a student has new evidence to present that supports of a higher level of achievement.

Students are always welcome to ask how they might demonstrate a higher level of achievement and/or request mini-projects that will give them the opportunity to develop additional evidence of improved ability. Several skills will be attached to multiple projects. Only the highest level of achievement will be reported (there is no averaging).

The instructor should make clear what percentage is tied to each level of achievement and how those percents will be averaged. One model is to break each skill into a Basic, Advanced and Mastery levels and attach 60%, 80% and 100% to those levels of achievement (respectively).

Interims summarizing current student ability should be sent home 4 times per semester. All project assessment documents should be available for students and parents to view online at any point for reference.

Learning Resources:

Python Arcade Documentation by Paul Craven: <https://media.readthedocs.org/pdf/arcade-book/latest/arcade-book.pdf>

DigiPen Technology Academy Manuals (Modules 1-5)

Guide to Writing SMART Goals: <https://www.smartsheet.com/blog/essential-guide-writing-smart-goals>

Guide to Agile Project Management: <https://www.cio.com/article/3156998/agile-development/agile-project-management-a-beginners-guide.html>

Khan Academy: <https://www.khanacademy.org/>

Extra Credits Game Design / Career Videos: <https://www.youtube.com/user/ExtraCredits/featured>

Mark Brown Game Design Videos: <https://www.youtube.com/channel/UCqJ-Xo29CKyLTjn6z2XwYAw>

DigiPen Technology Academy Java Introductory Materials and Alpha Game Engine

The Zero Engine Workshop Website: <https://zero.digipen.edu/Workshops/2016/index.html>

Additional Information:

None