9099
ADVANCED CODING FOR INTERACTIVE DIGITAL MEDIA

40S/40E/40M

An Interactive Digital Media Course

Course Description

This course builds on the skills and knowledge learned in 9097 Coding for Interactive Digital Media. Students will learn to code in more than one language, focusing on advanced programming theory and techniques.

Goal 1:   Describe and apply appropriate health and safety practices.

GLO 1.1: Describe and apply appropriate **health and safety** practices.

SLO 12B.1.1.1	Describe and practice online safety.
SLO 12B.1.1.2	Demonstrate the ability to maintain a safe and organized workspace.
SLO 12B.1.1.3	Demonstrate the ability to keep cables safe and uncluttered.
SLO 12B.1.1.4	Demonstrate awareness of health and safety issues related to lighting and glare, including monitors.
SLO 12B.1.1.5	Discuss risk factors and treatments related to carpal tunnel syndrome.

Goal 2:   Demonstrate the identification, selection, use, and maintenance of **software, hardware, supplies,** and **equipment**.

GLO 2.1: Demonstrate the identification, selection, and use of **software**.

SLO 12B.2.1.1	Evaluate and select the most appropriate software for a specific project (i.e., WYSIWYG editor, CMS, game engine, code editor, graphic software, DBMS).
SLO 12B.2.1.2	Demonstrate competence in using at least two programming languages.
SLO 12B.2.1.3	From at least 2 choices, select the most appropriate programming language for the project under development.

Goal 3: Incorporate **project management** processes throughout the development cycle.

GLO 3.1: Document the development process.

No applicable SLOs.

GLO 3.2: Collaborate with peers, teachers, and clients.

SLO 12B.3.2.1	Provide, request, and incorporate feedback from peers, teachers, and clients (i.e., student groups, sports teams, local business or industry).
SLO 12B.3.2.2	Collaborate with others on a project.

GLO 3.3: Assess the project development process.

No applicable SLOs.

GLO 3.4: Incorporate **quality assurance** processes.

SLO 12B.3.4.1	Design comprehensive testing scenarios.
SLO 12B.3.4.2	Demonstrate the ability to assess code for bugs and level of robustness.
SLO 12B.3.4.3	Demonstrate the ability to validate data.

Goal 4: Conceptualize projects.

GLO 4.1: Discuss and incorporate interactive digital media development **theory**.

SLO 12B.4.1.1	Discuss the theory behind the project under development (i.e., colour theory, branding, game theory, programming concepts, business rules, data modelling, indexing, ERDs, normalization).

GLO 4.2: Explore and research **project ideas, audience, clients, and project requirements**.

SLO 12B.4.2.1	Demonstrate research skills.
SLO 12B.4.2.2	Demonstrate the ability to develop strategies to collect data.
SLO 12B.4.2.3	Demonstrate the ability to gather project requirements.

Goal 5: Plan projects.

GLO 5.1: Determine **scope, timeline**, and **milestones**.

No applicable SLOs.

GLO 5.2: Develop **linear** and **non-linear stories, plans, and flowcharts**.

SLO 12B.5.2.1	Demonstrate the ability to create program flowchart.
SLO 12B.5.2.2	Demonstrate the ability to create pseudo code.
SLO 12B.5.2.3	Demonstrate the ability to use iterative refinement in program development.

Goal 6:   **Develop** projects.

GLO 6.1: Develop and test **prototypes**.

No applicable SLOs.

GLO 6.2: Create and incorporate **assets**.

No applicable SLOs.

GLO 6.3: Use **code** to solve problems.

SLO 12B.6.3.1	Demonstrate understanding of variables.
SLO 12B.6.3.2	Demonstrate understanding of data types.
SLO 12B.6.3.3	Demonstrate understanding of syntax.
SLO 12B.6.3.4	Demonstrate the ability to document code using comments.
SLO 12B.6.3.5	Demonstrate the ability to follow current programming conventions (i.e., naming, commenting, layout).
SLO 12B.6.3.6	Demonstrate the ability to use operators.
SLO 12B.6.3.7	Demonstrate the ability to use pre-existing objects.
SLO 12B.6.3.8	Demonstrate the ability to use pre-existing functions and methods.
SLO 12B.6.3.9	Demonstrate the ability to use branching or selection structures.
SLO 12B.6.3.10	Demonstrate the ability to use looping or repetition structures.
SLO 12B.6.3.11	Create and use programmer-defined functions.
SLO 12B.6.3.12	Create functions or procedures to respond to events.
SLO 12B.6.3.13	Demonstrate the ability to use a variety of debugging techniques to find and correct programming errors.
SLO 12B.6.3.14	Test code by using a variety of user inputs.
SLO 12B.6.3.15	Demonstrate the ability to use arrays.
SLO 12B.6.3.16	Harvest data from external sources (i.e., files, databases).
SLO 12B.6.3.17	Send data to external storage.

SLO 12B.6.3.18 Implement efficient modular programming techniques.

SLO 12B.6.3.19 Demonstrate the ability to use parameters and arguments to pass information.

SLO 12B.6.3.20 Demonstrate understanding of Object Oriented Programming (OOP).

SLO 12B.6.3.21 Demonstrate the ability to distinguish between an object and an instance of an object.

SLO 12B.6.3.22 Demonstrate the ability to create programmer-defined objects.

SLO 12B.6.3.23 Demonstrate the ability to create methods for instances of objects to communicate with each other.

SLO 12B.6.3.24 Demonstrate the ability to connect to a pre-existing database.

GLO 6.4: Evaluate and incorporate **security features**.

SLO 12B.6.4.1 Demonstrate the ability to incorporate current security procedures.

Goal 7: Publish, release or present, and assess projects.

No applicable SLOs.

Goal 8: Describe and demonstrate the transferable **cross-curricular** knowledge and skills relevant to the interactive digital media industry.

No applicable SLOs.

Goal 9: Demonstrate awareness of **sustainability** as it pertains to interactive digital media development.

GLO 9.1: Describe the interactive digital media design industry's **sustainability** practices and impact on the environment.

SLO 12B.9.1.1 Discuss the lifespan of electronic devices, and its impact on electronic waste.

GLO 9.2: Describe the impact of **human sustainability** on the well-being of those employed in interactive digital media design and the users of their services.

No applicable SLOs.

GLO 9.3: Describe **sustainable business practices** within the interactive digital media design industry.

SLO 12B.9.3.1   Demonstrate awareness of the need for businesses to create networks in order to promote their business.

SLO 12B.9.3.2   Demonstrate awareness of the need for entrepreneurs to keep their technology current.

Goal 10: Demonstrate awareness of the **ethical and legal standards** as they pertain to interactive digital media design.

No applicable SLOs.

Goal 11: Demonstrate **employability skills**.

GLO 11.1: Demonstrate **fundamental employability skills**.

SLO 12B.11.1.1   Demonstrate regular and punctual attendance.

SLO 12B.11.1.2   Demonstrate the ability to communicate respectfully and effectively with teachers, supervisors, co-workers, and students.

SLO 12B.11.1.3   Demonstrate accountability by taking responsibility for their actions.

SLO 12B.11.1.4   Demonstrate adaptability, initiative, and effort.

SLO 12B.11.1.5   Demonstrate teamwork skills.

SLO 12B.11.1.6   Demonstrate the ability to stay on task and effectively use time in class and work environments.

SLO 12B.11.1.7   Demonstrate the responsible use of technology.

GLO 11.2: Demonstrate awareness of **cultural proficiency**, and its importance in the workplace.

No applicable SLOs.

GLO 11.3: Demonstrate understanding of the **business operation** of an interactive digital media design organization.

No applicable SLOs.

GLO 11.4: Demonstrate **critical thinking skills**.

SLO 12A.11.4.1   Demonstrate critical thinking skills when solving problems.

Goal 12: Demonstrate understanding of the **interactive digital media industry**.

GLO 12.1: Demonstrate understanding of the **scope** of the interactive digital media industry.

No applicable SLOs.

GLO 12.2: Demonstrate understanding of the **educational and career opportunities,** as well as **industry and professional associations**.

No applicable SLOs.

GLO 12.3: Demonstrate understanding of **working conditions** in interactive digital media.

No applicable SLOs.

Goal 13: Demonstrate awareness of the **evolution, technological progression, and emerging trends** in interactive digital media.

GLO 13.1: Describe the **history, technological progression,** and **emerging trends** in interactive digital media.

No applicable SLOs.