Unit Title	Programming for the Industry (blended)
FHEQ Level	Level 6
Unit Code	CRC20303
Credit Value	30
Unit Type	Subject

Learning Hours			
Staff – Student Contact Hours		**Independent Study Hours**	
Classes	30	Independent study	180
Supervised access to Ravensbourne resources	30	Preparation for assessment	60
Total		300	

Unit Description

You will develop advanced graphics programming skills along with capturing techniques, and display skills with the help of available open source and vendor specific hardware and software.

In this unit you will select a small project for a particular industry and research and prototype a potential solution. If an industry-based project is not available then your tutor may set a group task with agreed outcomes.

The project may involve a range of activities from developing a solution for a media production house up to developing an electromechanics device to perform a specific task. It may include 360 capture and projection or volumetric data capture and manipulation.

Students will either work individually or in groups to conceive, develop and produce finished outcome, making the fullest possible use of their creative and coding skills. Each project is uniquely specified to give possible creative choices, and projects are mentored by the subject leaders to ensure their suitability, and to provide students with specific programming and practical suggestions where required. All student projects must feature the creative use of digital media technologies through applied programming.

In addition to allowing students to develop their skills in a chosen area of interest, this module encourages students to make coherent judgments regarding the application of their computing skills as they develop and reinforce their technical knowledge through creative projects.

The Five Principles underpin the Mindsets and Skillsets Manifesto and are the foundation upon which all course curriculum frameworks and unit specifications are based. The

relevant Principles as stated below have been mapped against the Learning Outcomes relevant to each course unit and at each level (see Programme Specifications for full description of the Five Principles):

1. Cultivate / Where the individual thrives.
2. Collaborate / Where disciplines evolve.
3. Integrate / Where education engages industry.
4. Advocate / Where purpose meets practice.
5. Originate / creativity meets technology.

Unit Indicative Content

- Understand the engineering nature of software development
- User Interface
- Location awareness
- Application Security
- Performance optimisation
- Enhance previously learnt programming skills
- Demonstrate skills in critical evaluation, writing and communication
- Performance and installation contexts and techniques
- Models of interaction: physics, response, affordances
- Data visualisation techniques and aesthetics
- Live coding: performance and improvisation techniques
- Version control and build tools
- Design patterns
- Plugins and API development
- Android, IOS and web based development techniques
- Responsive and fixed content
- Quality of Service and Quality of Experience for the end user
- Device aware decision making

Unit Aims

To examine creative computing theories, research, design, and evaluation techniques to the solution of a specific problem and

to implement advanced concepts of programming complete systems

To be able to demonstrate a sophisticated application of information searching, critical evaluation, writing and communication skills to enable effective documentation and communication for the upcoming final year project, as well as life-long personal and career development.

Unit Learning Outcomes
(to be selected from the Mini Manual)

LO 1 Research/Inspiration

Select and evaluate information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.

Related Principle: ORIGINATE

LO 3 Development/Prototyping

Investigate potential pathways that result in appropriate solutions, informed by a systematic understanding of the principles of the creative process.

Related Principle: INTEGRATE

LO 5 Presentation /Storytelling for Influence

Communicate projects creatively and professionally, whether in visual, oral or written form. Methods of presentation are appropriate to the audience/client and the purpose of the work.

Related Principle: ADVOCATE

LO 8 Professional Identity

Align your professional identity as a practitioner with a viable career context.

Related Principle: CULTIVATE

Learning and Teaching Methods

This unit will be delivered using a combination of:

- Lectures / Seminars
- Online activities
- Self-directed independent study
- Peer learning, group discussion, guest speakers

Assessment methods and tasks

Assessment tasks	**Weighting (%)** *(one grade or multi-grade unit)*
Interim presentation	30%
Final presentation of the artefact	70%

Indicative Assessment Criteria

Develop a solution for a selected industry by applying a range of creative computing theories, research, design, and evaluation techniques (LO 1,3,5)

Address a complex problem for selected industry with a spirit of critical enquiry,

effectively locating, planning, using and managing resources and time and to effectively communicate the outcomes. (LO8)

Analyse the relationship between the object-orientated paradigm and design patterns (LO5)

Design a series of UML diagrams (LO5)

Essential Reading list

Burton, Michael. “Android Application Development for Dummies.” Amazon, Wiley, 2015,

Freeman, E. et al. (2008) *Head First Design Patterns*. 4th Ed. United Stated of America: O’Reilly Media.

Kyrnin, Jennifer, and Julie Meloni. Sams Teach Yourself HTML, CSS, and Javascript. Pearson Education, Inc., 2019.

Recommended Reading List

Biesenbach, Rob. Unleash the Power of Storytelling: Win Hearts, Change Minds, Get Results. Eastlawn Media, 2018.

Newton, Richard. Project Management: Step by Step How to Plan and Manage a Highly Successful Project. Pearson, 2017.