2024 / 25

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South East Technological University

Module Descriptor

Software Development Tools (Computing and Mathematics)

Software Development Tools (A35241)

Short Title: SD Tools
Department: Computing and Mathematics
Credits: 5 **Level:** Intermediate

Description of Module / Aims

The purpose of this module is to further develop programming skills through the study of a programming language with an emphasis on the use of software development toolsets. This module, through the creation of a diverse portfolio of projects, will focus on developing well-designed, maintainable and robust applications that are consistent with software development best practice.

Programmes

		stage/semester/status
COMP-0982	BSc (Hons) in Creative Computing (WD_KCRCO_B)	4 / 7 / M
COMP-0982	BSc (Hons) in Software Engineering (WD_KDEVP_BI)	2 / 3 / M
COMP-0982	BSc (Hons) in Software Systems Development (WD_KDEVP_B)	2 / 3 / M
COMP-0982	BSc in Software Systems Development (WD_KCOMC_D)	2 / 3 / M

Indicative Content

- Use of complex constructs and data structures associated with the chosen programming language.
- Programming techniques for well-behaved, well-designed, robust applications.
- Extensive use of software development tools throughout the development process e.g. version control, build systems, Continuous Integration/Continuous Delivery (CI/CD), profiling tools, code analysis, test-driven development, project management platforms, etc
- Read, understand, and consume APIs compatible with the chosen programming language e.g. command line interfaces (CLI), RestAPI frameworks, persistence, etc.

Learning Outcomes

On successful completion of this module, a student will be able to:

1. This module will be presented by a combination of lectures and computer-based practicals whilst capitalising on a web-enhanced learning environment.
2. The lectures will be used to introduce new topics and their related concepts.
3. A cooperative learning/peer tutoring (e.g. pair-programming, classroom forum support) approach will be adopted during the practical sessions.
4. Self-directed learning will be encouraged throughout the duration of the module.

Learning and Teaching Methods

- This module will be presented by a combination of lectures and computer-based practical's whilst capitalising on a web-enhanced learning environment.
- The lectures will be used to introduce new topics and their related concepts.
- A cooperative learning/peer tutoring (e.g. pair-programming, classroom forum support) approach will be adopted during the practical sessions.
- Self-directed learning will be encouraged throughout the duration of the module.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	12
Practical	36	12
Independent Learning	75	111

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Assignment	50%	1,2,3,4
Assignment	50%	1,2,3,4

Assessment Criteria

<40%: Inability to design, develop and test maintainable, robust applications to solve a particular problem along with an inability to utilise software development tooling.

40%–49%: Ability to design, develop and test maintainable, robust applications to solve a straight-forward problem whilst using basic software development tooling.

50%–59%: Comfortable with designing, developing and testing maintainable, robust applications to solve problems similar to those presented in the module. Comfortable with using software development tooling similar to that presented in the module.

60%–69%: Proficient with designing, developing and testing maintainable, robust, high-quality applications to solve

70%–100%: Proficient with designing, developing and testing maintainable, robust, high-quality, elegant applications to solve complex problems that are substantially different to those studied in the module. High proficiency in software development tooling along with the use of toolsets beyond those studied in the module.

Essential Material(s)

- "GitHub." https://github.com/
- "Kotlin Language." https://kotlinlang.org/

Supplementary Material(s)

- "Gradle." https://gradle.org/
- "KUnit." https://kunit.dev/
- "Markdown." https://www.markdownguide.org/

Requested Resources

- Room Type: Computer Lab