WESTERN SYDNEY
UNIVERSITY

The College

PROGRAMMING FUNDAMENTALS

700008

2020

UNIT OUTLINE

Last amended:	October 2020

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Unit name	Programming Fundamentals
Unit number	700008
Coordinator	Dr Buddhima De Silva
Session	2020.3
Handbook summary	As the first university-level unit in computer programming, 700008 Programming Fundamentals covers the basics of developing software with an emphasis on procedural programming. Students will learn about basic data structures, the concept of algorithms, fundamental programming constructs, common programming language features and functions, program design and good programming style. A high-level programming language is combined with a highly visual framework to teach problem solving using software.
Credit point value	10
Prerequisite/s	Students enrolled in 7067 Diploma in Information and Communications Technology Extended and 7083 Bachelor of Information and Communications Technology Extended (WSTC FYP) must pass 700199 Academic Communication 2 (WSTC Prep) or 700208 English for Tertiary Study 2 (WSTC Prep) or 700210 Introduction to Academic Communication 2 (WSTC Prep), and must pass 700201 Computer Studies (WSTC Prep), and must pass 700047 Programming Design (WSTC Prep), and must pass 700146 Mathematics 2 (WSTC Prep) before enrolling in this unit. Students enrolled in 6035 Diploma/Bachelor of Information and Communications Technology, 6036 Diploma in Information and Communications Technology/Bachelor of Information Systems and 7005 Diploma in Information and Communications Technology must pass 700047 Programming Design (WSTC Prep) before enrolling in this unit. Students enrolled in 6038 Dip in Information and Communications Technology /BICT(HIM), 6039 Diploma in Information and Communications Technology/BICT, 6040 Diploma in Information and Communications Technology/BIS , 7067 Diploma in Information and Communications Technology Extended, 7083 Bachelor of Information and Communications Technology Extended (WSTC First Year Program), 7134 Diploma in Information and Communications Technology Extended - ICT, 7138 Diploma in Information and Communications Technology Extended-ICT, 7139 Diploma in Information and Communications Technology Extended, 7140 Diploma in Information and Communications Technology Extended–IS, 7141 Diploma in Information and Communications Technology Extended-HIM, 7163 Diploma in Information and Communications Technology(International) and 7164 Dip Information and Communications Technology (HIM) (International) must pass 700047 Programming Design (WSTC Prep) and must pass 700146 Mathematics 2 (WSTC Prep) before enrolling in this unit.
Corequisite/s	N/A
Assumed knowledge	None.
Unit level	1

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Attendance requirements	Students are expected to attend at least 80% of classes. Educational research consistently demonstrates that this attendance level is associated with a high likelihood of achieving a passing grade.
Enrolment restrictions	Only students enrolled at The College can enrol in this unit. Students enrolled in Extended Diplomas must pass 40 credit points from the preparatory units listed in the course structure prior to enrolling in this University level unit.
Learning outcomes	On successful completion of this unit, students should be able to: 1. with a chosen programming language in mind, analyse a given problem and from a simple problem description, identify desired inputs, outputs and the necessary processing operations to convert input into output 2. develop an algorithm that applies structured programming techniques that solve the given problem 3. choose suitable data types to store relevant data for the given problem 4. design and code programs which use standard programming concepts. variables, sequence, loops, decision making constructs, mathematical and Boolean operators, as well as functions, and 5. apply top-down modular design principles to programming problems and implement the solution using the chosen programming language.
Unit content	In this unit students will learn about: • fundamentals of procedural programming including: • variables and data types • performing calculations • sequence • compound statements • decision-making constructs • looping constructs • problem solving techniques • writing and using functions, and • one dimensional arrays • keyboard input • techniques of algorithm development • using variables — selecting variable names and variable scope • functions, function return values and parameter passing, and arrays.
Mode of delivery	This unit consists of two hours of online lectures and four hours of online practical sessions per week. In addition, there will be activities on the unit's vUWS website.
Online learning requirements	In addition to attending online classes the students are expected to access vUWS and check their student email account at least twice a week. Access to the unit's vUWS site is only available to students who are enrolled in the unit. Student enrolment can be cancelled for failure to meet financial obligations to the university, eg failure to pay library fines. If access is unavailable, students should contact Student Services to check enrolment.
Essential requirements	**Essential text**

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- Gaddis, T 2019, Starting out with Java: from control structures through objects, 7th edn, Pearson, Boston.

Further resources

For a list of additional readings, please see the unit's learning guide.

ASSESSMENT ITEMS AND WEIGHTING

Assessment for this unit will be based on the following components:

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Task	Weighting	Learning outcomes assessed	Mandatory task
1. Workshop portfolio (Weekly individual exercises, 20 minutes per week)	10%	1–5	Yes
2. Two online quizzes (10%, 60 minutes each)	20%	1–5	Yes
3. Applied Project (approx. 700–800 lines of code)	20%	1–5	Yes
4. End of Session Exam (open book, two hours)	50%	1–5	Yes
Total	100%		

For details of assessment due dates, please refer to the learning guide for this unit.

All marks will be determined in accordance with The College Assessment Policy.

All assessment tasks are mandatory unless otherwise specified. Should a student fail to attempt/submit the first formal assessment task in a unit, they will be deemed to be at risk and will need to follow an intervention plan in order not to receive a Fail Non-Submission (FNS) grade. However, failure to attempt/submit all other mandatory assessment tasks will result in an immediate FNS grade for the unit.

To pass this unit, students are required to:

- submit/attempt all mandatory assessment tasks
- achieve a mark of at least 50% in the End of Session examination, and
- achieve a mark of at least 50% overall.

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