

SMT111: Programming for Smart City Solutions

Instructor(s)	Hwee-Xian TAN Michelle KAN
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Consultation Hours	[HX] Wed 1530 – 1600 hrs [MK] Wed 1600 – 1700 hrs

COURSE DESCRIPTION

This course will introduce the fundamental concepts of problem solving by computing and programming. There will be an emphasis on how programming can be used to provide solutions for smart city problems, through problem-based learning. Students will learn Python programming using the BBC Micro:Bit and Jupyter Notebook.

LEARNING OBJECTIVES

At the end of the course, you should be able to:

1. Understand and apply basic programming concepts to solve smart city problems.
2. Understand and use data structures, such as list and dictionary.
3. Appreciate the importance and relevance of computing, especially in the context of Singapore’s push towards Smart Cities.

PRE-REQUISITE/ CO-REQUISITE/ MUTUALLY EXCLUSIVE COURSE(S)

Mutually exclusive: IS111

ASSESSMENT METHODS

Students will be assessed based on the following:

Continual Assessment I	Class Participation	10%	
	Problem Sets	20%	
Team Work	Class Challenge	10%	Week 4 (Class time)
Continual Assessment II	Practical Exam 1	10%	Fri 05 Oct 2018 1600 hrs – 1730 hrs
	Practical Exam 2	20%	Mon 19 Nov 2018 1000 hrs – 1130 hrs
	Final Exam	30%	Mon 03 Dec 2018 0830 hrs – 1030 hrs

INSTRUCTIONAL METHODS AND EXPECTATIONS

You are expected to bring your laptop and the Micro:Bit, and work on in-class exercises during each lesson. Attendance is compulsory.

All materials will be provided online, via eLearn.

TEACHING ASSISTANTS

Teaching Assistants			
SMT111-G1	Tue 1200 hrs – 1515 hrs	Joel-David WONG Jane SEAH	joelwong.2017@sis.smu.edu.sg jane.seah.2016@sis.smu.edu.sg
SMT111-G2	Tue 1530 hrs – 1845 hrs	Darren GAN Alisha SAINI	darren.gan.2017@sis.smu.edu.sg alishas@smu.edu.sg
SMT111-G3	Wed 1200 hrs – 1515 hrs	Kelvin CHIA Zuolin LIU	kelvin.chia.2017@sis.smu.edu.sg zuolin.liu.2017@sis.smu.edu.sg

CLASS TIMINGS

Regular Classes		
SMT111-G1	Tue 1200 hrs – 1515 hrs	SIS Class Rm B-1
SMT111-G2	Tue 1530 hrs – 1845 hrs	SIS Class Rm B-1
SMT111-G3	Wed 1200 hrs – 1515 hrs	SIS Class Rm B-1
Makeup Classes		
SMT111-G3	Sat 25 Aug 2018 (Wed 22 Aug 2018) 1200 hrs – 1515 hrs	SIS Class Rm B-1
SMT111-G1	Sat 10 Nov 2018 (Tue 06 Nov 2018) 1200 hrs – 1515 hrs	SIS Class Rm B-1
SMT111-G2	Sat 10 Nov 2018 (Tue 06 Nov 2018) 1530 hrs – 1845 hrs	SIS Class Rm B-1
Review Sessions		
	TBC	

RECOMMENDED TEXTS AND READINGS

The course does not have any recommended textbooks. However, we will use the following reference materials:

- [micro:bit](#)
- [The Python Tutorial](#)
- [Google's Python Class](#)
- [The Python Standard Library](#)

LESSON PLAN

Week	Theme	Topic	Assessment
1	Problem Solving using Computing	Computing Fundamentals	
2		Logic and Loops	
3		Strings, Lists and Arrays	Problem Set 1 (5%)
4		Integrated Problem Solving I	Class Challenge (10%)
5	Python Programming Fundamentals	Introduction to Python Programming	Problem Set 2 (5%)
6		Functions	
7		Dictionaries	Practical Exam 1 (10%)
8		RECESS WEEK	
9	Intermediate Python	File I/O	Problem Set 3 (5%)
10		Itertools	
11		Integrated Problem Solving II	Problem Set 4 (5%)
12		Introduction to Data Science with Python	
13		Review +++	
14		STUDY WEEK	Practical Exam 2 (20%)
15			
16			Final Exam (30%)

*subject to minor amendments

Last updated: 16 Aug 2018