



<b>Course Code:</b>	<b>IS111</b>
<b>Course Name:</b>	<b>Introduction to Programming</b>
<b>When was the course design document last verified by the Course Manager:</b>	<b>August-2022</b>
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## 1. Synopsis

In this course students acquire foundational computer programming concepts and skills through Python, a widely-used programming language. Upon successful completion of this course, the students will understand and be able to appropriately apply fundamental programming concepts including variables, functions, parameters, loops and conditions as well as basic data structures including arrays (lists in Python) and hash tables (dictionaries in Python) in simple applications.

## 2. Prerequisites/Co-requisites

NIL.

**(Please check Course Catalogue in BOSS for updated information!)**

## 3. Course Areas

Technology Studies Cluster  
Accounting Data Analytics Major  
Information Systems Major  
Technology for Business Major  
Business Options  
Accounting Options  
Econ Major Rel/Econ Options  
Social Sciences/PLE Major-rel  
Accounting Major: Data Analytics Track

**(Please check Course Catalogue in BOSS for updated information!)**

## 4. Course Objectives

Upon completion of the course, students will be able to:

- Understand fundamental programming concepts such as variables, functions, conditions and loops
- Understand two commonly used data structures: array (lists in Python) and hash tables (dictionaries in Python) and use them appropriately for problem solving
- Apply these programming concepts appropriately to solve basic and typical problems such as searching for items satisfying some conditions inside a list of items

## 5. Competencies

1. Understand what variables, operators and data types are in programming languages
2. Choose appropriate data types to store data
3. Understand the purpose of defining and calling functions
4. Implement a function based on its description
5. Understand how conditional statements work, identify scenarios when conditional statements are needed, and correctly express the conditions using Python language
6. Understand how loops work, identify scenarios when loops are needed, the stopping conditions of such loops and the actions to be repeated, and correctly express them using Python language

7. Understand the usage of lists and remember the syntax to manipulate a list
8. Identify scenarios when lists are needed to solve a problem and correctly construct lists to suit the needs
9. Understand the usage of dictionaries and remember the syntax to manipulate a dictionary
10. Identify scenarios when dictionaries are needed to solve a problem and correctly construct dictionaries to suit the needs
11. Remember the syntax to read and write text files in Python
12. Divide a complex problem into smaller sub-problems and conquer them one by one with the help of loops, conditions, functions, etc.

## 6. Teaching Staff

### Faculty:

- **JIANG Jing (Course Manager)**
- KWAK Haewoon
- SUN Qian Ru
- TA Nguyen Binh Duong
- WANG Yong
- YANG Guomin
- Joelle ELMALEH

### Instructors:

- Joelle ELMALEH
- Swetha GOTTIPATI
- CHUA Hong Ngho
- Lydia HAMID
- TAN Pang Jin
- RAMACHANDRA RAO Vandana

## 7. Course Assessments

Assessment Categories	Weightage (%)
Class Participation	5
Quizzes	10
Lab Tests	50
Final Exam	35
<b>Total</b>	<b>100</b>

*Note: Weightage may vary depending on the year the course is offered and the faculty/instructor teaching the course.*

## 8. Course Assessment Details

### Class Participation:

The students will be assessed based on how actively engaged they are in class, how frequent they turn in their lab solutions, how frequent they take online self-check quizzes, etc.

**Quizzes:**

The students will answer coding questions in various formats such as MCQs, code tracing, filling in the blanks, error correction and code completion.

**Lab Tests:**

The students will answer coding questions using their laptops without any internet connection or with a lockdown browser.

**Final Exam:**

The students will answer coding questions during a 2-hour period in various formats such as MCQs, code tracing, error correction and code completion.

**9. Lesson Plan**

Please note that different sections may follow slightly different orders of the topics. Below shows only one lesson plan. However, all sections share the same scope of topics.

Week	Topic	Remarks (e.g. Assignment 1 due)
1	Fundamentals	
2	Functions	
3	Conditions	
4	Strings and for-Loops	
5	Lists (Part I)	
6	Lists (Part II)	Lab Test 1
7	Review and Web Application Exercise I	
8 (Recess Week)		
9	while-Loops and File Handling (Part I)	
10	while-Loops and File Handling (Part II)	
11	Dictionaries (Part I)	
12	Dictionaries (Part II)	
13	Review and Web Application Exercise II	
14 (Study Week)		Lab Test 2
15 - 16 (Exam Weeks)		

**10. Resources****Main Reading:**

The students will be given studying materials in the form of either Jupyter notebooks or videos (or both) on a weekly basis.

**Optional Reading:**

N/A

**Tools:**

The tools used may differ depending on the instructor, but all sections use Python 3. Some of the tools used are listed below:

- Jupyter Notebook
- Notepad++

## 11. University Policies

### **Academic Integrity**

All acts of academic dishonesty (including, but not limited to, plagiarism, cheating, fabrication, facilitation of acts of academic dishonesty by others, unauthorized possession of exam questions, or tampering with the academic work of other students) are serious offences. All work (whether oral or written) submitted for purposes of assessment must be the student's own work. Penalties for violation of the policy range from zero marks for the component assessment to expulsion, depending on the nature of the offense. When in doubt, students should consult the instructors of the course. Details on the SMU Code of Academic Integrity may be accessed at <https://oasis.smu.edu.sg/Pages/DOS-WKLSWC/UCSC.aspx>.

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### **Emergency Preparedness for Teaching and Learning (EPTL)**

As part of emergency preparedness, instructors may conduct lessons online via either the Zoom or WebEx platform during the term, to prepare students for online learning. During an actual emergency, students will be notified to access the Zoom or WebEx platform for their online lessons. The class schedule will mirror the current face-to-face class timetable unless otherwise stated.