



E.O.S

<INITIATIVE>

Inspiring girls to code the future

PROGRAMME BOOKLET



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IMPORTANT RESOURCES

Our website: <https://eos-initiative.com>

All required resources can be found at:

<https://eos-initiative.com/resources.html>

ABOUT OUR PROGRAMME

Foundational Workshops (June)

Introductory workshops focused on Python fundamentals, designed to be hands-on and beginner-friendly. We conclude with a capstone project, giving participants the opportunity to apply their new skills.

Project Phase (July–December)

Participants then move into a project-based phase where they work in small teams of 3–5 members on guided projects in an area of their choice. Teams may propose their own ideas or select from projects designed by our volunteers.

IMPORTANT: Photography Notice

Please note that photographs may be taken during the workshops, and participants may be captured in these photographs, which may be used in promotional materials. If you are uncomfortable with this, please inform us, and we will account for it during the event.

LOCATIONS AND DIRECTIONS

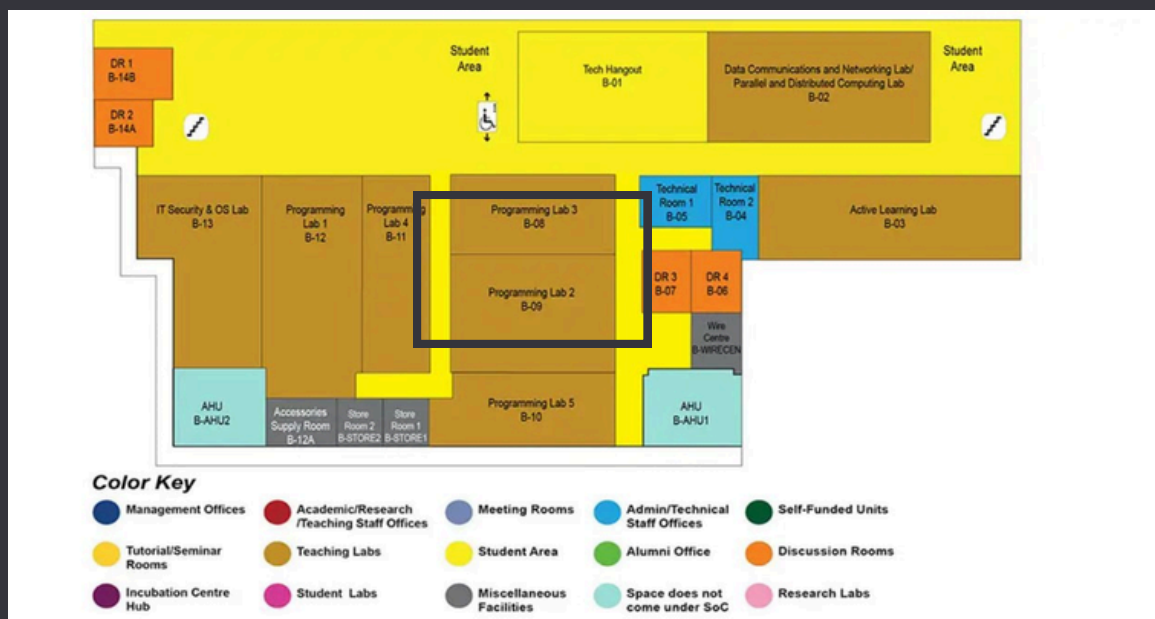
Workshop Location:

NUS School of Computing, COM1 Building

13 Computing Drive, Singapore 117417, Programming Lab 2 | COM1-B-09

There will be ushers at the entrances to guide you to the Programming Lab!

Floor Plan:



Directions

You can also check their official website here:

<https://www.comp.nus.edu.sg/about/getting-here/>

LOCATIONS AND DIRECTIONS

Through MRT

From Buona Vista MRT Station (EW21/CC22):

Take Exit B from the station and cross North Buona Vista Road

Take bus service 95 from bus stop 11369 (Opposite Buona Vista Station)

Alight at the bus stop outside Central Library (Bus stop 16181)

Take the internal shuttle bus D1 from the same bus stop

Alight at the fourth bus stop (COM3) after the one at Central Library

From Clementi MRT Station (EW23):

Take Exit A from the station and walk to the bus interchange behind Clementi Mall

Take bus service 96

Alight at the bus stop outside Central Library (Bus stop 16181)

Take the internal shuttle bus D1 from the same bus stop

Alight at the fourth bus stop (COM3) after the one at Central Library

From Kent Ridge MRT Station (CC24):

Take Exit A from the station and walk to the bus stop opposite Kent Ridge MRT

Take internal shuttle bus service D2 from the bus stop opposite Kent Ridge MRT station

Alight at the third bus stop, COM3

LOCATIONS AND DIRECTIONS

Through Car

From the city

- Drive along the Ayer Rajah Expressway (AYE) towards Jurong
- Exit at Clementi Road (AYE Exit 9)
- Travel southward along Clementi Road for another 500m
- Turn left into Kent Ridge Crescent (after passing the School of Design & Environment on your left)
- After 100m, turn right into Kent Ridge Drive
- Turn left into Computing Drive, and proceed along it to COM2 (for passengers to alight)

From Jurong

- Drive along Clementi Road towards Pasir Panjang Road
- Turn left into Kent Ridge Crescent (after passing the School of Design & Environment on your left)
- After 100m, turn right into Kent Ridge Drive
- Turn left into Computing Drive, and proceed along it to COM2 (for passengers to alight)

Through Bus

- Take bus services 95 or 151 towards the direction of Kent Ridge campus
- Alight at the bus stop outside Central Library (Bus stop 16181)
- Take the internal shuttle bus D1 from the same bus stop
- Alight at the fourth bus stop (COM3) after the one at Central Library

ITINERARY

Day 1 (22 June)

Time	Event
1.00 - 1.30 pm	Attendance taking
1.30 - 1.40 pm	Go through slides on introducing EOS + QNA
1.40 - 2.15 pm	Icebreakers
2.15 - 2.30 pm	Slides on introduction to code
2.30 - 2.45 pm	Snack break
2.45 - 4.00 pm	Lesson 1: Jupyter Notebook usage, Data Types, Arithmetic operations
4.00 - 5.30 pm	Lesson 2: String operations, conditional statements and iteration
5.30 - 6.00 pm	Buffer time + Dismissal

ITINERARY

Day 2 (23 June)

9.00 – 9.30 am	Attendance taking
9.30 – 11.00 am	Lesson 3: Functions, lists, tuples, dictionary
11.00 – 11.20 pm	Snack break
11.20 – 12.20 pm	Lesson 4: Modules
12.20 – 1.00 pm	Lesson 5: OOP

ITINERARY

Day 3 (24 June)

9.00 – 9.30 am	Attendance taking (EARLY)
9.30 – 9.50 am	Finish up OOP
9.50 – 10.10 am	Briefing on python project
10.10 – 12.10 am	Project
12.10 – 1.00 pm	Going through mentored programme + Dismissal

CONTENT LIST

Lesson 1: Jupyter Notebook usage, Data Types, Arithmetic operations

Subtopic	Content/Description
Setup	<ul style="list-style-type: none">• Installation of jupyter notebook
Printing	<ul style="list-style-type: none">• Usage of the print() function
Variables	<ul style="list-style-type: none">• Naming conventions• Assigning values to a variable
Data Types	<ul style="list-style-type: none">• Explanation of the 4 data types(str, int, float, boolean)(list to be covered in next topic)• Use of input() function and how to specify data type to be inputted• Methods of printing(now that variables have been introduced)(concatenation, commas, f-string)
Basic Arithmetic	<ul style="list-style-type: none">• Addition, subtraction, multiplication, division, floor, exponentiation, modulus

CONTENT LIST

Lesson 2: String operations, conditional statements and iteration

Subtopic	Content/Description
Set up + introduction	<ul style="list-style-type: none">• Simple introduction on string ops, conditional statement and iteration• What are those, and applications
String operations	<ul style="list-style-type: none">• String indexing• Related functions• String formatter• Practice questions
Conditional statement	<ul style="list-style-type: none">• If statements• If, elif, else• Practice questions
Iterations	<ul style="list-style-type: none">• While loops• For loops• Practice questions

CONTENT LIST

Lesson 3: Functions, Lists, Tuples, Dictionary

Subtopic	Content/Description
Lists	<ul style="list-style-type: none">• What is a list?• How to create a list?• How to access elements in a list?• List functions:<ul style="list-style-type: none">• len()• append() vs extend()• List addition (+)• remove()• pop()• insert()• index()• sort() vs sorted()• string.split()
Loops with Lists	<ul style="list-style-type: none">• While loop• For loop• Applying loops to iterate through lists
Tuples	<ul style="list-style-type: none">• What is a tuple?• Difference between a tuple and a list (immutability, use cases)
Dictionaries	<ul style="list-style-type: none">• What is a dictionary?• Parts of a dictionary (key-value pairs)• Accessing values using keys• Modifying values (including lists within dictionaries)• Common operations:<ul style="list-style-type: none">• Updating and adding entries• Merging dictionaries• Removing entries• len()• Uses of dictionaries
Functions	<ul style="list-style-type: none">• What is a function?• Parameters vs arguments• Scope of variables (local variables)

CONTENT LIST

Lesson 4: Modules	
Subtopic	Content/Description
Using a module	<ul style="list-style-type: none">• What is a module?• Creation of .py file• Creation of modules + examples on how to access functions in it• How to update the functions in a module
Time and Datetime Module	<ul style="list-style-type: none">• Find date and time• Sleep
Random module	<ul style="list-style-type: none">• What does random() do?• How to generate a float within a certain range?• How to generate an integer within a certain range?• How to generate a number that is in the start stop step?• How to generate a random choice?• Shuffling a list
CSV module	<ul style="list-style-type: none">• What is a CSV file?<ul style="list-style-type: none">◦ Anatomy of a CSV file• How to open/close a file with Context Manager?• How to open a binary file?• How to utilize the functions within the CSV module:<ul style="list-style-type: none">◦ next()◦ .reader()◦ header()• How to write a csvfile?

CONTENT LIST

Lesson 5: Object-Oriented Programming (OOP)

Subtopic	Content/Description
Classes	<ul style="list-style-type: none">• What are objects and classes• How to create a class• Initialisation, <code>__init__</code>, formats and syntax• What are methods, how to use them• Get methods and how to retrieve attributes• Calling methods within methods
<code>__str__</code>	<ul style="list-style-type: none">• What is <code>__str__</code>?• How do we use it
Inheritance and Subclasses	<ul style="list-style-type: none">• Learn what inheritance is• What are superclasses and subclasses (parent/child)• Why do we need to use these• How do we implement these

THANKS TO OUR
SPONSORS FOR
SUPPORTING OUR
EVENT!

