

A 3D white figure stands against a dark blue background, holding a large tablet. The tablet displays a complex code structure with various programming constructs and comments. The figure's right hand is on the tablet, and its left hand holds a pen. The overall scene is illuminated with a blue glow.

# Stage 5 Computing Subjects

Information & Software Technology

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Industrial Technology: Multimedia

# Overview

- In each unit students will complete **practical** activities to introduce relevant skills which they will then develop and demonstrate in a unit **project**.
- **Theoretical concepts** will be covered as an introduction to key processes or as they link with the practical exploration.
- There will be both **individual and group tasks**. We encourage **creativity** and want you to complete projects of **high quality**.
- Choosing a Computer Science subject will allow you to develop a range of **digital literacy and creativity skills** that can use in other subjects and in your future endeavours.

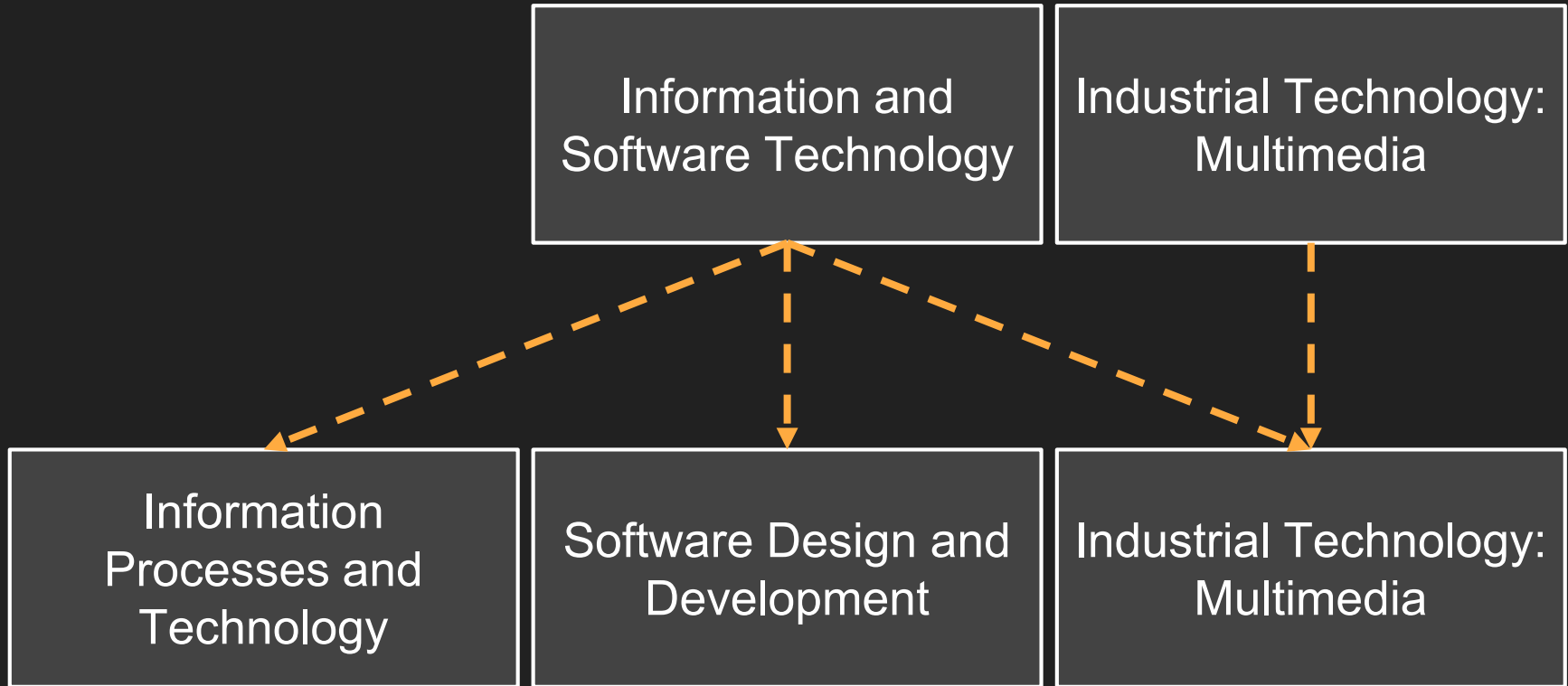
# Information and Software Technology

Year 9	Year 10
<b>Topics (10-11 week units)</b>	
Digital Media	Web Design in HTML/CSS
2D Animation	Film and Audio
Programming in Python	Robotics
3D Animation	Personal Project
<b>Software</b>	
Photoshop, Illustrator, Sketch-up, Animate, Grok Learning, IDLE, Blender	Premiere Pro, AfterEffects, Grok Learning, Dreamweaver, Lego Micropython

# Industrial Technology Multimedia

Year 9	Year 10
Topics (2x16 week units + 6 week unit each year)	
Graphics and Web Design	Game Design
Film, Animation and VFX	UI/UX Design + App Development
3D Animation	Personal Project
Software	
Photoshop, Illustrator, Grok Learning Dreamweaver, Premiere Pro, AfterEffects, Blender	Unity, Blender, Adobe XD, AppLab

# Relevance to Stage 6 Subjects

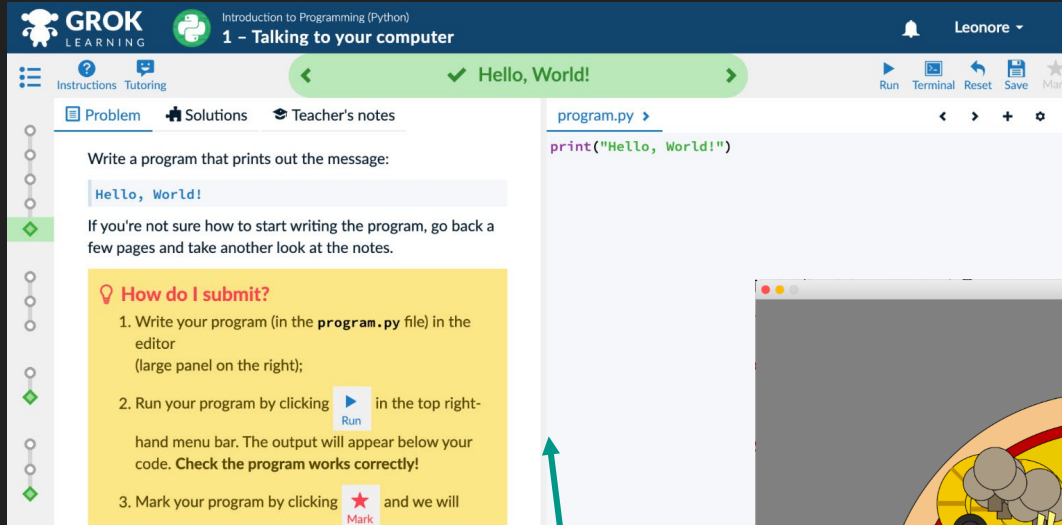


# Example Work

Learn about design principles and how to apply these with tools and techniques in Photoshop and Illustrator.



# PROGRAMMING (IST)



The Grok Learning interface displays a lesson titled '1 - Talking to your computer'. The main instruction is 'Write a program that prints out the message: Hello, World!'. A code editor on the right shows the Python code: `print("Hello, World!")`. Below the instruction, a yellow box titled 'How do I submit?' provides three steps: 1. Write your program in the `program.py` file. 2. Run your program by clicking the 'Run' button in the top right-hand menu bar. 3. Mark your program by clicking the 'Mark' button. A green arrow points from the 'Run' button in the interface to the 'Run' button in the code editor's toolbar.

Learn python in an interactive learning environment that gives you live feedback, and with opportunities to compete in coding competitions.

Then get creative with code as you program art.

```
Assess2 Pizza copy.py - /Users/Leo/Downloads/IsaacPYTHON/As
from graphics import*
import random

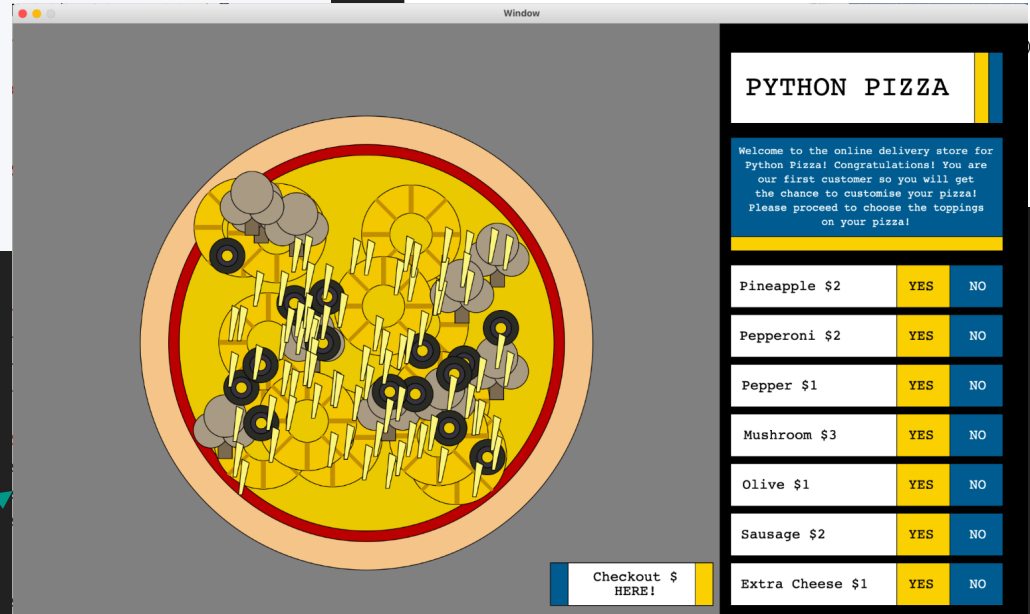
#window
win = GraphWin("Window", 1440, 840)

#The crust of the pizza
pizza = Circle(Point(500,450), 320)
pizza.setFill("burlywood2")
pizza.draw(win)

#The tomato paste in the pizza
pizzain = Circle(Point(500,450), 280)
pizzain.setFill(color_rgb(171, 21, 10))
pizzain.draw(win)

#The cheese on the pizza
cheese = Circle(Point(500,450), 265)
cheese.setFill(color_rgb(230, 201, 16))
cheese.draw(win)

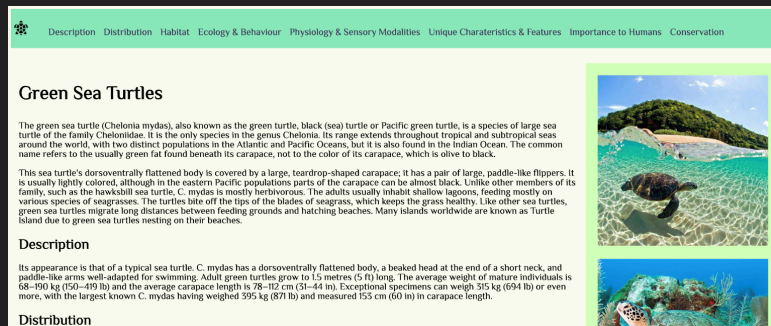
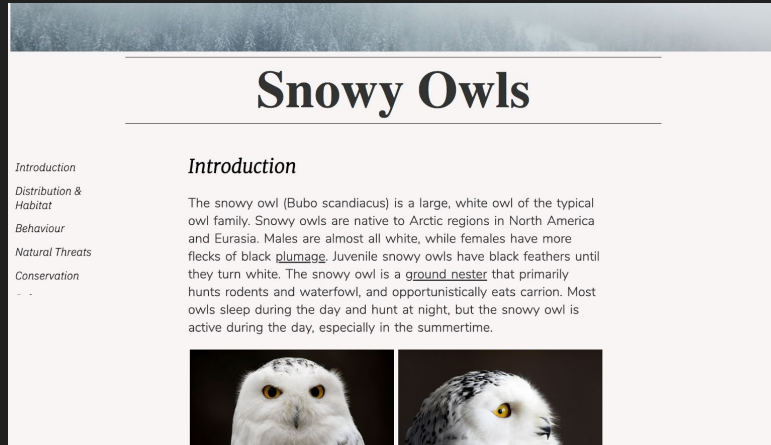
#Oven like background
win.setBackground("grey")
```





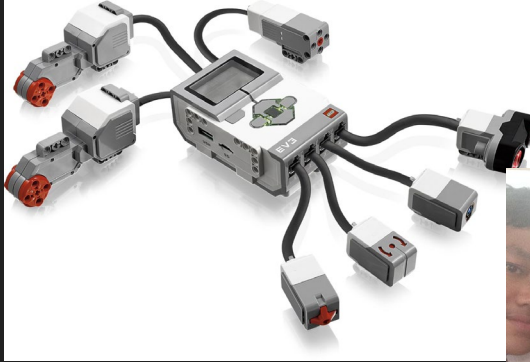
# WEBSITE DEVELOPMENT (IST and ITM)

Learn HTML5 and CSS to build professional looking websites



```
Olexandr.html
1 <!DOCTYPE html>
2 <link rel="stylesheet" type="text/css" href="Olexandr.css">
3
4 <title>
5   Snowy Owls
6 </title>
7
8 <div class = "banner-image-container" alt = "Snowy forest on a mountain" id = "1">
9
10 <ul class = "list-left">
11   <li><a href="#Introduction">Introduction</a></li>
12   <li><a href="#Distribution and Habitat">Distribution & Habitat</a></li>
13   <li><a href="#Behaviour">Behaviour</a></li>
14   <li><a href="#Natural Threats">Natural Threats</a></li>
15   <li><a href="#Conservation">Conservation</a></li>
16   <li><a href="#References">References</a></li>
17 </ul>
18
19 <div class = "sticky-head-container">
20   <h1 class = "head-container">
21     Snowy Owls
22   </h1>
23 </div>
24
25 <div class = "body-container">
26   <h2 class = "subtitle">Introduction</h2>
27   <p class = "info-container">
28     The snowy owl (Bubo scandiacus) is a large, white owl of the typical owl family.
29     <a href="#Ground_and_mound_nests" target = "_blank">ground nester</a> that
30   </p>
31 <div class = "body-image-container">
32   <img class = "body-image" src = "Olexandr images/Close Owl.png" alt = "Fr"
33   <img class = "body-image" src = "Olexandr images/owlStaring.png" alt = "S"
34 </div>
```

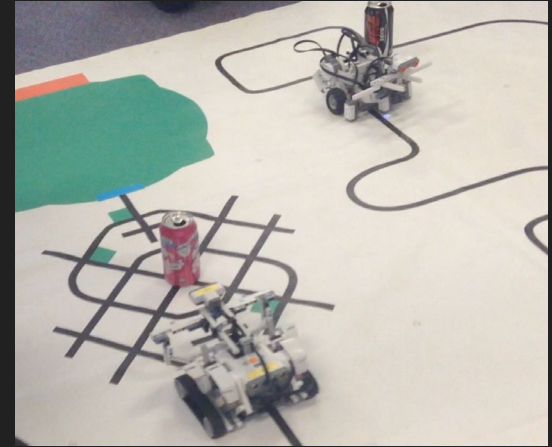
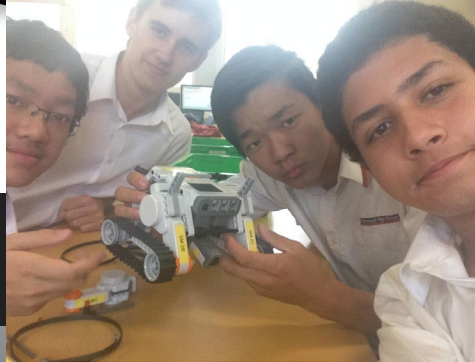
# ROBOTICS (IST)



```
1 from pybricks.hubs import EV3Brick
2 from pybricks.evdev.devices import Motor, TouchSensor, ColorSensor,
3 from pybricks.evdev.devices.sensors import InfraredSensor, UltrasonicSensor, GyroSensor
4 from pybricks.parameters import Port, Stop, Direction, Button, Color
5 from pybricks.tools import wait, StopWatch, DataLog
6 from pybricks.robotics import DriveBase
7 from pybricks.media.evdev import SoundFile, ImageFile
8
9 ev3 = EV3Brick()
10
11 left_motor = Motor(Port.B)
12 right_motor = Motor(Port.C)
13
14 # Initialize the color sensor.
15 line_sensor = ColorSensor(Port.S3)
16
17 # Initialize the drive base.
18 robot = DriveBase(left_motor, right_motor, wheel_diameter=55.5, axle_track=104)
19
20 # Calculate the light threshold. Choose values based on your measurements.
21 BLACK = 0
22 WHITE = 85
23 threshold = (BLACK + WHITE) / 2
24
25 # Set the drive speed at 100 millimeters per second.
26 DRIVE_SPEED = 100
27
28 # Set the gain of the proportional line controller.
29 PROPORTIONAL_GAIN = 1.2
30
31 while True:
32     # Calculate the deviation from the threshold.
33     deviation = line_sensor.reflection() - threshold
34     # Calculate the turn rate.
35     turn_rate = PROPORTIONAL_GAIN * deviation
36     # Set the drive base speed and turn rate.
37     robot.drive(DRIVE_SPEED, turn_rate)
```

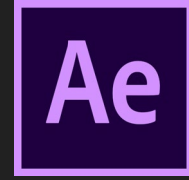
Coding in  
micropython

Work in teams to build and  
program Lego robots to meet  
challenges



**MINDSTORMS**  
EV3

# FILM + ANIMATION (IST + ITM)



Learn about the power of sound in film and how to design and record sound fx, dialogue/narration and music



Explore stop motion and the link between film and animation

Learn about creating visual effects in After Effects and apply these in your own short film



Practice your skills in Premiere Pro using professional footage



Animate in After effects to create impressive motion graphics

# FAQ

## ***Can I do both Stage 5 computing subjects?***

Unfortunately due to limited spaces and the cross over in content, **you can only do IST OR ITM.**

## ***What kind of computer do I need?***

Although you will be in a computer lab most lessons, **you are expected to have a BYOD that meets the specifications so it can run the required software.** This means you need a laptop with at least 8 GB RAM, 120GB storage and ideally at least a 7th gen processor. If you are concerned about having the right device talk to Ms Carr about your options including getting an equity device. **Not having the right computer should NOT be a reason you don't choose a computing subject.**

## ***Do I need to do Computer Science in Stage 5 to do it in Stage 6?***

**No,** Stage 6 computer science courses do not have prerequisites, however, completing either stage 5 course will give you an excellent foundation for your stage 6 learning.

# Making the Right Choice

- Choose subjects based on **your interests** - not on what your friends are doing.
- Computer Science subjects are highly practical but it is all about you creating so there will be no time for just watching or playing.
- We have **limited places next year**, so put IST or ITM high on your preferences if you want to get in!
- If you are still unsure about which subject to pick, contact Ms Carr with any additional questions you may have - [leonore.carr@det.nsw.edu.au](mailto:leonore.carr@det.nsw.edu.au)
- To see this presentation again, scan the QR code or go to

**<http://bit.do/CHSCompSciStage5>**

