University of Ljubljana
Faculty of Electrical Engineering

COLLABORATIVE
ROBOTICS CENTRE

# KDR-ROS
# **Python**

**Sebastjan Šlajpah**

Univerza v Ljubljani
Fakulteta za elektrotehniko
Laboratorij za robotiko

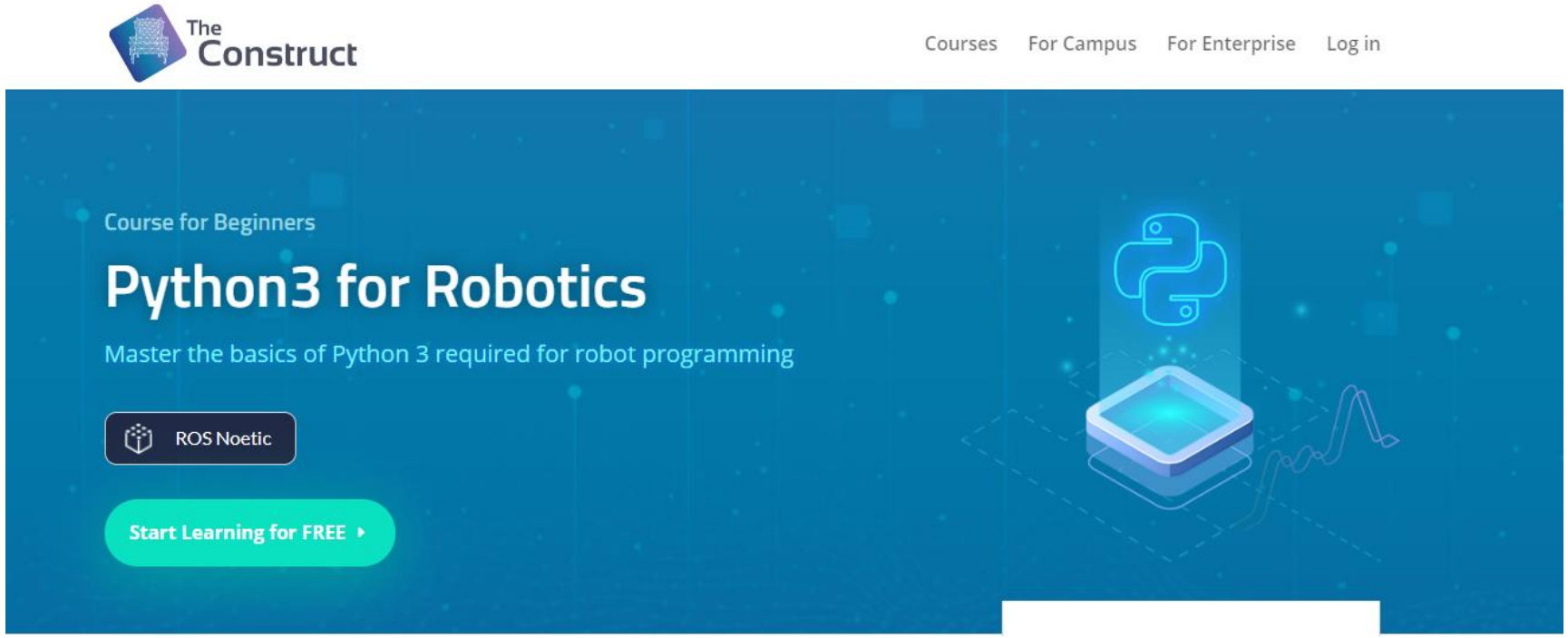
sebastjan.slajpah@fe.uni-lj.si

www.robolab.si
www.cobotic.si

# https://www.theconstructsim.com/

Python 3 for Robotics:

https://www.theconstructsim.com/robotigniteacademy_learnros/ros-courses-library/python-robotics/



# Data Types

- Numbers

```
1, 2, 3, 4
```

- Strings

```
'a', 'b', "c", "delo"
```

- Lists

```
list = [1, 2, 3, 'to', 'je', 'seznam']
```

```
print(list[0])
```

- Tuples

```
t = (1, 2, 3, 'to', 'je', 'seznam')
```

**read-only**

- Dictionaries

```
dict = {"a": 3, "b": 0, "c": 1}
```

```
print(dict["a"])
```

# Aritemetični operatorji

| Operator | Name | Example |
|---|---|---|
| + | Addition | 1 + 1 = 2 |
| - | Substraction | 2 - 1 = 1 |
| * | Multiplication | 2 * 2 = 4 |
| / | Division | 5 / 2 = 2 |
| % | Modulus | 5 % 2 = 1 |

# Priredilni operatorji

| Operator | Example | Same As |
|---|---|---|
| = | x = 5 | x = 5 |
| += | x += 3 | x = x + 3 |
| -= | x -= 3 | x = x - 3 |
| *= | x *= 3 | x = x * 3 |
| /= | x /= 3 | x = x / 3 |
| %= | x %= 3 | x = x % 3 |

# Primerjalni operatorji

| Operator | Means | Same As |
|---|---|---|
| == | Equal | 5 == 5 |
| != | Not Equal | 4 != 5 |
| > | Greater than | 5 > 4 |
| < | Less than | 4 < 5 |
| >= | Greater than or equal to | 5 >= 4 |
| <= | Less than or equal to | 4 <= 5 |

# To je komentar

# Pogojni stavek

```
if condition_1:
        statement_block_1
elif condition_2:
        statement_block_2
...
elif another_condition:
        another_statement_block
else:
        else_block
```

# Zanka

```
counter = 0

while counter < 10:
        ...
        counter += 1
        print(counter)

print("Outside the loop!")
```

# FOR stavek

```
for variable in sequence:
        statement

for i in range(5):
        print(i)
```

# Prekinitve zanke

- **`Break`** - prekine celotno zanko
- **`Continue`** - prekine trenutno iteracijo

**break**: It immediately terminates a loop entirely. Program execution proceeds to the first statement following the loop body.

**continue**: It immediately terminates the current loop iteration. Execution jumps to the top of the loop, and the condition is re-evaluated to determine whether the loop will execute again or terminate.

# Funkcije

```
def myfunction(a, b):
        C = a + b
        print("The function myfunction() has been called")
        return C

C = myfunction(1,2)
```

# Objekt

```
class Jedi:
	def __init__(self, name):
		self.jedi_name = name
	def say_hi(self):
		print('Hello, my name is ', self.jedi_name)

j1 = Jedi('ObiWan')
j1.say_hi()
j2 = Jedi('Anakin')
j2.say_hi()
```

Vsaka spremenljivka v objektu se začne s `self`.

Spremenljivke v objektu se obnašajo kot globalne spremenljivke znotraj objekta.