RIGA BUSINESS SCHOOL Riga Technical University

Programming Languages Introduction

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COURSE AIMS

- Learn the concept of a programming language: how humans describe computations to be executed on a computer.
- Learn the tools for describing, defining, and implementing a programming language: syntax and semantics
- · Learn different program description paradigms
 - Imperative
 - Functional
 - Logic
 - Declarative
 - Object-oriented
 - Hybrid



COURSE GRADING

- 30% Weekly Quizzes + Participation
- 30% Midterm in class around week 7
- 40% Homework 7 assignments –
 > automatic grade offer -> no exam required
- Optional extra credit assignment can raise the grade by 1 point

```
mirror object to mirror
mirror_mod.mirror_object
 peration == "MIRROR_X":
irror_mod.use_x = True
irror_mod.use_y = False
irror_mod.use_z = False
 operation == "MIRROR Y"
 lrror_mod.use_x = False
 Lrror_mod.use_y = True
 lrror_mod.use_z = False
  operation == "MIRROR_Z"
  rror_mod.use_x = False
  rror_mod.use_y = False
  rror_mod.use_z = True
  election at the end -add
  ob.select= 1
  er ob.select=1
   text.scene.objects.action
   "Selected" + str(modific
   rror ob.select = 0
   bpy.context.selected_obj
  ata.objects[one.name].se
 int("please select exactle
     OPERATOR CLASSES
      mirror to the selected
   ect.mirror_mirror_x"
 ext.active_object is not
```

COURSE TOPICS

Introduction to Programming Languages

Syntax and Semantics - BNF, EBNF, Syntax Diagrams

Imperative Programming Languages Overview - **Go** 'A better C'

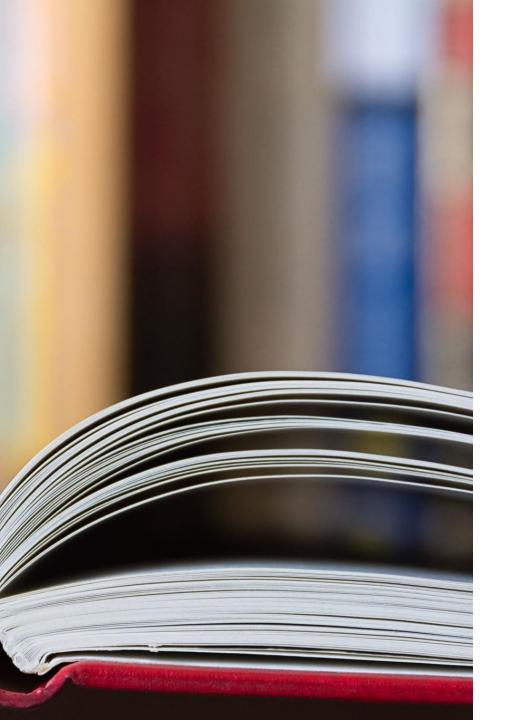
Functional Programming Languages -> **Clojure** 'A better Lisp'

Logic Programming Languages -> **Prolog**

Declarative Programming Languages -> **SQL**

Object-Oriented Programming Languages - **Kotlin** 'A better Java'

Hybrid Programming Languages -> **Rust** 'A better C++ or Scala'



COURSE MATERIALS

Course Github Repository: https://github.com/VaIRCS/RBS_PBM774_Programming_Languages

Books - not absolutely necessary - but can be useful:

https://www.cengage.uk/c/programming-logicand-design-introductory-9efarrell/9781337109635/ - official book for this course - however it is very general - lacks language specific details

Concepts of Programming Languages, 12th edition by Robert W. Sebesta - used to be the main book for this course - still good if you have access to it

Supplemental:

https://cs.brown.edu/courses/cs173/2012/book/
- Programming Languages: Application and
Interpretation by Shriram Krishnamurthi - free
online book - very good for functional
programming languages