

Offered by  
ICT Engineering

IT-PCL1

1.0

## Programming Concepts and Languages

ECTS

5

### Prerequisites

Considerable programming experience with e.g. Java, C# and C.

### Main purpose

The purpose of the course is to qualify the student to:

- Understand various programming concepts, paradigms and get knowledge about how different paradigms appear in different programming languages
- Get thorough knowledge about the functional programming paradigm
- Apply different paradigms to specific problems in different languages

### Knowledge

### Skills

### Competences

### Topics

Overview of programming concepts, paradigms and languages  
Imperative paradigm with Imperative Programming in Python  
Object-Oriented paradigm with Object-Oriented Programming in Scala  
Concurrent paradigm with Concurrent Programming in Erlang  
Functional paradigm with Functional Programming in F#  
Integration of different programming paradigms in system development.

### Teaching methods and study activities

Activities will vary between theory, programming exercises, and mini project work.

### Study Activity Model

### Resources

Some papers about the general programming concepts and languages.  
A book about functional programming in F#.  
Lesson notes.

### Evaluation

Written programming hand-in exercises and presentations: 30 %.

### Examination

Three-hour written examination (70 %) and hand-in exercises/presentations (30 %) with marks according to the 7-point grading scale.

External examination.

### Grading criteria

According to the 7-point grading scale.

Mark 12 Awarded to students who have shown excellent comprehension of the below-mentioned competences. A few minor errors and shortfalls are acceptable.

Mark 02 Awarded to students for the just acceptable level of comprehension of the required competences.

10/9/2018

**Additional information**

Required workload for students is estimated to 150 hours.

**Responsible**

Joseph Okika

**Valid from**

1.8.2017

**Course type**

ICT Engineering; Compulsory Course for all ICT Engineering; 6. semester; Electives;

*Ch. K. Petersen*



**VIA University  
College**

Campus Study Administration  
Chr. M. Østergaards Vej 4  
8700 Horsens  
Tel. +45 8755 0020