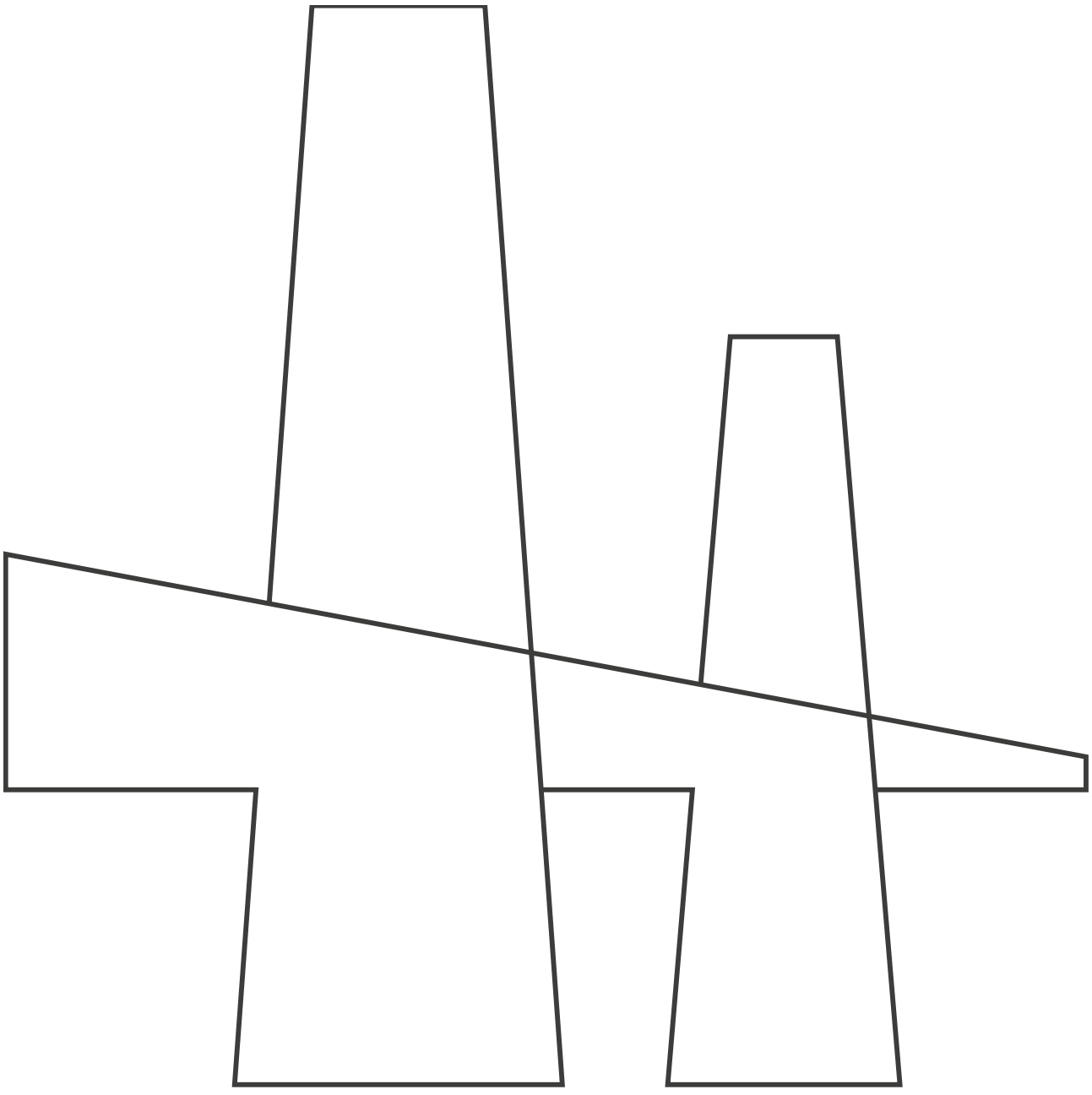
Bring ideas to life
VIA University College

Course syllabus Software Technology



CONTENT

Dato: 11. december 2018

Course syllabus

1 Semester project 4 SEP4(5 ECTS)

1.1 Course typology

Compulsory course for 4 semester
Offered Spring and Autumn
Duration 13 weeks

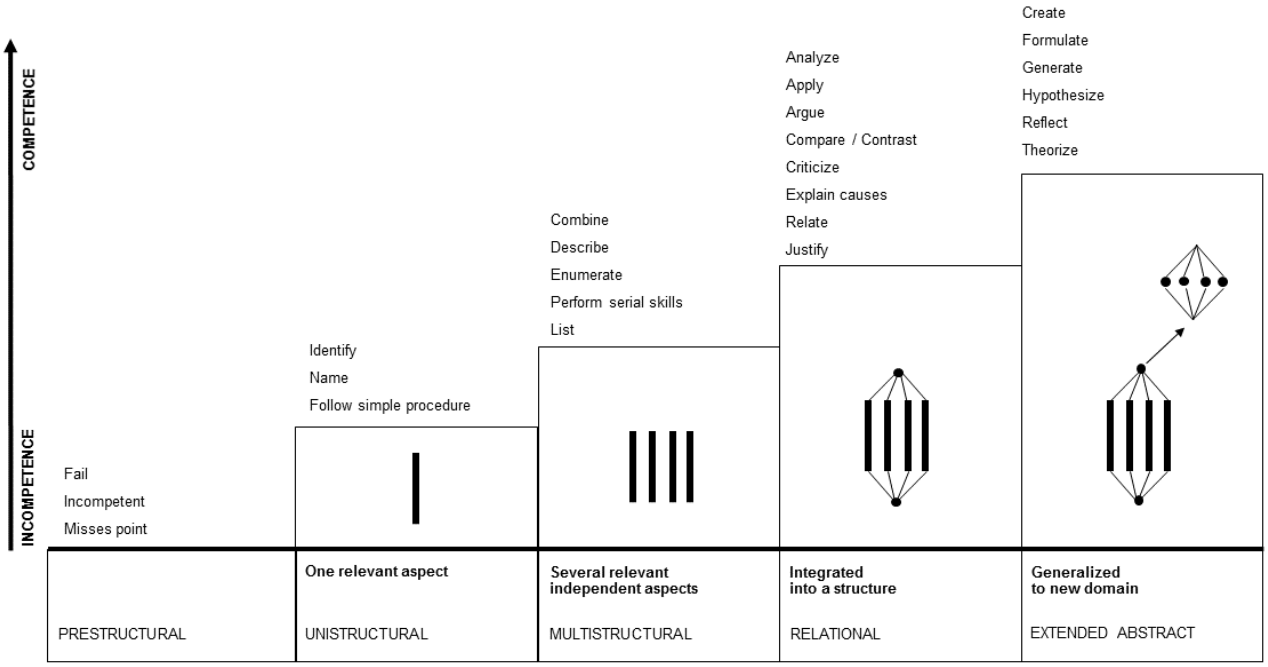
1.2 Course prerequisites

Proficiency with Android development.
Proficiency with real time programming and c.
Proficiency with database design and query.

1.3 Main purpose

Conceive, design and implement a software solution including hardware sensors, an android-based user interface and a persistent multiuser backend infrastructure. The solution must contain self-constructed electronics, and make use of the Java, C# & C programming languages.

1.4 Learning objectives



1.4.1 Knowledge

- Real-time operating systems (RTOS)
- LoRaWAN
- C-programming
- Cloud computing
- Android development
- Data warehouse modelling/ dimensional modelling
- Understand Extract, Clean-up, Transform and Load data flows

1.4.2 Skills

- Implement complete Android applications using a modern Android development environment
- Setup and maintain a build server for a larger software project
- Setup and maintain automated regression testing
- Implement RTOS-based applications in C
- Apply knowledge of dimensional database modelling to design databases optimized for querying
- Plan, design and implement Extract, Clean-up, Transform and Load data flows from multiple sources into a data warehouse
- Design and implement analyses based on the data warehouse

1.4.3 Competences

- Design complete solutions comprised of both hardware and software
- Decide on appropriate quality assuring methods for a given software development project
- Implement full-scale Internet-of-Things solution
- Design and implement a data warehouse solution
- Develop industry standard mobile applications

1.5 Resources

Online resources that will be made available on Itslearning.

1.6 Student Activity Model

CATEGORY 1

Participation of lecturer and students
Initiated by the lecturer
14 hours - 10%

- Lessons
- Project supervision, meetings with supervisors
- Exam

CATEGORY 2

Participation of students
Initiated by the lecturer
35 hours - 25 %

- Hand ins
- Project work

CATEGORY 3

Participation of students
Initiated by students
84 hours - 60 %

- Preparation for exam
- Self-study
- Project work
- Literature search

CATEGORY 4

Participation of lecturer and students
initiated by students
7 hours - 5 %

- Supervisor meetings

1.7 CDIO

How high is the development of the following skills and competences rated in the course:
0=not at all 1= to a lesser degree 2= to some extent 3= highly 4= to a great extent

1. Natural Science, Technique and Economy

	0	1	2	3	4
1.1. Knowledge and skills in mathematics and natural science		x			
1.2 Profession targeted core knowledge			x		
1.3 Possibility for specialised knowledge and skills within engineering					x

2. Professional and personal competences

	0	1	2	3	4
2.1 Practical problem solving within engineering				x	
2.2 Holistic approach				x	
2.3 Laboratory methodology		x			
2.4 Self-management				x	
2.5 Having an understanding for the profession					x
2.6 Project methodology				x	

3. Social skills

	0	1	2	3	4
3.1 Interpersonal skills			x		
3.2 Communication skills			x		
3.3 Linguistic skills			x		

4. Profession targeted engineering competences

	0	1	2	3	4
4.1 Social understanding		x			
4.2 Business skills	x				
4.3 Development methodology					x
4.4 Understanding implementation					x
4.5 System operation			x		

1.8 Evaluation

Permit criterias for attending examination

☐ Mandatory course activities completed	☐ Mandatory assignments handed in before deadline and accepted.	☐ Test(s) during the course passed	X Course assignment handed in before deadline	☐ Tests in laboratory accomplished and accepted	☐ None

1.9 Type of Examination

1.9.1 Oral Examination

☐Individual oral examination without preparation based upon course assignment(s)	☐Individual oral examination based upon a subject found by draw. ☐No preparation ☐Preparation time 20 minutes.	☐Group presentation followed by an individual examination. Duration presentation ☐15-20 minutes	X Group presentation followed by an individual examination with the presence of the whole group. Duration presentation ☐15 - 20 minutes

The exam starts with a presentation of the project with the presence of the whole group. (30min/group). Afterwards three students are examined at a time in dialog with examinators (10min/student).

1.9.2 Grading criteria

Course assignments account for 50 % of final grade	Examinations account for 50% of final grade	Tests account for 0 % of final grade

1.9.3 Allowed Tools

X All	☐None	☐Course literature according to the course description	☐Personal notes	☐ Laptop ☐Calculator

1.9.4 Censor

X Internal	☐ External

1.10 Deadlines for passing the course

The course must be passed before graduation

1.11 Course responsible

KASR

1.12 Valid from

01-02-2019