User Interfaces (E761036)

Course size   *(nominal values; actual values may depend on programme)*

     Credits 6.0   **Study time 180 h**

Course offerings and teaching methods in academic year 2023-2024

A (semester 2)	Dutch	Gent	lecture
			seminar
B (semester 2)	Dutch	Gent	lecture
			seminar

Lecturers in academic year 2023-2024

Ongenae, Veerle	TW05	lecturer-in-charge

Offered in the following programmes in 2023-2024	crdts	offering
Bachelor of Science in Engineering Technology(main subject Information Engineering Technology)	6	A
Linking Course Master of Science in Information Engineering Technology	6	A, B
Preparatory Course Master of Science in Information Engineering Technology	6	A

Teaching languages

Dutch

Keywords

- Course offering A (6 ECTS): User interfaces, web applications, mobile apps, responsive design, javascript frameworks, HTML5, Computer science (P170), Informatics (P175), Computer technology (T120)
- Course offering B (3 ECTS): User interfaces, mobile apps, responsive design, Computer science (P170), Informatics (P175), Computer technology (T120)

Position of the course

- Course offering A (6 ECTS): This course provides students with a broad technological insight in the structure, operation and implementation of user interfaces. The emphasis here is on so-called clientside frameworks, both web-based and mobile platforms.
- Course offering B (3 ECTS): This course provides students with a broad technological insight in the structure, operation and implementation of user interfaces. The emphasis here is on so-called clientside frameworks for mobile platforms.

Contents

In this course the following concepts are discussed:
- The difference between the development and implementation of native, hybrid and web apps
- Structural elements of a user interface: widgets in a tree structure
- Building a user interface in a declarative way: method and benefits
- Responsive design
- Responding to user input: event mechanism, observer pattern (listeners)
- Architectural patterns for user interfaces: MVC, MVP, MVVM
- Data binding: one-way and two-way
- Background processes and multithreading: eventloop
- Reactive programming
- Communication with the back-end
- Forward, upward and backward navigation

Technologies that are covered:
- Course offering A (6 ECTS): HTML5, ECMAscript (javascript), CSS, Angular, Android, JSON, AJAX.

- Course offering B (3 ECTS): Android

Initial competences

The following competencies must be acquired in advance, for example by having passed the Object Oriented programming course: Being able to program in an object oriented way on an advanced level (in Java)

Final competences

1 Making a well-founded choice between web-based or "native" programming languages for a specific application.
2 Build a high-performance and smooth UI application.
3 Gain insight and knowledge of the functioning of the most important UI frameworks.
4 Understand the architectural patterns for graphical frontend applications.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture

Extra information on the teaching methods

- Lectures
- Labs: individual work on PC

Learning materials and price

- Slides and examples are available on the electronica learning platform. Software used: IntelliJ, Android Studio
- Bundled slides are distributed via Hermes at approximately 6 €.

References

- Android Programming. B. Phillips and B. Hardy. The Big Nerd Ranch Guide. 4th edition, 2019
- "Advanced Game Design with HTML5 and JavaScript", Rex van der Spuy, Apress, 2015
- "Pro Angular", Adam Freeman, Marc J. Collins, Apress, 2017
- "Pro HTML5 with CSS, JavaScript, and Multimedia Complete Website Development and Best Practices", Apress, 2017
- "Pro PHP and jQuery", Jason Lengstorf, Apress, 2010
- "Head First JavaScript Programming", Eric T. Freeman, Elisabeth Robson, O'Reilly Media, 2014
- Angulars Docs, https://angular.io/docs
- Javascript Guide, https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide
- Android Development Resources for Educators, https://developer.android.com/teach

Course content-related study coaching

The student can always make an appointment with the teachers.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Skills test, Written assessment

Examination methods in case of periodic assessment during the second examination period

Skills test, Written assessment

Examination methods in case of permanent assessment

Skills test

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Extra information on the examination methods

Course offering A (6 ECTS):

- Periodic evaluation: written theory exam + practical (open book) exam in PC lab
- Skills test: test on PC (open book)

Course offering B (3 ECTS):
- Periodic evaluation: written theory exam + practical (open book) exam in PC lab

Calculation of the examination mark

Course offering A (6 ECTS):

- Periodic evaluation: 75% (written theory exam (50%) + practical exam in PC lab (25%)
- Permanent evaluation: 25% (test)

During the second exam chance the points of the permanent evaluation disappear and only the points obtained on the written exam (50%) and exercises on the computer (50%) count.

Course offering B (3 ECTS): 100 % periodic evaluation