



## Microwave Engineering I 10.5 credits

*Microwave Engineering I 10.5 hp*

Set by Faculty of Engineering and Sustainable Development

<b>Version</b>	<b>Set at</b>	<b>Valid from</b>
	2010-09-17	2010-08-30

<b>Level</b>	A1N
<b>Education level</b>	Second cycle
<b>Identifier</b>	EE476D
<b>Credits</b>	10.5 credits
<b>Main field of study</b>	Electronics
<b>Subject group</b>	Electronics
<b>Diciplinary domain</b>	Technology 100.0%

### Objective

The aim of the course is to give the student basic knowledge in electromagnetic theory and basic understanding for microwave components.

After completed course the student shall be able to:

- show basic knowledge in electromagnetic theory
- show understanding for how transmission lines and waveguides are involved in microwave networks
- analyze microwave networks
- show understanding for microwave resonators
- show understanding for power dividers
- show understanding for microwave filters

### Course content

The course provides basic knowledge of passive microwave components and the electromagnetic theory behind their operation. Weight is placed mainly on the electromagnetic aspects important for design of microwave components.

The course is suited both for microwave design engineers and those who encounter passive microwave components as sub-components in a RF, Microwave or optical systems. The course includes practical laboratory exercises involving the use of both industry standard computerized design tools and standard RF measurement instrumentation.

### Teaching

The education is performed in lectures, exercises, and laboratory work. The laboratory work is normally performed in groups of three students. Emphasis is put on the students ability of accomplishing and reporting the work.

The education is not mandatory for the student, except for the laboratory work and assignment tasks.

Lectures  
Exercises

Laboratory

Laboratory exercises:  
172E Wave guides  
173E The network analyzer  
174E Stub matching  
179E Passive devices and filters for RF and microwave frequencies

**Prerequisites**

Fields and waves.

**Examination**

0010 9,0 credits Written examination  
0020 1,5 credits Laboratory exercises

**Grade**

A, B, C, D, E, Fx, F

**Other Regulations**

A written examination is offered at the end of the course. For each course two examination opportunities are offered: one at the end of the course and one extra.

Laboratory reports are due not later than a week after the scheduled occasion of the task if otherwise is not announced. Late reports are not considered until the next time the course is given (normally a year later). The report is marked by approval through the signature of the laboratory supervisor. In case of rejection, the report has to be revised by the student in agreement with the supervisors comments.

**Environmental class**

It is possible to include content with sustainable development in this course in the future..

**Course Literature**

David Pozar (2005). *Microwave Engineering* Wiley: