

t.NAV - Navigation

Person responsible for the course: Heinz Wipf, td11
Credits: 4
Valid for: 2009/2010
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Learning objectives:

The students know the different procedures of navigation and radio navigation in particular. They are able to apply the procedures treated during the course and are familiar with a number of systems. The module enables the students to further deepen their knowledge in the field independently.

Course content:

Sensors:

- terrestrial radio navigation
- direction finder, radar
- approaches on how to combine sensors

Systems:

- satellite navigation systems (GPS, Galileo, EGNOS/WAAS, GBAS/LAAS))
 - conventional air navigation systems (VOR, DME, ILS)
 - performance based navigation (RNAV, RNP)
 - air traffic management systems (PSR, SSR, MLAT/WAM, ADS)
 - principles of positioning
 - systems reliability
 - practical application
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Previous knowledge:

- geodesy
 - antenna technology
 - modulation techniques
 - statistics and stochastics
 - propagation phenomena of electromagnetic waves
 - principles of signal processing
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Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	
Tutorial/Practicum	
Group teaching	
Block instruction	
Seminar	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

Number	Type	Weighting
1	End of term exam	2
	Exam during the semester	
1	Field journal	1

Language of instruction:

German

Instruction material:

slides as PDF files

readers as PDF files

Mansfeld, Werner

Funkortungs- und Funknavigationsanlagen

ISBN 3778522027

Heidelberg: Hüthig, 1994

Pratap Misra and Per Enge

Global Positioning System: Signals, Measurements and Performance

ISBN 0-9709544-1-7

Ganga-Jamuna Press, 2006

Comments:

Lecturers:

Dr. M. Scaramuzza dipl Ing. ETH

H. Wipf dipl. Ing. HTL

Prof. Dr. A. Geiger dipl. Phys. ETH (Field Day)