EE-425  
HF and VHF circuits and techniques I

Dehollain Catherine

<table>
<thead>
<tr>
<th>Cursus</th>
<th>Sem.</th>
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<td>Génie électrique et électronique</td>
<td>MA1, MA3</td>
<td>Opt.</td>
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<td>MNIS</td>
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<tr>
<td>Credits</td>
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Summary

Master the design of circuits and systems at high frequency (HF) and very high frequency (VHF) (1 MHz-6GHz). This lecture is particularly oriented towards circuit aspects of modern communications systems.

Content

1) HF Passive Components
2) Resonant Circuits
3) Impedance Matching
4) HF Filters
5) Noise and Intermodulation
6) Modeling and Characterization of Transistors at HF
7) Design of HF Small-Signal Amplifiers

Keywords

HF and VHF wireless communication circuits
RF wireless communication circuits

Learning Prerequisites

Recommended courses
Electronic circuits and systems I and II

Learning Outcomes

By the end of the course, the student must be able to:

- Design an electrical filter
- Model an amplifier
- Carry out the design of an impedance matching circuit
- Assess / Evaluate the noise figure of an amplifier
- Assess / Evaluate the quality factor of a passive impedance
- Assess / Evaluate the equivalent noise sources of an amplifier
- Assess / Evaluate the model of a transistor in HF and VHF
- Assess / Evaluate the properties of a resonant passive circuit

Transversal skills
• Access and evaluate appropriate sources of information.
• Assess one's own level of skill acquisition, and plan their on-going learning goals.
• Manage priorities.
• Set objectives and design an action plan to reach those objectives.
• Take feedback (critique) and respond in an appropriate manner.

Teaching methods
Ex cathedra and exercises

Assessment methods
Written

Supervision
Office hours Yes
Assistants Yes
Forum No

Resources
Notes/Handbook
Polycopies and scientific articles.

Websites
• http://rfic.epfl.ch

Moodle Link
• http://To be re-activated at the beginning of the semester

Videos
• http://No video

Prerequisite for
HF et VHF circuits and techniques II