Politecnico di Torino

Academic Year 2010/11 (first time established in A.Y.2007/08)

01LSUJA

Fundamentals of Microwave and Optical Technologies

1st degree and Bachelor-level of the Bologna process in Electronic And Computer Engineering - Vercelli (III FACOLTA' DI INGEGNERIA)

Teacher	Status	SSD	Les	Ex	Lab	Years Stability
Pirinoli Paola	AC	ING-INF/02	5	0	0	2

SSD	CFU	Activities	Area context
ING-INF/02	5	D - A scelta dello studente	A scelta dello studente

Objectives of the course

The objectives of the course are:
' Consolidate the knowledge of electromagnetic circuit theory with a particular focus on its usage for the analysis and design of the most important micro- and millimeter-wave passive components;
' Analyze and design the electromagnetic part of some typical telecommunication systems working in the micro- and millimeter-wave regions.

Expected skills

Ability to design the main passive components found in radio systems and to critically analyze the performance of those commercially available.

Prerequisites

Basics of guided electromagnetic wave propagation: transmission lines, waveguides.

Syllabus

' Design of passive micro- and millimeter-wave components such as: directional couplers, power dividers, polarization converters, resonators, filters, etc.
' Applications to radio links, radars, etc.

Laboratories and/or exercises

Examples of design and analysis of practical components using a CAD system.

Bibliography

Instructor's notes.
It may be also useful to consult:
' R.E. Collin, 'Foundation for microwave engineering', McGraw-Hill, 1992.
' D.M. Pozar, 'Microwave and RF design of wireless systems', John Wiley and Sons, 2001.
' J.S.G. Hong, M.J. Lancaster, 'Microstrip filters for RF/microwave Applications', John Wiley and Sons, 2001.

Revisions / Exam

Revisions / Exam

The exam is based on the discussion of some assignments presented during the course.

Programma definitivo per l'A.A.2010/11

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