UNIVERSITÀ DI PAVIA

Anno Accademico 2019/2020

COMPUTATIONAL ELECTROMAGNETICS

Anno immatricolazione	2018/2019
Anno offerta	2019/2020
Normativa	DM270
SSD	ING-INF/02 (CAMPI ELETTROMAGNETICI)
Dipartimento	DIPARTIMENTO DI INGEGNERIA INDUSTRIALE E DELL'INFORMAZIONE
Corso di studio	ELECTRONIC ENGINEERING
Curriculum	Space Communication and Sensing
Anno di corso	2°
Periodo didattico	Primo Semestre (30/09/2019 - 20/01/2020)
Crediti	6
Ore	50 ore di attività frontale
Lingua insegnamento	English
Tipo esame	SCRITTO E ORALE CONGIUNTI
Docente	BOZZI MAURIZIO
Prerequisiti	Basic knowledge of electromagnetic field theory, microwaves, and mathematical methods.
Obiettivi formativi	The course aims to illustrate the most common numerical techniques adopted for the electromagnetic modeling of microwave and millimeter-wave circuits and antennas. At the end of this course, the student will be able to select the most appropriate numerical technique to solve a specific electromagnetic problem, and to implement computer programs to solve simple problems. Moreover, the student will be able to use some of the most popular commercial electromagnetic programs and to critically evaluate the numerical results. The course will be taught in English.
Programma e contenuti	Introduction to computational electromagnetics.

	The Finite-Difference Time Domain (FDTD) and Finite-Difference Frequency Domain (FDFD) methods. The Method of Moments (MoM). The Finite Element Method (FEM). The Boundary Element Method (BEM). Hybrid methods: MoM/BI-RME Method. Modal techniques.
Metodi didattici	Lectures: 36 hours Lab activities: 18 hours
Testi di riferimento	M. N. O. Sadiku. Numerical Techniques in Electromagnetics. CRC press, 2000. R. F. Harrington. Field Computation by Moment Methods. IEEE Press, 1993. (reference reading). Jianming Jin. The finite element method in electromagnetics. J.Wiley & Sons, 1993. (reference reading). R. Mittra and S.W. Lee. Analytical Techniques in the Theory of Guided Waves. The Macmillan Company, 1971. (reference reading). Lecture notes.
Modalità verifica apprendimento	There will be an oral exam with the discussion of a project developed during the course.
Altre informazioni	There will be an oral exam with the discussion of a project developed during the course.
Obiettivi Agenda 2030 per lo sviluppo sostenibile	$lbl_legenda_sviluppo_sostenibile