UNIVERSITÀ DI PAVIA

Anno Accademico 2019/2020

MICROWAVE MEASUREMENTS

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	Photonics
Anno di corso	2°
Periodo didattico	Primo Semestre (30/09/2019 - 20/01/2020)
Crediti	6
Ore	45 ore di attività frontale
Lingua insegnamento	English
Tipo esame	SCRITTO E ORALE CONGIUNTI
Docente	PERREGRINI LUCA (titolare) - 6 CFU
Prerequisiti	Knowledge of electromagnetic field theory and microwave circuits, basic knowledge of antennas.
Obiettivi formativi	The course is taught in English. The course aim to present the techniques for measurement and characterization of circuits and antennas for applications in the microwave frequency band. The student will basically learn how to select the most appropriate instruments and components to organize a measurement setup for a given circuit. Moreover, he will be able to conduct autonomously some standard measures.
Programma e contenuti	The course will address the following topics: Component and devices for microwave measurements: directional couplers, circulators, attenuators, matching circuits, matched loads, filters, wavemeters, slotted lines.

	Characteristics of connectors, cables, waveguides and transitions. Frequency and signal generators. Power measurement: bolometers, detectors, and mixers. Impedance measurement by a reflectometer. Vector Network Analyzer: block diagram and calibration techniques. Spectrum analyzer. Basics of nonlinear and active circuits measurement. Measurement of cavity resonators. Antenna measurement: comparison between open space and anechoic chamber measurements; far field measurement, near field measurement (planar, cylindrical, spherical scan), compact range systems. Basics of electromagnetic interference measurements. SAR measurement.
Metodi didattici	Lectures (hours/year in lecture theatre): 30 Practical class (hours/year in lecture theatre): 20 Practicals / Workshops (hours/year in lecture theatre): 15
Testi di riferimento	Provided by the teacher.
Modalità verifica apprendimento	Oral examination.
Altre informazioni	Oral examination.
Obiettivi Agenda 2030 per lo sviluppo sostenibile	$lbl_legenda_sviluppo_sostenibile