

## Teaching Statement of Prof.Dr. Konstantinos N. Voudouris

Counting 28 years of professional life, 20 of them are dedicated to higher education teaching. The subjects that I taught and still teach are concentrated to the physical layer (PHY) of wireless telecommunications. Microwaves, Radio-propagation, Antennae, transmission lines, and electromagnetic compatibility, were the main subject matters that I am lecturing both in undergraduate and postgraduate levels.

My essential care was and is the learning outcome of the teaching process. My approach was always student-centric, aiming to be able to design, manufacture and test the whole RF front-end of any communication system, having in depth analyse the sub circuits and optimise their design in all aspects. For this reason I enrich teaching based on the power of the examples and real-life study cases. Analysing such projects it comes in direct assistance in solving real problems, linking academic teaching with research results and engineering outcomes from the industry.

I strongly believe that teaching is a life-time interactive activity. One can teach as long as he is willing to learn from his students, as long as he is capable to successfully induce his research and professional outcomes in his curriculum. The power of the example and laboratory experimentation is the key in engineering teaching, along with the academic tutor's ability and flexibility to propose new modules directly linked to the industry requirements.

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In particular, the modules / subjects that I teach are:

**Microwaves / High Frequency Electronics:** As a part of a good foundation, the nature of waves traveling in various media are explained through Maxwell's equations and empirical ones. Smith chart, one of the most complex issues, is explained through design paradigms. For this reason I focus on matching circuit analysis such as the full design of an amplifier using S parameters. Circuits like oscillators and mixers are left to be taught in the MSc level. As an assignment, students are asked to design, test a single transistor amplifier on ADS simulator.

Personal contribution to the subject: My PhD work within the Radiocommunications group of the University of Bradford (UK) on designing a direct conversion receiver, along with the two major European research projects I had the honour to coordinate, namely REWIND and NexGenMiliwave, brought the expertise in designing microwave integrated circuits, for example 90dB isolation coupler at 3.9GHz and Substrate Integrated Waveguides at 60GHz, and introduce directly research outcomes to both BSc and MSc teaching.

**Antennas, Transmission Lines:** Basic issues such as why an antenna transmits, are explained thoroughly and many examples are given in calculating the effective area of the antenna. Following the presentation for various types of antennas I focus on arrays, as the good knowledge of the particular subject leads to understanding MIMO based systems and smart antennas. In the MSc level, I focus on designing microstrip antennas. As an assignment, students are requested to design, manufacture and test a single planar antenna element.

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Personal contribution to the subject: My Postdoctoral research work within the Antennas Group of the University of Kent at Canterbury - UK and PhD student supervision on antennas design for WiMAX relays (REWIND project)

**Propagation, and Radiocommunications:** Following the typical background, that all students should be able to follow, many assignments are given including link budget, noise and interference considerations. In the MSc course the emphasis is given on modelling and planning.

Personal contribution to the subject: My expertise from my work as a Wireless Telecommunications Expert within the incumbent telecom operator in Greece (OTE), is totally affect the way I teach the particular subject. All examples are based on real life engineering problems in radio links design and acceptance testing.

**EMC and Regulations:** This is an elective subject where I take the opportunity to teach student, not only to make good designs keeping national and international rules, but to work in groups in order to develop a product or service. These groups are imitating small companies and students are sharing roles within this virtual structure. They deliver their work in terms of presentation. One mark is given per group and the students return their individual marks.

Personal contribution to the subject: My work in the regulator, ministry and the Greek diplomatic mission in the European Union, set me in the front-end of the Electronic Communication regulations. Furthermore, one of the main tasks of REWIND project was EMC testing of the Relay Station.

The next table, includes all my teaching activity.

<b>Period</b>	<b>Subject</b>	<b>Year of studies,</b>	<b>Position held</b>	<b>Institution - Place</b>
Oct. 1986 - Jun. 1988	Antennas Laboratory	4th undergrads	Demonstrator and tutorials	Wireless Telecommunications Laboratory -University of Patras - <b>GR</b>
Oct. 1988 - Jun 1990	Electronics	2nd undergrads	Demonstrator	U. of Bradford - <b>UK</b>
Oct. 1990 - Jun 1993	Transmission lines and Electromagnetics	1 <sup>st</sup> undergrads	Tutorials Supervisor	University of Kent - <b>UK</b>
Oct 1993 - Jun 1994	Electronics	1st and 2nd year undergrads	Lecturer	Frederick University – <b>CY</b> , *accredited course by the University of Wales - <b>UK</b> .”
Oct. 1995 - Jun 1997	Electronics	1st and 2nd year undergrads	Lecturer	British-Hellenic College - <b>GR</b> , *accredited course by the University of Wales- <b>UK</b> ”

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Oct. 1996 - Dec. 1996	Radiocommunications	4th year undergrads	Lecturer	Air Force School of Aviation (Telecoms Dept.)- <b>GR</b>
Oct. 1995 - Jun 1997	Radiocommunications, Satellite coms, Microwaves and EMC	3 <sup>rd</sup> undergrads	Lecturer	TEI of Athens <b>GR</b>
Jan 1997 - Jun 1997 and Jan. 2005-2011	Radiocomms Laboratory	MSc in Data Communications	Assistant Professor	TEI of Athens <b>GR</b> and University of Brunel- <b>UK</b>
Oct. 2004 - today	Radiocommunications, Microwaves, Electromagnetic Compatibility	3 <sup>rd</sup> , 4 <sup>th</sup> year undergrads	Associate Professor	TEI of Athens - <b>GR</b>
Oct. 2006 - 2008	Antennae Theory	2 <sup>nd</sup> year undergrads	Assistant Professor	TEI of Athens - <b>GR</b>
May -13	High Frequency Electronics	1 <sup>st</sup> y postgrads (MSc in Advanced Electronics)	Associate Professor	TEI of Athens - <b>GR</b>
Jan - 14	Next Gen Telecoms Networks (planning)	2 <sup>nd</sup> y postgrads (MSc in Advanced Electronics)	Professor	TEI of Athens - <b>GR</b>

Furthermore, I have supervised more than 60 final year projects, 30 MSc dissertations and 3 PhDs.