FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT

DEPARTMENT OF ELECTRICAL ENGINEERING
EEE4086F – RF AND MICROWAVE SYSTEMS

COURSE HANDOUT

PROGRAMME	ALL THREE ELECTRICAL ENGINEERING PROGRAMMES
COURSE	
COURSE NAME:	RF AND MICROWAVE SYSTEMS
COURSE CODE:	EEE4086F
PREREQUISITES:	EEE3058S, EEE3055F
SAQA CREDITS	20
LECTURERS	
LECTURER(S):	Dr Yoann Paichard
EMAIL ADRESS	yoann.paichard@gmail.com
OFFICE NUMBER:	609 Menzies Building (Pr. Inggs Office)
OFFICE HOURS FOR CONSULTATION	Monday to Thursday morning by email appointment.
TEACHING ASSISTANT(S)	Jon Ward
EMAIL ADRESS	
OFFICE HOURS FOR CONSULTATION	You must set up an appointment by email first.
VENUES AND TIMES	
LECTURE VENUE:	Sanpe 2 / Menzies 11
DAY OF THE WEEK	Monday and Thursday
TIME OF THE DAY	12h00 (Monday), 12h00 and 16h00 (Thursday)
TUTORIAL VENUE:	Thursday afternoon. Practicals in White Lab
TUTORIAL DAY/TIME:	
AIMS OF THE COURSE	To provide an overview of modern RF and Microwave technology and techniques, allowing the student to understand RF and Microwave systems, and to be able to

	carry out system level calculations to predict performance and thus be able to design moderately complex RF and Microwave systems.
COURSE OUTCOMES	The student shall be able to:
	1. Describe the operation of and imperfections in the performance of oscillators, mixers, attenuators, power combiners, splitters, filters, antennas, switches, amplifiers. 2. Describe, predict the performance and design of receivers, transmitters, as systems. 3. Describe and predict the effect of the propagation medium on the performance of microwave and RF systems. Understand and be able to incorporate countermeasures to propagation problems in systems. 4. Understand and predict the performance of various analogue and digital modulation schemes. 5. Describe the Regulatory principles governing the use of RF and Microwaves nationally and internationally. 6. Understand and calculate the safe power levels for RF and microwave systems. 7. Be able to use basic RF and microwave test equipment, and, 8. use simulators as an aid to design and understanding of systems and components.
COURSE CONTENT	1.History of RF and Microwave usage. 2.Review of Waves and Transmission Lines. 3.Antenna Systems 4. Noise and Distortion 5.Transmitter & Receiver Architecture (Amplifier, Mixer, Filter, Oscillator, Frequency Synthesizer) 6.Wireless System Analysis and Design 7.Wireless Communication Systems. 8. Introduction to radar systems 9.Regulatory Aspects. 10. Human safety aspects of RF and microwave fields.
PRESCRIBED TEXTS	Microwave and RF Design of Wireless Systems by David M.Pozar, John Wiley and Sons, 2001.
RECOMMENDED READING	RF Design Magazine, Microwave Journal, Trans. of: IEEE Microwave Theory and Techniques, IEEE Antennas and Propagation, IEEE Geoscience and Remote Sensing.

ASSESSMENT PROCEDURE	Tests, practical reports, examination.
DP REQUIREMENTS	You must achieve more than 50% average for tests , practicals and drill problems, and must hand in 80% of drill problems. Drill problems are scrutinised for completeness and for plagiarism.
TUTORIALS	Part of Practical sessions and Friday lecture slot.
CLASS TEST SCHEDULE	Three class tests (1 hour each)
CLASS TESTS (CONTRIBUTION TO FINAL MARK)	
FINAL EXAM	30,00%

Course Mark	%
Tests	30
Drill problems	15
Practicals	25
Exam	30
	100

UNIVERSITY OF CAPE TOWN

PLAGIARISM

Notice to all staff and students

Plagiarism (the use of another person's work as one's own, the quotation of another's writing without quotation marks or its paraphrasing without full attribution and acknowledgment) is among the more serious forms of misconduct with which UCT has to deal. Increasing numbers of cases of plagiarism are being reported. Each usually leads to disciplinary action.

During the last quarter of 2004 the University Student Disciplinary Tribunal dealt with two exemplary cases.

In the one case, a final year candidate was found to have passed off, as her own, chunks and passages from the works of others. These were sometimes verbatim quotations and sometimes they were paraphrased versions of another's writing on a subject. In some cases the sources were loosely referenced, and in other cases they were not. The passages quoted were not put in quotation marks (though copied verbatim from the sources) nor was the reader given to understand - as a full and proper attribution would have led the reader to do - that the passages quoted or paraphrased were taken from the works of others - and constituted the work of others.

In the second case a master's degree candidate included a chapter in which the candidate surveyed the literature on the topic on which she had done empirical research. The survey was extensive, and was included to show that the candidate was familiar with the current literature on the topic. It was probably not central to the dissertation. But again the candidate quoted extensively without -

· putting into quotation marks the sections (some of more than a page in length) that had been copied verbatim; or
· the necessary full attribution and acknowledgment.

These are necessary requirements in written work. Failure to observe them has consequences.

The consequences for these two were severe and will affect their careers. The first student failed the course (academic staff who detect plagiarism in written work will give no marks for the work), and was found guilty in the disciplinary case. Because she failed the course she did not graduate. In the second case the student was failed, at the end of several years of work, and she was also found guilty in the subsequent disciplinary case.

Senate requires all students to make a declaration when submitting written work; they declare that the work submitted is their own and that where the work of others has been used (whether it has been quoted verbatim or paraphrased or referred to) it has been attributed and acknowledged using a standard referencing convention.

Students who are unsure about referencing conventions, or unsure when attribution and acknowledgment are necessary are urged to speak to their lecturers, to the professional staff of the UCT Libraries, or to the staff of the Writing Centre.

Hugh Amoore
Registrar
9 February 2005