TEL4212 SATELLITE COMMUNICATIONS

Hours per Semester				Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment Mark	Credit Units
LH	PH	TH	CH	WTM	WEM	WCM	CU
45	30	00	60	100	60	40	4

Rationale
This course discussed component and system concepts in satellite communications ad its application in different life scenarios.

Course Objectives
The course will cover the most relevant aspects of satellite communications, with emphasis on the most recent applications and developments.

Detailed Course Content:

Basics: **[6 Hours]**
Review of the background and basic concepts of satellite communications including discussion of the different satellite systems e.g. Intelsat, sitcom etc
Orbital aspects, with emphasis on the geostationary orbit **[6 Hours]**
Satellite subsystems, launching methods, and on-board processing. **[5 Hours]**
Design of a digital satellite link, link budgets, modulation, error control coding, baseband signaling theory, and multiple access methods. **[6 Hours]**
Frequency assignments and propagation.

Antennas and earth station technology, including the design of very small aperture terminals (VSATs). **[6 Hours]**
Applications of satellite networks in connectivity, point to point and point to multipoint systems. **[6 Hours]**
Specific applications of satellites: global positioning system (GPS), satellites for mobile communication, and satellites for internet. **[6 Hours]**
Non-geosynchronous orbits and their applications. **[4 Hours]**

Learning Outcomes

The course gives the basic principles in the most important parts within satellite communication and broadcast services. This includes radio transmission, modulation and access methods, satellite and earth station technology and finally system performance. The students will get insight in satellite systems and the dimensioning of such systems.

Method of Teaching /Delivery
The course will be taught by using lectures, tutorials and assignments.

Mode of Assessment
Assignments, tests and final examination. Their relative contributions to the final grade are :

Requirement	**Percentage contribution**
Course work (Assignments, tests)	
40% Final examination	
60% **Total**	

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Recommended and Reference Books

- M. Richharia, "Satellite Communication Systems", Second edition, McGraw-Hill, 1999 ISBN: 0071342087
- Donald C. Mead, "Direct Broadcast Satellite Communications: An MPEG Enabled Service"

Possible Lecturers:
Dr. J. Butime
Dr. D. Okello
Dr. Ing. L. L.
Kaluuba Mr. D.
Nsubuga Mubiru
Mr. S. Mwanje
Mr. A Wasswa Matovu
Mr. D. Sebbaale
Mr. I. Kitone