

## ELEG 4723 - MICROWAVE SYSTEMS

Fall Semester, 1995

Catalog Data: ELEG 4723 Active Electromagnetic Systems. Credit 3. Survey of communications and radar systems. 1995-96 Ground, airborne and space applications. Telemetry and data handling. Synthetic aperture radar signal processing. Prerequisite: ELEG 3713.

Textbook: Communications and Radar Systems, Nicolas S. Tzannes, Prentice-Hall, Inc., 1985.

References: None.

Coordinator: W. P. Waite, Professor of Electrical Engineering.

Goals: To introduce students to the components required to implement practical communications systems. To develop analysis techniques for systems incorporating free-space propagation links and the effects of noise.

Prerequisites by Topic:

1. Maxwell's equations and electromagnetic wave propagation.
2. Random signals.

Topics: 1. Utilization of the electromagnetic spectrum. (3 classes\*)  
2. The atmosphere and the earth's magnetic field. (3 classes)  
3. Atmospheric effects on propagation. (6 classes)  
4. Solar radiation. (3 classes)  
5. Antennas  
6. Telecommunication systems. (12 classes)  
7. Radar systems. (9 classes)  
8. Remote sensing. (4 classes)  
9. Tests. (2 classes)

Computer Usage:  
None.

Laboratory Projects:

None.

ABET category content as estimated by faculty member who prepared this course description:

Engineering Science: 1 credit or 33%.  
Engineering Design: 2 credits or 67%.

\* Three 50 minute classes per week.

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_