

E&CE 671: MICROWAVE AND RF ENGINEERING

Term: Fall 2019
Instructor: R. R. Mansour
Lecture [REDACTED]
First Lecture September 6 , 2019
Lecture Room [REDACTED]

COURSE DESCRIPTION

The course focuses on the fundamental methods for the analysis and design of microwave/RF passive and active circuits. The essentials of computer-aided design of microwave/RF circuits as well as major aspects of hardware implementations will be covered. Important RF applications for wireless communication systems will also be discussed. The course will include:

- Transmission line theories and generalized matrix representation of RF circuits
- Analysis of multiport RF networks.
- Introduction to modern microwave planar technologies.
- Lumped and distributed microstrip circuits.
- Analysis of microstrip circuits.
- Microstrip couplers, hybrids and impedance matching networks.
- Microwave resonators and filters
- Design of RF low noise amplifiers (LNA's),
- Design of RF oscillators and mixers.
- Use of existing commercial CAD design tools for RF circuits.
- Hybrid and Monolithic RF circuits.

The course materials will be covered from the following books.

Text Book:

[1] D. Pozar, Microwave Engineering, John Wiley & Sons.

Reference Books:

[1] G. Gonzalez, Microwave Transistor Amplifier: Analysis and Design, 2nd Edition, Prentice Hall, 1997.

[2] K. C. Gupta, Computer-Aided Design of Microwave Circuits, Dedham, Mass.: Artech, 1981.

If you have any questions please call Prof R. Mansour at (Ext. 35780) or send an e-mail to: (rrmansour@uwaterloo.ca)