EE513 – Radar Systems Engineering

Professor

- Capt. K.A. Davidson
- kyle.davidson@rmc.ca
- S3209, also found in S5100

Course Schedule

- Tuesday 13:40 to 16:30 – G150
- Wednesday 10:00 to 10:50 – S4200
- Friday 15:40 to 16:30 – S2202

Textbook

- Principles of Modern Radar: Basic Principles by M.A. Richards.
- Introduction to Modern EW Systems by A. De Martino

Course Marking Scheme:

- Assignments – 10 %
- Laboratories – 15 %
- Project – 25 %
- Mid-term – 20 %
- Final Exam – 30 %

Course Description

This course provides a broad overview of radar systems engineering, along with relevant areas of electronic warfare. The course will be conducted with weekly lectures, supplemented by assigned readings and extensive lab work. Radar systems will be modelled and tested using a variety of microwave measurement tools, with a focus on system metrics.

Assignment and Laboratory Policy

Permission to write the final is dependent on the student submitting all assignments and laboratories with a reasonable amount of effort.

Academic Misconduct

Academic misconduct, including plagiarism, cheating, and other violations of academic ethics, is a serious academic infraction for which penalties may range from a recorded caution to expulsion from the College. The RMCC Academic Regulations Section 23 defines plagiarism as: "Using the work of others and attempting to present it as original thought, prose or work. This includes failure to appropriately acknowledge a source, misrepresentation of cited work, and misuse of quotation marks or attribution." It also includes "the failure to acknowledge that work has been submitted for credit elsewhere." All students should consult the published statements on Academic Misconduct contained in the *Royal Military College of Canada Undergraduate Calendar*, Section 23.

Course Goal

The goal of this course is to provide you with the education and skills to design, analyze and measure radar systems, along with knowledge of the current state of the art in radar systems.

Topics of Instruction

1. Phased Arrays
2. Pulsed Doppler Radar
3. Radar Range Equation
4. Detection
5. Continuous Wave Radar
6. Waveform Ambiguities
7. Synthetic Aperture Radar
8. Electronic Support
9. Electronic Attack
10. Electronic Protection