



WIST-204 – Microwave Communications

Technology

Effective Term & Year: Fall 2022

Course Outline Review Date: 2027-03-01

Program Area: Information Technology

Description:

This course introduces the student to fundamentals of waveguide and microwave device theory. Health hazards and safe working/testing conditions are stressed at the start. The course explores the principles of Point-to Point land microwave fade margins and link budgets. Satellite communications and various orbits are covered. Common navigation/tracking satellite families are discussed. Fundamentals of radar are covered with a focus on pulsed radar system basics. Advanced systems such as phased array and marine radar are also introduced.

Program Information:

This course is required for successful completion of the Wireless Systems Technician Diploma program.

Delivery Methods: Hybrid – On-campus (Face-to-Face) and Online

Credit Type: College of the Rockies Credits

Credits: 3

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	45
Seminar/Tutorials	
Laboratory/Studio	45

Practicum/Field Experience

Co-op/Work Experience

Other

Total 90

Course Requisites:

- Earned a minimum grade of C- (55%) in each of the following:
 - [WIST203](#) – Internet of Things Fundamentals (4)

Flexible Assessment: Yes

In some cases students may be able to apply for recognition of prior learning outside the classroom. This flexible assessment process provides equivalent course credit. It is a rigorous process that may include external evaluation, worksite assessment, demonstration, standardized test, self-assessment, interview, products/portfolio, and challenge exam, or other measures as appropriate. Tuition fees apply. Contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at other BC institutions, please see <http://www.bctransferguide.ca>. All requests for course transfer credit from institutions in BC or elsewhere should go to the College of the Rockies Enrollment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Miller, Gary, Beasley, Jeffery and Hymers, Jonathan. *Electronic Communications: A Systems Approach*.

Wireless Systems Technician program Level 2 Lab Manual

Wireless Systems Technician program Level 2 Package

Please see the instructor's syllabus or check COTR's online text calculator <https://textbook.cotr.bc.ca/> for a complete list of the currently required textbooks.

Learning Outcomes:

Upon the successful completion of this course, students will be able to:

- demonstrate safe testing and operating procedures when working with microwave equipment;
- review the operating principles of microwave devices;
- discuss the propagation of an RF signal within a waveguide and in free space with respect to fade margins;
- describe the operation of a microwave repeater;
- perform a point-to-point microwave link budget;
- define the operating parameters of a satellite communications system;
- explain the fundamental theory behind radar tracking;
- describe the operation of a pulsed radar transceiver; and
- define the specialized radar applications for in air, land, marine and space use.

Course Topics:

- Waveguides
- Microwave Systems and Devices
- Satellite Communication Systems
- Radar Tracking
- Pulsed Radar Transceivers
- Radar Applications

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face) and Online, or Hybrid

Assessment Type	% of Total Grade
Exams (x2)	70%
Labs	30%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Pass requirements: None

Evaluation Notes: A grade of “D” grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Please see the instructor’s syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a “0” on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Conduct (plagiarism, other cheating, behavioral misconduct)
- Policy 2.5.8 Academic Performance
- Policy 2.5.3 Grade Appeal
- Policy 2.4.9 Student Concerns Re Faculty

Equivalent Course(s) and Course Code Changes

Prior Course Code: AUST 206

Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.