



WIST-206 – Radio Frequency (RF) Applications

Technology

Effective Term & Year: Fall 2022

Course Outline Review Date: 2027-03-01

Program Area: Information Technology

Description:

This course focuses on the configuration and testing of real-world radio systems. Digital radio systems using both conventional and trunked mode operation will be configured, modified, tested and documented. IP Switching and Routing protocols will be used to configure wireless applications such as Radio over IP (RoIP), Wireless LANs and Point to Point communications systems. Advanced antenna systems will be built and tested, and radio site power systems will be introduced. Students will learn the correct usage of technical manuals and radio system documentation. Advanced troubleshooting methodologies using logical fault finding are explored in the lab. Additional training in industry specific hand skills related to radio systems installation will be provided. General safety practices specifically related to the RF industry will also be reviewed.

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: 4

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	75
Seminar/Tutorials	
Laboratory/Studio	75
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	150

Course Requisites:

- Earned a minimum grade of C- (55%) in each of the following:
 - [WIST201](#) – Radio Frequency (RF) Principles (4)
 - [WIST202](#) – Radio Frequency (RF) Transmission Lines and Antennas (3)

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:

Wireless Communications Technician Level 2 Lab Manual

Wireless Systems Technician 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

- explain the basic components of a communications network;
- configure and test an antenna network;
- configure, test, modify, and document a digital radio system;
- configure, test, and document small wireless data networks;
- describe a RoIP data communications system;
- explain the operation of a cellular service, UMTS and LTE communications networks;
- use technical manuals and system documentation for configuration and troubleshooting;
- demonstrate various troubleshooting methodologies; and
- demonstrate workplace safety practices.

Course Topics:

- Radio Systems
- Wireless LANs
- Radio Over IP Communications
- Cellular Communication Networks
- UMTS and LTE Communication Networks

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)	50%
Labs	40%
Assignments	10%
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 210

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.