

CN8813: IP Protocols

Calendar Description

This course is on IP routing protocols. In particular, it discusses intra-domain routing protocols, commonly known as Interior Gateway Protocols (IGP). It covers details of RIP, IGRP, EIGRP and OSPF. It includes discussion on IP Multicasting and covers PIM-DM and PIM-SM protocols in detail. It also introduces IS-IS in light of its differences with OSPF. The course material is supplemented with extensive lab component to give hands-on experience on network design, routing techniques, and end-to-end communication setup. Follow the course calendar and access program related information at www.cn.ryerson.ca .

Course Details

- **Pre-requisites:** CN8810 Introduction to Computer Networks
- **Text Book:**
 - J. Doyle, Routing TCP/IP Volume I, ISBN: 1578700418, Cisco Press
 - R. Malhotra, IP Routing, O'Reilly (Alternative Text)
 - B. Williamson, Developing IP Multicast Networks, Vol. 1, Cisco Press
- **Reference Book:**
 - F. Shamim et al, Troubleshooting IP Routing Protocols, CCIE Professional Development, Cisco Press.
 - K. Dooley and I. J. Brown, Cisco Cookbook, O'Reilly
- **Course Topics**
 - Introduction to IP Routing
 - IP Addressing (VLSM, Subnetting and Supernetting, Route Summarization and Aggregation, CIDR, Address Partitioning and Subnet Assignment)
 - Interior Gateway Protocols
 - RIPv1 and RIPv2
 - IGRP
 - EIGRP
 - OSPF
 - Route Redistribution
 - Multicasting and IGMP
 - PIM-DM (dense mode)
 - PIM-SM (sparse mode)
 - IS-IS
 - Routing System Issues

- **Labs**
 - Network Design for EIGRP
 - Network Design for IPv6 Routing Protocols
 - Network Design for OSPF
 - Route Redistribution
 - Network Design for PIM-SMA
- Lab work is conducted in a group of 3 students. One report needs to be submitted per group. Lab report should be uploaded in the Blackboard.
- You need to submit only softcopy of your lab report for every lab.
- Class participation is highly encouraged.
- You should browse the Internet Engineering Task Force's web page at www.ietf.org and familiarize yourself with its working process. You can also find all RFCs and current Internet Drafts at that site.
- The exams and quizzes may include questions from the labs.

Evaluation

Based on the following evaluation scheme:

- Quizzes 10%
- Lab Submission 30%
- Final Examination 30%
- Lab Examination 30%
- Lab marks are distributed over lab work according to the following distribution:
 - Lab-1 (5)
 - Lab-2 (5)
 - Lab-3 (10)
 - Lab-4 (5)
 - Lab-5 (5)

Missed Classes and/or Evaluations

Students are required to inform their instructors of any situation which arises during the semester which may have an adverse effect upon their academic performance, and must request any considerations and accommodations according to the relevant policies and well in advance.

Failure to do so will jeopardize any academic appeals.

- *Medical certificates* – If a student misses the deadline for submitting an assignment, or the date of an exam or other evaluation component because of illness, he or she must submit a Ryerson Student Medical Certificate AND an Academic Consideration form within 3 working days of the missed date. Both documents are available at www.ryerson.ca/senate/forms/medical.pdf. If you are a full-time or part-time degree student, then you submit your forms to your own program department or school. If you are a certificate or non-certificate student, then you submit your forms to the staff at the front desk of the Chang School.
- *Religious observance* – If a student needs accommodation because of religious observance, he or she must submit a Request for Accommodation of Student Religious, Aboriginal and Spiritual Observance AND an Academic Consideration form within the

first 2 weeks of the class or, for a final examination, within 2 weeks of the posting of the examination schedule. If the required absence occurs within the first 2 weeks of classes, or the dates are not known well in advance as they are linked to other conditions, these forms should be submitted with as much lead time as possible in advance of the required absence. Both documents are available at <http://www.ryerson.ca/senate/forms/reobservforminstr.pdf>. If you are a full-time or part-time degree student, then you submit the forms to your own program department or school. If you are a certificate or non-certificate student, then you submit the forms to the staff at the front desk of the Chang School.

- *Students with disabilities* – In order to facilitate the academic success and access of students with disabilities, they should register with the Access Centre <http://www.ryerson.ca/student services/accesscentre/index.html>. Before the first graded work is due, students should also inform their instructor through an “Accommodation Form for Professors” that they are registered with the Access Centre and what accommodations are required.

Academic Integrity and Plagiarism

Ryerson’s Policy 60 (the *Student Code of Academic Conduct*) applies to all students at the University. The policy and its procedures are triggered in the event that there is a suspicion that a student has engaged in a form of academic misconduct.

Forms of academic misconduct include plagiarism, cheating, supplying false information to the University, and other acts. The most common form of academic misconduct is plagiarism. Plagiarism is a serious academic offence and penalties can be severe. In any academic exercise, plagiarism occurs when one offers as one’s own work the words, data, ideas, arguments, calculations, designs or productions of another without appropriate attribution or when one allows one’s work to be copied.

All academic work must be submitted using the citation style approved by the instructor. The most common citation style is APA. Students may refer to the Ryerson Library for APA style guide references: <http://library.ryerson.ca/guides/toolbox/style/>

It is assumed that all examinations and work submitted for evaluation and course credit will be the product of individual effort, except in the case of group projects arranged for and approved by the course instructor. Submitting the same work to more than one course, without instructor approval, is also considered a form of plagiarism.

Students are advised that suspicions of academic misconduct may be referred to the Academic Integrity Office (AIO). Students who are charged with academic misconduct will have a Disciplinary Notation (DN) placed on their academic record (not on their transcript) and will be assigned one or more of the following penalties:

- A grade reduction for the plagiarized work
- A zero for the plagiarized work
- An F in the course

- More serious penalties up to and including expulsion from the University

For more detailed information on these issues, please refer to the full online text for the *Student Code of Academic Conduct* at <http://www.ryerson.ca/senate/policies/pol60-F2014.pdf> and the Academic Integrity Website at www.ryerson.ca/ai.

Students who do not want their work submitted to Turnitin.com plagiarism detection service must, by the end of the second week of class, consult with the instructor to make alternate arrangements.

Turnitin.com is a plagiarism prevention and detection service to which Ryerson subscribes. It is a tool to assist faculty members in determining the similarity between student work and the work of other students who have submitted papers to the site (at any university), internet sources, and a wide range of journals and other publications. While it does not contain all possible sources, it gives faculty some assurance that students' work is their own. No decisions are made by the service; it simply generates an "originality report". Faculty must evaluate that report to determine if something is plagiarized.

Important Resources Available at Ryerson

Use the services of the University when you are having problems writing, editing or researching papers, or when you need help with course material:

- **The Library** (LIB 2nd floor) provides research workshops and individual assistance. Inquire at the Reference Desk or at www.ryerson.ca/library/info/workshops.html
- **The Writing Centre** (LIB 272- B) offers one-on-one tutorial help with writing and workshops www.ryerson.ca/writingcentre/workshops.htm
- **Learning Success** (VIC B-15) offers individual sessions and workshops covering various aspects of researching, writing, and studying. You must book these directly through their website <http://www.ryerson.ca/studentervices/learningsuccess/>
- **English Language Support** (VIC B-17) offers workshops to improve overall communication skills www.ryerson.ca/studentervices/els/

There is one general site where you may see and register for all of the workshops offered by all of these areas: <http://www.ryerson.ca/academicintegrity/workshops.html>