

COURSE SYLLABUS



ADVANCED NETWORKS

IFSA-Butler Reimagining Europe Semester Program in Prague

Suggested US semester credit hours: 4 credits

Contact Hours: 60

Course Level: 300

Course length: Semester

Delivery method: Face to face

Language of Instruction: English

COURSE DESCRIPTION

The modern world is increasingly dependent on networks. Networks support global communications, business support, automation, social activities and much more. The skills and knowledge to support them is increasingly diverse, requiring not just technical ability but also an awareness of their role within a business. This course continues to develop the student's understanding of networking in a business environment.

Network design issues are considered in depth, including measures to provide availability and manageability. The use of redundancy and design is covered, examining the role of topologies, network protocols and devices. Technologies such as routers, IPv4 and IPv6, network attached storage, voice over IP (VOIP) and long fat networks are addressed. Network security policy and issues are covered from the design stage throughout the infrastructure. Network performance is covered in the broadest sense, with an emphasis on availability of resources. Factors affecting the performance of a network, from the users to technical and legal issues will be considered.

STUDENT LEARNING OBJECTIVES

Students who successfully complete this course will:

- Awareness of the role of networking within business
- Become familiar with network design issues
- Become familiar with network security policy issues
- Understand the connection between availability of resources and network performance
- Become aware of factors affecting performance of a network
- Strengthen critical thinking skills
- Become familiar with resources available for further research on advanced networks
- Make cognitive connections between learning in this course and other learning experiences in the IFSA-Butler Reimagining Europe Semester Program in Prague

COURSE DELIVERY

Students are expected to read or view resources in advance and be prepared to actively discuss them in class. In each meeting, the instructor will overview the topic and then facilitate a group discussion, drawing out relevant themes, following up on specific lines of inquiry, and prompting students' thoughtful engagement with the topic. Students are encouraged to bring their prior learning experiences into class discussions and to make cognitive connections between this course and others in the IFSA-Butler Reimagining Europe Semester Program in Prague whenever possible. Theories of experiential learning and integrative learning therefore undergird the dynamic learning environment of this course.

This course utilizes an interactive approach to teaching that focuses on the individual student's needs. This approach to teaching and learning aims to foster a challenging but caring environment that allows students to explore, create, and test themselves and their ideas in a safe place.

COURSE SCHEDULE

15 weeks	Content Delivery
1-2	Revision of basic of networking
3	Assignment Briefs, Designing networks
4	Teamwork – ethical and security problems
5	IP Address Classes, VLSM, IPv6
6	Development cycle according to Cisco; prepare, plan, design, implement, operate, optimize
7-8	Top level design for the network in ICA2, based on the evaluation of requirements
9	Requirement regarding the design of the network
10	SONA Design
11	Writing for assignment 2: Introduction and Suppositions
12-13	The theory of IPv6. Addresses, compression, security, transition from IPv4 to IPv6, interoperability between the protocols
14	Checking the health of a Cisco network
15	Submissions

EVALUATION METHODS

The course instructor will determine specific assignments (including paper topics), projects, and exams for the course. Your work on individual assignments and projects will be guided by grading rubrics provided by the course instructor. Your final grade in the course will be arrived at through assessment methods determined by the course instructor and according to the percentages attached to each assignment and exam by the course instructor. Participation will constitute a determined percentage of your grade. Participation includes attendance, preparation, engagement in discussion, civility, and respect.

Assignment Number	Type of Assignment	Description and Areas Assessed
1	Group presentation	A presentation on ethical and legal issues while designing and managing an Enterprise network
2	Network design, installation and operation Technical report	Case study, student in a role responding to an ITT (Invitation to Tender) for a network design, installation and operation. The network will include providing services for the back office teams as well as traders.

Timely Submissions

Assignments submitted after the deadline will be accepted at the discretion of the course instructor and generally only in the event of a documented illness or emergency.

READING LIST

Buchanan, W. (2000). *Distributed systems and networks*. London: McGraw-Hill.

Comer, D.E. (2005). *Network Systems Design Using Network Processors: Intel 2xxx Version*. 2nd ed. Upper Saddle River, N.J.: Prentice Hall.

Forouzan, B.A. (2006). *Data communications and networking*. 4th ed. London: McGraw-Hill.

Tanenbaum, A.S. (2002). *Computer Networks*. 4th ed. Upper Saddle River N.J.: Prentice Hall.

ACADEMIC INTEGRITY

Any academic endeavor must be based upon a foundation of honesty and integrity. Students are expected to abide by principles of academic integrity and must be willing to bear individual responsibility for their work while studying abroad. Any academic work (written or otherwise) submitted to fulfill an academic requirement must represent a student's original work. Any act of academic misconduct, such as cheating, fabrication, forgery, plagiarism, or facilitating academic dishonesty, will subject a student to disciplinary action.

IFSA-Butler takes academic integrity very seriously. Students must not accept outside assistance without permission from the instructor. Additionally, students must document all sources according to the instructions of the professor. Should your instructor suspect you of plagiarism, cheating, or other forms of academic dishonesty, you may receive a failing grade for the course and disciplinary action may result. The incident will be reported to the IFSA-Butler resident director as well as your home institution.