

# Computer Networks

## Syllabus

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Instructor: Ass.Prof. Yuriy Shamshin

ISMA University  
Riga, Latvia

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# Contact Information

Instructor: Asoc.Prof. Yuriy Shamshin

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Course hours: Tuesdays (4h x 5 = 20h)

Website: <http://net.academy.lv>

Download the lecture slides (LS),  
lab assignments (LA), practice assignments (PA),  
quizzes (QZ), tests, applications, exam questions, etc.

Refer to the website frequently

## Prerequisites and Required Skills

The course does not assume prior knowledge of networking.

However, the course will move relatively fast.

Expected Skills:

The course is not suited for students without basic calculus and probability skills.

# Evaluation

Class Participation with Practice Assignments (10%)

Lab Works Assignments (50% = 5 x 10%)

Quizzes (10% = 4 x 5%)

Exam (30%)

# Reading Books

IBM RedBooks: TCP/IP Tutorial and Technical Overview, IBM 2006

(<http://www.redbooks.ibm.com/redbooks/GG243376/>)

[\[Online\]](#), [\[PDF\]](#), [\[EPUB\]](#), [\[Google Books\]](#)

Internet Protocols Suite <http://www.networksorcery.com/enp/default0501.htm>

## Optional Books

Data Communication and Networking, 5th.ed. 2012, Forouzan

Computer networks, A. S. Tanenbaum

# Lecture, Lab Schedule and Readings

Week	Slides	Topics	Reading	Lab
Week 1 Week 2 Week 3	LS-00 LS-01 LS-02	Introduction Networking Standards and the OSI Model. Review of Important Networking Concepts.	IBM Redbook, Chapter 1	PA-01. Basic Binary Practice. LA-01. Wireshark-1. Traffic Capturing and Analysis. QZ-01. Number Systems.
Week 4 Week 5	LS-03 LS-04 LS-05	Networking Hardware. Transmission Medium. Data Communications. Multiple Access. Physical & Logical Coding. Data Link Layer. Error Detection & Correction. MAC address,	IBM Redbook, Chapter 2.1, 2.4	LA-02. Physical & Logical Coding. QZ-02. Line Coding.
Week 6 Week 7 Week 8	LS-06 LS-07 LS-08	ARP - Address Resolution Protocol IP - Internet Protocol IP Addressing. Subnetting, supernetting. IPv6 addressing.	IBM Redbook, Chapter 3.4, 3.1	PA-05. Basic Subnetting Practice. LA-03. Subnetting QZ-03. Midterm Quiz
Week 9 Week 10 Week 11	LS-09 LS-10 LS-11	ICMP - Internet Control Message Protocol. TCP and UDP. IP Forwarding.	IBM Redbook, Chapter 3.2, 5.1, 5.2, 4.1	LA-06. Static Routing
Week 12 Week 13	LS-12 LS-13	Dynamic Routing DVA. RIP. Dynamic Routing LSA. OSPF, AS, BGP. Quiz	IBM Redbook, Chapter 4.3, 4.4	LA-07. Dynamic Routing LSA QZ-04. After Course Quiz
Week 14 Week 15	All below	Exam	IBM Redbook, All below Chapter	All below assignments Reports

# Lab Information

## What you need to do for a Lab?

### *Before a lab session:*

- Read book chapter and do related reading.
- Make related Practice work (if have).
- Answer the questions to the prelab (if have).

### *During a lab session:*

- Select your variant.
- Complete exercises of the assigned lab (1 hour to several hours, Average: 3 hours).
- Perform experiments. Save data to drive.

### *After a lab session:*

- Write lab report, using saved data on drive.
- You may only use data that you collected in the lab session for your lab report.
- Submit lab report by the posted due date. Rules for using the Lab

### *What to submit with your lab report?*

- Lab reports must be e-mailed. File Formats: Submit lab reports as a PDF, DOC or XLS file.
- Each submitted lab report must have a cover page, indicating the lab name and student name.
- Truncate long output, insert relevant supporting output into the place where you answer the lab questions. Only include data that supports your answers.
- Please organize your lab report according to the lab exercise part number. Avoid using your own numbering system.

### *Grading of Lab reports*

- Every Completeness and Correctness Report: 10%
- Late Penalty -10% of total grade per day.