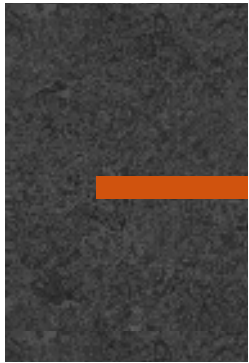


internet technologies and standards

- Piotr Gajowniczek
- Andrzej Bąk
- Michał Jarociński



course information



course organization

- *lecturers:*

- Piotr Gajowniczek, PhD, room 346a (temp. CS304),
p.gajowniczek@tele.pw.edu.pl
 - consultations: Thursdays, 12-14
- Andrzej Bąk, PhD, room 346a (temp. CS304), bak@tele.pw.edu.pl
 - consultations: Thursdays, 12-14
- Fernando Solano, PhD [IoT guest lecture]

- *communication:*

- web page: <https://studia3.elka.pw.edu.pl/file/19Z/103A-CTxxx-ISA-EINTE/priv/>
- mailing list: 103A-CTxxx-ISA-EINTE@elka.pw.edu.pl

- *evaluation criteria:*

- 2 written tests: 25% each
- lab exercises: 50%
- possibly additional points for lecture attendance (max. 10%)

course materials

- *textbooxs:*

- some available also in Kindle editions:

- *Computer Networking: A Top-Down Approach Featuring the Internet (7th Edition)* by James F. Kurose, Keith Ross; Pearson Addison Wesley, 2018.
 - *An Introduction to Computer Networks* by Peter L. Dordal, 2018.
 - *Internetworking with TCP/IP Volume One (6th Edition)* by Douglas E. Comer; Addison-Wesley, 2013.

- Internet Standards, RFCs, etc.

- lecture slides

- lab exercise manuals

Many slides presented in this course are exact or adapted versions of slides available as the companion to the following book by Jim Kurose and Keith Ross:

Computer Networking: A Top Down Approach
6th edition, Addison-Wesley, March 2012

the goal and content of the course

- *the goals:*

- ❑ to review selected technologies that make a foundation of today's Internet
- ❑ to dive deeper into core network technologies of large ISPs
- ❑ to discuss the challenges of the modern Internet

- *the content*

- ❑ introduction: Internet structure, protocols, and layers
- ❑ Internet data link layer – overview
- ❑ Internet network layer: IP addressing and subnetting, NAT, IPv6
- ❑ Internet routing principles, OSPF protocol [\[Lab 1 - remote\]](#)
- ❑ Inter-ISP routing: BGP protocol [\[Lab 2 - remote\]](#)
- ❑ ISP network technologies: MPLS [\[Lab 3 - remote\]](#)
- ❑ Internet transport layer: principles, UDP & TCP [\[Lab 4 – remote, or ...\]](#)
- ❑ Internet application layer: DNS, HTTP, VoIP, Video Streaming [\[...Lab 4 – at faculty\]](#)
- ❑ CDN and Internet datacenters: architecture overview
- ❑ IOT: the Internet Of Things (guest lecture) [\[Lab 5 - at faculty\]](#)

preliminary schedule

03.10	Introduction, Layered model	
10.10	L2, IP, NAT	
17.10	IPv6, OSPF	
24.10	OSPF	L1: OSPF
31.10	BGP	
07.11	BGP	L2: BGP
14.11	Test 1	
21.11	MPLS	L3: MPLS
28.11	Sockets, TCP, UDP	
05.12	TCP, UDP	L4: TCP
12.12	DNS, HTTP, Streaming	
19.12	CDN, DataCenters	
26.12		
02.01		
09.01		
16.01	IoT	
23.01	Test 2	
30.01	IoT Lab	L5: IoT

- *remote labs:*
 - ❑ it is obligatory to send the report
 - ❑ you may not send the report from one lab (it is treated as non-presence)
- *at faculty labs*
 - ❑ obligatory (presence is required)