ANDIJAN STATE PEDAGOGICAL INSTITUTE

Lecture materials · 2026–2027 academic year

SUBJECT

Information Systems and Digital Technologies

Lecture 22 · Revision Sessions

2 hours

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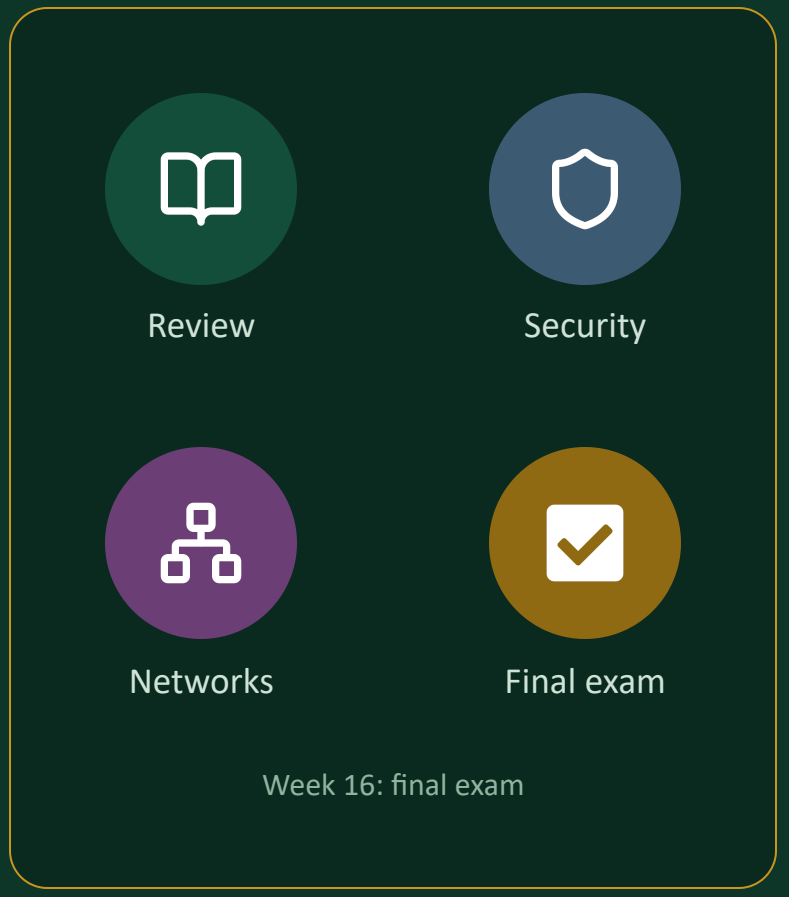
LECTURE 22 · 2 HOURS

FUNDAMENTALS OF COMPUTERS · WEEK 15

Revision Sessions

Getting ready for the final exam: the whole course, the tricky parts, and lots of practice

review · retrieve · practise · fix



Traffic lights

Write the numbers 1–14. Colour each topic: green = I can explain it, amber = I need a little practice, red = I need help.



Self-check (3 min)

1 How many greens do you have?

2 Which topics are red?

3 Who in your group is green on your red topic?

By the end of this lesson, you can…

1. **Use** an active revision method: review, retrieve, practise, fix.
2. **Recall** the key ideas of Topics 9–14: security, networks, communication, society, staying current.
3. **Avoid** the most common mix-ups in the course.
4. **Connect** ideas from different topics in real situations.
5. **Practise** final-exam questions on the whole course.

Everything the final exam can ask

Hardware · 1–5

Computer basics, CPU and buses, I/O devices, memory, storage.

Software · 6–7

OS functions, services, dual mode; applications and the SDLC.

Data security · 9

CIA, threats, encryption, passwords, backups, physical security.

Internet and WWW · 10

Networks, TCP/IP, client–server, Internet vs intranet, ISP.

Communication · 11

E-mail, messaging, video calls, collaboration, netiquette.

Society · 12

Jobs, digital divide, privacy, health, environment, ethics.

Staying current · 13

News sources, MOOCs, updates, SMART goals, portfolio.

Recap and future · 14

Big ideas; computer literacy in professions; future technology.

Revise actively: a four-step method



Why it works

Pulling ideas out of memory (retrieval) and spacing sessions over days make learning last.

What to avoid

Only rereading or highlighting feels easy but is weak. Cramming the night before is forgotten fast.

Data security in six cards

CIA triad

Confidentiality, integrity, availability — the three goals.

Threats

Virus, worm, trojan, spyware, ransomware; phishing; hardware failure; human error.

Encryption

Plaintext + key → ciphertext. Symmetric: one key. Public-key: two keys.

Passwords

Long passphrase, unique for each site, password manager, 2FA.

Backup and recovery

Full, incremental, differential; the 3-2-1 rule; test restores.

Physical security

Locks, ID cards, CCTV, screen lock, UPS against power cuts.

Networks, the Internet and the Web

Network sizes

LAN (building), MAN (city), WAN (country or world).

Topologies

Bus, star, ring, mesh, tree, hybrid.

TCP/IP

IP addresses and routes packets; TCP delivers them complete and in order.

Client–server

Clients request, servers respond (web, e-mail). Peer-to-peer: all equal.

Internet, intranet, WWW

Internet = global network; intranet = private one; WWW = web pages on the Internet.

ISP and DNS

An ISP connects you to the Internet; DNS turns names into IP addresses.

CHECK FOR UNDERSTANDING

Security and networks quick fire

A	Malware that spreads across a network by itself.
B	The goal broken when a hacker changes your marks in a database.
C	Backup that copies only what changed since the last full backup.
D	The protocol that puts packets back in the right order.
E	The system that turns www.gov.uz into an IP address.
F	A private network used only inside one university.

Key words

- worm
- integrity
- differential
- TCP
- DNS
- intranet

Communication, society and staying current

E-mail

To, Cc, Bcc; clear subject; polite, short; check before sending.

Messaging and meetings

Instant messaging, video conferencing, shared documents with permissions.

Netiquette

Be respectful, no ALL CAPS, protect privacy, think before you post.

Impact on society

Jobs and automation, digital divide, privacy, health, e-waste, AI ethics.

Staying informed

Newsletters, RSS, podcasts, communities; check sources.

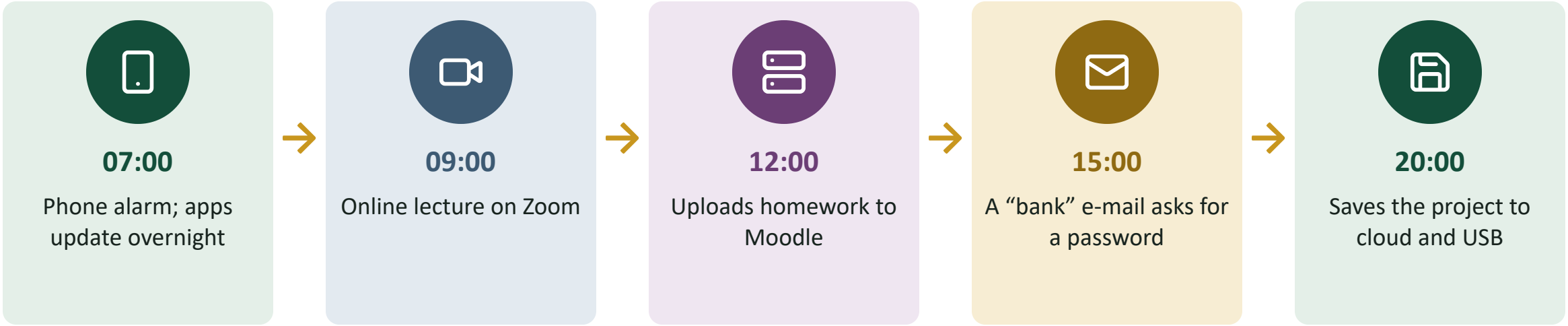
Lifelong learning

MOOCs, updates, SMART goals, certificates and a portfolio.

Mix-ups that cost marks

PAIR	The difference
Internet vs WWW	The Internet is the network; the WWW is web pages that travel over it.
RAM vs storage	RAM is fast and loses data without power; storage keeps files permanently.
Compiler vs interpreter	A compiler translates the whole program first; an interpreter goes line by line.
Virus vs worm	A virus needs a file to be opened; a worm spreads by itself.
Incremental vs differential	Incremental: since the last backup. Differential: since the last full backup.
Cc vs Bcc	Cc addresses are visible to everyone; Bcc addresses are hidden.

One student’s day — how many topics?



Find the topics

Updates (6, 13) · video call (11) · client–server web app (7, 10) · phishing (9, 11) · storage and backups (5, 9).

Your turn

Describe your own day and label each step with topic numbers.

CHECK FOR UNDERSTANDING

Mixed practice

01 You e-mail 60 parents and must not show their addresses to each other.

02 An SMS says “Your card is blocked — enter your PIN here”.

03 You keep 3 copies of your thesis on 2 kinds of media, one at home.

04 Your browser turns a website name into an IP address.

05 Only staff can open the hospital’s internal web portal.

06 Older villagers cannot use online services because of cost and skills.

Choose from:

- **Bcc**
- **Phishing**
- **3-2-1 rule**
- **DNS**
- **Intranet**
- **Digital divide**

The last week and the exam day

✓ DO

- Do the practice final twice this week
- Revise red topics first, then amber
- Sleep well the night before
- Arrive early with pen and ID
- Check every answer at the end

✗ DON’T

- Revise only your favourite topics
- Stay up all night cramming
- Panic at a hard question — skip and return
- Forget the Topic 1–7 material
- Copy or use a phone — it cancels your work

Review: can you answer these?

01 What do C, I and A stand for in data security?

02 How is symmetric encryption different from public-key encryption?

03 Explain the 3-2-1 backup rule.

04 What do TCP and IP each do?

05 Compare the Internet and an intranet.

06 When should you use Bcc?

07 Give two effects of computing on society.

08 Write one SMART learning goal.

Exit ticket

Answer on a slip of paper before you leave.

1. Which red topic from your traffic-light list is now amber or green?

2. Write your revision plan: two topics per day until the exam.

3. Do activity 05 (practice final) tonight. Score: __ / 20.