ANDIJAN STATE PEDAGOGICAL INSTITUTE

Lecture materials · 2026–2027 academic year

SUBJECT

Information Systems and Digital Technologies

Lecture 19 · Computing’s Impact on Society

2 hours

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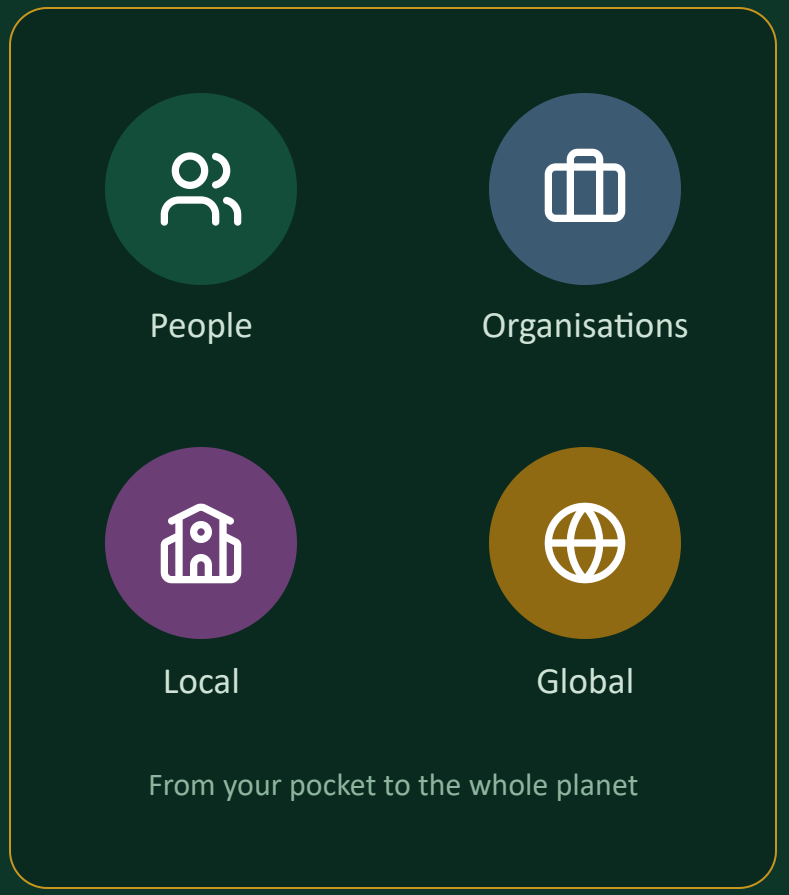
LECTURE 19 · 2 HOURS

FUNDAMENTALS OF COMPUTERS · TOPIC 12

Computing's Impact on Society

How computers change people, organisations, Uzbekistan and the world

individual · organisation · local · global



One day without computers

Imagine one day in Uzbekistan with no computers, phones or Internet. What stops working?

List as many things as you can in two minutes.



Think – Pair – Share (3 min)

1 What would you personally miss first?

2 Which workplaces would stop completely?

3 Would anything be better without computers?

By the end of this lesson, you can…

1. **Describe** how computing changes daily life for individuals.
2. **Explain** how organisations use computing to work, sell and serve people.
3. **Compare** the local impact in Uzbekistan with the global impact.
4. **Evaluate** benefits and risks: jobs, privacy, health and the environment.
5. **Explain** the digital divide and ways to include everyone.
6. **Analyse** a technology’s impact using stakeholders, benefits, risks and actions.

Four levels of impact

Individuals

You, your family and friends: how you learn, talk, work and relax.

Organisations

Businesses, schools, hospitals and government offices.

Local

A town, a region or a whole country such as Uzbekistan.

Global

The whole world: trade, science, news and shared problems.

Tip: one technology can help at one level and harm at another. Always look at every level.

How computing changes our daily lives

Communication

Instant contact with anyone, anywhere — messages, calls, video.

Learning

Online courses, e-books, videos and learning apps at any time.

Work

Remote work, freelancing and new digital jobs.

Health

Online doctor appointments, fitness trackers, health information.

Money

Mobile banking, card payments and online shopping.

Entertainment

Music, films, games — and new ways to create and share.

How organisations use computing

Automation

Machines and software do repetitive work faster and with fewer errors.

Data-driven decisions

Sales and customer data show what to do next.

E-commerce

Selling online to customers across the country and the world.

Remote teams

Staff work together from different cities and countries.

Customer service

Websites, apps and chatbots answer customers 24/7.

New risks

Cyber attacks, data leaks and total dependence on IT systems.

CHECK FOR UNDERSTANDING

Who is affected, and how?

A	A pensioner pays her electricity bill from her phone.
B	A bakery starts selling cakes through an online marketplace.
C	A student in Nukus takes a free online course from a foreign university.
D	A hospital's records are locked by ransomware for two days.
E	A factory replaces a manual packing line with robots.
F	A family video-calls a son working in another country.

For each one, say:

1. Individual or organisation?
2. Benefit or risk?

Bonus: who else is affected?

Computing in Uzbekistan

E-government

my.gov.uz offers hundreds of state services online.

OneID

One digital identity to log in to state services.

Digital Uzbekistan – 2030

The national strategy for digital services, skills and infrastructure.

IT Park

Supports IT companies and start-ups; helps them sell services abroad.

Mobile payments

Click, Payme and bank apps are used every day.

One Million Uzbek Coders

A free programme (from 2019) teaching young people to code.

Computing and the whole world

Globalisation

Companies trade and work across borders in real time.

Instant worldwide news

Events are shared around the planet in seconds.

Science and medicine

Computer models help design medicines and forecast the climate.

Knowledge for all

Free encyclopedias, online courses and open research.

Global communities

People with the same interests connect worldwide.

Global risks

Cyber attacks between countries and misinformation that spreads fast.

Two sides of the same screen

Benefits

- Faster, cheaper services
- Learning for everyone, everywhere
- New jobs and businesses
- Better healthcare and science
- Staying connected with family

Challenges

- Some jobs disappear
- Privacy and data misuse
- The digital divide
- Health: screen time, stress
- E-waste and energy use

Your job as a citizen: keep the benefits and reduce the harms.

CHECK FOR UNDERSTANDING

Benefit or challenge?

01 Online courses let a village student learn programming.

02 A shopping app records everything you look at to show you ads.

03 Self-service checkouts need fewer cashiers.

04 Doctors in Tashkent advise patients in distant regions by video.

05 Millions of old phones are thrown away every year.

06 A false news story is shared 10 000 times in one hour.

For each one: benefit or challenge — and at which level (individual, organisation, local, global)?

Computing and the world of work

Jobs automated

Routine tasks: data entry, simple assembly, some cashier work.

Jobs created

Developers, data analysts, cybersecurity, digital marketing.

Jobs changed

Doctors, teachers, farmers and drivers now use digital tools.

Skills needed

Digital literacy, problem solving, and learning all the time.

Key idea: automation usually replaces tasks, not whole people — those who keep learning adapt.

The digital divide: who is left behind?

The gap between people who can use digital technology well and those who cannot.

Access

No fast Internet or no device at home.

Cost

Devices and mobile data are too expensive for some families.

Skills

Not knowing how to use services safely.

Language

Too little useful content in your own language.

Age

Many older people find new technology hard.

Place

Villages often have weaker networks than cities.

Digital inclusion: cheaper Internet, public Wi-Fi, training courses and content in Uzbek help close the gap.

Privacy: who knows what about you?

What apps collect

often more than you think

- Location and movements
- Contacts, photos and messages
- What you search, watch and buy
- Used for adverts, recommendations and profiles

How to protect it

you have rights and choices

- Check app permissions
- Use privacy settings on social media
- Share less — think before posting
- Laws protect personal data (Uzbekistan, 2019)

Remember: if an online service is free, your data often helps pay for it.

Computing, health and well-being

Screen time and sleep

Late-night screens delay sleep and make you tired.

Eye strain

Try the 20-20-20 rule: every 20 minutes, look 20 feet (6 m) away for 20 seconds.

Posture and movement

Long sitting causes back, neck and wrist pain.

Mental health

Endless feeds and comparing yourself with others add stress.

Cyberbullying

Online bullying follows victims home — report it and support them.

The positive side

Telemedicine, fitness apps and online support groups.

Computing and the environment

E-waste

Old devices contain toxic metals and valuable materials.

Energy use

Data centres and networks use huge amounts of electricity.

Help for the planet

Smart grids, climate models, and video calls instead of trips.

Reduce, repair, recycle

Keep devices longer, fix them, and recycle them properly.

Key idea: the greenest phone is usually the one you already have.

CHECK FOR UNDERSTANDING

Name the issue

A	A grandfather cannot book a doctor’s visit because it is only online.
B	A game app asks for your contacts, location and microphone.
C	Old computers from a school are dumped in a field.
D	A bank closes branches and replaces staff with an app.
E	Students send cruel messages to a classmate in a group chat.
F	An edited video of a politician saying false things goes viral.

Choose from

- Digital divide
- Privacy
- E-waste
- Automation and jobs
- Cyberbullying
- Misinformation (deepfake)

Ethics: doing the right thing with computers

Copyright and piracy

Using software, music or films without permission.

Plagiarism

Copying someone’s work and calling it your own.

Fair AI

AI trained on biased data can treat people unfairly.

Deepfakes

Fake but realistic videos and voices can fool people.

Online behaviour

Hate speech and bullying hurt real people.

Responsibility

Who is responsible when software makes a mistake?

Artificial intelligence: promise and risk

Promise

- Translation between languages, including Uzbek
- Help for doctors reading scans
- Personal tutoring and study help
- Faster research and design

Risk

- Wrong answers that sound confident
- Bias and unfair decisions
- Deepfakes and fraud
- Cheating, and less thinking for yourself

Rule: use AI as a helper, not a replacement — check its answers and say when you used it.

How to analyse an impact: mobile banking

STAKEHOLDER	Benefit	Risk	Action
Individuals	Pay and transfer money anywhere, any time	Fraud calls and stolen SMS codes	Never share codes; use 2FA
Banks and shops	Lower costs, more customers	Cyber attacks; systems going down	Security teams, backups
Local (Uzbekistan)	Less cash, faster economy, more tax paid	People without phones or skills left out	Training; keep offline options

Four questions: Who is affected? What is the benefit? What is the risk? What can we do?

CHECK FOR UNDERSTANDING

Analyse it

01 A village school gets fast Internet. Give one benefit for students and one for teachers.

02 Name one risk of the same change, and one action to reduce it.

03 Online taxis: who benefits, and who might lose?

04 Give one local and one global impact of video streaming.

05 Why can e-government services be unfair to some people?

06 Suggest one rule for fair AI use in your school.

Impact stories, near and far

LOCAL

A craftswoman in Margilan sells silk online

→ New customers in other countries

LOCAL

Documents from my.gov.uz without queues

→ Time saved, less paperwork

LOCAL

An IT Park start-up hires graduates

→ New jobs and IT exports

GLOBAL

Scientists share climate data worldwide

→ Better forecasts and warnings

GLOBAL

A cyber attack stops hospitals in many countries

→ Need for security and backups

GLOBAL

Old phones shipped to e-waste dumps

→ Pollution and health harm

Being a responsible digital citizen

✓ I WILL

- Check facts before I share
- Respect other people’s work and privacy
- Help family members learn digital skills
- Keep devices longer and recycle them

✗ I WILL NOT

- Share fake news or deepfakes
- Bully or join in bullying online
- Use pirated software or hand in copied work
- Let screens take over my sleep and health

Review: can you answer these?

01 Name the four levels of impact.

02 Give two ways computing changed daily life for individuals.

03 Give two ways organisations use computing.

04 Name two digital projects in Uzbekistan.

05 What is the digital divide? Give two causes.

06 How does automation affect jobs?

07 Give one harm and one benefit of computing for the environment.

08 What four questions do we ask to analyse an impact?

Exit ticket

Answer on a slip of paper before you leave.

1. Give one LOCAL and one GLOBAL impact of computing — and say whether each is positive or negative.

2. Name two causes of the digital divide and one way to reduce it.

3. Analyse online shopping: one benefit, one risk and one action.