

Module 1

THE BIRTH AND ROLE OF COMPUTERS

UNIT 1 • COMPUTER SCIENCE AND ITC

- 1   Read this text about a new course taught at Harvard University and answer the questions.

CSCI E-45B The Cyber World: Governance, Threats, Conflict, Privacy, Identity, and Commerce
Spring Term 2017

Today we all live and work in a participatory cyberspace. Computers, the data networks that interconnect them, and the services available over the networks make up this cyberspace. As cyberspace invades almost all areas of modern day living, playing, and working, it is becoming more important that people understand its technical and political underpinnings and operations, as well as its capabilities, threats, and weaknesses. This is a companion course to CSCI E-45A. The goal of this pair of courses is to give students the tools they need to understand, use, and manage the technology involved, as well as the ability to appreciate the legal, social, and political dynamics of this ever expanding universe and the interplay between the cyber and physical worlds. The pair of courses covers the essential elements of computing and the history, structure, operation, and governance of the Internet. This course explores the technical and legal aspects of the interactions and tensions between security, usability, privacy, and surveillance in a post NSA-revelation world. We also look at the technical and legal underpinnings that affect the use of cyberspace for businesses. Finally, we explore the rapidly changing dangers of cyberspace from viruses to state-sponsored cyber-conflict.

Adapted from: <http://www.extension.harvard.edu/academics/courses/cyber-world-governance-threats-conflict-privacy-identity-commerce/24037->

1. Explain the meaning of 'participatory' in the text.
2. What is cyberspace composed of?
3. Why should people well understand the cyber world?
4. Explain the meaning of "this course is a companion course to CSCI E-45a"? What is their joint aim?
5. What topics will be studied in this course?

- 2  Match these terms to their definitions.

- | | | |
|------------------|--------------------------|---|
| 1. Connect | ☐ | a. To collect information from different sources. |
| 2. Gather | ☐ | b. To keep information or facts in a computer. |
| 3. Interact | ☐ | c. To find and get back data or information that has been stored in the memory of a computer. |
| 4. Retrieve | ☐ | d. To link. |
| 5. Transmit | ☐ | e. The science of designing and operating robots. |
| 6. Analyse | ☐ | f. To perform a series of operations on data in a computer. |
| 7. Bio-computing | ☐ | g. To communicate with somebody, to have an effect on each other. |
| 8. Process | ☐ | h. To examine the nature or structure of something, by separating it into its parts, in order to understand it. |
| 9. Store | ☐ | i. The process of building computers that use biological materials, mimic biological organisms or are used to study biological organisms. |
| 10. Robotics | ☐ | j. To send an electronic signal. |

3 Listen to an extract on the uses of computers in medicine and match them with the speakers.

10 Ways computers are used in Medicine	Speaker
Diagnostic databases	
Internet connectivity	
Magnetic resonance imaging	
Medical practice software	
Medical research	
Patient monitoring	
Secure data storage	
Spectroscopy	
Surgery	
X-rays and CT scans	

UNIT 2 • ICT AND SOCIETY

1 Read this text and use the given words to form a new word that fits in the gap in the same line.

Ergonomics

Ergonomics derives from two Greek words, *ergon*, (1) work, and *nomos*, meaning law. Together, they create a word meaning the science of work and a person's relationship to work. In (2) terms, ergonomics is a discipline focusing on making products and tasks (3) and efficient for the user. One of the main domain of (4) of the discipline is physical ergonomics, concerning specific topics such as (5) postures, repetitive movements, materials handling, workstation layout and (6) Today, ergonomics is more and more (7) to face people's sufferings at work and at home and solve them. Ergonomics provides a deep (8) of work quality and productivity, for example (9) an ergonomic bench for back strap indigenous (10)

mean

practice
comfort
specialise
work

safe
value

improve
design
weave

2 **Read this text and use the given words to form a new word that fits in the gap in the same line.**

“Wiki teaching and learning”

Wikis are websites born by the (1) of various people, free to be read, shared, integrated and edited. They can be useful tools for (2) individual knowledge and implementing online education.

Wiki technologies allow to create and edit web pages collaborating and sharing contents by using implemented browsers or wiki farms, wiki (3) services where tools to develop independent wiki platforms are made available.

School wiki-based projects are used to produce shared contents for lifelong (4) in the digital era. A wiki platform supports peer-to-peer learning, too. (5) forms of class (6) are arranged on virtual locations around wiki implemented virtual classes. Thus, wikis are good means of enhancing group learning. Wiki environments (7) motivate the students more, since they play a very (8) part in the projects. Teacher class management can be flipped by using wikis and encourage a more student-centred approach.

collaborate

share

host

learn

extend

discuss

usual

action

3 **Read this introductory text and then say if you agree (A) or disagree (D) with the statements. Then, compare your answers with a partner.**

Using computers on a daily basis helps students understand the various computer tools and software, and prepares them for learning about different software applications in the future. Some people are reluctant to accept this change and the use of technology, but they will have to come around sooner or later, owing to the positive effects of technology on society. As Bill Gates once said: “The people who resist change will be confronted by the growing number of people who see that better ways are available, thanks to technology”

1. The use of computers in teaching makes learning more interesting.
2. In tech-savvy classrooms, students are active participants.
3. A student can acquire in-depth knowledge on any subject using the Internet.
4. Students are very tech-savvy and may sometimes know more than the teacher.
5. Tech-savvy classrooms prepare students to work in business organisations in the future.
6. When slide shows or films are used, lessons become easier and more interesting.
7. Technology helps students to learn and motivates them to attend school every day.
8. Using computers prepares students for learning about different software applications in the future.
9. More and more people see that better ways are available thanks to technology.

UNIT 3 • COMPUTERS

1  Listen to some information about the most common types of servers and take notes. Then, check them with your classmates.

2  Here is a list of different embedded systems. Read the examples and match them with the proper area of application.

home appliances • office automation • security • entertainment • aerospace •
banking • automobile sector • medical sector

Area of application	Equipment / device
1.	Dishwasher, washing machine, garden sprinkler, DVD player, etc.
2.	Scanner, printer, fax
3.	Face and fingerprint recognition, airport security system, alarm system
4.	Fuel injection controller, air-bag system, GPS, cruise control
5.	Automatic landing system, flight attitude controller, navigation system
6.	ECG, glucose monitor, pressure monitor, diagnostic devices
7.	ATM, cash register
8.	MP3, videogames, smart toys

3  Read a text on the dangers of wearable computers and complete it with the missing words.

Wearable worries

Wearable computers, like fitness bands, digital glasses, medical devices (1) smart phones promise to radically transform the manner (2) which information is collected, delivered and used by, and about, people. Many (3) the emerging technologies promise significant, and potentially revolutionary, user benefits. But, as with most Internet-connected devices, (4) growing proliferation of wearables has spawned both privacy (5) security concerns.

Wearable technologies enable the capture and collection (6) amazingly detailed information (7) an individual's life, including their lifestyle choices, personal health, location, movement and daily routines. Without (8) right privacy controls, such data could end up being used (9) ways never imagined or intended. And without the right security controls, data gathered (10) such devices could enable identity theft, stalking, fraud and other crimes.

Adapted from: <https://www.computerworld.com/article/2474554/emerging-technology/141686-7-hidden-dangers-of-wearable-computers.html>

4  **PAIR WORK.** Answer the following questions.

- How many types of wearable computers do you know?
- Would you like to have one?
- In your opinion what are the main benefits?
- And the dangers?