**ICT**

**Information and Communication Technologies**

Informasjon og kommunikasjons teknologi

Et bilde som inneholder krets, Elektronteknikk, elektronikk, Elektronisk komponent

Automatisk generert beskrivelse

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# Hardware

***Hardware is the physical components of ICT systems and forms the backbone of any ICT system, enabling computational, data storage and communication***

* **Examples** (including input/output, networking, and storage devices)**:**

- Computers

- Servers

- Mobile devices

- Keyboards

- Mice

- Monitors

- Routers

- Switches

- HDD

- SSD

# Software

***Software is the programs and applications that run on the hardware, and allows users to perform tasks, interact with hardware and manage information***

* **Examples:**

**- Operating systems**

- Windows

- MacOS

- Linux (*Arch, Ubuntu, Kali Linux, Mint, Parrot, etc*.)

**- Application software**

- Microsoft Office

- Microsoft Teams

- Google Chrome

- Visual Studio Code

- Steam

**- Middleware**

- Web servers

- Application servers

- Database servers

# Data

***Raw facts and figures that can be processed to generate meaningful information and are a central element in ICT for enabling analysis, decision making and communication. Can be structured like databases or unstructured like for example multimedia files***

**- Structured data**

- Easily stored and queried

- Spreadsheets

- Databases

**- Semi-Structured data**

- Elements of structure

- JSON, XML and LOG files

- API

**- Unstructured data**

- No format or organization

- Emails

- Social media posts

- Videos

# Networking and communication

***The technology and protocols enabling devices to connect and communicate. It facilitates the sharing of resources, information and communication globally.***

* **Examples:**

-Devices

- Routers

- Modems

- Switches

**- Communication protocols**

- TCP / IP

- HTTP / HTTPS

- FTP

**- Types of networks**

- LAN (Local Area Network

- WAN (Wide Area Network)

- MAN (Metropolitan Area Network)

- PAN (Personal Area Network)

# The internet

***A global network connecting millions of private, public, academic and government networks. The internet is basically the cornerstone of ICT, providing platforms for innovation, business and social interaction.***

* **Examples:**

- Email

- Web browsing

- Social media

- E-commerce

- Cloud computing

# Database Systems

***An organized collection of data and management systems for storing and retrieving it, and supports such as efficient data ,management and analysis.***

* **Examples:**

- SQL

- NoSQL

- Relational databases

- Data warehousing

- Data mining

# Programming and Software Development

***The creation and maintenance of software applications, which enables the customization, automation and expansion of ICT capabilities.***

**Examples:**

**- Programming languages**

- Python

- Java

- C++

**- Software development life cycle**

- SDLC

- Algorithms

- Debugging

# Cybersecurity

***The Measures to protect ICT systems from threats like hacking, malware and data breaches and are for protecting data, which I call “CIA” Confidentiality, Integrity and Availability.***

**Examples:**

**- Encryption**

- Symmetric

- Same key is used for encryption and decryption

- Asymmetric

- A public key for encryption and a private key for decryption

**- Firewalls**

**- Intrusion detection systems (IDS)**

**- Other cybersecurity protocols**

- TLS / SSL

- IPsec

- HTTPS

- SFTP

# Cloud computing

***Delivery of computing services, for example storage or processing over the internet, enhances flexibility and scalability and is normally usually more cost-efficient.***

**Examples:**

**- PaaS**

**- SaaS**

**- IaaS**

- Symmetric

- Same key is used for encryption and decryption

- Asymmetric

- A public key for encryption and a private key for decryption

**- Firewalls**

# Emerging Technologies

***Staying aware of emerging technologies is an important part for making impact and progress within ICT***

**Examples:**

**- Artificial Intelligence**

**- Internet of Things (IOT)**

**- Blockchain technology**

**- Virtual reality (VR) and Augmented Reality (AR)**

# Human-Computer interaction (HCI)

***Design and use of interfaces that allow users to interact effectively with ICT systems. Which is more based on the user experience part of things to meet the human demands for good interactions.***

**Examples:**

**- Artificial Intelligence**

**- Internet of Things (IOT)**

**- Blockchain technology**

**- Virtual reality (VR) and Augmented Reality (AR)**

# ICT Ethics and Legal Aspects

***A crucial factor of ICT is having at least ground knowledge about the principles and governing laws in the use of ICT. For maintaining the boundaries of both legal and responsibility aspects of ICT.***

**Examples:**

**- Artificial Intelligence**

**- Internet of Things (IOT)**

**- Blockchain technology**

**- Virtual reality (VR) and Augmented Reality (AR)**