

Unit 4: Societal Impacts

Topics

Digital footprint, net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act. E-waste: hazards and management. Awareness about health concerns related to the usage of technology.

Digital footprint :

A digital footprint is like a trail of footsteps we leave behind when we use the internet and electronic devices. It's all the information and actions we do online, such as playing games, chatting, or posting pictures. Just like footprints in the sand show where we've been, our digital footprint shows what we've done on the internet.

Internet users create their digital footprint either actively or passively. A passive footprint is made when information is collected from the user without the person knowing this is happening. An active digital footprint is where the user has deliberately shared information about themselves either by using social media sites or by using websites. Some digital footprint examples are:

Online shopping

- Making purchases from e-commerce websites

Online banking

-Using a mobile banking app

Social media

-Using social media on your computer or devices

-Sharing information, data, and photos with your connections

Net and communication etiquettes:

Netiquette is a code of good behaviour while working on the internet. It includes several aspects of the internet, such as social media, email, online chat, web forums, website comments, multiplayer gaming and other types of online communication.

Do's	Don'ts
Keep messages and posts brief.	Post inflammatory/offensive comments.
Reread your posts or emails to make sure they say what you intend.	Write in ALL CAPS. It is considered as SHOUTING on the net.
Remember that you leave a digital footprint. So, be careful what you write.	Respond to internet trolls/personal attacks.
Use discretion.	Post private or embarrassing images/comments.
Include a subject line in an email.	Use sarcasm. It might be misinterpreted.
Protect personal information.	Violate copyright laws. Make sure your work is your own or properly cited.
Obey copyright laws.	Exclude people or talk behind their backs.
Stay focused and stick to the topic.	Spam others by sending large number of unsolicited emails.

Data Protection:

Data protection secures sensitive data—from databases to big data, cloud, file system and other crucial applications. This can be achieved by taking proper and careful measures while working online in the following ways:

- Through Data Encryption.
- Not sharing private information such as passwords, credit card credentials, etc.
- Not over sharing on social networking sites using public domain.
- Adopting complete security mechanism for protection against possible threats.
- Avoiding opening phishing emails.
- Being careful about using Wi-Fi connections.
- Being alert to impersonators.

Intellectual property rights (IPR):

Intellectual property (IP) is a term referring to creation of the intellect (the term used in studies of the human mind) for which a mono poly is assigned to design ate downers by law. In some foreign countries intellectual property rights is referred to as industrial property, copyright, patent and trademarks, trade secrets all these cover music, literature and other artistic works, discoveries and inventions and words, phrases, symbols and designs. Intellectual Property Rights are themselves a form of property called intangible property. Al though many of the legal principles governing IP and IP R have evolved over centuries, it was not until the 19th century that the term intellectual property began to be used and not until the late 20th century that it became commonplace in the majority of the world. IP is divided into two categories for ease of understanding:

1. Industrial Property
2. Copyright

Intellectual property shall include the right relating to:

- i. Literary, artistic and scientific works;
- ii. Performance of performing artists;
- iii. Inventions in all fields of human endeavour;
- iv. Scientific discoveries;
- v. Industrial designs;
- vi. Trademarks, service marks.;
- vii. Protection against unfair competition.

Plagiarism: Plagiarism is the act of using someone else's words, ideas, or work without giving them proper credit and presenting it as one's own. It involves copying, paraphrasing, or reusing text, research, or creative content (such as essays, articles, artwork, or software) without obtaining permission or acknowledging the original source.

Why is it important to understand Plagiarism?

- It is stealing of intellectual property
- It is s cheating and an academic offence
- Plagiarism is Academic theft.

How to avoid plagiarism?

- 1: Use your own ideas

2: Cite the sources-When someone else's ideas are used, always acknowledge the sources and tell your reader WHERE THE IDEAS ARE FROM.

3: Rewrite other's ideas in your own words

4: Take careful notes

5: Develop your writing skills

Some commonly used free online plagiarism checker software are listed here but we have to register in few websites before using their services. PaperRater, PlagTracker, Quetext, Viper PlagScan Plagium.

Licensing:

Software Licensing is the legal right to run or the privilege given to you by a company to access their application (or program).

It typically provides end users with the right to make one or more copies of the software without violating copyrights. It also defines the responsibilities of the parties entering into the license agreement and may impose restrictions on how the software can be used. Software licensing terms and conditions usually include fair use of the software, the limitations of liability, warranties and disclaimers and protections.

GPL - General Public License (GNU GPL), is the most commonly used free software license, written by Richard Stallman in 1989 of Free Software Foundation for GNU Project. This license allows software to be freely used (means freedom for use, not price wise free), modified, and redistributed by anyone. WordPress is also an example of software released under the GPL license, that's why it can be used, modified, and extended by anyone.

Copyright: A copyright is a collection of rights vested to someone who has created an original work. The copyright owner has the authority to transfer the rights to use / distribute to more people. When someone uses a copyrighted material without permission , it is called copyright infringement.

Free and open source software (FOSS): Free and Open Source Software (FOSS) refers to software programs that are distributed with certain freedoms and characteristics. FOSS can be used, modified, and distributed by anyone without the need for restrictive licenses or fees. It promotes collaboration and sharing within the software community.

Free Software : Free software means the software is freely accessible and can be freely used, changed, improved and distributed by all wish to do so

Open Source Software : Open source software can be freely used but it does not have to be free of cost
FSF : Free Software foundation

Cybercrime and Cyber laws:

Cybercrime is defined as a crime in which a computer is the object of the crime (hacking, phishing, spamming) or is used as a tool to commit an offence (child pornography, hate crimes).

Cybercriminals may use computer technology to access personal information, business trade secrets or use the internet for exploitative or malicious purposes.

Cyber law is the part of the legal system that deals with cyberspace, internet and legal issues. It covers a broad area, like freedom of expression, access to and utilization of internet, and online security or online privacy. It is commonly known as the law of the web.

Hacking:

Hacking is the process of gaining unauthorized access to a computing device or a group of computer systems. This is done through cracking of passwords and codes which gives access to the systems.

The difference between a hacker and a cracker is that while a cracker breaks the security of computer systems, a hacker likes to explore computer systems and master them.

Phishing:

Phishing is an attempt to acquire sensitive information such as usernames, passwords and credit card details (and sometimes, indirectly, money) by masquerading as a trustworthy entity in an electronic communication.

Cyber bullying:

Cyber bullying is the attack upon an individual or group through the use of electronic means such as instant messaging, social media, email and other forms of online communication with the intent to abuse, intimidate or overpower.

Following acts are considered as cyber bullying

- Posting any kind of humiliating content about the victim.
- Hacking the victim's account.
- Sending or posting vulgar messages online.
- Threatening to commit acts of violence.
- Stalking by means of calls, messages, etc.
- Threats of child pornography

Different Types of Cyber Bullying The various forms of cyber bullying are explained as:

- **Doxing** – Publishing revealing personal information about an individual online, for the purpose of defaming, humiliating or harassing the victim.
- **Harassment** – Posting threatening, hurtful or intimidating messages online, or sending them directly to someone, with the intention of harming that person.
- **Impersonation** – Creating fake accounts or gaining access to a person's real social media accounts and posting things to damage the victim's reputation.
- **Cyberstalking** – Tracking and monitoring a person's online activity and using the internet to stalk or harass an individual.

Overview of Indian IT Act:

Information Technology Act, 2000 The Information Technology Act, 2000 (also known as ITA-2000, or the IT Act) is an Act of the Indian Parliament (No. 21 of 2000) notified on 17 October, 2000. The Information Technology Act, 2000 is a significant piece of legislation in India that was enacted to provide legal recognition to electronic transactions and to govern various aspects of electronic commerce and digital communication. It aims to create a secure and conducive environment for electronic transactions, data protection, and the prevention of cybercrimes.

The original Act contained 94 Sections, divided into 13 Chapters and 4 Schedules. The laws apply to the whole of India. Persons of other nationalities can also be indicted under the law if the crime involves a computer or network located in India.

E-waste: hazards and management:

E-waste refers to discarded electronic and electrical equipment including computers, smartphones, televisions, refrigerators, and other electronic devices that are no longer in use or have reached the end of their operational life. E-waste poses significant environmental and

health hazards due to the presence of toxic substances.

E-Waste Hazards:

- Mostly all electronic waste comprises of toxic chemicals such as lead, beryllium, mercury etc.
- Improper disposing of gadgets and devices increases the amount of these toxic chemicals thus contaminated the soil, causing air and water pollution.
- The contaminated water which is highly polluted it thus making it harmful for drinking purposes.
- Improper e-waste recycling, such as by open burning and acid baths creates hazardous and toxic compounds like- dioxins, furans and acids.
- Damage to the immune system
- Skin disease.
- Multi ailments.
- Skin problems

E-Waste Management:

E-waste management requires proper recycling and recovery of the disposed material. The recycling and recovery process includes following steps

1. Dismantling: - removal of parts containing valuable items such as- copper, silver, gold, steel and removal of parts containing dangerous substance likemercury, lead, Beryllium etc.
2. Separation metal and plastic
3. Refurbishment and reuse: it means used electrical and electronic items that can be easily remodel to make it's to reuse.
4. Recovery of valuable materials
5. Disposal of dangerous materials like- mercury, lead, Beryllium etc. and disposed off in underground landfill sites.

Awareness about health concerns related to the usage of technology:

Today, computer technologies provide people with many benefits, educational activities can be designed, online shopping is available, it is possible to get in touch with people overseas and to chat with them. It is possible to search for anything and sometimes. It is even possible to do one's job at home without going to his or her office. If these technologies, which dominate our lives more each passing day, are not used carefully. Then it is inevitable for people to end up with certain illnesses like

1. Neck strain
2. Vision Problem
3. Sense of isolation
4. Sleeping disorder
5. Stress
6. Loss of attention
7. Problem in social relationships of individuals.
8. Computer anxiety
9. Internet addiction etc.

In order to avoid these problems-

- One should learn how to use these technologies without experiencing any problem rather than avoiding using them.
- Some of the users of computer technologies are not even aware of their health-related problems that they have.

Multiple Choice Questions

Q1 Mr. Sam received an email warning him of closure of his bank accounts if he did not update his banking information immediately. He clicked the link in the email and entered his banking information. Next day, he got to know that he was cheated. This is an example of _____.

- a. Online Fraud
 - b. Identity Theft
 - c. Plagiarism
 - d. Phishing
- Ans a. Online Fraud

Q2 Which of these is not a cyber crime:

- i) Cyber stalking
 - ii) Cyber trolling
 - iii) Copyright
 - iv) Cyber bullying
- Ans iii) Copyright

Q3 Which of the following appears harmless but actually performs malicious functions such as deleting or damaging files.

- (a) WORM
 - (b) Virus
 - (c) Trojan Horse
 - (d) Malware
- Ans (c) Trojan Horse

Q4 Your friend Ranjana complains that somebody has created a fake profile on Facebook and defaming her character with abusive comments and pictures. Identify the type of cybercrime for these situations.

- (a) Phishing
 - (b) Cyber stalking
 - (c) Trojan Horse
 - (d) Cyber Stalking / Identity theft
- Ans (d) Cyber Stalking / Identity theft

Q5 Using someone else's Twitter handle to post something will be termed as:

- (a) Fraud
 - (b) Identity theft
 - (c) Online stealing
 - (d) Violation
- Ans (b) Identity theft

Q6 Copying someone's work or idea is referred as

- (a) IPR
 - (b) Plagiarism
 - (c) Patent
 - (d) Trademarks
- Ans (b) Plagiarism

Q7 IPR stands for _____

- (a) Indian Property Right
 - (b) Intellectual Property Right
 - (c) Intelligent Property Resource
 - (d) Internet Property Resource
- Ans (b) Intellectual Property Right

Q8 Source code of software will be protected by _____

- (a) copyright
- (b) patent

(c) registered trademark (d) None of the above
Ans (a) copyright

Q9 Which of the following are not part of Net Etiquette?

(a) Be Respectful (b) Be Responsible
(c) Posting your phone number (d) All of the above

Ans (c) Posting your phone number

Q10 Which of the following is not a type of cyber-crime?

(a) Data theft (b) Damage to data and systems
(c) Forgery (d) Installing antivirus for protection

Ans (d) Installing antivirus for protection

Competency Based Question

Q1 What is a free software, Give Example?

Ans. Free Software are those which are freely accessible, freely used, changed, improved, copied and distributed. It provides all types of freedom. The term 'Free' means 'Freedom' at very little or No cost. E.g. Python, Java, Linux etc.

Q2 What is Open Source Software? Give example.

Ans. Open Source Software are those whose source codes are openly available for anyone and everyone to freely access, use, change, improve copy and distribute. E.g. Python, Mozilla Firefox etc.

Q3 Write the full form of the following terms:-

Ans. a. FOSS: Free and Open Source Software.

b. IPR: Intellectual Property Rights.

c. CC License: Creative Commons License.

d. OSS: Open Source Software

e. GPL: General Public License.

Q4 List any two health hazards related to excessive use of Technology

Ans. The continuous use of devices like smartphones, computer desktop, laptops, head phones etc cause a lot of health hazards if not addressed. These are:

A. Impact on bones and joints: wrong posture or long hours of sitting in an uncomfortable position can cause muscle or bone injury.

B. Impact on hearing: using headphones or earphones for a prolonged time and on high volume can cause hearing problems and in severe cases hearing impairments.

C. Impact on eyes: This is the most common form of health hazard as prolonged hours of screen time can lead to extreme strain in the eyes.

D. Sleep problem: Bright light from computer devices block a hormone called melatonin which helps us sleep. Thus we can experience sleep disorders leading to short sleep cycles.

Q5 Priyanka is using her internet connection to book a flight ticket. This is a classic example of leaving a trail of web activities carried by her. What do we call this type of activity? What is the risk involved by such kind of activity?

Ans. We can call this type of activity as Digital Footprints

Risk involved : It includes websites we visit emails we send, and any information we submit online, etc., along with the computer's IP address, location, and other device specific details. Such data could be used for targeted advertisement or could also be misused or exploited.

Q6 What do you mean by Identity theft? Explain with the help of an example.

Ans. Identity theft is the crime of obtaining the personal or financial information of another person for the sole purpose of assuming that person's name or identity to make transactions or use it to post inappropriate remarks, comments etc. Example:

Alex likes to do his homework late at night. He uses the Internet a lot and also sends useful data through email to many of his friends. One Day he forgot to sign out from his email account. In the morning, his twin brother, Flex started using the computer. He used Flex's email account to send inappropriate messages to his contacts.

Q7 What do you understand by Net Etiquettes? Explain any two such etiquettes.

Ans. Net Etiquettes refers to the proper manners and behaviour we need to exhibit while being online. These include :

1. No copyright violation: we should not use copyrighted materials without the permission of the creator or owner. We should give proper credit to owners/creators of open source content when using them.
2. Avoid cyber bullying: Avoid any insulting, degrading or intimidating online behaviour like repeated posting of rumours, giving threats online, posting the victim's personal information, or comments aimed to publicly ridicule a victim.

Q8 Define hacking, phishing, and cyberbullying, providing a brief explanation of each and highlighting their distinct characteristics.

Ans Hacking: Hacking refers to the unauthorized access, manipulation, or intrusion into computer systems or networks. It involves exploiting vulnerabilities in security to gain access to confidential information or to disrupt the functioning of systems. Hacking can be carried out for various purposes, including data theft, espionage, or simply to test security measures. It is primarily a technical activity focused on breaching security measures.

Phishing: Phishing is a deceptive practice where cybercriminals impersonate trusted entities or individuals through emails, websites, or messages to trick users into revealing sensitive information such as login credentials, credit card details, or personal information. Phishing typically relies on social engineering tactics and psychological manipulation rather than technical prowess. It aims to exploit human trust and gullibility.

Cyberbullying: Cyberbullying involves the use of digital communication tools like social media, messaging apps, or emails to harass, threaten, or intimidate others. It can take the form of hurtful messages, spreading rumours, sharing embarrassing photos, or any online behaviour intended to harm or harass individuals. Cyberbullying is a form of online harassment and abuse and is characterized by its social and psychological impact on victims.

Q9 Explain the concept of netiquette and provide three examples of good netiquette practices when communicating online

Ans Netiquette, a term derived from "Internet" and "etiquette," refers to the set of rules and guidelines for polite and respectful behaviour when interacting with others on the internet. It is essential for maintaining a positive and productive online environment

three examples of good netiquette practices:

1. Post correct content in respectful language
2. Proper Citation and Avoiding Plagiarism
3. Do not repeatedly post same content . i.e. do not spam

Q10 Explain the concept of "Digital Eye Strain" , "Repetitive Strain Injury " as health concerns of technology usage.

Ans. Digital Eye Strain: Digital Eye Strain, also known as Computer Vision Syndrome (CVS), is a health concern related to prolonged and improper usage of technology devices such as computers, smartphones, and tablets. It results from the extended periods of screen time and can lead to various eye discomforts

Repetitive Strain Injury: Due to prolonged sitting in same postures , repetitive movements of

thumbs and shoulders , joints and muscles an injury disorder may occur known as RSI injuring mentioned body parts along with nerve , tendon and ligaments

Very short Questions

Q1 Gaining unauthorized access to a network or computer with malicious intentions is an example of
Ans Hacking

Q2 Name the primary law in India dealing with cybercrime and electronic commerce.
Ans The primary law is Information Technology Act 2000.

Q3 mail or message sent to a large number of people indiscriminately without their consent is called _____
Ans Spam

Q4 Receiving irrelevant and unwanted emails repeatedly is an example of ____
Ans Spam or spamming

Q5 State (True/False)
We should dump used up electronic wastes in empty landfills.
Ans False

Q6 State (True/False)
We should sell our E-waste to only certified E-Waste Recycler.
Ans False

Q7 Fill in the Blanks:-

a. Any information about you or created by you that exists in the digital form is referred to as _____

Ans. Digital Footprint

b. Stealing someone's intellectual work and representing it as your own is known as _____.

Ans. Plagiarism.

c. Software which usually limit the functionality after a trial period are known as _____.
Ans. Shareware.

d. Creative creations of mind such as patents, trademarks and copyright are _____ property.

Ans. Intellectual.

e. _____ are small text files – bits of information – left on your computer by websites you have visited which let them 'remember' things about you.

Ans. Cookies

Short Questions

1. What is identity theft? How can we prevent identity theft?
2. Define e- waste. What are the various methods for effective e- waste management?
3. What do you mean by plagiarism? Tell 2 acts which can be termed as plagiarism.
4. What do you mean by Digital property rights? Explain.
5. State any 2 measures of digital property rights protection.
6. Differentiate between shareware and proprietary software.
7. What is cyber-crime? Explain "information theft".
8. Give any 2 benefits of ICT on today's society?

9. State 2 benefits of e-waste recycling?
10. Differentiate between Free Software and Open-source software.

Long Questions

1. Sumit got good marks in all the subjects. His father gifted him a laptop. He would like to make Sumit aware of health hazards associated with inappropriate and excessive use of laptop. Help his father to list the points which he should discuss with Sumit.
2. What do you mean by Cyber Crime, explain its types and write the measures to avoid it?
3. According to a survey, one of the major Asian country generates approximately about 2 million tonnes of electronic waste per year. Only 1.5 % of the total e-waste gets recycled. Suggest a method to manage e-waste.
4. What do you understand by Net Etiquettes? Explain any four etiquettes.
5. Priyanka is using her internet connection to book a flight ticket. This is a classic example of leaving a trail of web activities carried by her. What do we call this type of activity? What is the risk involved by such kind of activity?

Case Study based questions

Q.1 Namita has recently shifted to new city and new school. She does not know many people in her new city and school. But all of a student, someone is posting negative, demeaning comments on her social networking profile, school site's forum etc. She is also getting repeated mails from unknown people. Every time she goes online, she finds someone chasing her online.

- a) What is this happening to Namita?
 - i. Namita has become a victim of cyber bullying and cyber stalking.
 - ii. Eaves dropping
 - iii. Scam
 - iv. Violation of IPR
- b) What action should be taken by her to stop them?
 - i. Discuss with Parents
 - ii. Discuss in peer group
 - iii. Hide and get herself emotionally hurt
 - iv. She must immediately bring it to the notice of her parents and school authorities. And she must report this cybercrime to local police with the help of her parents.
- c) The act of fraudulently acquiring someone's personal and private information, such as online account names, login information and passwords is called as _____.
 - i. Phishing
 - ii. Fraud
 - iii. Identity Theft
 - iv. Plagiarism
- d) Namita needs to protect her personal information or data from unintentional and intentional attacks and disclosure which is termed as _____.
 - i. Digital right
 - ii. Copyright
 - iii. Privacy
 - iv. Intellectual property
- e) A set of moral principles that governs the behaviour of a group or individual and regulates the use of computers.
 - i. Copyright
 - ii. Computer ethics
 - iii. Property rights
 - iv. Privacy law

Q.2 Sourabh has to prepare a project on “Digital India Initiatives”. He decides to get information from the Internet. He downloads three web pages (webpage 1, webpage 2, webpage 3) containing information on Digital India Initiatives. Which of the following steps taken by Sourabh is an example of plagiarism or copyright infringement?

- a) He read a paragraph on “Digital India Initiatives” from webpage 1 and rephrased it in his own words. He finally pasted the rephrased paragraph in his project.
- b) He downloaded three images of “Digital India Initiatives” from webpage 2. He made a collage for his project using these images.
- c) He downloaded “Digital India Initiative” icon from web page 3 and pasted it on the front page of his project report.

Q.3 After practicals, Atharv left the computer laboratory but forgot to sign off from his email account. Later, his classmate Revaan started using the same computer. He is now logged in as Atharv. He sends inflammatory email messages to few of his classmates using Atharv’s email account. Revaan’s activity is an example of which of the following cyber crime?

- a) Hacking
- b) Identity theft
- c) Cyber bullying
- d) Plagiarism