CSE332 Cheat Sheet - Industry Ethics

Unit 1

Ethics in Information Technology and Business

1. Definition of Ethics

Ethics refers to a set of moral principles that guide human behavior, defining what is right and wrong. In the professional world, ethics ensures honesty, fairness, and responsibility in decision-making.

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2. Importance of Integrity

Integrity is the foundation of ethical behavior. It involves:

- **Honesty** – Being truthful in all dealings.
- **Accountability** – Taking responsibility for one's actions.
- **Trustworthiness** – Gaining the confidence of others through ethical conduct.
- **Consistency** – Acting ethically even when no one is watching.

Why Integrity Matters?

- Builds trust among employees, customers, and stakeholders.
- Enhances an organization’s reputation.
- Reduces risks of fraud, corruption, and unethical practices.

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3. Ethics in the Business World

Business ethics involves ensuring fair practices in corporate operations, including:

- **Fair treatment of employees** – Avoiding discrimination and harassment.
- **Transparent financial practices** – Avoiding fraud and corruption.
- **Corporate Social Responsibility (CSR)** – Businesses giving back to society.
- **Sustainability** – Ethical use of resources and environmental conservation.

Examples of Ethical vs. Unethical Business Practices:

Ethical Practice	Unethical Practice
Fair wages for employees	Exploiting workers with low pay
Honest advertising	False claims and misleading promotions
Environmentally friendly production	Dumping toxic waste irresponsibly

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4. Improving Corporate Ethics

Companies can improve their ethical standards by:

- Implementing a **Code of Ethics** – A document outlining acceptable behaviors.
- Conducting **Ethics Training** – Educating employees on ethical decision-making.
- Encouraging **Whistleblowing Protection** – Allowing employees to report unethical activities without fear.
- Appointing an **Ethics Committee** – A team responsible for handling ethical issues.

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5. Creating an Ethical Work Environment

A positive workplace culture promotes ethical behavior. Ways to achieve this:

- **Encouraging Open Communication** – Employees should feel safe discussing ethical concerns.
- **Leading by Example** – Managers and executives must demonstrate ethical behavior.
- **Recognizing Ethical Conduct** – Rewarding employees who uphold ethics.
- **Ensuring Fair Policies** – Equal opportunities for all, free from bias and discrimination.

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6. Ethical Decision-Making

Decision-making should align with ethical values. A framework for ethical decision-making includes:

1. **Recognizing the Problem** – Identify if a situation involves an ethical dilemma.
2. **Gathering Information** – Understand the potential impact on stakeholders.
3. **Considering Alternatives** – Weigh ethical vs. unethical options.
4. **Making a Decision** – Choose the most ethical solution.

5. **Taking Action** – Implement the decision responsibly.
6. **Reviewing the Outcome** – Assess whether the decision upheld ethical standards.

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7. Ethics in Information Technology (IT)

IT ethics focus on responsible use of technology. Important areas include:

- **Data Privacy & Protection** – Ensuring user information is secure.
- **Cybersecurity Ethics** – Ethical hacking vs. malicious hacking.
- **Intellectual Property Rights** – Avoiding software piracy and copyright violations.
- **AI Ethics** – Ensuring fair and unbiased AI systems.
- **Social Media Ethics** – Avoiding misinformation and digital harassment.

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8. Ethical Behavior of IT Professionals

IT professionals must follow ethical guidelines, such as:

- **Confidentiality** – Protecting user and company data.
- **Honesty** – Providing truthful reports and security assessments.
- **Avoiding Conflicts of Interest** – Not misusing insider information.
- **Fair Use of Resources** – Avoiding unauthorized system access.

Examples of Ethical vs. Unethical IT Practices:

Ethical IT Behavior	Unethical IT Behavior
Ethical hacking to improve security	Hacking for personal gain
Protecting user data	Selling customer information
Reporting security flaws	Exploiting vulnerabilities for profit

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9. Common Ethical Issues for IT Users

Everyday IT users face various ethical dilemmas, such as:

- **Plagiarism & Copyright Violations** – Using others' content without permission.
- **Software Piracy** – Using cracked software illegally.
- **Data Privacy Violations** – Sharing personal data without consent.

- **Cyberbullying & Harassment** – Abusing others online.
- **Fake News & Misinformation** – Spreading false information.

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10. Supporting Ethical Practices in IT

To promote ethical IT use, organizations can:

- **Educate Employees & Users** – Conduct cybersecurity awareness programs.
- **Enforce Strong Policies** – Implement privacy and data protection laws.
- **Use Ethical AI & Algorithms** – Avoid biased decision-making.
- **Implement Cybersecurity Measures** – Encrypt sensitive data and limit access.

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11. Women Empowerment in Ethics

Women empowerment in ethics focuses on:

- **Equal Opportunities** – Closing the gender gap in workplaces.
- **Protection Against Harassment** – Enforcing strict anti-harassment policies.
- **Fair Wages** – Addressing gender pay disparities.
- **Leadership & Representation** – Encouraging women in leadership roles.

Why Women Empowerment Matters?

- Strengthens diversity in decision-making.
- Promotes fairness and inclusivity.
- Leads to higher ethical standards in business and technology.

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12. Ethical Aspects of Engineering Practices

Engineers must consider ethical issues in their work, including:

- **Public Safety** – Ensuring designs and systems do not harm people.
- **Environmental Responsibility** – Using sustainable and eco-friendly materials.
- **Honesty in Research** – Reporting accurate results and avoiding data manipulation.
- **Avoiding Conflicts of Interest** – Not accepting bribes or unethical favors.

Examples of Engineering Ethics Violations:

Ethical Engineering Practice	Unethical Engineering Practice
Following safety standards	Ignoring safety regulations to cut costs
Using eco-friendly materials	Dumping toxic waste irresponsibly
Transparent reporting of risks	Hiding potential hazards from the public

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Unit - 2

Intellectual Property (IP) Rights

Intellectual Property (IP) refers to legal rights given to individuals or organizations for their creations, inventions, designs, or symbols. These rights prevent unauthorized use and provide incentives for innovation.

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1. Concept of Intellectual Property (IP)

Intellectual property includes **creations of the mind**, such as inventions, artistic works, brand names, and trade secrets. It is protected through various legal mechanisms, ensuring that the creator has exclusive rights over its use.

Types of Intellectual Property:

- **Copyright** – Protects original literary, artistic, and musical works.
- **Trademarks** – Protects brand names, logos, and distinctive symbols.
- **Patents** – Protects inventions and innovative processes.
- **Trade Secrets** – Protects confidential business information.
- **Industrial Designs** – Protects the aesthetic design of a product.

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2. Copyright and Trademark

A. Copyright

Copyright protects **original creative works** such as books, music, films, and software.

- **Rights Granted by Copyright:**

- Right to reproduce the work.

- Right to distribute or sell copies.
- Right to perform, display, or adapt the work.

🔹 **Copyright Duration:**

- Literary and artistic works: **Lifetime of the author + 60 years (India)**
- Software and films: **60 years from publication**

🔹 **Examples of Copyrighted Works:**

✓ Books, research papers, and scripts.
✓ Software codes and programs.
✓ Music compositions and movie scripts.

B. Trademark

A **trademark** is a recognizable **word, phrase, symbol, or logo** that represents a brand or product. It helps distinguish a company's products from competitors.

🔹 **Types of Trademarks:**

- **Word Marks** – "Nike" (brand name)
- **Logo Marks** – Apple's bitten apple logo
- **Slogans** – McDonald's "I'm Lovin' It"
- **Sound Marks** – Nokia tune, Intel startup sound
- **Color Marks** – Tiffany's blue packaging
- **Shape Marks** – Coca-Cola's curved bottle design

🔹 **Trademark Duration:**

- In India, a trademark is valid for **10 years** but can be **renewed indefinitely**.

🔹 **Trademark Infringement Example:**

If a local fast-food company uses a logo similar to McDonald's golden arches, it can be sued for trademark infringement.

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3. Different Kinds of Marks

Type of Mark	Description	Example
Brand Names	Unique names for companies or products	Nike, Google, Tesla

Type of Mark	Description	Example
Logos	Graphical symbols representing a brand	Apple logo, Adidas stripes
Signatures	Handwritten or stylized brand signatures	Walt Disney's signature
Symbols	Unique signs representing organizations	Red Cross, Olympic Rings
Well-Known Marks	Widely recognized trademarks	Coca-Cola, McDonald's
Certification Marks	Assure consumers of quality standards	ISI Mark, ISO Certification
Service Marks	Protect businesses offering services instead of products	FedEx, Airbnb

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4. Patents

A **patent** grants exclusive rights to an **invention** or an **innovative process** for a specific period, usually **20 years**.

- **Types of Patents:**

1. **Utility Patents** – Protect functional inventions (e.g., a new engine design).
2. **Design Patents** – Protect the aesthetic design of a product.
3. **Plant Patents** – Protect new plant varieties developed through genetic engineering.

- **Patent Requirements:**

- **Novelty** – The invention must be new.
- **Non-Obviousness** – It should not be an obvious improvement.
- **Utility** – It must have industrial applicability.

- **Patent Infringement Example:**

If a company uses patented mobile charging technology without permission, the patent holder can sue for damages.

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5. Importance of Patent Information in Business Development

- **Why Patents Matter for Businesses?**

- **Competitive Advantage** – Patents prevent competitors from copying unique innovations.
- **Increased Market Value** – Companies with strong patent portfolios attract investors.
- **Revenue Generation** – Patents can be licensed or sold for profit.
- **Legal Protection** – Prevents unauthorized use of technology.

🔹 **Example:**

- **Tesla** initially patented its electric vehicle technology, allowing it to dominate the EV market.
- **Google** holds patents for its search algorithms, making it difficult for competitors to replicate its system.

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6. Identifying Social and Engineering Issues in IP

IP-related issues often arise due to conflicts between innovation and public access.

🔹 **Common IP Issues:**

- **Software Piracy** – Unauthorized copying of software.
- **Biotechnology Patents** – Ethical concerns over patenting genetic modifications.
- **Pharmaceutical Patents** – High drug prices due to patents restricting generic versions.
- **Digital Content Piracy** – Illegal streaming and distribution of copyrighted films and music.

Example:

- Patent laws helped protect COVID-19 vaccines, but global demand led to debates on fair distribution and affordability.

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7. Conducting Analysis and Registering Claims for IP Protection

Steps to Protect Intellectual Property:

1. **Research Existing IP Rights**
   - Use online databases (WIPO, USPTO, Indian Patent Office) to check for similar patents or trademarks.
2. **Draft and File Application**

- Prepare documentation, including **detailed descriptions, technical drawings, and claims**.
- File the application with the **appropriate authority** (e.g., Indian Patent Office, USPTO, WIPO).

3. **Patent Examination and Approval**
   - The patent office reviews the application for novelty and feasibility.
   - If approved, the patent is **granted for 20 years**.
4. **Monitor and Enforce IP Rights**
   - Regularly check for **infringements**.
   - Take **legal action** if unauthorized use is detected.

Unit - 3

Government Funding and Startup Schemes

1. What are Startups?

A **startup** is a newly established business with an innovative product or service, aiming for rapid growth and scalability. Startups are usually founded by entrepreneurs who develop unique ideas and leverage technology to solve market problems.

- **Key Features of Startups:**

- Innovative and disruptive business model
- High growth potential
- Operates in uncertain markets
- Uses technology to scale quickly

Examples of Successful Startups:

- **Flipkart** (E-commerce)
- **Zomato** (Food Delivery)
- **Paytm** (FinTech)
- **OYO** (Hospitality)

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2. Startup India Benefits

The **Startup India** initiative, launched by the Government of India in 2016, aims to foster entrepreneurship, boost job creation, and encourage innovation.

Benefits for Startups Under Startup India:

✅ **Tax Exemptions:**

- Startups registered under Startup India are eligible for a **3-year tax holiday** under the Income Tax Act.
- Exemption from **Angel Tax** on investments up to ₹25 crore.

✅ **Funding Support:**

- **Fund of Funds for Startups (FFS):** ₹10,000 crore fund managed by SIDBI to support venture capital firms investing in startups.
- **Credit Guarantee Scheme:** Provides collateral-free loans to startups.

✅ **Simplified Regulations:**

- Startups can **self-certify** compliance with labor and environmental laws.
- **Fast-track patent application process** with 80% rebate on patent filing fees.

✅ **Easier Winding Up:**

- Startups can wind up their businesses within **90 days** under the **Insolvency and Bankruptcy Code**.

✅ **Government Tenders & Contracts:**

- Startups can apply for **government tenders** without prior experience.

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3. Resources for Startups

🔹 **Startup India Portal:**
A government initiative that provides legal and funding support, networking opportunities, and mentorship.

🔹 **Incubators & Accelerators:**

- **Atal Incubation Centers (AICs)** – NITI Aayog-backed incubators.
- **iCreate (International Centre for Entrepreneurship and Technology)** – Supported by the Gujarat government.
- **NSRCEL (IIM Bangalore)** – Offers mentoring and funding support.

🔹 **Startup Ecosystem in India:**

- **TiE (The Indus Entrepreneurs):** A global network that supports startups.
- **NASSCOM 10,000 Startups Initiative:** Helps tech startups scale with mentorship and investment.

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4. Bank Loans for Startup Businesses

Government Loan Schemes for Startups:

💰 **MUDRA Loan Scheme**

- Provides **collateral-free loans** up to ₹10 lakh for micro and small businesses.

💰 **Stand-Up India**

- Loans between **₹10 lakh and ₹1 crore** for women and SC/ST entrepreneurs.

💰 **SIDBI (Small Industries Development Bank of India) Loans**

- Funds MSMEs (Micro, Small, and Medium Enterprises) and startups.

💰 **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)**

- Offers **collateral-free loans up to ₹2 crore** to startups.

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5. Startup India & NASSCOM 10,000 Startups Initiative

🔹 **Startup India** – Government-backed program supporting innovation and entrepreneurship.

🔹 **NASSCOM 10,000 Startups** – A NASSCOM initiative to support tech startups by providing funding, mentorship, and global exposure.

Key Benefits of 10,000 Startups:
✅ Free cloud credits from AWS, Microsoft Azure, Google Cloud.
✅ Networking with investors and VCs.
✅ Access to co-working spaces and incubation programs.

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6. Export Promotion Schemes for Startups

A. Software Technology Parks (STPs)

- STPs provide tax benefits and infrastructure for IT startups.
- Under the **STP Scheme**, startups enjoy **100% income tax exemption** on export profits.

B. Special Economic Zones (SEZ) Scheme

- SEZs offer **tax holidays** and duty-free imports to businesses focused on exports.
- Example: **TCS, Infosys, and Wipro** operate in SEZs.

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7. Laws for Startups in India

Startups must comply with several laws and regulations, including:

📜 **Companies Act, 2013** – For company registration and compliance.
📜 **Income Tax Act, 1961** – Governs taxation and exemptions for startups.
📜 **Foreign Exchange Management Act (FEMA), 1999** – Regulates foreign investments.
📜 **Insolvency and Bankruptcy Code (IBC), 2016** – Allows fast-track exit for startups.

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8. Government Grants for Startups

A. SBIR (Small Business Innovation Research)

- A **US government program** that provides **grants for R&D-focused startups**.
- Supports **high-risk, high-impact** projects in science and technology.

B. STTR (Small Business Technology Transfer Program)

- Encourages collaboration between **small businesses and research institutions**.
- Provides funding for technological innovation.

C. NSF Grants (National Science Foundation Grants)

- Provides **funding for scientific and technological startups** in the USA.
- Supports businesses involved in AI, quantum computing, and biotech.
