



**Draft Framework on
Use of Generative AI (GenAI) Tools
in Higher Education Institutes (HEIs)**

Version 1.0

**HIGHER EDUCATION COMMISSION
ISLAMABAD**

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1. Introduction

Generative Artificial Intelligence (GenAI) Tools are built with systems of artificial intelligence capable of producing new content, either matching context or logical coherence regardless of the content type. Generative AI technology developed today utilizes sophisticated machines learning algorithms like deep neural networks that can apply complicated pattern detection from very big datasets and generate creative new results unlike classical fixed rule AI systems. In such research projects, academic breakthroughs and innovative scholarly solutions are created with the aid of the generative AI Tool as it produces human like creative results independently. And as of Generative AI tools belong to the technology innovation space, it is HEIs' responsibility to implement ethical protocols as well to handle them. Generative AI Tools such as GPT-3 (Generative Pre-trained Transformer) and LaMDA / Palm represents such advanced language models that will revolutionize the opportunities for personalized learning and content generation and even the assessment methods. Ethical aspects such as transparency, informed consent, and fairness, data privacy and accessibility, plagiarism and explainability are tracked down as essential aspects. They ensure transparency of educational application of AI, strive for the consent of stakeholders and continuously combat biases in the operation, protect the privacy of the learner and ensure access to services, and understand AI decision systems. With this targeted intention, the complete guide advises HEIs on how they can utilize generative AI Tools of their judicious ways while maintaining ethical standards that recommend the welfare of students and the fair treatment of the university community.

2. The HEC's Mandate to Prevent Plagiarism

Section 10(a) in the Higher Education Commission (HEC) Ordinance of 2002 assigns to the Commission the responsibility for creating policies which develop quality and ethical research frameworks. The regulations state that Higher education institutions must make policies and priorities for guiding principles that support socio-economic development of the country.

In line with this directive, the HEC assigned the Experts Committee on July 06, 2023, with the responsibility of developing a policy/framework on fair and ethical usage of Generative AI tools in HEIs. This framework is designed to reinforce the autonomy and responsibility of Higher Education Institutions (HEIs) in ensuring the authenticity of ethical research and combating the issue of plagiarism with regards to Generative AI Tools. It is essential to note that anti-plagiarism forms only one aspect of a comprehensive policy framework addressing Academic Dishonesty and Research Ethics, encompassing issues such as impersonation, ghostwriting, fabricating results, automating research, citation racketeering, etc. Given the dynamic nature of national and international contexts, it is recommended that the Ethical Use of Generative AI Tools policy framework undergoes regular reviews, preferably every year or as needed earlier, to stay responsive to highly emerging developments. This approach ensures the continual relevance and effectiveness of the policy/framework in the ever-evolving landscape of academia.

3. Objectives of the Framework

The framework addresses a variety of academic community members including students, faculty, researchers, mentors and academic staff to demonstrate proper GenAI tool usage. The document presents possible destructive effects of GenAI technology on today's academic methods while establishing essential standards for ethical use throughout universities and their DAIs and their respective colleges and research establishments.

4. Principles of the Framework

The Framework operates under these main principles as its foundation:

- Every year educational institutions alongside their teaching staff from Universities and Degree Awarding Institutes must conduct skills development activities to build knowledge on Generative AI tool creation and methods to stop misuse.
- Higher Education Institutions need to develop specific formal permission systems for students and teaching staff when conducting Generative AI Tool implementations in their academic processes.
- Promise of Generative AI Tools leads to a dependency problem which causes students and researchers to avoid critical thinking while delaying primary research and stops them from developing their writing and creative talents.
- The training process of large Generative AI Tools on extensive datasets sometimes spreads biased stereotypes and destructive narratives which produces unethical content during academic use.
- All parties at Universities and DAIS along with faculty members students and staff should adopt research ethics to prevent plagiarism issues from Generative AI Tools in their scholarly work and research output.

5. Common Type of Misuses in Generative AI Tools

Generative AI Tools, such as GPT-3 based ChatGPT, have the potential to revolutionize various industries, including academia. The same fundamental strength of advanced technology creates room for improper use within higher education environments. GenAI Tools present possible academic misuse opportunities for undergraduate/postgraduate studies and research which include:

A. Undergraduate Studies

- Shortcut to Learning:** GenAI Tools allow you to Shortcut Learning by pre generating answers such that they never have to really study the subject material to get answers.
- Impersonation:** Academic environments are vulnerable to impersonation when the GenAI Tools are misused to impersonate professors, teaching assistants or students in the online communication systems thus creating unverified information which confuses the audience.

- iii. **Automated grading manipulation:** GenAI Tools will allow one to fake answers that automated grading systems will accept because they will be deceived by these systems. However, such practice of grade inflation is done artificially to undermine the real academic success of students and at the same time help students who prefer to adopt this approach earn advantages.
- iv. **Cheating in Assessments:** GenAI Tools are used by students who cheat in assessment by trying to uncover the answers during exams and tests, other assessment activities and against the rules of school integrity.
- v. **Creating fake reviews or endorsements:** The content created by GenAI Tools are designed to help users create false reviews and endorsements, as well as fake testimonials across all products and academic work. This would deceive customers and future partners in the process of deciding if the deal is real or not.
- vi. **Spreading misinformation:** Gen AI Tools produces the output that can be really believable but the output is wrong, which helps spread the misinformation in academic field through academic papers and articles. The misinformation may create a confusion in the field and may make true research difficult to do.
- vii. **Bias and Ethical Concerns:** However, the educational settings have ethical problems and issues in propagating bias because GenAI tools are trained by the huge datasets of potential biased and unethical educational content.
- viii. **Exploiting sensitive data:** GenAI Tools can accidentally memorize the description of sensitive or confidential information when they were taught, thereby inadvertently disclosing secret data.
- ix. **Academic fraud:** GenAI Tools training displays can receive private information that may release protected data against unwanted disclosure.
- x. **Misleading Citations:** Users can use GenAI Tools to create false citations or false references that can give wrong academic support to their claims.
- xi. **Bypassing plagiarism detection tools:** GenAI Tools to create content that doesn't get caught as plagiarized by plagiarism detection tools thanks to being rewritten or paraphrased completely from an original text in such a way that it becomes undetectable by automated systems.

B. Graduate Research

- i. **Plagiarism:** The misuse of Generative AI Tools by students or researchers can result in academic work plagiarism through content creation that lacks proper references to original sources. Educational standards along with research quality suffer because of plagiarism outcomes from using this technology.
- ii. **Ghostwriting:** People can use Generative AI Tools to produce written articles or academic papers which they present as their work despite not mentioning the AI's participation. These tools enable researchers to create realistic-looking fabricated research papers which contain no genuine scientific proof or new data. Using fabricated research documents at academic conferences and scholarly publications creates a trust deception among the scientific community while lowering both research quality and scholarly reputation.
- iii. **Fabrication of Results:** Research teams sometimes utilize Generative AI Tools to create incorrect or deceptive research outcomes that result in deceptive scholarly findings.

- iv. **Automating Research:** The use of GenAI Tools for automating research produces valuable assistance in research and analysis yet improper validation without human supervision creates potentially wrong conclusions.
- v. **Laziness in research:** The regular use of GenAI Tools might cause students and researchers to stop their critical thinking practice and primary research and writing skill development.

6. Applicability of the Framework

This Framework serves all students together with university staff and faculty members and researchers and personnel at Degree Awarding Institutes throughout Pakistan without sectoral distinctions. This guideline applies uniformly to both undergraduate studies and graduate courses. The term "Student" in this framework applies to every person who maintains their official registration status either in universities or Degree Awarding Institutes or affiliated/constituent colleges acknowledged by Higher Education Commission (HEC) when they submit their work or paper. This definition includes all academic researchers and equivalent personnel working at universities and organizations and their constituent and affiliated colleges. The definition includes researchers who fulfill any formal criteria according to governing regulations for their employment. Individuals who work in university positions are classified based on their roles as regular employees or contractual workers and visiting personnel and people who perform duties as needed or do online research. Research entities within HEIs/DAIs will need to hold their employee stakeholders responsible for plagiarism discovery if they presented their academic work or scholarly activities on institutional sites for promotion or funding purposes. Every instance of violation will receive suitable penalties established by established regulatory rules. The guidelines of Generative AI tools in higher education appear in Appendix 1.

7. Responsibilities of HEI's and Organizations

A. Transparency

Transparency in the context of Generative AI Tools refers to the open communication and disclosure of the use of AI technologies within educational institutes. Such information must be given out by the educational institutes about the types of the generative AI systems being employed, its usage and the data sources. The information should be readily available to the students, the faculty, and other constituents that should be involved in the allocation process.

B. Informed Consent

Generative AI Tools imply both within information on the possible consequences of the use of Generative AI Tools and a voluntary choice on the application of the same. If Generative AI Tools are to be implemented in educational processes, then educational institutes must set up the processes to obtain informed consent from students and faculty. It includes defining the purposes, potential impacts and the levels of risk associated with AI application in context of higher education. Specific details can be obtained from Appendix 2.

C. Fairness and Bias Mitigation

The active identification and mitigation of biases in Generative AI tools in fairness and bias mitigation requires fair and equitable outcomes. Audits of generative AI Tools should be conducted regularly to identify and fix biases. For example, educational institutes must conduct research and development activities to minimize bias in the grading, student assessment, and content generation areas.

D. Data Privacy

Data privacy is the protection of personal information of the students and faculty from unauthorized access, use and disclosure. It should also be borne in mind that educational institutes also must, as per stipulated regulations, ensure that the applicable data protection regulations are followed and that students and faculty data are protected by robust security measures. All the data used in Generative AI Tools/applications should be anonymized and always treated as confidential.

E. Accessibility

Generative AI Tools are accessible if the design and implementation of the tools accommodate persons of differing abilities and needs. Accessibility features of generative AI should be a consideration, as is the case with individuals who have disabilities, have differences in languages, and so forth. To make a product more accessible, educational institutions should solicit feedback from various end user groups.

F. Explainability

Generative AI Tools/systems explain the capacity for them to provide understandable explanations of their decisions and actions. Generative AI systems should be used by educational institutes so that their decision-making processes are transparent. In particular, it refers to providing explanations for the content and decisions generated by AI, when this is especially important to educational experience.

G. Role of Department Standing Committee

As an aspirational and alerting body to act against academic abuse of Generative AI Tools, the Departmental Standing Committee is crucial in fighting for preventing the misuse of Generative AI Tools in tertiary educational institutions. These responsibilities consist of oversight, policy formulation and the implementation of measures that prevent ethical use of Generative AI technologies.

H. Review and Develop Guidelines

How Generative AI tools are used in academic settings should have clear and comprehensive policies, which the committee has a role in developing. It is imperative that these policies explicitly develop ethical guidelines, standards for generating content via GenAI Tools, and mechanisms for ensuring the abuse of the GenAI Tools in higher education are not present.

I. Educational Initiatives

Raise awareness among the faculty, staff, and students about the capabilities of Generative AI Tools through educational programs. Such workshops, seminars and training sessions on AI assisted research and content creation's ethical considerations are included.

J. Review and Approval

Set up a review process for the use of Generative AI Tools for projects or assignments. Ethical guidelines should also be taken up by the committee, so that proposals are scrutinized to make certain that they do not run in conflict with the guidelines, technical issues of transparency and prevention of misuse.

K. Monitoring and Audits

It is important to monitor the use of Generative AI Tools on a regular basis, as well as auditing to make sure that the tools are being used in an ethically compliant manner. There is learning from reviewing projects, assignments and assessments to discover any academic dishonesty and unethical practices.

L. Collaboration with other departments and Ethics Committees

Liaise with other departments such as Computer Science and ethics committees to survey the company's Generative AI Tools and how the technology implemented complies with data privacy and security standards.

M. Reporting Mechanisms

Put in place reporting mechanisms to any suspected use of Generative AI Tools in the area of the Academy. Concerns should not be kept within faculty, staff, or students. And the committee must investigate and deal with the reported issues immediately.

N. Continuous Policy Review

Given the fact that GenAI technology is dynamic, the committee should reexamine the current policies on usage of GenAI tools on a periodic basis. It provides a way to continuously revisit policies and ensure the policies they describe are up-to-date and relevant in response to newly developing opportunities as well as potential ethical problems of GenAI in higher education.

O. Ethics Training

Offer ongoing ethics training and seminars for those in the faculty and students that are engaged in Generative AI tool projects. Responsible use, academic integrity and the consequences of misuse are key points that should be focused on in this training.

P. Coordination with Higher Authorities

Additionally, HEC's policies shall be reflected into the departmental policies for fighting academic misuse of generative AI tools in a coherent manner.

Q. Ethically Promoting Research

Be an advocate and advocate for ethical research practices in the department. It includes a focus on building an academic integrity and responsible innovation culture, not only in faculty, but also in students.

Therefore, the Departmental Standing Committee acts as an important avenue for legal protection against the misuse of Generative AI tools in academic contexts through the policies formulated with clear measures of accountability, the awareness mechanism, and constant checking of the implementation of any Generative AI technologies within the academic domain.

R. Rules for the Use and Penalties for the Misuse of Generative AI tools

Academic integrity is something students really need to be aware of and how their institution stands about it when in doubt, make sure they know what is going on but also contact teachers or have a meeting with their academic advisor. The use of generative AI tool such as ChatGPT helps enhance learning, particularly outside the academic setting (e.g. brainstorming ideas, exploring concepts, etc.) while its use to complete assignments and Thesis will have very serious consequences. However, the information that these tools produce was originally written and published and it may be incorrect or out of date. Plagiarism occurs when students use text generators without proper citation. The information supplied by these tools may be deficient as well as mistaken which necessitates students to verify their work's originality. The University expects students to present original work that they produced independently in all graded assignments and theses. Academic misconduct together with a zero grade follows both plagiarism detection and unauthorized tool usage of Generative AI in student work.

Following rules shall be incorporated at institutional level:

- i. Author credit must not go to generative AI tools in any writing project. The usage of these tools should remain limited to make texts more readable but safety precautions should always be deployed. One must include a declaration statement regarding all AI-assisted technologies or generative AI tool use before references in the final manuscript section.

Declaration of Generative AI tools and AI-assisted technologies in the writing process:
“During the preparation of this work, the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility (legal, moral, etc.) for the content of the publication.”

- ii. Universities need to create internal protocols that establish how students should acknowledge the integration of Generative AI tools when preparing academic papers. Any content produced by AI systems needs to receive appropriate acknowledgment in addition to proper recognition of the original authors who provided referenced material..
- iii. Generative AI tools have specific conditions where their academic implementation meets approval according to Section 6. Educational researchers should not rely on Generative AI tools for collecting data because they yield inadequate information that includes outmoded facts as well as spurious references and artificial research findings. The current state of ChatGPT data ends at September 2021. Students must avoid all activities of data generation and fabrication including data manipulation that utilize Generative AI tools. The student will face responsibility for misconduct when this situation occurs.

- iv. Plagiarism detection software for AI-generated text may be used to verify the content when available, allowing the usage of AI-produced content up to 19% in comparison with HEC plagiarism standards. The document shows an overall similarity index $\leq 19\%$ alongside a maximum of 5% similarity originating from any single source. HEC revises the standards based on global best practices together with feedback obtained from the academic community.
- v. Aligned with the recent plagiarism policy of HEC¹, the student of UG as well as PG must add the updated plagiarism undertaking statement stating:

“I, [Name of Student] I declare on oath that the research work presented in my UG/MS/PhD project/thesis, where applicable, entitled “[Project/Thesis Title]” is my own research work and is not substantially contributed by any other person or Generative AI Tools. Any small contribution / assistance wherever received has been duly acknowledged/cited and that whole project/thesis has been written by me under the latest plagiarism policy declared by HEC and my respective university as per the policy on use of Generative AI Tools.

I acknowledge the HEC and [Name of University] zero-tolerance policy on plagiarism. I as an Author of the above titled project/thesis declare that no part of my project/thesis has been Plagiarized and any material used for reference has been properly referred/cited.

I undertake that if I am found guilty of any plagiarism in the above titled project/thesis even after award of UG/MS/PhD degree, the University reserves the right to withdraw/revoke my degree and that HEC and the University has the right to publish my name on the HEC/University Website on which names of students are placed who submitted plagiarized project/thesis.”

The above undertaking statement might be updated by HEC from time to time.

- vi. Ensure that the use of AI Generative Tools complies with existing copyright and intellectual property laws. Universities should internally develop /implement guidelines that prevent the generation of content that infringes upon copyright, trademarks, or any other legal rights (IPO, Ministry of Commerce, is relevant government body in Pakistan)².

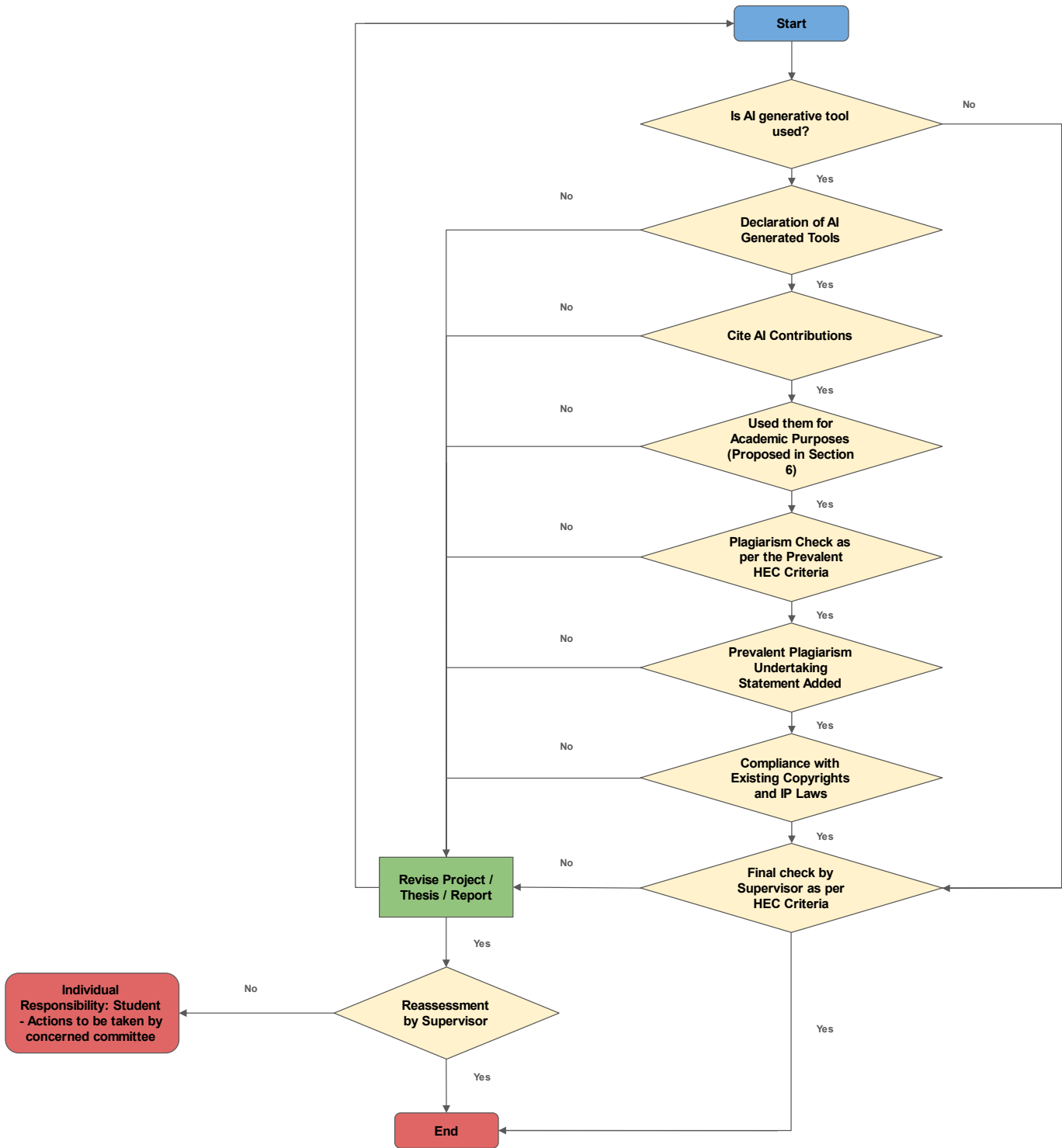
Project/Thesis shall be checked by the supervisor according to the rules mentioned above. However, in case of any criteria under rules which are not met, the supervisor may ask the student to revise project/thesis report and resubmit it to the supervisor. If the revised project/thesis does not meet the criteria set under rules, the student shall be held responsible, and the case shall be referred to the Unfair-Means Control Committee (UMCC)/ Departmental Standing Committee (DSC) or any other relevant committee of the department for awarding penalty depending upon the level of severity. The participation of an AI-relevant member should also be mandatory in the constitution of these committees to ensure that AI-related concerns are properly addressed. If the departmental committee agrees, the case can be raised to university level and would be dealt with according to the rules and regulations of the University/DAI.

¹ Policy Reference: ANTI-PLAGIARISM POLICY by HEC

² <https://ipo.gov.pk>

Flowchart

Rules and Penalties for the Use of Generative AI Tools



Applications of Generative AI Tools in Higher Education

Some applications of Generative AI Tools in higher education are:

A. Teaching & Learning

Generative AI Tools can be used to augment the process and experience of learning for students. These can be used as standalone tools or it can be integrated into other platforms used by Universities and DAIs. Although Generative AI tools are evolving and improving at a rapid pace, some possible roles of the tools are described in the table below³

| Role | Description | Example of implementation |
|----------------------------|---|--|
| Possibility engine | AI generates alternative ways of expressing an idea | Students write queries in ChatGPT and use the Regenerate response function to examine alternative responses. |
| Socratic opponent | AI acts as an opponent to develop and argument | Students enter prompts into ChatGPT following the structure of a conversation or debate. Teachers can ask students to use ChatGPT to prepare for discussions. |
| Collaboration coach | AI helps groups to research and solve problems together | Working in groups, students use ChatGPT to find out information to complete tasks and assignments. |
| Guide on the side | AI acts as a guide to navigate physical and conceptual spaces | Teachers use ChatGPT to generate content for classes/courses (e.g., discussion questions) and advice on how to support students in learning specific concepts. |
| Personal tutor | AI tutors each student and gives immediate feedback on progress | ChatGPT provides personalized feedback to students based on information provided by students or teachers (e.g., test scores). |
| Co-designer | AI assists throughout the design process | Teachers ask ChatGPT for ideas about designing or updating a curriculum (e.g., rubrics for assessment) and/or focus on specific goals (e.g., how to make the curriculum more accessible). |
| Exploratorium | AI provides tools to play with, explore and interpret data | Teachers provide basic information to students who write different queries in ChatGPT to find out more. ChatGPT can be used to support language learning. |
| Study buddy | AI helps the student reflect on learning material | Students explain their current level of understanding to ChatGPT and ask for ways to help them study the material. ChatGPT could also be used to help students prepare for other tasks (e.g., job interviews). |
| Motivator | AI offers games and challenges to extend learning | Teachers or students ask ChatGPT for ideas about how to extend students' learning after providing a summary of the current level of knowledge (e.g., quizzes, exercises). |

³ UNESCO (2023) *ChatGPT and Artificial Intelligence in higher education*

B. Research

Generative AI tools can be employed at different stages of the research process or processes relating to research. Some examples are:

- i. Research Design: Generate ideas for research questions or projects.
- ii. Writing Up: Improve writing quality, language translation, reformat references and citations
- iii. Quality Check (language, content, flow of document, etc.)

Some of the famous Gen AI tools include: ChatGPT, Claude, Microsoft Copilot, Researchrabbit, Gemini, etc.

C. Administration

Employing Generative AI Tools to improve the administrative processes efficiency. Some examples are:

- i. Information translation for regional / international students
- ii. Finding resources and other information

Responsibilities of HEI's and Organizations

Promoting responsible GenAI Tools use in HEIs involves a combination of proactive measures, policy implementation, and educational initiatives.

- i. **Ethical Guidelines:** Instructors/Supervisors should develop clear and comprehensive guidelines specifically addressing the use of GenAI Tools within the academic setting – how and when can these tools be used and when it cannot. These guidelines should outline acceptable use, potential risks, and consequences of misuse and must be referred/mentioned clearly in the course outlines and project proposal documents.
- ii. **Continuous Ethical Review:** Create a standing committee or ethical review board to periodically assess GenAI Tools use and address emerging ethical concerns related to AI technologies. Continuously assess the research manuscripts by field specialists for unethical use of GenAI Tools in the light of relevant policies at the national level
- iii. **Connecting GenAI Tools Use to Learning Outcomes:** At the outset of course, teachers / supervisors should connect the use of AI Generative Tools to Outcome-Based Education (OBE) mapping it with learning outcomes (Program Learning Outcomes – PLOs & Course Learning Outcomes - CLOs). This helps students to understand how these tools can support their learning and what the guidelines/expectations are for them.
- iv. **Transparent Attribution:** Encourage students and researchers to transparently attribute the use of AI-generated content in their work, ensuring proper acknowledgment and citation.
- v. **Faculty and Staff Capacity Building:** Arrange awareness seminars and workshops to faculty, staff, and administrators on the responsible and ethical use of GenAI Tools. Educators should understand the capabilities and limitations of GenAI Tools and be equipped to guide students appropriately. Emphasize the importance of academic honesty and integrity through these orientation programs, research seminars, and ongoing awareness campaigns. The universities can include the module related to Gen AI in the courses like “Introduction to ICT” (for BE/BS) or “Research Methodology” for (MS/PhD) as these subjects are offered in all disciplines.
- vi. **Incorporate AI Ethics into Curriculum:** Integrate discussions on AI ethics, bias, and responsible AI use into relevant courses across various disciplines, including computer science, engineering, management and social sciences.
- vii. **Critical Thinking and Information Literacy:** Promote critical thinking skills among students and researchers to help them critically evaluate AI-generated content and distinguish it from credible, validated sources.
- viii. **Originality and Creativity:** Encourage and celebrate originality and creativity in student work, discouraging the overreliance on AI-generated content for assignments and research.

- ix. **Collaboration with AI Developers:** Establish collaborations with AI developers and researchers to explore the ethical implications of AI and work together on responsible AI initiatives.

Appendix 2

- x. **Support Research on AI Ethics:** Support and conduct research on AI ethics and bias, aiming to develop best practices and guidelines for responsible AI use in academia.
- xi. **Peer Support & Collaborative Efforts:** Faculty and staff share their experiences and best practices for teaching & ways to use Generative AI Tools in learning, research & administration to increase skill level and bring efficiency in the institution. Foster Collaboration with other educational institutions, industry partners, public sector entities, and AI ethics organizations to share knowledge and best practices in promoting responsible and ethical use of AI as well as in line with other applicable policies.
- xii. **Adapting Innovative Assessment Methods and Learning Tools:** The faculty/advisors are encouraged to adapt global best practices for micro-management of the content at course/research level. Instructors should provide guidelines regarding acceptable use of Generative AI Tools referred/mentioned clearly in the course outlines and project proposal documents, ensuring transparency & ethical considerations. Moreover, declaration if asked by the instructor can also be added. Innovative assessment methods will be developed and put into practice to complement the integration of Generative AI Tools into course learning and evaluation.

In addition to the above HEI's may ensure compliance with the following agenda through developing Departmental Standing Committees (DSC) to practice ethical use of GenAI.