

# GUIDELINES ON THE USE OF **GENERATIVE AI** AT UKM



# **Universiti Kebangsaan Malaysia Guideline on Responsible Use of Generative Artificial Intelligence in Teaching, Learning, and Research Supervision**

Pusat Pengajaran dan Pembangunan Kurikulum  
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## **Universiti Kebangsaan Malaysia Guideline on Responsible Use of Generative Artificial Intelligence in Teaching, Learning, and Research Supervision**

**For Educators, Students, Institutes, Faculties & Centres  
(Related to Teaching and Learning, and Research Supervision)**

### **Related Guidelines and Regulations**

These Guidelines must be read together with all other relevant guidelines and regulations issued by authoritative bodies such as AI for Student Engagement by Digital Education Council, UNESCO's Guidance for generative AI in education and research, Australian Government's Gen AI strategies for Australian higher education: Emerging practice, "Garis Panduan Penggunaan Teknologi Kecerdasan Buatan Generatif (KBG) Dalam Pengajaran dan Pembelajaran (PdP) Pendidikan Tinggi", "Guidelines for AI Adoption in the Public Sector", Peraturan-peraturan Universiti Kebangsaan Malaysia (Pengajian Sarjana Muda), Peraturan-peraturan Universiti Kebangsaan Malaysia (Pengajian Siswazah), Peraturan-peraturan Universiti Kebangsaan Malaysia (Pengajian Diploma Pascasiswazah)

# Introduction

# 01

Generative AI (GenAI) refers to artificial intelligence systems capable of creating new content, such as text, images, videos, and code, based on patterns in existing data. Popular tools include ChatGPT, DALL-E, and generative adversarial networks (GANs). These tools have applications ranging from automating administrative tasks to enhancing personalised learning experiences.

GenAI models leverage deep learning techniques, especially neural networks, to understand and mimic the underlying characteristics of their training data. Key architectural models include:

- **Transformer-based models:** These use an “attention mechanism” to process entire sequences of data (like words in a sentence) simultaneously, which helps them understand context and generate coherent, long-form content. This architecture powers Large Language Models (LLMs) like OpenAI’s GPT models.
- **Generative Adversarial Networks (GANs):** GANs involve two competing neural networks: a generator that creates data and a discriminator that evaluates its authenticity. This adversarial process pushes the generator to produce increasingly realistic outputs, often used for high-quality image creation.
- **Diffusion Models:** These models create data by starting with random noise and iteratively refining it into a coherent sample, such as photorealistic images in tools like Stable Diffusion and DALL-E.

Key Characteristics of GenAI models includes (but not limited to):

- **Creativity:** GenAI can assist humans with creative tasks like brainstorming ideas, composing music, or designing prototypes.
- **Adaptability:** The output can be guided and refined through user feedback and prompt engineering.
- **Multimodality:** Modern models can handle and integrate multiple types of data (text, images, audio, etc.) as both inputs and outputs.

# Types Of Generative AI

| Categories of GenAI | Types Of GenAI                           | Description                                                                                                                                                           |
|---------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Text Generative AI  | General-purpose transformers             | A kind of Artificial Neural Networks (ANN) that is capable of focusing on different parts of data to determine how they relate to each other.                         |
|                     | Large language models (LLM)              | A type of general-purpose transformer that is trained on vast amounts of text data.                                                                                   |
|                     | Generative pre-trained transformer (GPT) | A type of LLM that is pre-trained on even larger amounts of data, which allows the model to capture the nuances of language and generate coherent context-aware text. |
| Image Generative AI | Generative adversarial networks (GANs)   | Types of neural networks used for image generation                                                                                                                    |
|                     | Variational autoencoders                 | Neural networks that learn efficient data representations and generate new images by sampling from learned latent distributions.                                      |
|                     | Diffusion models                         | Models that generate images by gradually refining random noise into detailed visuals, widely used in high-quality image synthesis.                                    |

| Categories of GenAI       | Types Of GenAI               | Description                                                                                                         |
|---------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Audio-Voice Generative AI | Text-to-speech (TTS) models  | Systems that convert written text into natural-sounding human speech with controllable tone and pacing.             |
|                           | Voice cloning models         | Models capable of replicating a person's voice based on sample audio, raising ethical and consent considerations.   |
|                           | Music generation models      | AI systems that generate original music, melodies, or sound effects based on style or prompts.                      |
| Video generative AI       | Text-to-video models         | Systems that generate short video clips based on textual descriptions or scripts.                                   |
|                           | Video diffusion models       | Extensions of image diffusion models that generate sequences of frames to form realistic videos.                    |
| Code Generative AI        | Code generation models       | Models trained on programming languages to generate, debug, explain, or optimise code.                              |
| Multimodal Generative AI  | Multimodal Foundation Models | Systems capable of processing and generating multiple data types (text, image, audio, video) within a single model. |

Given the varying capabilities and risks across different categories of generative AI, educators should provide differentiated guidance when integrating AI into teaching and learning activities, ensuring alignment with learning outcomes, assessment integrity, and data protection requirements.

## 1.1 Purpose and Scope

The rapid emergence of GenAI tools, such as large-language models, multimodal image and video generators, and code-assistants, presents significant opportunities and risks for higher education. On the one hand, GenAI has the potential to enrich teaching, learning, research, and administration; on the other hand, it raises issues of academic integrity, data privacy, bias, equity, and the fundamental roles of educators and learners. Formal guidance by UNESCO emphasises a human-centred vision for GenAI in education and research. In Malaysia, national guidelines on GenAI governance (Garis panduan Penggunaan Teknologi Kecerdasan Buatan Generatif) also provide a regulatory backdrop.

This guideline, therefore, aims to provide UKM with a structured, institution-wide framework (applicable across faculties, institutes, and centres) that addresses ethical use, practical integration, academic integrity, and data/privacy concerns. It is designed to assist educators, students, and administrators in adopting GenAI responsibly while preserving UKM's core mission of quality, inclusive learning, and research.

### Scope

This guideline applies to:

- 1 All full-time, part-time, undergraduate and postgraduate academic programmes at UKM.
- 2 All faculties, institutes and centres involved in teaching, learning, research, administration and student services.
- 3 Use of GenAI in teaching and learning, assessment, research, student support, content creation, and curriculum design
- 4 All students (undergraduate, postgraduate)
- 5 All staff (faculty, instructors, Graduate Teaching Assistant (GTAs) and administrative staff involved in academic roles)

## 1.2 Glossary of terms

### ► Narrative

To ensure clarity and common understanding, the following definitions are used in this policy. These help frame the terms “GenAI”, “use”, “disclosure”, etc., consistently across UKM.

### ► Academic integrity

A commitment to honesty, responsibility, and transparency in how academic work is learned, taught, assessed, conducted, and presented, with the individual remaining accountable for the final output. It includes avoiding misconduct (e.g., fabrication, falsification, plagiarism) and acknowledging sources and any material GenAI assistance where relevant.

### ► Academic Ethics

The ethical and professional standards that govern how academic work is taught, learned, assessed, researched, and published, including fairness, respect, responsibility, proper permissions, and protection of confidentiality. In GenAI use, it means using AI tools in ways that do not compromise privacy or data security and do not mislead others about authorship, evidence, or academic contribution.

### ► Artificial intelligence

Artificial intelligence refers to computer systems designed to perform tasks that normally require human intelligence, such as learning from data, recognising patterns, understanding language, and making decisions. Many AI systems achieve this by using machine learning, where systems improve their performance through experience rather than explicit programming.

### ► Machine Learning

Machine learning is a subset of artificial intelligence that enables computer systems to learn patterns from data and make predictions or decisions without being explicitly programmed for each task. One important area of machine learning is natural language processing, which focuses on how machines understand and generate human language.

### ► Natural Language Processing

Natural language processing is a field within machine learning that enables computer systems to understand, interpret, and generate human language in both written and spoken forms. NLP techniques are used in applications such as chatbots, translation tools, and text summarisation systems. Many GenAI tools are built using large language models, such as Generative Pre-trained Transformers.

### ► Large Language Model

A large language model is a type of machine learning model trained on vast amounts of text data to understand patterns in language and generate human-like text. LLMs use natural language processing techniques to predict words and sentences based on context, enabling tasks such as writing, summarising, translation, and question answering. One example of a large language model architecture is the Generative Pre-Trained Transformer.

## ► **Generative pre-trained transformer (GPT)**

A Generative Pre-Trained Transformer is a type of large language model designed to generate human-like text based on patterns learned from large volumes of data. GPT models use natural language processing techniques to predict and generate text in response to prompts, making them capable of supporting tasks such as writing, summarising, translation, and conversational interaction.

## ► **Generative Artificial Intelligence (GenAI)**

Systems that can create novel content—text, audio, images, videos, code—based on learned patterns rather than simply retrieving stored responses. E.g., large language models (LLMs) like ChatGPT, image-generators like DALL·E, and code assistants.

## ► **AI Literacy**

AI Literacy is the ability to understand, critically evaluate, and responsibly use AI technologies while maintaining human judgement, ethical awareness, creativity, and subject expertise in academic contexts.

## ► **Assistive Use**

Use of GenAI as a tool that supports human thinking—e.g., brainstorming, drafting outlines, language support—with human oversight and editing.

## ► **Autonomous/Prohibited Use**

Use of GenAI in a way that replaces human authorship/critical thinking/assessment output, particularly without disclosure or human verification.

## ► **Disclosure**

A statement by a student or educator specifying the GenAI tool(s) used, the date/version, the nature of use (what parts the GenAI assisted with) and confirmation of human review.

## ► **Human-in-the-Loop (HITL)**

The practice of having a human review, verify, adapt or refine the output of a GenAI tool before using or submitting it.

## ► **Educators**

Educators refer to full time and part time lecturers, language teachers, and other individuals who carry out teaching and learning activities.

## ► **Administrative staff**

Administrative staff who are involved in teaching, learning and research activities.

## ► Prompting

The act of providing a text-based input, such as a question, instruction, or description, to a Generative AI system in order to elicit a specific output. In an academic context, prompting encompasses any interaction in which a user directs an AI tool to generate, summarise, translate, paraphrase, or otherwise process content relevant to teaching, learning, research, or administration. The quality and appropriateness of the output are significantly shaped by how the prompt is constructed.

## ► Prompt Engineering

The deliberate and systematic practice of designing, refining, and structuring prompts to optimise the relevance, accuracy, and usefulness of Generative AI outputs. This may involve techniques such as specifying context, assigning roles, providing examples, or breaking complex tasks into sequential instructions. In academic settings, prompt engineering is an emerging competency that supports more effective and responsible use of AI tools across teaching, learning, and research activities.

## ► Hallucinations

Outputs generated by a Generative AI system that appear plausible and coherent but are factually incorrect, fabricated, or unsupported by verifiable evidence. Hallucinations may include invented citations, fictitious data, inaccurate claims, or misleading information presented with apparent confidence. In academic work, undetected hallucinations pose a serious risk to academic integrity and the reliability of scholarly output, making human verification of all AI-generated content essential.

## 1.3 Guiding Principles

These principles serve as the foundation for all practice and policy in the UKM GenAI context. They reflect global policy direction (e.g., UNESCO) and national/regional imperatives.

### ► Human-Centred & Equity-Oriented

GenAI should augment, not replace, human teaching and learning. All students and staff should have equitable access to GenAI tools and guidance, and the institution must guard against digital divides.

### ► Integrity & Trust

Academic and research integrity must be maintained. Transparency about GenAI use (via disclosure) fosters trust. Educators and students remain responsible for content, accuracy and outcomes.

### ► Safety, Privacy & Data Protection

Use of GenAI must comply with data protection laws and institutional policies. Sensitive or personal data must be handled cautiously. Security and privacy risks must be assessed.

### ► Accountability & Human Oversight

Humans, not the machine, are accountable for decisions, assessments, research outputs and ethical issues. Educators retain responsibility for supervision; students for authorship.

### ► Justice, Fairness, and Non-discrimination

Actively work to prevent biases in AI tools that could lead to discriminatory outcomes and ensure equitable access and impact for all user groups.

### ► Transparency & Disclosure

Both staff and students must declare when and how GenAI has been used. Hidden or undocumented use undermines learning objectives and integrity.

### ► Efficacy and Risk Assessment

Systematically weigh the potential impacts of AI technologies to ensure that benefits are balanced against risks, and that tools are validated for their intended purpose.

### ► Continuous Learning & Improvement

Given the fast-evolving nature of GenAI tools and pedagogy, UKM will review this guideline periodically and provide continuous professional development in this area.

## 1.4 Governance and Roles

This guideline is intended to sit within UKM's existing academic governance across the full academic lifecycle: undergraduate and postgraduate teaching, learning and assessment, as well as research, thesis writing and supervision. At the institutional level, UKM's Senate has statutory academic functions, including providing direction on teaching and research. UKM already has Senate-approved academic regulations for undergraduate programmes and postgraduate studies that set core expectations for assessment, academic standards, and academic conduct. Therefore, this GenAI guideline should operate as an implementing guide that clarifies acceptable GenAI practices and documentation expectations without replacing the underlying regulatory framework.

Accordingly, UKM governance in this context can be framed through shared roles:



**University/Senate and central academic units:** set overarching principles (integrity, transparency, fairness, data protection), issue University-level guidance, and ensure alignment across undergraduate and postgraduate education and research governance.



**Faculties/Institutes:** translate principles into discipline-appropriate expectations (permitted uses, disclosure thresholds, assessment design, thesis practices, examiner guidance) while remaining consistent with UKM regulations.



**Lecturers/Academician:** communicate expectations early, guide responsible use, evaluate work using academic judgment, and manage concerns through established procedures and evidence.



**Students/Candidates:** remain accountable for the integrity of their work, follow disclosure/documentation requirements where applicable, and protect confidential/sensitive information when using any GenAI tool.

## 1.5 Roles & Responsibilities



### Institutional Level (UKM)

I. Establish a GenAI Governance Committee (representing teaching, research, IT, data-protection, and student services).

- Oversees training programmes for staff/students.
- Monitors implementation and compliance.

II. Set institutional policy and provide central resources (e.g., training, FAQs, risk templates)

**Faculty / Institute / Centre Level**

- I. Appoint a local GenAI Lead who liaises with the central committee.
- II. Adapt the institutional policy to local discipline/context (with the same core principles).
- III. Ensure module coordinators include GenAI statements in their syllabus and that assessment tasks are reviewed

**Educators / Instructors**

- I. Understand this guideline.
- II. In module design: clearly state allowed/ prohibited GenAI uses; require disclosure forms if used.
- III. Provide students with guidance on GenAI literacy and safe/prudent use.

**Student**

- I. Abide by disclosure requirements and integrity expectations.
- II. Use GenAI tools within permitted boundaries.
- III. Verify outputs, respect intellectual property, and protect data privacy.



### IT / Data Protection / Legal Office

1. Review GenAI tools for data-privacy compliance before approval.
2. Provide safe infrastructure or recommended platforms (especially when dealing with sensitive data)

## 1.6 Ethical Considerations

Ethical use of GenAI involves more than compliance. It requires reflection on purpose, context, equity and the broader impact on teaching and learning culture. Issues such as bias, misinformation, over-reliance on automation, digital divides, and cultural implications must be addressed proactively.

### Plagiarism and Academic Integrity:

Unregulated or undisclosed use of AI poses risks to academic integrity by undermining authentic learning and independent scholarship.

### Bias and Fairness:

The use of AI without critical oversight may perpetuate systemic biases, affecting fairness, equity, and the validity of academic judgement.

## 1.7 Core Principles of AI Governance Aligned with TEKAD 57

### I. Future-Ready Leadership

The use of GenAI must strengthen intellectual capability, innovation, and academic competitiveness, rather than replace them.

AI shall be employed as a cognitive and pedagogical support tool, with full human responsibility retained for the accuracy, validity, and implications of all decisions made.

### II. Global Academic Standing

All AI-assisted outputs must adhere to international academic standards, including scholarly integrity, originality, and compliance with copyright requirements.

Any use of AI in teaching, research, or publication must be transparently disclosed and

aligned with UKM's academic integrity guidelines.

### **III. Sustainable Knowledge Ecosystem**

Users should avoid entering personal information, sensitive data, examination materials, unpublished research, and confidential UKM information into external AI platforms, and should take reasonable steps to minimise disclosure and protect confidentiality. Only the minimum data necessary for learning or operational purposes may be used.

### **IV. Trusted Digital Enablement**

GenAI tools used for teaching, learning and research must demonstrate adequate safeguards for security, privacy, licensing, and data management. The use of tools that fail to meet these considerations may compromise UKM data and should be treated with caution.

### **V. Integrity-by-Design Governance**

Incident response mechanisms should align with existing institutional data protection and academic integrity frameworks. Users are responsible for ensuring that AI-generated outputs do not infringe upon copyrighted works or result in unauthorised derivative content.

### **VI. Accessibility and Equity**

Digital Divide: Not all students and institutions have equal access to AI technologies, potentially exacerbating inequalities.

Training and Support: Faculty and students may require extensive training to use GenAI tools effectively.

# Application of Generative AI in Higher Education

## 02

### 2.1 Teaching and Learning

Integration of Gen AI in teaching and Learning

The integration of Gen AI into teaching and learning can be implemented in various ways. For example, but not limited to:



#### Personalised Learning

- a. Lecturers can adapt their teaching approaches to cater to students' diverse needs.
- b. AI-driven platforms can tailor educational content to individual needs, providing customised recommendations and adaptive learning paths.



#### Content Creation

- a. Educators can use AI tools to create lecture materials, quizzes, assignments and simulations.
- b. Student can use AI tools to create lecture notes, generate quizzes for study purposes and more



#### Personalised Learning

- a. Generative AI can act as a virtual assistant to provide students with 24/7 support for assignments, FAQs, and exam preparation

It is important to note that all teaching and learning practices utilising GenAI must be verified and fact-checked with reliable resources such as published books and journal articles. All pedagogical applications of GenAI must be verified and fact-checked using credible academic sources. AI may be utilised to support alternative, transformative, and values-based teaching and assessment; however, lecturers retain full responsibility as the primary drivers of the educational process. AI serves to enhance reflection, personalise learning pathways, and facilitate meaningful lecturer–student engagement.

## The levels of AI Integration in Teaching & Learning (Course-level Decision)

UKM promotes the responsible integration of AI across all academic programmes and requires each programme to define the appropriate level of AI use at the course level. Programmes that have yet to formalise this are expected to address the matter in their next curriculum review. The use of AI can be at teaching and/or assessment levels.

Each course has different learning outcomes, risks, and contexts. Educators must declare and implement one of three AI-use levels per course, whether it is at the initiation, integration, or infusion level, and align assessment, disclosure, and safeguards accordingly. The chosen level appears in the Syllabus GenAI Statement and uses (Appendix F).

### The Three Levels of AI usage:



#### **Initiation (AI-aware; low-risk, tightly bounded)**

**Purpose:**

Introduce GenAI literacy and safe, ethical habits without altering core pedagogy.

Typical context: Foundational courses; high risk of over-reliance; accreditation constraints.

**Allowed uses (with disclosure):**

Brainstorming ideas, quick language polishing, concept checks, outline scaffolds.

**Not allowed:**

Full-draft generation of submissions; uploading sensitive/assessment content.

**Assessment design:**

Emphasise process and personal reasoning (drafts, reflections, short viva/orals).

**Educator duties:**

Provide brief AI literacy, show examples of acceptable vs. prohibited uses, and require Appendix B disclosure when used.

**Data/privacy:**

Use only external tools with no sensitive data; prefer approved tools.

**Equity:**

Offer non-AI alternatives for every permitted use



### **Integration (AI-supported learning tasks; medium-depth)**

**Purpose:**

Embedded GenAI where it measurably supports outcomes (feedback, iteration, personalisation), with human-in-the-loop verification.

**Typical context:**

Intermediate/upper-level courses where critique and revision are central.

**Allowed (with disclosure):**

Drafting sections for formative feedback, rubric-guided language refinement, code suggestions, and initial visuals—followed by human editing.

**Conditional:**

Limited use on summative tasks if the task still evidences the student's own reasoning (e.g., oral defence, annotated drafts).

**Assessment design:**

Multi-stage tasks (draft → peer/AI critique → revision → oral defence/reflection). Rubrics reward critical evaluation of AI output.

**Educator duties:**

Publish tool boundaries (Appendix D), require citations/source-checks, and sample oral checks.

**Data/privacy:**

Only approved tools for any uploaded class materials; no personal data.

**Equity**

Provide guided prompts and comparable non-AI paths.



### **Infusion (AI-expanded pedagogy; high-authenticity, high-oversight)**

#### **Purpose:**

Redesign learning around authentic, higher-order tasks where AI is a deliberate collaborator, and assessment proves individual mastery.

Typical context: Capstones, studios, research seminars, design labs.

#### **Allowed (with disclosure):**

Broad AI assistance across the workflow (idea generation, drafts, simulation, prototypes) with clear human responsibilities and evidence of individual contribution.

#### **Not allowed:**

Delegating core intellectual contributions or ethics-sensitive tasks to AI without human validation.

#### **Assessment design:**

Authentic briefs with local data/constraints, public-facing artefacts, stakeholder feedback, oral defences, and audit trails of decisions.

#### **Educator duties:**

Set contribution logs, mandate process portfolios, schedule Viva/presentations, and enforce IP/licensing checks for AI-generated media/code.

#### **Data/privacy:**

Prefer institutionally hosted/enterprise tools; documented risk assessment (Appendix E) if unique tools are needed.

#### **Equity:**

Structured coaching, access to labs/accounts, explicit opt-out path.

### Rubric for Choosing & Implementing a Level (course-level)

| Dimension                   | Initiation                                   | Integration                                            | Infusion                                                      |
|-----------------------------|----------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------|
| Learning outcomes alignment | AI supports study skills (planning, clarity) | AI improves iteration, feedback, and personalisation   | AI enables authentic, real-world tasks and advanced synthesis |
| Assessment evidence         | Product is human-authored; short oral checks | Drafts + AI critique + revision + oral defense         | Process portfolio + stakeholder critique + viva; audit trail  |
| Student agency              | Low-stakes, bounded                          | Moderate; students compare/critique AI                 | High; students orchestrate tools, justify decisions           |
| Risk & data sensitivity     | Very low; no sensitive data                  | Moderate; only approved tools and non-sensitive inputs | Managed high; enterprise tools or approved environments       |
| Equity & access             | Non-AI alternative easy                      | Alternatives available, guided prompts                 | Provisioned access/training; clear alternative pathways       |
| Tooling                     | Minimal, pre-approved                        | Curated list per module                                | Registry + risk review (Appendix D/E)                         |
| Disclosure                  | Always, brief (Appendix B)                   | Always, with verification notes                        | Always, with process logs & contribution records              |

**Table 4. Strategies to Restructure Assessments to be AI-Resilient**

| Strategy                                  | Description                                                                                                                                                                                                                                       | Example                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Keep Core Human Tasks in Class            | Split assessments into parts-assign AI-permissible tasks for outside class, but keep critical thinking, discussion and interpretation in structured, supervised environments                                                                      | Students brainstorm and draft with AI at home, but present arguments and respond to questions live in class                                                                                                                                                                                                                                         |
| Shift Focus from Output to Process        | Assess the reasoning, planning and decision-making that leads to the final outcome, not just the outcome itself. Encouragement metacognitive engagement                                                                                           | Students log and reflect on AI interactions that shaped their work, or include justification for their solutions in the final submission                                                                                                                                                                                                            |
| Embed Checkpoints & Traceable Development | Introduce structured milestones, such as intermediate submissions, live discussion, feedback loops or planning artefacts, to demonstrate students incremental thinking.                                                                           | Host peer discussion and feedback sessions in class and require students to revise their work based on the feedback                                                                                                                                                                                                                                 |
| Validate at Unit Level, Not Task Level    | Acknowledge that not all assessments can be fully AI-resilient instead, validate students learning across a chain of interconnected assessments within a unit or course. Each builds on previous work in a way that is contextual to the student. | Students develop a final product over four lessons - starting with concept generation and ending with a final interactive presentation presentation.<br><br>Each stage requires students to perform a different task building on their earlier work. Validity comes from the coherence and progression across the four lessons, not any single task |

**Table 3. AI-Assessment Classification**

| Level                    | Intended Usage                                                                                         | Description                                                                                                                                                                                                     |
|--------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AI-Free Assessment       | This type of assessment is intentionally designed to be completed without AI assistance.               | The assessment's objectives, competencies, and design will inherently exclude or minimise AI, focusing on students' unaided thinking and foundational skill development.                                        |
| AI-Assisted Assessment   | Students may use AI for limited, specific tasks under clear boundaries (e.g. brainstorming, outlining) | The assessment's objectives, competencies, and structure allow AI as a supportive tool, encouraging basic AI use for assistance or feedback while ensuring student-led learning remains central                 |
| AI-Integrated Assessment | Purposefully embed AI tools as part of the learning and assessment experience                          | The assessment's objectives, competencies, and prompts require students to meaningfully engage with AI as a core part of the task, including applying, critiquing, and reflecting on AI within their discipline |

*Adopted from Digital Education Council, "The Next Era of Assessment: A Global Review of AI in Assessment Design"*

### **Reflection & Meta-Learning:**

- I. Students reflect on where GenAI helped them and where it misled or required heavy editing.
- II. Build assignments asking students to evaluate GenAI output (e.g., "Here's an AI-draft; what's strong/weak/biased?")
- III. Encourage educators to redesign tasks with GenAI-resistance: e.g., incorporate local data, unpredictable contexts, oral defences, and iterative peer/staff review.

#### IV. Assessment Design Review:

- a. Include staged tasks (drafts, reflection, human-led discussion, viva/oral component).
- b. Include authentic, context-rich tasks that require application, creativity, and reasoning beyond mere generative output.
- c. Use randomised or personalised tasks where possible to reduce the reuse of generative content.

#### IV. Monitoring & Review:

- a. Educators should sample a subset of submissions for oral/verbal checks to verify authorship and depth of understanding.
- b. Assessment tasks should be periodically reviewed for 'GenAI proofing' – i.e., ensuring they still challenge students meaningfully.

#### III. Student Support & Guidance:

- a. Provide orientation and training for students on GenAI literacy (what it can/cannot do, risks of hallucination, reliability, citation issues).

#### II. Consequences for misuse of Gen AI in learning:

- a. Clearly state the consequences of undisclosed or prohibited use of GenAI in the student handbook/academic integrity policy.
- b. Ensure consistent processes for investigation, remediation and learning rather than purely punitive responses.

### Policy requirements in teaching and learning:

- ▶ Include a short “GenAI Use Statement” in the module syllabus (see Appendix A).  
At first class/induction, allocate time to explain GenAI: what it is, what it can/cannot do, how students should use it, and what is permitted.
- ▶ Disclosure Requirement: All coursework (where GenAI may be used) must include a disclosure section/form (see Appendix B).
- ▶ Provide recommended prompts/processes for students (e.g., use GenAI for first draft, then subject to human review).
- ▶ Each module must select a level and list it in the Syllabus GenAI Statement (Appendix A).
- ▶ Module coordinators complete Appendix F and file it with their programme/GenAI Lead.
- ▶ Levels are reviewed annually (or on major assessment changes).
- ▶ Any move to Infusion requires a quick Appendix E risk check if new tools/data flows are introduced.
- ▶ Upgrade pathway (optional)
  - a. Suggestion:  
Semester 1: Initiation → Semester 2: Integration (pilot one assessment) → Year 2: Infusion (capstone/clinic/studio).
  - b. Use student feedback + incident logs to decide readiness to “level up.”
- ▶ All GenAI use must include Human-in-the-loop (HITL) verification before any submission, publication or internal sharing.
- ▶ Educators must review tasks and design them with GenAI-resilience (i.e., ensuring they still evaluate critical thinking, judgement, and application, not mere generation).
- ▶ Students must not present GenAI-generated work as fully their own unless the module explicitly allows it and the disclosure form is completed.

- ▶ Students and staff must respect intellectual property: GenAI outputs may require attribution or licensing scrutiny before reuse/sharing.
- ▶ Equity and access must be considered: the institution must provide guidance/training so that students without prior GenAI experience are not disadvantaged.

## Using Generative AI to Support Student Learning

Students may use GenAI tools to support their learning, provided that such use aligns with course requirements and academic integrity principles. This guideline sets out general expectations for the appropriate use of GenAI in learning activities and should be read together with any requirements, conditions, or limitations specified at the course or programme level.

To use GenAI meaningfully in learning, students are expected to develop AI literacy. AI literacy refers to the knowledge, skills, and judgement needed to engage with AI tools thoughtfully, critically, and ethically in academic contexts. According to the Digital Education Council's AI Literacy Framework, AI literacy comprises five key dimensions that are particularly relevant to student learning in higher education.

### I. Understanding AI and Data

Students should have a foundational understanding of how AI systems work, including the role of data in training AI models. This includes recognising that AI outputs are probabilistic, may reflect biases in data, and do not represent verified or authoritative knowledge.

### II. Critical Thinking and Judgement

Students are expected to apply critical thinking when using AI tools by questioning, evaluating, and validating AI-generated outputs. This involves assessing accuracy, relevance, assumptions, and limitations rather than accepting responses at face value.

### III. Ethical and Responsible AI Use

Students must understand ethical considerations related to AI use, including academic integrity, authorship, transparency, fairness, and data privacy. Ethical use requires awareness of when AI assistance is appropriate and compliance with university policies and course requirements.

### IV. Human-Centricity, Emotional Intelligence, and Creativity

AI should support, not replace, uniquely human capabilities such as empathy, creativity, reflection, and contextual understanding. Students are encouraged to maintain human judgement and originality, using AI as a tool to enhance learning rather than substitute personal engagement.

### V. Domain Expertise

Effective use of AI depends on subject-specific knowledge. Students must apply disciplinary understanding to interpret, adapt, and contextualise AI-generated content, ensuring that outputs align with academic standards and expectations within their field of study.

## How Students May Use Generative AI to Support Learning

Students may use GenAI tools to support learning activities in ways that enhance understanding, critical thinking, and subject knowledge, while maintaining human judgement and academic integrity.

- I. Brainstorm ideas and learning frameworks  
Generate initial ideas, outlines, or conceptual frameworks to explore topics and organise learning, with students deciding which ideas are relevant and appropriate.
- II. Clarify concepts and terminology  
Obtain explanations or definitions of concepts you are struggling to understand, while verifying accuracy using course materials and authoritative sources.
- III. Overcome writer's block and develop thinking  
Use AI as a conversational partner to explore perspectives, ask follow-up questions, and structure thoughts, without outsourcing reasoning or conclusions.
- IV. Organise and enhance study notes  
Reorganise, summarise, or refine rough notes to support revision and comprehension, ensuring the content reflects your own understanding.
- V. Paraphrase and summarise sources as a study aid  
Support comprehension of readings or complex materials, not as a replacement for original analysis, proper citation, or engagement with sources.
- VI. Improve language clarity and expression  
Check grammar, spelling, tone, and sentence flow while retaining ownership of ideas, arguments, and academic voice.
- VII. Receive formative feedback on drafts and ideas  
Use AI to identify gaps, suggest improvements, or highlight areas needing clarification, with final decisions made by the student.
- VIII. Re-format and structure information  
Convert text into tables, bullet points, diagrams, or structured formats to aid understanding and synthesis
- IX. Support programming and technical learning  
Use AI to suggest code completions, explain errors, or assist with debugging as part of the learning process, not as a substitute for independent problem solving.
- X. Translate academic materials for learning purposes  
Translate texts to support understanding of content or multilingual engagement, ensuring compliance with course and assessment requirements.
- XI. Summarise transcripts and multimedia content  
Condense lectures, meetings, videos, podcasts, or automated transcripts, including cleaning punctuation and improving readability.

- XII. Support presentation and communication tasks  
Assist in structuring slides, refining key messages, or improving clarity of visual or oral presentations. permission, attribution, or compliance with licensing terms.
- XIII. Use AI to generate harmful, misleading, or unethical content  
Producing content that is discriminatory, offensive, deceptive, or inconsistent with UKM values and codes of conduct.
- XIV. Use AI to impersonate others or fabricate academic activities  
Creating false messages, emails, reflections, participation records, or academic interactions using generative AI.

| DO  | DO NOT  |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Use GenAI to brainstorm ideas and plan your work                                     | Present AI-generated content as your own original work                                     |
| Use AI to clarify concepts and definitions you do not understand                     | Use AI to replace learning, thinking, or engagement                                        |
| Organise, summarise, or improve study notes and drafts                               | Rely on AI to complete tasks without understanding the content                             |
| Check grammar, spelling, and clarity in your writing                                 | Submit AI-generated text, images, code, or media without acknowledgment                    |
| Use AI as a study aid for understanding readings                                     | Use AI translation tools for assessments unless explicitly allowed                         |
| Receive feedback on your ideas and improve your work                                 | Cite AI suggested sources without reading and verifying them                               |
| Re-format content (e.g. tables, bullet points, slides)                               | Input personal, confidential, or sensitive data into AI tools                              |
| Use AI to support learning in programming and technical subjects                     | Use AI to generate answers in tests, exams, or restricted assessments                      |
| Check course or lecturer guidance before using AI                                    | Use AI in ways that violate academic integrity or university policies                      |

## Human in the Loop: Student Responsibility When Using Generative AI

When using GenAI tools in learning activities, students are required to maintain a human in the loop approach. This means that responsibility for learning, decision making, and academic work remains with the student at all times. Students must:

- I. Retain full responsibility for academic work  
Remain accountable for all ideas, decisions, and submissions, even when GenAI is used to support learning.
- II. Treat AI outputs as suggestions, not final answers  
Review, evaluate, and refine AI-generated content rather than accepting it at face value.
- III. Apply critical judgement to AI-generated content  
Check for accuracy, relevance, bias, and alignment with course requirements and academic standards.
- IV. Demonstrate independent thinking and understanding  
Ensure that arguments, calculations, reasoning, and conclusions reflect personal learning and subject knowledge.
- V. Maintain authorship and academic voice  
Express content in your own words and academic style, using AI only as a support tool.
- VI. Verify and validate all outputs  
Confirm facts, sources, references, calculations, and code produced with AI assistance.
- VII. Disclose AI use where required  
Declare the use of GenAI in accordance with course or assessment requirements.

## Using Generative AI in Assessment

Assessment is a key mechanism for evaluating student learning, progress, and achievement of course learning outcomes. The use of GenAI in assessment contexts must therefore be carefully managed to ensure academic integrity, fairness, and the validity of assessment results. While GenAI may support learning, its use in assessment is subject to stricter conditions and must align with course requirements. Students are responsible for understanding when and how GenAI may be used in assessment tasks and for complying with all relevant academic regulations.

## Use of Generative AI in Formative Assessment

Formative assessments are designed to support learning, skill development, and self reflection. They are typically used for practice, feedback, and improvement rather than for determining final grades. In formative assessment contexts, the use of GenAI may be permitted to support learning, subject to course requirements.

Students may use GenAI in formative assessments (subjected to approval by educators) to:

Generate ideas, outlines, or alternative approaches for practice tasks

Clarify understanding of concepts, methods, or feedback received

Receive feedback on drafts to identify areas for improvement

Organise, summarise, or re format practice work for learning purposes

Students must:

Ensure that formative work reflects their own understanding and engagement

Apply critical judgement to all AI generated outputs

Follow any disclosure or documentation requirements specified by the course

## Use of Generative AI in Summative Assessment

Summative assessments are used to evaluate student achievement and contribute to final grades. Because summative assessments are intended to measure individual learning and performance, the use of GenAI is typically more restricted.

Unless explicitly permitted by the course or assessment instructions, students must not use GenAI in summative assessments. Where use is allowed, it must be clearly acknowledged and limited to the purposes specified.

| Suggested Responsible Use                  | Description                                                                                                                                                                                                                                                                                 | Implications                                                                                                                                        |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructor Discretion and Syllabus Clarity | Instructors have the final authority on how GenAI may be used in their courses. They are required to clearly state their expectations regarding AI use in the course syllabus and in the guidelines for each specific assignment.                                                           | This ensures students have unambiguous guidance on what is permissible.                                                                             |
| Defining Misuse                            | Unacceptable uses of AI that constitute academic dishonesty must be clearly defined. This includes, but is not limited to, using GenAI tools in ways that replace core researcher and author responsibilities, such as generating text without rigorous revision or falsifying information. | This is analogous to existing policies against the “Falsification of Records,” where AI-generated content is submitted as one’s own authentic work. |
| Protocol for Suspected Misuse              | When AI misuse is suspected, our primary approach will be educational. An instructor should first require the student to verbally walk through the assignment, demonstrating their process and understanding of the content.                                                                | This method prioritises learning and comprehension over purely punitive action                                                                      |

| Suggested Responsible Use | Description                                                                                                                                                                                                  | Implications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tiered Consequences       | For confirmed cases of misuse, a tiered list of consequences will be applied, ensuring a response that is proportionate to the infraction and consistent with university-wide academic integrity procedures. | <p>1. First Instance: A formal warning and a requirement to complete an academic integrity module. The student may be given an opportunity to resubmit the assignment with a grade penalty.</p> <p>2. Second/Serious Instance: A failing grade (zero) for the assignment or the entire course, with a formal report filed with the university's academic integrity office.</p> <p>3. Repeated/Egregious Offenses: Suspension or expulsion from the university, in line with established disciplinary procedures.</p> |

## Structural Assessment Redesign to Ensure Validity and Authenticity

To build resilience and validity into our academic programmes, all academics are recommended to prioritise the structural redesign of assessment. GenAI challenges traditional assessment methods, making it imperative to move beyond simple plagiarism detection. This approach moves beyond what recent scholarship terms 'discursive changes', which rely solely on instructions, in order to embrace 'structural changes' that reshape the assessment task itself.

We must fundamentally redesign assessment to ensure it is valid, authentic, and robust. This initiative shall be guided by the following directives, synthesised from leading research and regulatory guidance:

- » **Emphasise Programmatic Assessment:** Academic programmes must move away from an over-reliance on single, high-stakes final assessments. Instead, they must develop a programmatic approach where a trustworthy judgment of student learning is formed by triangulating evidence from multiple, diverse, and contextualised assessments collected over time in a portfolio of work.
- » **Authentic, Open-Ended Assessments:** Shifting focus towards tasks that demand higher-order thinking and are difficult for AI to replicate without deep, contextual human understanding. Examples include complex case studies, applied real-world projects, multimedia creation, and live presentations.

- » Promote Authentic Engagement with AI: Assessment tasks must be redesigned to foster the responsible and ethical use of AI in ways that are authentic to the discipline. This treats AI as a tool for work and study—not an external threat—and encourages students to critically analyse its role, value, and limitations in a professional context.
- » Integrate Process-Focused Evaluation: Assessment must increasingly incorporate elements that make the process of learning and creation visible, rather than focusing exclusively on the final product. This includes evaluating project milestones, in-class exercises, drafts, research journals, and oral defenses of work, which are inherently more resistant to being fully outsourced to AI.
- » Invigilated High-Stakes Assessments: Utilising supervised, in-person environments for examinations or other assessments that account for a significant portion of the final grade.
- » Strengthen Human-in-the-loop (HITL) Verification: To validate learning demonstrated in asynchronous or AI-assisted tasks, programmes must integrate synchronous, supervised, or interactive assessment components. This includes the strategic use of viva voces, in-person presentations, interactive oral examinations, and supervised in-class tasks to confirm student mastery and authorship.

### AI-Enabled Assessment Levels Framework

This framework provides a graduated classification of permitted GenAI use in assessment, enabling educators to design assessments that are transparent, defensible, and aligned with learning outcomes, academic integrity, and institutional AI governance.

Each assessment must explicitly declare the permitted AI level and associated expectations

#### Level 1: No AI

##### *Definition*

Assessment is completed entirely without GenAI assistance in a controlled or monitored environment.

##### *Permitted Use*

No use of GenAI at any stage of the assessment.

##### *Assessment Focus*

- Independent demonstration of foundational knowledge, understanding, and skills
- Core cognitive, analytical, or practical competencies

*Typical Assessment Types*

- Closed-book examinations
- OSCE / OSPE / practical assessments/ Clinical Assessments
- In-class tests and viva voce

*Disclosure Requirement*

No AI declaration required (AI use prohibited).

**Level 2: AI for Planning***Definition*

Generative AI may be used only at the preparatory stage, prior to task execution.

*Permitted Use*

- Brainstorming
- Outlining
- Preliminary literature exploration
- Idea generation and planning

*Restrictions*

AI-generated content must not appear in the final submission.

*Assessment Focus*

- Student's ability to independently develop, refine, and execute ideas
- Ownership of argument, structure, and conclusions

*Disclosure Requirement*

Students must declare:

- the AI tool(s) used
- the nature of planning support received

**Level 3: AI Collaboration***Definition*

GenAI may be used as a supportive collaborator during task completion.

*Permitted Use*

- Drafting support
- Language refinement
- Feedback and revision suggestions
- Idea expansion

*Student Responsibility*

- Critically evaluate, modify, and contextualise AI outputs
- Demonstrate subject-matter understanding and judgement

*Assessment Focus*

- Critical thinking
- Analytical refinement
- Human oversight and intellectual ownership

*Disclosure Requirement*

Mandatory AI use statement detailing:

- tools used
- purpose of use
- extent of modification by the student

**Level 4: Full AI Use***Definition*

Generative AI may be used extensively throughout the assessment, with students directing AI to achieve learning outcomes.

*Permitted Use*

- End-to-end AI assistance
- Iterative prompting
- Problem-solving with AI
- Content generation under student direction

*Assessment Focus*

- Prompt design and AI steering skills
- Critical evaluation of AI outputs
- Integration of domain knowledge and judgement

*Disclosure Requirement*

Comprehensive declaration required, including:

- AI tools used
- rationale for AI use
- evidence of critical engagement

**Level 5: AI Exploration***Definition*

Generative AI is used creatively and innovatively to explore novel approaches, solutions, or assessment designs.

*Permitted Use*

- Experimental AI applications
- Co-design of tasks with educators
- Innovation-driven outputs

*Assessment Focus*

- Creativity and innovation
- Ethical and responsible AI application
- Reflection on AI affordances and limitations

### *Disclosure Requirement*

Mandatory reflective statement addressing:

- learning gains
- ethical considerations
- originality and contribution
- Institutional Requirements

### **Policy on Assessment**

1. Every assessment must declare one AI level (Levels 1–5).
2. Undeclared AI use constitutes a breach of academic integrity.
3. AI use must always align with: course learning outcomes, programme standards, institutional AI governance principles.
4. Students remain fully accountable for accuracy, ethics, and academic quality.

These transformed assessment practices must be underpinned by rigorous institutional policies governing the technology itself, ensuring that its use is not only pedagogically sound but also safe, secure, and legally compliant.

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This framework is adapted from the AI Assessment Scale proposed by Perkins, Furze, Roe, and MacVaugh (2024), with contextual modifications for Universiti Kebangsaan Malaysia Guideline on Responsible Use of Generative Artificial Intelligence in Teaching, Learning, and Research

Perkins, M., Furze, L., Roe, J., & MacVaugh, J. (2024). The AI assessment scale revisited: A framework for educational assessment (Preprint). December 2024.

## 2.2. Research Supervision

### The Evolving Landscape of AI in Academic Research

Understanding the current technological landscape is of critical strategic importance for academic institutions. The growth of AI in research is not a gradual trend but an exponential surge that is actively reshaping research methodologies and creating new ethical dilemmas.

An analysis of academic publishing trends quantifies this rapid proliferation.

This expansion is powered by increasingly sophisticated and accessible Large Language Models (LLMs) and Generative Pre-trained Transformers (GPTs). At a high level, these models are trained on vast amounts of data scraped from the internet. They generate new content by statistically analysing patterns within that data. The rapid, often unregulated, proliferation of these powerful tools creates specific and urgent integrity challenges for academic institutions.

While AI offers powerful benefits for research, its unregulated use introduces significant risks to the foundational principles of academic integrity. This section deconstructs the three most critical challenges facing universities today: defining authorship and preventing misuse, ensuring data privacy and protecting intellectual property, and maintaining the validity of student assessment.

### Fostering AI Literacy Across All Disciplines

AI literacy is a foundational skill for the 21st century, as essential as digital or media literacy. It is the bedrock upon which all responsible and effective use of AI is built.

- **Targeted AI Literacy Modules:** The university will develop and implement targeted AI literacy modules for all students and staff. These modules will cover essential competencies, including:
  - » Understanding the different types of GenAI and how they work.
  - » Defining permissible and ethical use according to university policy.
  - » Developing skills for fact-checking and verifying AI-generated outputs.
  - » Identifying and critically evaluating biases in AI-generated content.
- **A Foundational Skill:** By equipping our entire community with these skills, we empower them to move beyond being passive consumers of AI to become critical, discerning users who can harness these tools effectively and responsibly in their academic and professional lives.

## The ETHICAL Framework for Responsible Generative AI Use in Research

The rapid adoption of GenAI in research presents both opportunities and ethical challenges that should be carefully navigated. Although GenAI tools can enhance research efficiency through automation of tasks such as literature review and data analysis, their use raises concerns about aspects such as data accuracy, privacy, bias, and research integrity. This ETHICAL framework is a practical guide for responsible GenAI use in research, which consists of seven key principles: Examine policies and guidelines, Think about social impacts, Harness understanding of the technology, Indicate use, Critically engage with outputs, Access secure versions, and Look at user agreements.

The framework addresses a critical gap between awareness of ethical issues and practical action steps, providing researchers with concrete guidance for ethical GenAI integration. It also serves as a foundation for developing AI literacy in academic settings and promoting responsible innovation in research methodologies.

| E                                                                                                                                                                                                                                                     | T                                                                                                                                                                                                                                                                                    | H                                                                                                                                                                                                                                                                     | I                                                                                                                                                                                                                             | C                                                                                                                                                                                                                                                                                                                                     | A                                                                                                                                                                                                                              | L                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Examine policies and guidelines                                                                                                                                                                                                                       | Think about the social impact                                                                                                                                                                                                                                                        | Harness understanding of the technology                                                                                                                                                                                                                               | Indicate use                                                                                                                                                                                                                  | Critically engage with outputs                                                                                                                                                                                                                                                                                                        | Access secure versions                                                                                                                                                                                                         | Look at user agreements                                                                                                                                                                          |
| Generative AI (GenAI) policies set ethical and legal standards for AI in research, addressing bias, privacy, and intellectual property. Adhering to them ensures integrity, accountability, and compliance with institutional and legal requirements. | GenAI influences misinformation, inequality, environmental sustainability and accessibility. Researchers must assess its societal effects, ensuring AI minimizes harm and promotes fairness. Ethical engagement prevents bias, fosters inclusivity, and ensures AI benefits society. | Knowing GenAI's capabilities, biases, and limits is key to ethical research. The more researchers know about GenAI and how it works, the more critically they can assess AI to prevent misinformation and enhance credibility. This strengthens research reliability. | Researchers must disclose AI involvement for transparency and accountability. Proper attribution enables critical evaluation and distinguishes human contributions from AI-generated content, maintaining research integrity. | AI-generated content may contain errors and bias. Researchers must verify outputs against credible sources to ensure accuracy and reliability, preventing misinformation and misleading conclusions. By critically engaging with and revising outputs, researchers can ensure that contributions to knowledge are reliable and valid. | Using institutionally approved AI tools safeguards research data from breaches and misuse. Ethical AI use prioritizes privacy and security, ensuring sensitive information remains protected and research integrity is upheld. | User agreements define AI tool limitations, data use, and intellectual property rights. Researchers must review these terms for compliance, preventing misuse and protecting research integrity. |

Figure X.1: Acknowledgment of AI use: To produce this resource, ChatGPT was used to summarise the source below. The AI outputs were adapted and refined where necessary to ensure alignment with the authors' views, styles and voices. The authors take full responsibility for the final content of this resource. Source: Eacersall, D., Pretorius, L., Smirnov, I., Spray, E., Illingworth, S., Chugh, R., Strydom, S., Stratton-Maher, D., Simmons, J., Jennings, I., Roux, R., Kamrowski, R., Downie, A., Thong, C. L., & Howell, K. A. (2024). Navigating ethical challenges in generative AI-enhanced research: The ETHICAL framework for responsible generative AI use. ArXiv Preprint, pp. 1-29. <https://arxiv.org/abs/2501.09021>.

## Core Challenges to Authorship, Academic and Research Integrity

GenAI fundamentally challenges traditional notions of authorship, forcing institutions to distinguish between permissible AI assistance and impermissible use that replaces the core responsibilities of a researcher or student. Publishers are already establishing clear boundaries. Taylor & Francis, for example, explicitly prohibits submitting manuscripts where GenAI tools are used for text generation without rigorous human revision or to create content like abstracts, which are considered a core authorial responsibility.

The institutional risks associated with misuse are significant. For universities, this precedent underscores the need for clear policies that define acceptable and unacceptable use for both students and researchers.

| Permissible AI Assistance                                                              | Impermissible Use & Academic Misconduct                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Brainstorming ideas and exploring new perspectives.                                    | Generating text or code without rigorous human revision and validation.                                          |
| Improving communication skills, especially for non-native speakers.                    | Submitting AI-generated content and claiming it as one's own work.                                               |
| Handling low-stakes tasks like proofreading and grammar checks.                        | Using AI to generate content like abstracts or supplemental materials to replace author responsibilities.        |
| Summarising existing, publicly available information as a starting point for research. | Falsifying information or generating synthetic data to substitute for missing data without a robust methodology. |

## Incorporating Gen-AI in Research Lifecycle

The integration of artificial intelligence is of strategic importance across the full research lifecycle, from initial ideation to final dissemination. GenAI offers a suite of powerful tools that can augment and accelerate our research capabilities, opening new avenues for discovery.

However, its use also introduces critical new responsibilities regarding academic integrity, data confidentiality, and authorial accountability. Our goal is to empower our researchers to harness these tools ethically and effectively, ensuring that AI enhances, rather than compromises, the rigour and integrity of their work.

GenAI can be applied at multiple stages of the research process to increase efficiency and broaden intellectual exploration. The table below outlines potential applications.

| Research Stage    | Practical Application                                                                                                                | Critical Guardrails                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conceptualisation | Brainstorming novel research questions, exploring different research outlines, and identifying potential gaps in the literature.     | <ul style="list-style-type: none"> <li>• <b>Verify Everything:</b> AI can generate a plausible but non-existent research publication. Use as inspiration, not as established fact (Source: UNESCO)</li> <li>• <b>Own Your Questions:</b> The final research question must be a product of your critical insight. AI can suggest paths, but you must choose the destination.</li> </ul>                                                                                                                                                                                                                                    |
| Literature Review | Summarising existing information, synthesising content from large volumes of text, and identifying key themes or debates in a field. | <ul style="list-style-type: none"> <li>• <b>No substitute for reading:</b> AI summaries act as a starting point for navigating the literature, not a replacement for reading the primary source to grasp nuance and context.</li> <li>• <b>Beware of fabricated citations:</b> AI can invent highly plausible but non-existent citations. Cross-reference every source with a reliable academic database (Source: UNESCO).</li> <li>• <b>Acknowledge your tools:</b> Check your university and target publisher policies on using AI for literature tasks. Transparency is key (Source: Taylor &amp; Francis).</li> </ul> |

|                                  |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coding & Data Analysis           | Generating small code snippets for analysis, translating pseudocode into executable scripts, and explaining errors in scripts.                 | <ul style="list-style-type: none"> <li>• <b>Data privacy is paramount:</b> never upload any sensitive, confidential, or personally identifiable data (PII, PHI) to a public AI model. Public models can use your input for training, creating a significant risk of a data breach.</li> <li>• <b>Code requires auditing:</b> AI-generated code can contain subtle bugs or inefficiencies. You must understand, test, and debug every line as you are responsible for its correctness.</li> <li>• <b>Methodological integrity:</b> The final choice of method must be yours, justified by literature and best practices, not by the suggestion of a black-box algorithm.</li> </ul>                       |
| Result Analytics & Visualisation | Assist in interpretation of statistical output, identify potential patterns in large dataset, and generate code for complex data visualisation | <ul style="list-style-type: none"> <li>• <b>Risk of Bias Amplification:</b> AI models can find patterns that merely reflect historical biases in the training data. Critically question if patterns are real-world phenomena or algorithmic artifacts.</li> <li>• <b>You are the analyst:</b> AI cannot understand real-world context or implications of your results. The “so what” which is the interpretation and contribution of knowledge is your intellectual responsibility.</li> <li>• <b>Ensure reproducibility:</b> Meticulously document every prompt, tool version, and AI-assisted steps to ensure your analysis is fully reproducible, is a core tenet of scientific integrity.</li> </ul> |

|                       |                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Writing & Composition | Improving the clarity and communication of manuscripts for non-native speakers, drafting summaries or abstracts, and structuring sections of a manuscript or thesis. | <ul style="list-style-type: none"> <li>• <b>AI and authorship:</b> GenAI tools must not be listed as author, because such tools are unable to assume responsibilities for the submitted content. Authorship requires accountability, which an AI cannot possess.</li> <li>• <b>Must be your voice:</b> Over-reliance on AI can lead to generic, soulless prose. Use it to polish and refine, not to create the core intellectual argument. The narrative must be yours alone.</li> <li>• <b>Plagiarism risk:</b> AI can inadvertently reproduce text from its training data without attribution. Always run your work through your institution's approved plagiarism checkers (Source: UNESCO).</li> </ul> |
| Revision & Refinement | Employ AI as a tireless proofreader, a style guide, and an 'evil advocate' to stress-test your arguments and refine your writing.                                    | <ul style="list-style-type: none"> <li>• <b>Peer-review is irreplaceable:</b> AI feedback is based on patterns, not deep expertise. It cannot replicate the nuanced, context-aware feedback of a human advisor or peer reviewer. Do not use AI to circumvent this crucial process (Source: MQA Guidelines)</li> <li>• <b>Contextual blindness:</b> AI does not know the specific conventions, inside debates, or 'third rail' topics of your academic sub-fields.</li> <li>• <b>Final accountability:</b> You are submitting the work under your name. Every comma, citations, and claim is your ultimate responsibility.</li> </ul>                                                                       |

|               |                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dissemination | <p>Preparing lay summaries of complex research for public communication, drafting cover letters to journals, and creating outlines for conference presentations.</p> | <ul style="list-style-type: none"><li>• <b>Disclosure is mandatory:</b> “Authors must clearly acknowledge within the article or book any use of GenAI tools ...this statement must be included in the Method and Acknowledgements section.” (Source: Elsevier). Transparency build trust and is a professional requirement.</li><li>• <b>Respect copyright:</b> Ensure your use of AI to analyse copyrighted materials (i.e., uploading a full-text PDFs to a tool) complies with fair use policies and the tool’s term of service (Source: UNESCO).</li><li>• <b>Promote open science:</b> Consider sharing key prompts or AI-assisted workflows in your supplementary materials to promote transparent and reproducible research.</li></ul> |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 2.3 Guidance on key areas (Post Graduate Supervision)

### Responsibility for AI-generated content

The student remains accountable for all content included in a thesis/dissertation and in any other scholarly work submitted to UKM or for publication. Using GenAI does not transfer responsibility to the tool provider.

Baseline Standards:

- Before using any GenAI tool, students should review the tool's terms and conditions and be aware that providers commonly place responsibility for outputs on the user.
- Students must check GenAI outputs for factual accuracy, appropriate attribution, and potential infringement (e.g., copyrighted material, confidential information, or protected data).
- Supervisors should remind students that AI outputs may create integrity risks, including false or misleading statements, fabricated citations, or plagiarism-like reproduction of text.

### Use of GenAI in doctoral theses

Thesis/dissertation work is expected to reflect the student's independent scholarship and original contribution. GenAI may be used only when it does not undermine these expectations, and only with prior supervisory approval.

Baseline Standards:

- Students must obtain prior approval from the supervisor(s) and, where applicable, the supervisory committee before using GenAI in any material part of the thesis/dissertation process.
- Where GenAI is used, students must clearly describe the scope and purpose of use, and how the student's contribution remains identifiable and assessable.
- Students should be prepared to explain and defend GenAI-related methods and decisions during proposal defence, progress evaluations, and VIVA oral examination.

### Distinguishing GenAI use for research vs for writing

Permission to use GenAI for a research task does not automatically imply permission to use GenAI for thesis/dissertation writing or editing.

Baseline Standards:

- Graduate programmes and supervisors may accept GenAI for certain research support tasks but restrict its use in drafting or editing assessed writing.
- Students should seek explicit approval for GenAI use in writing, even if GenAI use has been approved for a research method or data-related task.
- Supervisors should provide clear boundaries, including examples of acceptable and unacceptable uses, to reduce misunderstanding.

## **Editing and generating non-text materials (figures, images, audio-visual content)**

The exact expectations for responsibility, transparency, and verification apply to GenAI use for non-text outputs (e.g., figures, images, graphs, audio, and video).

Baseline Standards:

- Students must disclose GenAI involvement in the creation or modification of non-text materials that appear in the thesis/dissertation or research outputs.
- Students must retain source files, prompts, and intermediate versions sufficient to demonstrate originality, provenance, and verification.
- Students must ensure compliance with research ethics approvals and participant/data protections when visual or audio content relates to human subjects or sensitive contexts.
- When preparing material for publication, students must check the publisher's specific policies because restrictions on AI-generated images and figures may be stricter than for text.

## **Use in master's theses/dissertations and other postgraduate outputs**

The principles in this guideline apply across postgraduate levels and milestones (e.g., master's thesis/dissertation, research projects), unless a Faculty/Institute or programme specifies otherwise.

Baseline Standards:

- Students should follow the same expectations on approval, disclosure, and verification for master's-level research outputs and assessments.
- Supervisors and programmes should provide milestone-specific guidance (e.g., proposals, progress reports, candidacy requirements, and oral examinations).
- Where programme requirements differ (e.g., coursework-based assessments), students must follow the relevant course and programme rules in addition to this guideline.

## The Role and Limitations of AI Usage Frameworks

Providing clarity to students and faculty about institutional expectations is a critical first step. The “traffic light” model (e.g., Prohibited/Permitted/Encouraged) has become a common and useful communication tool for this purpose, offering a simple, intuitive framework for instructors to define the role of AI in specific assessment tasks. The following four-part authorisation model to ensure clarity for all stakeholders:

| Authorisation Level                              | Assignment Role (Faculty Intent)                                        | Faculty Instructor Action (Policy Mandate)                                                                                                       | Required Student Action (Compliance)                                                                                        |
|--------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Red Light (Prohibited)                           | AI replaces core learning objectives or assessment.                     | Explicit syllabus statement forbidding GenAI use; assessment design minimising GenAI utility (e.g., in-class, supervised, personalised prompts). | Zero tolerance; submission constitutes academic misconduct/cheating                                                         |
| Yellow Light (Permitted, with Strict Disclosure) | AI as a drafting assistant, research synthesiser, or idea generator.    | Provide clear written consent; specify allowed tasks (e.g., summarising sources, non-graded drafts).                                             | Must rigorously verify output, revise content, and cite the GenAI tool used (Platform, Version, Prompt).                    |
| Green Light (Required/Encouraged)                | AI as a mandatory course tool for analysis or specific domain practice. | Ensure equitable access and address financial obligations; integrate AI literacy training; use only vetted institutional tools.                  | Mandatory use; citation and transparency requirements still apply unless explicitly waived for specific, automated outputs. |

However, it is crucial to recognise the limitations of this model. Relying solely on such discursive frameworks creates an "enforcement illusion." These frameworks depend entirely on student compliance and are insufficient for guaranteeing academic integrity, especially in unsecured, asynchronous assessments. Therefore, this model must be supported by a deeper, structural shift in assessment design.

## GenAI as a research tool

GenAI can be used as a research-support tool for students in some contexts, but acceptability depends on disciplinary norms, research design, and integrity risks.

Baseline Standards:

- Students must not treat GenAI outputs as authoritative sources; primary evidence must come from verifiable scholarly sources, data, or recognised methods.
- If GenAI is used to support analysis (e.g., coding, classification, text processing), students must validate outputs against appropriate benchmarks or human checks and report validation steps.
- Supervisors should require clarity on how GenAI affects the research design, data handling, interpretation, and conclusions.

## Documentation, description, and referencing of GenAI use

Students must document and disclose GenAI use in a way that allows examiners and readers to understand and evaluate the work.

Baseline Standards:

- Disclosure should specify: (i) the tool(s) used, (ii) the purpose of use, (iii) what inputs were provided (at an appropriate level, considering confidentiality), (iv) what outputs were used, and (v) how outputs were verified.
- Depending on discipline and case, students may be required to retain full interaction logs and provide selected prompts/outputs in an appendix or as supplementary material.
- Citation practices for GenAI tools vary by style guide and publisher. Students must follow the relevant style and publisher requirements, and ensure overall thesis formatting follows Gaya UKM.

## Protecting the development of scholarly writing skills

Graduate education requires developing disciplinary writing and argumentation skills. Excessive reliance on GenAI for drafting can weaken these skills and reduce the student's ownership of the work.

Baseline Standards:

- Students are encouraged to use supervision feedback, writing practice, and revision as the primary pathway for developing scholarly writing.
- If GenAI is used for language-level editing (e.g., clarity, grammar), the student must still ensure that meaning, argumentation, and evidence remain the student's own work.
- Supervisors may restrict GenAI drafting in early candidature stages to protect skill development.

## Accuracy, bias, fabricated references, and integrity risks

GenAI outputs can be inaccurate, biased, outdated, or fabricated (including non-existent references). These risks can directly undermine academic integrity and research quality.

Baseline Standards:

- Students must independently verify factual statements, quotations, numerical outputs, and bibliographic references produced by GenAI before inclusion.
- Students must not include citations that they have not personally checked against the original sources.
- If GenAI outputs are found to contain serious inaccuracies or fabricated references, supervisors should require correction and may treat the issue as a potential integrity concern depending on severity.

## Use in publications and authorship

Policies on the use of GenAI in publications vary widely across journals and publishers. Researchers must comply with the specific policies of the outlet to which they are submitting.

Baseline Standards:

- Students and supervisors should check and document the AI-related policy requirements of the target journal/conference/preprint server (e.g., disclosure requirements; restrictions on AI-generated text or images).
- GenAI tools must not be listed as authors because they cannot take responsibility or be held accountable for scholarly work.
- Where GenAI was used, authors should include appropriate disclosures as required by the publisher and ensure that all authors understand and agree with the disclosed use.

## Data security, confidentiality, and privacy when using GenAI

GenAI tools are commonly third-party, cloud-based services. Inputs may be stored, processed outside the University environment, and handled under provider-specific terms and settings. Therefore, GenAI use must be treated as a data-security decision, not only a writing or productivity choice.

## Baseline Standards

Do not input restricted or sensitive information into public GenAI tools. This includes (but is not limited to):

- Identifiable personal data of research participants (including interview transcripts, recordings, case notes, contact details, or any data that can re-identify individuals),
- Student records or assessment materials are not intended for public release,
- Confidential UKM documents (internal memos, minutes, reports, procurement materials),
- Unpublished manuscripts, embargoed findings, grant proposals, peer reviews, or examiner reports,
- Proprietary instruments, datasets, code, or materials under third-party confidentiality/IP obligations.

Provide the least amount of information necessary, remove identifiers, and summarise at a high level. Do not paste raw transcripts, raw datasets, confidential correspondence, or identifiable notes.

Students and supervisors must discuss GenAI use early and agree on: permitted tools, prohibited data types, and the expected safeguards. Where uncertainty remains, the default position is do not upload the material.

## Responsibility and accountability

- Students remain responsible for ensuring that GenAI use does not breach confidentiality, ethics, IP, or data protection obligations.
- Supervisors should provide clear direction on acceptable tools and data boundaries, and ensure students understand that convenience does not override confidentiality.

## Use of AI-detection tools (e.g., Turnitin, ZeroGPT, GPTZero)

UKM recognises that automated AI-detection outputs (including any AI writing indicators embedded within text-matching systems) are probabilistic signals and may produce false positives and false negatives. Therefore, an AI-detection score or highlight must not be treated as conclusive proof of GenAI misuse and must not be used as the sole basis for alleging academic misconduct. Any concerns must be assessed through human academic judgement, triangulated evidence, and UKM's established academic integrity procedures.

## Operational guidance

Where staff have concerns about authorship or unpermitted GenAI assistance, they should proceed by:

- I. **Reviewing the work holistically** (logic, domain accuracy, referencing quality, internal consistency).
- II. Seeking **process evidence** where appropriate (draft progression, version history, annotated bibliographies, analysis logs, lab notes, coding repositories, instrument development records).
- III. Conducting an **academic conversation** with the student/candidate to verify understanding (e.g., brief oral explanation of argument choices, methods, data handling, and key sources) before initiating any allegation.

<sup>1</sup>Lodge, J. M. (2024). The evolving risk to academic integrity posed by generative artificial intelligence. Tertiary Education Quality and Standards Agency (TEQSA). <https://www.teqsa.gov.au/sites/default/files/2024-08/evolving-risk-to-academic-integrity-posed-by-generative-artificial-intelligence.pdf>

<sup>2</sup>Quality Assurance Agency for Higher Education. (2023, September 7). Generative Artificial Intelligence in education: QAA's response to DfE call for evidence. <https://www.qaa.ac.uk/docs/qaa/news/generative-artificial-intelligence-call-for-evidence.pdf>

<sup>3</sup>The University of Sydney. (2025, October 30). False flags and broken trust – Can we tell if AI has been used? Teaching@Sydney. <https://educational-innovation.sydney.edu.au/teaching%40sydney/false-flags-and-broken-trust-can-we-tell-if-ai-has-been-used/>

<sup>4</sup>Turnitin. (2025, September 8). AI writing detection in the classic report view. Turnitin Guides. <https://guides.turnitin.com/hc/en-us/articles/28457596598925-AI-writing-detection-in-the-classic-report-view>

## Suggested Operational Response for Different Level of AI Detection Indicators

(For internal academic review and decision-making only)

| Detection Level                           | Interpretation                                                                                                                                                  | Recommended Action                                                                                                                                                                                                                                                                                                                                     | Key Principle                                                                                                                                                                                                                    |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Level 1: Low Concern (&lt;20%)</b>     | AI-detection output indicates a minimal likelihood of AI-generated content. Writing is broadly consistent with expected student performance.                    | No further action required. Marking proceeds as usual. Oral verification is not required unless other academic concerns are present.                                                                                                                                                                                                                   | Detection results at this level do not justify additional scrutiny on their own. Nevertheless, students must declare any use of generative AI tools, where applicable, as part of responsible and transparent academic practice. |
| <b>Level 2: Moderate Concern (20–40%)</b> | AI-detection output suggests possible AI assistance. This may reflect legitimate AI-supported activities (e.g. grammar checking or idea generation).            | Academic review by the lecturer or course coordinator. Review consistency with previous student work, coherence of argumentation, and alignment with assessment instructions. Where necessary, seek brief clarification from the student or request a reflective or process-based explanation.                                                         | This level warrants verification and academic judgement, not presumption of misconduct.                                                                                                                                          |
| <b>Level 3: High Concern (&gt;40%)</b>    | AI-detection output indicates a substantial likelihood of AI-generated content, particularly when accompanied by inconsistencies or unexplained sophistication. | Initiate a formal verification process. Conduct oral verification, viva voce, or structured questioning to assess authorship, reasoning, methodology, and decision-making. If authorship and understanding are demonstrated, no misconduct is recorded. Failure to demonstrate ownership may result in escalation under academic integrity procedures. | Final decisions are based on demonstrated understanding and authorship, not detection percentages alone.                                                                                                                         |

While AI-detection tools may be used as an initial indicator, their outputs are not conclusive evidence of misconduct.

However, any reasonable suspicion arising from AI-detection results, inconsistencies in student work, or concerns regarding authorship may trigger a formal academic integrity review in accordance with existing university regulations.

In such cases, oral verification, viva voce, or structured interrogation may be conducted to assess the student's understanding, decision-making process, and ownership of the submitted work.

Failure to satisfactorily demonstrate authorship, comprehension, or academic integrity may constitute academic misconduct, regardless of the AI-detection outcome, and shall be dealt with under the relevant Universiti Kebangsaan Malaysia regulations.

***“No adverse academic decision shall be made solely on algorithmic inference.”***

## **Data governance and consent**

Staff and examiners must not upload student work, thesis drafts, or confidential research material to unauthorised third-party AI detectors or tools, particularly where consent, data processing terms, retention, and reuse are unclear.

## **Student-facing assurance**

UKM will not make an academic misconduct determination based solely on an AI-detection score. Students/candidates are encouraged to maintain normal scholarly records (drafts, notes, data, analysis steps) and to submit a GenAI Disclosure Statement where GenAI use is material to the work.

## 2.4 Professional Development

**Skill Development:** Faculty can leverage AI tools to learn new skills, such as coding, data visualisation, or content creation.

**Workshops and Training:** AI can help design and deliver targeted professional development programmes.

### Provide Training and Support

Organise workshops and training sessions for faculty and students to familiarise them with AI tools.

Create resources, such as user manuals or online tutorials, for ongoing support. Given the novelty and rapid evolution of GenAI, UKM must invest in staff, GTAs, and students' capacity-building. This ensures informed, safe and pedagogically sound use of tools. Institutions such as APRU emphasise the need for training and capability development in higher education AI governance.

### Steps

1. Develop a GenAI Literacy Micro-Credential for staff and GTAs: covering what GenAI is, how to prompt effectively, how to critically assess AI outputs, ethical/privacy issues, and assessment redesign.
2. Provide a Student GenAI Bootcamp (e.g., orientation week) covering safe, ethical, and effective uses (including disclosure requirements).
3. Create and maintain an FAQ + Resource Hub (online) for GenAI at UKM: approved tool list, case-studies, prompt-templates, checklist, policy summary.
4. Offer Just-in-Time Clinics (drop-in sessions) for educators designing assessments or thinking through the implications of GenAI.

# Future of Generative AI in Higher Education

# 03

GenAI holds immense potential to revolutionise higher education by fostering creativity, efficiency, and innovation. However, its successful integration depends on addressing ethical, technical, and practical challenges. As institutions adapt to this evolving landscape, collaboration between educators, technologists, and policymakers will be key to unlocking AI's full potential.

## 3.1. Accessibility and Inclusions

The promise of GenAI in education includes better access, customisation for diverse learners, multilingual support, alternative formats and differentiated instruction. At the same time, equity concerns arise: students without access/training may be disadvantaged. UNESCO emphasises inclusivity, cultural diversity and linguistic equity.

### Practices

- Provide training, orientation and access to GenAI tools for all students (including those with limited digital experience).
- Use GenAI to produce alternative formats (e.g., text-to-speech, summaries, visual explanations) but always human-review them.
- Maintain non-AI options: ensure students who choose not to use GenAI (for access, philosophy or equity reasons) are not disadvantaged
- Consider cultural, linguistic and disciplinary diversity in GenAI outputs: avoid defaulting to Western-centric or English-centric models where local context matters.

## 3.2. Monitor and Evaluate

Because GenAI tools and practices evolve quickly, UKM must build mechanisms to monitor use, identify issues, evaluate policy effectiveness and update the guidelines. UNESCO emphasises the importance of human-centred monitoring and institutional agility. UKM must regularly assess the effectiveness of AI tools in achieving learning outcomes and gather stakeholder feedback to refine and improve AI implementations.

### 3.3.Data Governance and Management

#### Commitment to Data Quality

Recognising that data quality is a primary challenge and a prerequisite for successful AI, the university will establish a robust, university-wide data governance programme. As highlighted in research by Precisely and Drexel LeBow, a focus on data integrity is critical for building trustworthy AI systems.

#### “Data Union Strategy”

The university will develop and implement a “Data Union Strategy” for its research and administrative data. This initiative will focus on enhancing the interoperability and availability of high-quality, trusted data for training, validating, and utilising AI models, while enforcing strict safeguards to ensure confidentiality and integrity.

#### Procedures

- Annual review cycle: The GenAI Governance Committee will solicit feedback from faculty/students, audit tool registry, review incident reports, and suggest revisions to the guideline.
- Reporting channel: Any suspected misuse (undisclosed AI-use, data breach, IP infringement) should be reported to the Academic Integrity Office/Disciplinary unit.
- Metrics & Indicators: e.g., number of modules with GenAI statements, number of staff trained, number of incidents, and student feedback on GenAI policy awareness.
- Communication: Publish an annual “GenAI at UKM” summary for transparency (while preserving confidentiality) showing trends, improvements, and lessons learned

### 3.4. Continuous improvement

- **Governance, Policy Alignment, and Annual Strategic Review**

The need for ongoing review of guidelines, alignment with university policies, and responsiveness to technological, legal, and societal developments. The AI Governance Working Group will conduct a formal review of this strategic plan on an annual basis. This review will assess progress against the action plan and make necessary adjustments to ensure it remains fit-for-purpose in light of new technological developments and institutional priorities.

- **Continuous Impact Monitoring**

We will establish a formal process for the continuous monitoring of AI's impact on key university metrics, including student learning outcomes, the student experience, and research productivity. Direct feedback from students and faculty will be systematically collected and used to inform ongoing adjustments to policies and practices.

- **AI Maturity Assessment**

To benchmark our progress, the university will utilise an established AI Maturity Model, such as those developed by Gartner or EAB. This will allow us to periodically assess the university's progress across key domains, tracking our evolution from the initial "Awareness" and "Active" stages toward more strategic and, ultimately, transformational use of artificial intelligence.

## **Conclusion**

The adoption of GenAI in UKM is not just an opportunity but a necessity for UKM to stay relevant in the digital age. By understanding its applications, challenges, and best practices, educators and administrators can harness the power of AI to create enriching, equitable, and future-ready learning environments.

# Appendix

## Appendix A – Model Syllabus Statement

### Use of Generative AI (UKM Policy Statement)

In this course/module, you are permitted to use approved GenAI tools only for [specify: e.g., brainstorming ideas, language editing, drafting outline]. If you use a GenAI tool, you must complete the Student Disclosure Form (Appendix B) and include it with your submission.

You remain responsible for verifying the accuracy, citing sources, and ensuring your submission meets the learning outcomes of this module. Submission of GenAI-generated work without disclosure or beyond the permitted uses constitutes a breach of the UKM Academic Integrity Policy.

If you are not comfortable using GenAI tools, an equivalent non-AI option is available—please contact the module coordinator.

## Appendix B1 – Student Disclosure Form (Non-research related)

Student Name: \_\_\_\_\_

Programme / Year / Module Code: \_\_\_\_\_

GenAI Tool(s) Used (Name + Version): \_\_\_\_\_

Date(s) of Use: \_\_\_\_\_

Purpose of Use (select and describe):

- ☐ Brainstorming topic ideas
- ☐ Language editing/rewriting
- ☐ Code writing / debugging
- ☐ Visual/media generation
- ☐ Draft generation
- ☐ Other (please specify): \_\_\_\_\_

My human review steps: (briefly describe how you validated, edited or verified the GenAI output)

Reflection (2–3 sentences): How did the GenAI help me, and what limitations or editing did I do?

---

Student Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix B2: Statement on the Use of Generative AI Tools (Research related)

Complete and include with the thesis/dissertation or other assessed research output where GenAI use is material.

Candidate name:

---

Student ID:

---

Programme (Master/PhD):

---

Faculty/Institute:

---

Thesis/Dissertation title:

---

Submission stage (draft/final):

---

Date of statement:

---

Contact email:

---

A. GenAI tool(s) used  
Tool name & provider:

---

Model/version (if available):

---

Dates of use (approx.):

---

Access mode (web/app/institutional/  
other):

---

### B. Purpose(s) of use (tick all that apply)

- ☐ Language editing (grammar/ clarity)
- ☐ Idea generation/outlining
- ☐ Coding support (debugging/ refactoring)
- ☐ Preliminary categorisation / thematic suggestions
- ☐ Other (specify):

---

- ☐ Translation / bilingual drafting
- ☐ Summarisation of candidate-provided material
- ☐ Drafting text (substantive)
- ☐ Creating/editing non-text outputs (figures/images/tables)

## C. Description and safeguards

Where used in the work (chapter/section/table/figure):

Nature of inputs provided (general description only; do not include confidential/identifying data):

Nature of outputs used and how they were integrated (e.g., edited by candidate; used as starting point):

Verification steps (e.g., source checks, tests run, re-analysis, supervisor review):

## D. Supervision discussion and record-keeping

Discussed with supervisor: ☐ Yes ☐ No

Supervisor name/role:

Date(s) discussed/approved  
(if applicable):

Records retained (what &  
where stored):

## E. Declaration

I affirm that I remain fully responsible for the originality, accuracy, interpretation, and integrity of this work, including verification of factual claims, analyses, and references. GenAI tool use did not replace my responsibility to conduct the research and meet university standards.

Candidate signature & date:

Supervisor acknowledgement:

## Appendix C – Educator Checklists

### Assessment Design Quick Check:

- ☐ Does the task require reasoning, reflection, personal or local context?
- ☐ Have I clearly stated what GenAI use is permitted, if any?
- ☐ Is disclosure required (student forms)?
- ☐ Have I included a Human-in-the-loop (HITL) component (draft + feedback + final)?
- ☐ Have I considered equity of access (students without GenAI experience)?
- ☐ Have I reviewed the task for the possibility of GenAI misuse (e.g., generic prompts, uncontrolled draft submission)?

### Data/Privacy Quick Check:

- ☐ Will students/educators need to input personal/sensitive data into a GenAI tool?
- ☐ Is the tool approved (in registry) for data privacy, retention, licensing?
- ☐ Have I advised students/staff on protecting personal or institutional data?

## Appendix D — Course AI Integration Plan & Self-Assessment

Module / Course: \_\_\_\_\_  
Coordinator: \_\_\_\_\_ Faculty/Centre: \_\_\_\_\_  
Semester/Year: \_\_\_\_\_

Chosen Level (tick one): ☐ Initiation ☐ Integration ☐ Infusion

### A. Rationale (≤100 words)

Why is this level appropriate for your learning outcomes?

\_\_\_\_\_

### B. Allowed & Prohibited Uses (bullet points)

Allowed (with disclosure):

- \_\_\_\_\_
- \_\_\_\_\_

Prohibited:

- \_\_\_\_\_
- \_\_\_\_\_

### C. Assessment Design Alignment

- Which assessments use or restrict AI? (name tasks)
- How will you evidence students' own learning (e.g., drafts, reflection, viva)?

\_\_\_\_\_

### D. Disclosure & Verification

- Required forms: ☐ Appendix B with each submission
- How will you verify? (e.g., random viva, annotated drafts, peer review)

\_\_\_\_\_

### E. Data/Privacy & Tools

- Tools (from Approved Registry): \_\_\_\_\_
- Data types used (tick): ☐ public ☐ institutional non-sensitive  
☐ sensitive (approval attached)

### F. Equity & Access

- What non-AI alternative is available for each AI-enabled activity?

\_\_\_\_\_

### G. Teaching Plan Touchpoints

- Week 1 AI briefing
- Prompt-crafting lab
- Critical evaluation of AI outputs
- Reflection activity

### H. Review & Improvement

- How will you gather feedback and decide to maintain/upgrade the level of the next offering?

---

Coordinator Signature & Date: \_\_\_\_\_

GenAI Lead Acknowledgement: \_\_\_\_\_

## Panel of Contributors and Evaluators for the Guidelines

| Contributor Name                 | Core Expertise & Teaching & Learning (T&L) Role                                                                                                                                                                                                                                        | Relevance to the Comments (GenAI in T&L)                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Assoc. Prof. Dr. Zulkefli Mansor | Expertise in Software Engineering, Agile Methodology, Applied Artificial Intelligence in Software Engineering, and IT Project Management. As an Associate Professor at the Centre for Software Technology and Management (SOFTAM), Faculty of Information Science and Technology, UKM. | His extensive experience in curriculum design and development, Outcome-Based Education (OBE), and software project governance. His academic and professional involvement as an MQA expert panel assessor, IEEE Senior Member, and contributor to national-level academic programme development helped to ensure the integration of GenAI into the curriculum aligns with sustainable educational development life cycles. |
| Dr. Atika Ashar                  | Expertise in Dentistry and Health Sciences. Holds a Professional Certificate in “Revolutionize Learning and Teaching with AI” and oversees the Pedagogy and Assessment portfolio.                                                                                                      | Focuses on how GenAI can adapt teaching materials according to student assessment needs.                                                                                                                                                                                                                                                                                                                                  |
| Ts. Dr. Nurhidayah Bahar         | Expertise in Software Engineering, Knowledge Management, and Health Informatics, with applications of Artificial Intelligence (AI) in intelligent system development and data-driven solutions.                                                                                        | Applies Generative AI (GenAI) in teaching and learning through data-driven approaches to evaluate its effectiveness in achieving Learning Outcomes (LOs), while supporting the development of more interactive learning experiences.                                                                                                                                                                                      |
| Ts. Dr. Mohd Nor Akmal Khalid    | Expertise in Artificial Intelligence (AI), Human-Computer Interaction (HCI), computational optimization, and game informatics.                                                                                                                                                         | He actively conducts research and training related to AI-assisted education, digital innovation, and responsible AI integration in academic environments. His contribution to the GenAI guidelines emphasises ethical AI usage, human-AI collaboration, digital engagement, and guiding lecturers and students toward responsible, transparent, and meaningful use of AI in teaching and learning.                        |

|                                    |                                                                                                                                                                                                              |                                                                                                                                                                                                                                                               |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dr. Ammar Redza Ahmad Rizal        | Expertise in Strategic Communication & Digital Literacy.                                                                                                                                                     | Ensures that GenAI guidelines are easy to understand and can be effectively implemented within modern academic communication culture.                                                                                                                         |
| Ts. Dr. Nor Samsiah Sani           | Expertise in Machine Learning & Data Mining.                                                                                                                                                                 | Provides technical input on the limitations of AI capabilities to ensure expectations in teaching and learning are realistic and scientifically grounded.                                                                                                     |
| Mr. Muhammad Fahmi Mike Abdullah   | Expertise in Technical IT, System Support, and Digital Infrastructure Management.                                                                                                                            | Contributes technical insights on the implementation, maintenance, and practical integration of GenAI technologies within teaching and learning environments.                                                                                                 |
| Evaluator                          |                                                                                                                                                                                                              |                                                                                                                                                                                                                                                               |
| Prof. Ir. Dr. Ahmad Kamal Arifin   | Expertise in Engineering, Professional Accreditation, Quality Assurance, and Higher Education Governance. Experienced in academic leadership, curriculum standards, and engineering education accreditation. | Brings a senior academic and technical perspective. As a certified engineer, he ensures that the GenAI guidelines meet professional standards and uphold academic integrity in science and technology disciplines.                                            |
| Dr. Noor Hasliza Binti Mohd Hassan | Expertise in Digital Governance, Public Sector Digital Transformation, Policy Development, and Strategic Management of Information Systems.                                                                  | Contributes from the perspective of governance and digital policy. Her focus is to ensure that the guidelines align with the digital transformation of the public and education sectors, while complying with national standards of data security and ethics. |

