CEN-AI TASK FORCE REPORT

College of Engineering – American University of Sharjah

Date April 20 , 2026

In alignment with the university's strategic direction to leverage emerging technologies and enhance operational excellence, the College of Engineering (CEN) formed an AI Task Force to explore potential applications of Artificial Intelligence (AI) across academic and administrative domains. The task force aimed to identify areas where AI could add tangible value, streamline processes, improve teaching and learning experiences, and strengthen research and operational efficiency.

The taskforce member are:

CHBE	Dr. Noora Darwish
CSE	Dr. Mohammad Daoud
CVE	Dr. Jamal Abdalla
ELE	Dr. Usman Tariq
INE	Dr. Hussam Alshraideh
MCE	Dr. Abdullah Ghazal
IT	Mr. Omar Zaher Aldiek
CEN	Dr. Abdulrahim Shamayleh (Chair)

1. Objectives of the Task Force

- Explore AI-driven opportunities across college functions.
- Evaluate available tools and solutions for integration feasibility.
- Develop recommendations for AI adoption.

2. Methodology

A structured process was followed involving survey distribution, idea collection, evaluation, and prioritization.

2.1 Survey Distribution:

A comprehensive survey was distributed to all user categories within the college:

- Undergraduate Students
- Graduate Students
- Faculty
- Staff
- Administrators

2.2 Data Collection:

Participants were asked to propose ideas for AI applications in the following areas:

- Learning and Teaching
- Research
- Student Services
- Administration and Operations
- Outreach

2.3 Idea Evaluation:

The received ideas were consolidated, cleaned, and analyzed based on:

- Relevance
- Feasibility and scalability
- Expected value or benefits
- Cross-departmental impact

2.4 Prioritization & Assignment:

The most promising ideas were shortlisted for further exploration, with specific faculty leads assigned to each domain to benchmark potential AI solutions.

3. Prioritized AI Application Areas

The key AI-related ideas collected from students, faculty, staff, and administrators were evlauted and the the following seven top-priority areas were identified for further exploration:

Area	Assigned To	Solution	Description	Pros	Cons
Career Coaching	Dr. Noora	VMock	AI-based career feedback tool for resumes and interviews.	Personalized feedback, accessible anytime.	Lacks creativity context; some paid features.
Annual Evaluation	Dr. Abdulrahim	Scholarly / CFLOW / Creatrix	AI-assisted faculty evaluation integrated with Ellucian.	Automated tracking and analytics.	Some focus more on faculty performance than reporting.
Orientation & Onboarding	Dr. Abdallah	Ivy.ai / BotPenguin / Ellucian Insights / Azure AI / Copilot	Chatbots and analytics for onboarding and FAQs.	Multilingual, integrated with Ellucian.	Requires training and configuration.
Personalized Learning	Dr. Mohammad	Kira Learning / Class Companion / CourseAssist	AI tutor and grading systems for adaptive learning.	Enhanced personalization.	Setup complexity.
Research Tools	Dr. Hussam	Scopus AI / ScienceDirect AI / ASTA / SciSpace / Elicit	AI research assistants for literature and drafting.	Accelerates research productivity.	Different access depths; cost varies.
Material Design	Dr. Usman	NotebookLM / Gamma App / Slidespeak / Beautiful AI	AI tools for generating teaching materials and presentations.	Fast and creative outputs.	Formatting issues; design limits.

Area	Assigned To	Solution	Description	Pros	Cons
Program Evaluation	Dr. Jamal	Sonix / Anthology / Watermark / ExamSoft / Questionmark	AI-supported tools for assessment and accreditation.	Structured workflows; analytics insights.	Integration required.

The following subsections provide detail description of each area

3.1 Career Coaching

The proposed AI career coaching initiative aims to transform the university's approach to student career development by integrating AI and data-driven tools, such as Vmock, into the student experience. VMock is a comprehensive AI platform that provides instant, personalized feedback on resumes and LinkedIn profiles, helping students enhance the quality and impact of their professional materials. It benchmarks each student's profile against industry and peer standards, offering tailored recommendations on how to improve employability. It is a 24/7 virtual coaching service that ensures students receive timely guidance. By incorporating VMock into the university's ecosystem, integrated with existing, if any, systems, students can smoothly access feedback and track their career readiness over time.

In addition, integrating VMock with SMART Pitch could create a comprehensive AI-powered career-preparation system for students. VMocK provides instant, personalized feedback on resumes, and SMART Pitch complements this by analyzing students' recorded mock interviews, offering AI-based feedback on content, tone, clarity, confidence, and body language. Together, they help students build both strong professional documents and effective communication skills.

Below is a table summarizing universities currently utilizing AI-powered career coaching/development tools:

University	Career Coaching Tool (s) Used	Comments
Florida International University (FIU)	VMock	Students get up to 10 resume uploads per academic year and can practice interview pitches using the platform.
Syracuse University	VMock	Free 24/7 resume review for students, tailored feedback based on their major and career goals.

University of Alabama	VMock	Allows resume uploads and gives feedback on presentation, impact, and competencies; available 24/7.
University of Texas at San Antonio (UTSA)	VMock + SMART Pitch	Uses AI to help polish resumes and give feedback on interview delivery (tone, presence) via SMART Pitch.
Emory University	VMock	Offers "SMART Resume Editor" and "Aspire" for LinkedIn profile feedback via AI.
Loyola Marymount University (LMU)	VMock	Free 24/7 resume review; 10 upload opportunities per year; feedback on impact, presentation, competencies.
University of Michigan (Online)	VMock	Promotes VMock as a resume feedback AI tool in its "Career Kickoff" for students.
Columbia University (Engineering)	VMock (Mock Interview module)	Their "Career Connect" portal uses VMock's mock interview tool (pre-generated or custom) with real time feedback

Recommended Solution:

VMock is recommended as a resume enhancement and career-readiness support tool for our students.

To evaluate its effectiveness, Dr Noora tested the paid version of the platform (USD 19.95, allowing up to 10 CV/document uploads). The system provides exceptionally detailed, structured, and actionable feedback. Following each upload, VMock generates a comprehensive evaluation report that includes an overall score (out of 100) along with a detailed breakdown across three core assessment categories:

- Impact: Evaluates the quality, clarity, and measurable outcomes presented in the resume content.
- Presentation: Assesses formatting, structure, readability, grammar, layout, and overall organization.
- Competencies: Analyzes the extent to which key professional skills—such as analytical ability, communication, leadership, teamwork, and initiative—are effectively demonstrated.

The platform offers clear diagnostic insights by identifying areas for improvement, such as overuse of certain words, excessive content, weak action verbs, and formatting inconsistencies. It also assigns “improvement potential” points and provides bullet-level feedback, including suggestions for stronger action verbs and more impactful phrasing.

A particularly valuable feature is the option for students to request virtual network feedback, enabling them to connect with reviewers for personalized guidance and additional recommendations.

Furthermore, VMock benchmarks resumes against millions of samples and provides community-based insights (e.g., average word count, commonly used action verbs, and typical bullet structures). It also delivers practical, step-by-step recommendations to help users improve their scores and overall resume quality.

Overall, VMock offers a structured, data-driven, and user-friendly approach to resume development. Its ability to provide detailed, actionable feedback makes it a highly effective tool for enhancing students' resume quality and supporting their career readiness.

3.2 Annual Evaluation

The Annual Evaluationwas identified as one of the key area for AI integration. Current evaluation procedures are largely manual and involve significant faculty time to document teaching, research, and service activities. AI-powered platform can automate the collection, aggregation, and analysis of faculty contributions.

Tool	Use	Pros	Cons
Scholarly https://scholarlysoftware.com/annual-evaluations Scholarly's Annual Evaluations helps academic institutions streamline faculty reviews by centralizing data on teaching, research, and service. Faculty can easily update their activities throughout the year leveraging their AI tools, ensuring a comprehensive and accurate record of their contributions. Activity is pre-populated and updated automatically from existing systems. This minimizes manual data entry, saving faculty valuable time. The system supports customizable multi-step workflows, including external reviewers, and	- Streamlines faculty annual evaluations by centralizing data on teaching, research, and service. - AI-assisted data entry and draft evaluation generation. - Customizable multi-step workflows, including external reviewers. - Analytics dashboards for workload, productivity, and equity insights.	- Saves time and reduces manual data entry. - Centralizes faculty data for accurate reporting. - Flexible, customizable workflows with dashboards and e-signatures. - Supports strategic planning, accreditation, and equity analysis. - AI features assist with drafting and pre-populating data.	- High cost; integration with existing systems can be complex. - Requires training and adoption effort; faculty engagement is key. - AI drafts need human oversight; risk of inaccurate pre-populated data. - Privacy/security of centralized data must be managed carefully. - Potential over-reliance on quantitative metrics; vendor lock-in risk.

Tool	Use	Pros	Cons
provides dashboards for analytics on productivity, workload, and equity. can be intergared with eelcian, oracle and have Ai Powered capabilities			
CFLOW https://www.cflowapps.co.uk/faculty-performance-evaluation/	- Automates faculty performance reviews using AI-powered workflows. - Collects and analyzes performance data (teaching, research, service) via real-time dashboards. - Supports customizable evaluation workflows (self-assessment, manager/department review, approval). - Provides automated sign-off processes with role-based forms and audit trails. - Integrates with other systems (HR, feedback portals) to centralize data.	- Efficiency & Automation: Reduces manual administrative burden with automated workflows. - Data-Driven & Objective: Uses analytics to make evaluations more objective and less biased. - Customizable: No-code platform lets institutions design evaluation forms and workflows to fit their specific needs. - Audit Trail & Compliance: Secure documentation, formal sign-offs, and role-based permission ensure compliance. - Continuous Feedback: Supports ongoing review cycles and goal tracking beyond annual appraisals.	- Complex Setup: Custom workflows and integrations might require time and effort to set up correctly. - AI Limitations: While AI can analyze trends, it may not fully capture qualitative nuances like peer feedback or context. - Change Management: Requires buy-in from faculty and administrators; people may resist shifting from manual to automated evaluations. - Data Security Risk: Centralizing sensitive performance data means you need strong data governance. - Cost: Depending on scale and integration needs, cost could be significant (especially for smaller institutions).

Recommended Solution:

Scholarly is recommended as a tool for collecting fcaulty data related to annual evaluation and rolling, and in depth review.

Scholarly is an AI-native faculty information system built for higher education institutions that acts as a single source of truth for all faculty data, replacing the current process of exchanging Excel files, Word documents, and emails across multiple platforms. It helps universities manage the full faculty lifecycle, including activity reporting, promotion and tenure workflows, workload tracking, and committee management, through a modern and highly configurable platform with minimal manual work.

Eliminating manual data entry: Faculty profiles auto-populate from your existing systems (Banner, Blue, Digital Measures) and external research databases (Google Scholar, ORCID, Web of Science, PubMed, etc). For anything self-reported, faculty can bulk-paste sections of their CV and our AI parses it into the correct fields automatically, with no field-by-field entry like Digital Measures.

Single source of truth: Once data is in the system, any administrator (HOD, associate dean, dean) can pull what they need without asking faculty to resubmit the same information for different reports.

Annual evaluation & promotion workflows: The platform maps your exact evaluation process step by step, built directly from your faculty handbook using AI. Faculty see their report auto-populated from their profile data. Department chairs get a two-pane review screen with the faculty submission on one side and their review form on the other. Everything routes through to signature and completion with a full audit trail.

Reporting & analytics: Administrators get an Excel-like grid interface that queries the live database. You can filter by department, rank, date range, export to Excel/CSV, or build pivot tables. There's also an AI assistant for plain-English queries and auto-generated visualizations.

Full customization: Unlike Digital Measures, every field, category, and workflow step is configurable to match your engineering CV format and your specific processes, not a rigid template.

Scholarly can be integrated with Ellucian Banner (they are Ellucian partner), and Blue by Explorance. They also can migrate all existing data from Digital Measures during implementation so nothing is lost.

It is estimated the cost will be around 100 USD per faculty per year

3.3 Orientation & Onboarding

The review of onboarding practices in higher education shows that processes for students, faculty, and staff remain largely fragmented.

- Students face multiple disjointed systems during registration, orientation, and advising, often resulting in information overload and delayed support.
- Faculty encounter manual HR processes and fragmented digital support for teaching setup, research compliance, and onboarding.
- Staff experience slow onboarding due to paper-based approval workflows, repetitive data entry, and limited visibility across departments.

Artificial intelligence (AI) offers significant opportunities for onboarding transformation through:

- Conversational AI Chatbots: 24/7 multilingual virtual assistants guiding new joiners through policies, forms, and orientation materials.
- Predictive Analytics: Identifying users who are delayed, inactive, or at risk of disengagement.
- Workflow Automation: Automatically assigning and tracking tasks based on user profiles.
- Generative AI: Creating adaptive onboarding materials, personalized communications, and summaries.
- Integrated Dashboards: Providing unified visibility of onboarding progress for HR, academic, and IT departments.

The analysis identified leading AI tools suitable for each functional layer of onboarding. The table below summarizes the findings.

AI Function	Example Solutions	Description / Contribution
Conversational AI Chatbots	Ivy.ai or BotPenguin	Provide 24/7 multilingual assistance, automate FAQs, and guide students, faculty or staff through onboarding processes
Predictive Analytics + Integrated Dashboards	Ellucian Insights	Offers AI-driven analytics to detect onboarding bottlenecks and engagement risks
Workflow Automation / Document AI	Microsoft Azure Form Recognizer	Automates document verification (e.g., Emirates ID, transcripts) and streamlines approval workflows
Generative AI	Azure OpenAI, Copilot	Generates personalized onboarding content, messages, and automated summaries for HR or academic workflows.

Despite advancements, limited AI platforms currently offer a unified solution that covers onboarding for students, faculty, and staff simultaneously. Most solutions specialize in student orientation.

Several international universities have successfully integrated AI into their onboarding ecosystems:

- University of Michigan through Maizey: AI assistant for staff HR onboarding.
- Penn State University through LionChat: 24/7 chatbot supporting admissions, financial aid, and registration.
- Georgia State University through Pounce: Predictive messaging that increased student engagement and reduced summer melt.
- Arizona State University through Sunny: AI chatbot assisting with scheduling, registration, and FAQs.

Strategic Opportunity: Transition to Ellucian SaaS

Upgrading from **Banner 8** to **Ellucian SaaS** represents a pivotal opportunity for AUS to achieve unified, AI-ready onboarding and digital transformation. Below is a list of the key advantages:

- Seamless Integration with Oracle Fusion and Blackboard.
- Unified Experience: A personalized Ellucian Experience Portal enabling students, faculty, and staff to complete onboarding tasks from one dashboard.
- Built-In Automation: Digital checklists, automated reminders, self-service forms, and progress tracking dashboards.
- AI Readiness: Native compatibility with Ellucian Insights and third-party AI tools such as Ivy.ai and Azure AI.

Local Benchmark: *American University in Dubai (AUD)* and *University of Kalba* have already adopted Ellucian Banner SaaS.

The benefits of Ellucian SaaS extend well beyond onboarding, impacting several key institutional areas:

- Digital Transformation: Enables paperless operations, automated approvals, and data-driven governance.
- Automation & Efficiency: Streamlines faculty evaluations, course approvals, and research administration.
- AI Enablement: Empowers predictive insights, adaptive communications, and continuous improvement.
- Enhanced Student Experience: Creates a one-stop, multilingual service portal supporting orientation, registration, and career development.
- Strategic Alignment: Positions AUS as a leader in smart-campus innovation aligned with UAE and GCC digital-transformation goals.

Collectively, these measures will enable AUS to deliver a seamless, data-driven onboarding experience that strengthens operational efficiency, enhances user satisfaction, and reinforces the university's position as a regional leader in digital transformation.

Recommended Solution:

Gravyty AI is recommended as a tool for Orientation & Onboarding.

The Gravyty platform supports student, faculty, and staff onboarding and engagement through an AI-powered conversational assistant. The solution is primarily based on a chatbot interface integrated with university systems, enabling users to access information and receive guidance through institutional processes.

The chatbot can answer questions and guide users across multiple departments, including admissions, financial aid, IT support, HR, and other campus services. It can also deliver structured guided workflows to help users complete tasks such as applications, document submissions, and onboarding steps.

Below is a summary of the main features of the platform.

- Integration with Institutional Systems

The solution supports prebuilt and custom integrations with major university systems, including Banner/Ellucian products, Blackboard, and Oracle.

The system can ingest and utilize various types of institutional content, including webpages, PDF documents and Data tables. Through these integrations, the chatbot can retrieve and present personalized information to authenticated users.

- Personalized Support
  Once connected to institutional databases, the platform can provide user-specific responses. For example, students may retrieve information such as GPA, account balances, or financial aid details, while faculty and staff may access HR-related information such as leave balances.

- Communication and Engagement Tools
  The system supports targeted communication through email and SMS messaging, allowing departments such as admissions to contact users who have incomplete applications or pending onboarding steps. These messages can direct users to the chatbot, where they can receive assistance in completing the required tasks.

- Analytics and Reporting
  The platform includes an analytics dashboard for monitoring interactions and engagement. Administrators can track chatbot usage, identify frequently asked questions, and collect user feedback (e.g., ratings of chatbot responses). These insights can help improve service delivery and user engagement.

- Security and Compliance
  The vendor indicated that the platform is designed specifically for higher education environments and complies with common regulatory standards, including:

  - FERPA (Family Educational Rights and Privacy Act)
  - GDPR (General Data Protection Regulation)

  The platform also supports multilingual access and accessibility requirements.

- Deployment Model
  The platform is cloud-based, with the option to host services in geographically appropriate data centers to meet institutional or regulatory requirements.

- Case Studies
  The tool is used in many universities including PennState, Ohio, NewYork. Examples of institutional implementations and use cases can be found at: Case studies - Gravyty | AI-powered engagement & fundraising for higher ed

- Pricing
  Two pricing models were discussed during the meeting:

  - Department-level deployment: approximately $15,000–$20,000 per year per department.
  - Enterprise university deployment: approximately $75,000 per year for a university-wide license allowing multiple chatbots across departments.

  Additional costs may apply for system integrations, SMS messaging, and telephony services.

3.4 Personalized Learning

The following table summarizes AI-powered tools that support personalized learning, enhance the student learning process, assist faculty in preparing lectures and exams, and automate grading of homework, quizzes, and exams. These tools include solutions for engineering and computer science courses, lecture note preparation, generative AI content creation, and grading support.

Tool Name	Description (Eng/CS Context)	Example Universities (with link)	Integration Difficulty (Blackboard LMS)	Estimated Cost
MATLAB Grader	Auto-graded MATLAB/Simulink problems for controls, signal processing, numerical methods, mechatronics; gradebook sync.	Drexel University (https://www.lebow.drexel.edu/news/matlab-grader-integration-blackboard)	Medium Difficulty – Requires LTI setup + faculty onboarding	Medium Cost
Gradescope	AI-assisted grading for coding assignments, engineering problem sets, and exams; supports CS autograder.	University of Miami (https://lpt.it.miami.edu/platforms/supported/gradescope/index.html)	Low Difficulty – Simple integration with Blackboard	Medium Cost
zyBooks / zyLabs	Interactive CS & engineering content (C/C++, Java, Python, circuits) with auto-graded activities.	University of Arizona (https://ece.engineering.arizona.edu/undergrad-programs/courses/ECE101)	Medium Difficulty – LTI links & grade passback	Low/Medium Cost
Codio	Cloud IDE + auto-grading for programming labs (introductory programming courses, data structures, web, Python/Java/C++).	University of Pennsylvania (https://cets.seas.upenn.edu/answers/codio.html)	Medium Difficulty – LTI enablement + deep links	Medium Cost
Vocareum	Cloud-based environment for programming, data science, and machine learning education. Provides ready-to-use Jupyter Notebook, RStudio, and CUDA workspaces with integrated auto-grading, code execution tracking, plagiarism detection, and scalable compute resources. Enables instructors to design interactive labs, manage assignments, and assess student performance efficiently.	University of Southern California (https://viterbigrad.usc.edu/instructional-support/vocareum/)	Medium Difficulty – org-level LTI + course links	Medium/High Cost
WeBWorK	Algorithmic, auto-graded online homework system for mathematics and engineering courses, including calculus, differential equations, and linear algebra. Automatically generates individualized problem sets with symbolic validation and instant feedback.	North Dakota State University (https://www.ndsu.edu/math/resources/webwork/webwork_blackboard_integration)	Medium Difficulty – host + LTI configuration	Low Cost (open-source software)

Tool Name	Description (Eng/CS Context)	Example Universities (with link)	Integration Difficulty (Blackboard LMS)	Estimated Cost
Labster	Interactive virtual laboratories covering chemical, biomedical, and industrial engineering topics. Provides immersive, game-based simulations with built-in auto-grading, conceptual feedback, and 3D visualization of laboratory processes.	University of Texas at San Antonio (https://odl.utsa.edu/wp-content/uploads/2021/04/Add-Labster-Simulations-to-your-Blackboard-Course.pdf)	Medium Difficulty – cartridge import + settings	Medium/High Cost
PrairieLearn	An open-source, online learning and assessment system developed at the University of Illinois Urbana–Champaign. It is designed for automatically graded problems in STEM disciplines, supporting parameterized questions, code execution, and symbolic mathematics. The platform enables instructors to build customizable assessments with randomized variables, ensuring unique problem sets for each student. PrairieLearn is available both as a free open-source platform for self-hosting and as a paid, cloud-hosted service with multiple institutional pricing tiers.	University of Maryland (https://ask.eng.umd.edu/154888)	High Difficulty – self-/campus-hosting + LTI	Low Cost (open-source)
ChatGPT Edu	Generative AI tuned for education; creates personalized explanations, quizzes, and assists with coding for CS/engineering.	Duke University (https://oit.duke.edu/service/chatgpt-edu/)	Moderate (requires collaboration between IT Services and LMS administrators)	Medium Cost
Quizlet AI	AI-enhanced flashcards, quizzes, and practice tests that automatically generate study materials from course content or instructor inputs. Useful for reinforcing engineering formulas, computer-science concepts, and key definitions through spaced repetition and adaptive questioning. The tool can be helpful	Purdue University (https://onlineteachinghub.education.purdue.edu/quizlet/)	Medium Difficulty – external tool / LTI options	Low Cost

Tool Name	Description (Eng/CS Context)	Example Universities (with link)	Integration Difficulty (Blackboard LMS)	Estimated Cost
	for anyone who needs to memorize textual, visual, or audio information on a topic.			
Course Hero AI	Generative study aids; universities typically address this in academic-integrity guidance rather than endorse for teaching.	University of California (https://copyright.universityofcalifornia.edu/ownership/protect-course-materials.html)	N/A – typically not integrated; see note	Medium Cost
Otter.ai	Live transcription/lecture-note prep; searchable notes for engineering & CS lectures; supports accessibility.	Amherst College (https://www.amherst.edu/offices/it/academic-technology-services/tlt/inclusive-practices-with-technology/digital-access-and-inclusive-teaching-using-otter-ai)	Low Difficulty – exports linked into LMS	Low Cost
Microsoft Copilot	AI assistant inside M365 for lecture notes, outlines, quiz drafts, rubric ideas, and content summarization.	University of Minnesota (https://it.umn.edu/services-technologies/good-practices/microsoft-copilot-guidance-instructors)	Medium Difficulty – via institutional M365	Medium Cost
Notion AI	AI-powered workspace for organizing lecture notes, study guides, and team wikis in engineering/CS courses.	Johns Hopkins University (https://imagine.jhu.edu/classes/learning-notion/)	Medium Difficulty – external tool; manual linking	Low Cost
Google NotebookLM	Source-grounded AI assistant that analyzes course materials (PDFs, lecture notes, slides, web pages, transcripts) to summarize readings, generate study guides, and create lecture outlines. Supports contextual question-answering and synthesis across multiple sources.	Indiana University (https://toolfinder.iu.edu/tools/notebooklm)	Medium Difficulty – external tool; manual linking	Low Cost

Recommended Solution:

ChatGPT Edu, Copilot, and Turnitin are the recommended solutions because they are strong candidates for supporting faculty in course preparation, assessment design, and academic review. In particular, ChatGPT Edu and Copilot are among the best options for faculty productivity, especially for preparing and revising lecture notes, drafting slides, generating tutorial material, drafting homework and exam questions, and producing sample solutions, rubrics, and feedback comments. In my view, these two platforms fit the faculty-support side of the section very well, since the report explicitly includes tools that assist faculty in preparing lectures and exams and support lecture-note preparation and generative AI content creation. At the same time, they are not the strongest standalone choices for grading-heavy deployment. For that part, the more specialized tools in the list are stronger, such as Gradescope for grading workflows and feedback, PrairieLearn for randomized STEM assessments, MATLAB Grader for MATLAB-based courses, and Codio/Vocareum for programming labs and auto-grading.

ChatGPT Edu:

- I have not used ChatGPT Edu directly, but I have extensive experience with the personal paid version of ChatGPT, so my assessment is based on that use and on the institutional capabilities associated with ChatGPT Edu.
- It is highly useful for preparing and revising lecture notes, drafting slides, creating tutorial material, generating alternative explanations, drafting homework and exam questions, and producing model answers or grading rubrics for instructor review.
- In engineering and computer science courses, it is especially valuable for coding examples, debugging demonstrations, and step-by-step worked solutions.
- The main benefit of ChatGPT Edu for AUS would be to provide these capabilities through an institutionally managed environment rather than requiring individual faculty subscriptions.
- Faculty can upload their own slides, notes, assignments, and course materials to obtain more focused and course-specific responses.
- All generated outputs should still be reviewed carefully by faculty members before being used in teaching or assessment.

Microsoft Copilot

- Based on my use of Copilot through Microsoft 365, I find it most useful for preparing and refining teaching materials within the Microsoft ecosystem.
- It is effective for drafting lecture outlines in Word, revising notes, restructuring PowerPoint slides, summarizing documents, drafting homework or exam instructions, and producing first-pass rubrics, feedback comments, and tutorial handouts.

- Its main practical advantage at AUS is its natural alignment with Microsoft 365 tools already used by many instructors, such as Word, PowerPoint, Outlook, and Teams.
- Compared with ChatGPT, I find Copilot generally stronger for document-based productivity than for extended technical dialogue or richer tutorial-style interaction.
- Faculty can also use their own notes, slides, and course documents as source material to obtain more focused responses.
- As with ChatGPT Edu, all outputs should be reviewed carefully before adoption in lectures, assessments, or student-facing materials.

Turnitin

- Turnitin is a complementary faculty-support tool, especially for grading written homework, project reports, and papers.
- Its main value is in supporting academic integrity during assessment and review rather than preparing lecture material.
- It helps faculty check similarity, identify overlapping text, and support the review of written submissions.
- **Its AI-writing indicators may provide an additional signal when faculty suspect possible AI-generated text.**
- However, these indicators should be used cautiously and never as standalone proof.
- Turnitin should therefore be treated as a decision-support tool that complements instructor judgment, oral follow-up, draft review, and process-based assessment rather than replacing them.

3.5 Research Tools

AI tools can significantly enhance research productivity and impact within the College of Engineering and AUS. AI-powered research tools can assist faculty and graduate students.

The following analysis provides a comprehensive evaluation of leading AI tools designed to support academic research. Each tool is examined in terms of its capabilities, advantages, limitations, cost implications, and areas of application.

Tool	Capabilities	Advantages	Disadvantages	Estimated Cost	Areas of Application
Scopus AI	Literature search, citation analysis, trend prediction	Comprehensive database, reliable metrics	Subscription required, limited open access	High (Institutional license)	Systematic reviews, bibliometrics
ScienceDirect AI Agent	Personalized recommendations, summarization	Access to full-text, high-quality journals	Paywall for many articles	Medium to High	Literature reviews, topic exploration
Web of Science Assistant	Citation mapping, research discovery	Strong citation network, impact analysis	Expensive, limited to indexed journals	High	Meta-analysis, citation studies
ASTA Agents	Paper finding, summarization, data analysis	Free, open-source, customizable	Limited support, smaller database	Free	Literature synthesis, exploratory research
SciSpace	Paper summarization, concept explanation	User-friendly, integrates with references	Limited to supported formats	Freemium	Quick paper comprehension, student research
Elicit	Evidence synthesis, automated literature review	Saves time, structured outputs	May miss niche papers, requires validation	Freemium	Systematic reviews, hypothesis generation

The following table provides the strategic insidght for each tool

AI Tool	Strategic Insight
Scopus AI	Excellent for research impact forecasting and institutional planning.
ScienceDirect AI Agent	Ideal for deep literature reviews and quick comprehension.
Web of Science Research Assistant	Best for citation network studies and research evaluation.
ASTA Agents (AllenAI)	Great for cost-sensitive researchers and open-source projects.
SciSpace	Excellent for early-career researchers and students.
Elicit	Ideal for policy research and structured evidence synthesis.

Recommended Solution:

Scopus AI and ASTA Agents are the recommended solutions for research.

Scopus AI (https://www.scopus.com/pages/home#scopus-ai).

Scopus AI combines trusted, peer-reviewed content with sophisticated AI to deliver faster, deeper insights.

Built for academic workflows, it accelerates discovery, identifies patterns and supports strategic thinking—all while championing academic rigor.

The users will type a query into Scopus AI in the words, format and language of their choice. Scopus AI then sources and uses relevant Scopus content to generate a Topic summary and an Expanded summary.

Each response references the sources used and indicates the tool's confidence in relevance. If it can't find sufficient evidence, the strict prompt engineering instructs Scopus AI to tell the user and suggest alternative queries—greatly reducing the risk of hallucinations.

Conversational history provides an overview of all the topics the user previously explored, allowing the user to revisit key insights anytime and resume queries where the user left off.

Emerging themes identifies and categorizes established, rising and novel themes based on treh user query, enabling the user to pinpoint "white space" that the user can target for publications, collaborations and funding opportunities.

For each identified theme, Emerging themes provides a mini-summary, references, and suggested research hypotheses.

Scopus Ai is part of Scopus subscription.

ASTA Agents (https://allenai.org/asta/agents),

Asta offers an AI-powered literature search system—like Google Scholar on steroids. It breaks down a query into components, searches for papers, follows citations, evaluates for relevance, and then presents studies along with summaries of why each is pertinent to the original query.

Asta's summarization tools answer complex scientific questions at speed and scale. Asta hunts through our 100 million-paper abstract index and our new 12.4 million full-text index and re-ranks the best passages—filtering, clustering, and weaving the evidence into a readable mini-review.

Asta's data analysis capabilities synthesize results, generate visualizations, and spot patterns that inform next steps—making it easier to extract insights from data. Using natural language, researchers can describe what they want, and Asta will deliver.

ASTA agents are open source free of charge.

3.6 Material Design

Several solutions were reviewed for material design. The following solutions stood out in terms of material design.

- NotebookLM: This is provided by Google and is powered by their Large Language Model (LLM) Gemini. It accepts inputs in the form of PDFs, Google Docs, Slides, websites, YouTube videos, and audio files. It can summarize the information in documents. It lets users ask queries about the documents, can help develop flashcards, generate questions about the contents, and can even generate podcasts about given topics.
- Slidespeak: This tool helps generate presentations from various prompts or even pdf documents. It is better than SlidesGPT and offers more functionality and templates. The slides can be ported out in pptx format. However, in some trials with this software the application was crashing due to some unknown errors.
- Gamma.app: This tool can also generate high quality slides from text prompts or documents. The experience with this application was seamless. The generated slides were high quality and even included images generated from AI. The slides can be exported as .pptx slides.
- Beautiful.AI: This tool generates more visually appealing results than Gamma.app and Slidespeak

One important thing to note is that, one must check the content for correctness, with the generated slides. As per online sources, slidespeak is best for factual correctness, Gamma is great for interactive slide design, and beautiful AI excels in design. Gamma may be a good compromise, however the content may need to be checked for correctness.

Recommended Solution:

Beautiful AI is recommended as a tool for material design.

Dr Usman tested the tool Beutifule AI (https://www.beautiful.ai/) and recommended it for the purpose of creating slides. Notebook LM can also create slides but the slide creation is in beta version and it fails several times. Hence, out recommendation for slide generation would be Beautiful.ai.

- It can even take a pdf and convert it into a slide deck.
- Verified students (with a .edu email) are eligible for a free annual Beautiful.ai Pro subscription.
- Also support SSO authentication

Other teaching material: For other teaching material generation, the recommendation would be Notebook LM.

Pricing can be customized for enterprise use it can be for individual use.

3.7 Program Assessment and Evaluation for Accreditation

AI is not used extensively in program assessment and evaluation for accreditation. Accreditation bodies permits AI-assisted gathering/summarizing/analyzing data and preparing materials, but requires verification by qualified personnel and does not allow AI to replace human judgment in continuous improvement and in closing of the loop. They encourage building of processes around AI assists, but require human verification and validation.

A shortlist of AI and or analytics-enabled tools that universities commonly adapt to support accreditation processes such as program evaluation, assessment and continuous-improvement workflows.

Application Name	Description	Features
Anthology Accreditation Management	Anthology Accreditation Management is a cloud-based accreditation management platform that focused on higher education. It centralizes evidence, narratives, and workflows required for institutional and program-level accreditation, particularly for universities and colleges using Blackboard/Anthology's ecosystem.	Provides strong integration with Blackboard LMS; structured accreditation workflows; centralized documentation for consistent and efficient evaluation. It is a comprehensive assessment platform with evaluation tracking, outcomes assessment, curriculum mapping, and accreditation reporting for structured workflows.
AEFIS	AEFIS (Assessment, Evaluation, Feedback and Intervention System) it is a web-based platform that integrates with learning management systems (LMS). It supports curriculum mapping, outcomes alignment, direct and indirect assessment, and real-time data collection to inform program improvement.	AEFIS
Watermark Insights	A comprehensive data analytics platform designed to enhance institutional effectiveness. It aggregates data from multiple campus sources to provide a holistic view of institutional performance, monitor key performance indicators, and track student outcomes.	The platform provides holistic views of institutional performance.
ExamSoft	An assessment platform with evaluation and analytics tools. primarily serves as a digital assessment platform with analytics capabilities that extend into program evaluation territory.	The platform offers item analysis, performance tracking, and comparative analytics that help evaluators understand program effectiveness

Application Name	Description	Features
Questionmark	An online assessment platform that operates as a specialized platform with reporting and analytics features that support program evaluation activities.	The platform provides detailed analytics on assessment performance and can track learning outcomes achievement across programs.
HelioCampus	Used for outcomes mapping, evidence collection, and automated workflows and dashboards for program review. The platform leverages AI-ready data analytics to navigate institutional data and supports a robust, integrated assessment process.	Fits ABET Style well. Built for assessment, accreditation pipelines; integrates SIS/LMS.
Weave	It provides a collaborative environment designed to help higher education institutions prepare effectively for both institutional and programmatic accreditations.	Purpose built for accreditors/standards. It promotes sharing, providing informed insights into student learning and outcomes to ensure academic quality
Nuventive Improvement Platform	It supports strategic planning, outcome assessment, and reporting through interactive dashboards, aligning performance measures with institutional goals and providing analytics for informed decision-making.	Good for continuous improvement and closing the loop

4. AUS Existing Productivity and Teaching Tools Available to Faculty/Staff

AUS provides a comprehensive suite of productivity and teaching tools designed to support faculty and staff. The following table list the available tools.

Tool	Use Cases	Link	Notes
Microsoft Teach Assistant	Assists in curriculum planning, homework & assessments, study aids & flashcards.	office.com	
Google AppSheet	A no-code application development platform that enables users to build custom mobile apps directly from data sources such as Google Sheets. It incorporates AI features like app creation from text prompts, predictive modeling, and intelligent automation, allowing users to generate functional tools quickly. It can be used to create solutions for lab equipment tracking,	appsheet.com	

Tool	Use Cases	Link	Notes
	student project logs, research data entry, or event management without requiring programming expertise.		
JotForm AI Agents	Jotform AI Agents allow for building no-code conversational assistants that guide users through forms, answer student or faculty questions, and trigger downstream workflows (for example, scheduling lab time, routing project-approval forms, or collecting survey responses). Each agent can be customised with a knowledge base drawn from institutional materials (lab safety, course-registration rules, internal processes) and deployed on multiple channels (web chat, mobile, perhaps WhatsApp) so students or staff can access help anytime.	forms.aus.edu	License options can be discussed based on departmental needs and existing agreements.
n8n	n8n is an open-source automation platform that allows faculty to design custom workflows for repetitive academic or administrative tasks without needing to code. In a teaching context, it can be used to automate form responses, grade distribution, or dataset preparation for classroom use, while also supporting research activities such as scheduled data retrieval or report generation.		As an open-source platform under a fair-code license, n8n can be deployed on campus infrastructure, providing faculty and administrators with controlled access to workflows and data. On-premise hosting can be considered subject to institutional approvals, data governance policies,

Tool	Use Cases	Link	Notes
			and resource availability.
Microsoft Whiteboard	Collaborative digital whiteboard for brainstorming, teaching, and interactive sessions.	office.com	
Circularo	Circularo is a secure digital platform for managing documents and e-signatures, useful for faculty and administrative workflows such as approvals, research agreements, and lab access forms. It supports automated routing and audit trails		License options can be discussed based on departmental needs and existing agreements.
Zotero	Reference manager with automatic citation formatting.		
Google Gemini Student	Free 1 year access to NotebookLM Pro, Gemini Pro, and 2 TB of Google Drive Storage. Can be availed using the student's personal account.	https://gemini.google/students/	Available till 9/12
Overleaf	Online LaTeX editor for academic papers and theses.		Free premium for .edu users
Pear Deck	Pear Deck enables instructors to convert existing lecture slides into interactive sessions that collect real-time student input, supporting engagement and formative assessment within a classroom or lab setting. Its AI components, Instant Pear Decks and Pear Start, generate lesson materials and analyze student responses to streamline preparation and highlight areas where learners encounter difficulty.	https://www.peardeck.com/	Not managed by AUS
Tableau for Students	Data visualization and storytelling platform.	https://www.tableau.com/academic/students	Free 1-year license renewable. Not managed by AUS
M365 Prompt Coach Agent	Provides AI-powered prompt guidance for using LLM chatbots (ChatGPT, etc.)	office.com	

Tool	Use Cases	Link	Notes
Microsoft Sway	For creating interactive presentations, newsletters, and reports.	sway.cloud.microsoft	
Microsoft Planner	Task and project planning using lists and Kanban boards	planner.cloud.microsoft	
Microsoft Loop	Co-creation workspace combining notes, tasks, and pages in real time.		Notion Alternative
NotebookLM	AI research assistant that summarizes and connects insights from uploaded PDFs & notes.		
Google Vids	AI-powered video creation and presentation tool	vids.google.com	
GitHub Student Developer Pack	Access to premium developer tools (GitHub Copilot, Replit, Canva Pro etc.) for free.	education.github.com/pack	
Google Sites	Create internal course pages, portfolios, or project documentation without coding.	sites.google.com	
Google Gemini	AI assistant to support in writing, summarizing, and teaching tasks.	https://www.notion.com/product/notion-for-education	
Notion Education Plan	AI-supported note-taking, course organization, and collaborative workspace.		Not managed by AUS
Miro Education Plan	Collaborative whiteboard for project planning, concept maps, and student brainstorming.		Not managed by AUS

5. Recommendations

The College of Engineering AI Task Force identified feasible and high-impact AI applications across academic and operational domains. These initiatives are expected to enhance learning, streamline administrative processes, and support the college's digital transformation journey. The taskforce recceomnds the following:

- Enhancing Survey Response Rates: To improve the quality and representativeness of feedback, it is recommended to increase the survey response rate.
- Focus Groups: Hold focus session per user focus to identify areas for application improvement.
- Privacy Concerns: The major concern with using any AI tool is privacy. We need to ensure that any tool we use does not train on our data, as this could lead to data leakage and the exposure of our sensitive documents to the public.
- Data Governance & Ethics: Establish clear policies for AI data use, privacy, and compliance.

- Capacity Building: Conduct faculty and staff workshops on AI literacy, ethical use, and tool integration.
- Continuous Evaluation: Develop KPIs to assess adoption success and scalability.
- Coordinate with IT to deliver training to faculty on the currently available tools