Designing Rubrics for AI-Enabled Assignments

# Designing Rubrics for AI-Enabled Assignments

This resource provides templates and guidance for creating effective evaluation rubrics for engineering assignments that incorporate AI tools. These rubrics are designed to assess both technical competency and appropriate AI use.

## Why AI-Specific Rubrics Matter

Traditional assessment rubrics may not adequately evaluate how students: - Appropriately leverage AI capabilities - Critically evaluate AI-generated content - Demonstrate their own understanding despite AI assistance - Document their AI use process

Well-designed rubrics for AI-enabled assignments help instructors fairly evaluate student work in this new environment while incentivizing appropriate AI use.

## Sample Rubrics

### 1. Engineering Design Project Rubric

This rubric is designed for evaluating design projects where students may use AI tools for ideation, analysis, or documentation.

| Criterion | Excellent (4) | Proficient (3) | Developing (2) | Beginning (1) |
| --- | --- | --- | --- | --- |
| **Problem Understanding** | Demonstrates deep understanding of problem; AI used to enhance understanding | Good understanding of problem; AI appropriately used for clarification | Basic understanding of problem; over-reliance on AI for problem definition | Minimal understanding; uncritical acceptance of AI’s problem framing |
| **Design Process Documentation** | Clear documentation of where AI was used vs. original work; thoughtful reflection on AI contributions | Good documentation of AI use; reflection on AI benefits/limitations | Basic documentation of AI use; minimal reflection | Poor or missing documentation of AI use |
| **Technical Analysis** | Rigorous analysis of design; AI used strategically to enhance work | Solid analysis; appropriate use of AI for calculations | Basic analysis; excessive reliance on AI without verification | Minimal analysis; acceptance of AI outputs without understanding |
| **Innovation & Creativity** | Original ideas enhanced by AI exploration; novel combinations or applications | Good balance of original thinking and AI suggestions | Limited originality; heavy reliance on AI-generated ideas | Minimal originality; direct use of AI suggestions without modification |
| **Communication Quality** | Exceptional clarity; strategic use of AI for communication enhancement | Clear communication; appropriate AI use for editing | Basic communication; over-reliance on AI for content creation | Poor communication; unedited AI-generated content |

[Download Full Rubric Template (DOCX)](#Xa39a3ee5e6b4b0d3255bfef95601890afd80709)

### 2. Technical Report Assessment Rubric

This rubric evaluates technical reports where students may use AI for research, analysis, or writing assistance.

| Criterion | Excellent (4) | Proficient (3) | Developing (2) | Beginning (1) |
| --- | --- | --- | --- | --- |
| **Literature Review** | Comprehensive review; AI used to identify relevant sources with critical evaluation | Solid review; appropriate use of AI for source discovery | Basic review; over-reliance on AI summaries without verification | Minimal review; uncritical acceptance of AI-generated literature summaries |
| **Technical Accuracy** | Highly accurate content; AI used to enhance accuracy and check work | Generally accurate; appropriate use of AI for verification | Some inaccuracies; AI outputs accepted with minimal verification | Significant inaccuracies; uncritical acceptance of AI outputs |
| **Analysis & Synthesis** | Sophisticated analysis; AI used to enhance depth while demonstrating independent thinking | Good analysis; appropriate integration of AI-assisted insights | Basic analysis; heavy reliance on AI-generated analysis | Minimal analysis; direct use of AI outputs without demonstration of understanding |
| **Citation & Attribution** | Perfect citations; clear attribution of AI contributions | Proper citations; appropriate acknowledgment of AI use | Some citation issues; inconsistent acknowledgment of AI use | Poor citations; no acknowledgment of AI assistance |
| **Writing Quality** | Exceptional writing; strategic use of AI for enhancement while maintaining voice | Solid writing; appropriate AI use for editing | Basic writing quality; excessive reliance on AI-generated text | Poor writing; unedited AI-generated content |

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## Implementation Guidelines

### For Instructors

1. **Be explicit about AI use expectations**
   * Clearly communicate where and how AI tools may be used
   * Specify documentation requirements for AI assistance
2. **Focus on process, not just outcomes**
   * Require documentation of AI interactions
   * Ask for reflection on how AI influenced the work
3. **Emphasize critical evaluation**
   * Reward verification and validation of AI outputs
   * Assess how students evaluate AI-generated content

### For Students

1. **Document your AI use process**
   * Record prompts used and how outputs were incorporated
   * Explain your decision-making about accepting/modifying AI suggestions
2. **Demonstrate understanding**
   * Explain concepts in your own words
   * Show how you verified or improved upon AI outputs
3. **Use AI strategically**
   * Focus on using AI to enhance your work, not replace your thinking
   * Be prepared to explain your AI use choices

## Customization Tips

The provided templates should be adapted based on: - Course level (introductory vs. advanced) - Assignment specifics and learning objectives - Department or institutional policies on AI use - Specific AI tools being utilized

## Download Materials

* [Complete Rubric Collection (ZIP)](#Xa39a3ee5e6b4b0d3255bfef95601890afd80709)
* [Editable Rubric Templates (DOCX)](#Xa39a3ee5e6b4b0d3255bfef95601890afd80709)
* [Rubric Implementation Guide (PDF)](#Xa39a3ee5e6b4b0d3255bfef95601890afd80709)

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