**Oakland University Assessment Committee**

**Assessment Plan Template**

**Step 1: Basic Information**

Program Name: Bachelor of Science in Artificial Intelligence

School or College your program resides in: School of Engineering and Computer Science

Program Level (check all that apply):

Undergrad X

Master’s ☐

Doctoral ☐

Date Plan Submitted: 01/10/2023

Current Assessment Contact Representative (& E-mail): Marouane Kessentini, [kessentini@oakland.edu](mailto:kessentini@oakland.edu)

Current Department or Program Chair (& E-mail): Marouane Kessentini, [kessentini@oakland.edu](mailto:kessentini@oakland.edu)

Current Dean (& E-mail): Louay Chamra, [chamra@oakland.edu](mailto:chamra@oakland.edu)

**Step 2: Type of Assessment Plan**

**Option A.** Programs that have an external accrediting agency other than the Higher Learning Commission may be eligible to use their accreditor’s response in lieu of following the UAC’s standard process. These programs use the UAC’s ‘external accreditation mapping’ form instead of this form. For more information, please contact the UAC/OIRA liaison Reuben Ternes ([ternes@oakland.edu](mailto:ternes@oakland.edu)). Programs without external accreditation should proceed to option B.

**Option B**. If you are not accredited by an external body (or your accreditor’s standards do not meet the standards set by the Higher Learning Commission), then proceed to Steps 3-5 to create your assessment plan. Members of the UAC are always willing to work with individuals from any department to develop or revise their assessment plans. In addition, the Office of Institutional Research and Assessment (OIRA) has some very helpful tools for faculty and departments listed [on their website](http://www.oakland.edu/oira). If at any time you have any questions, need any assistance, or would like to schedule a meeting with any UAC representatives, please contact the UAC and OIRA liaison, Reuben Ternes ([ternes@oakland.edu](mailto:ternes@oakland.edu)).

**Step 3: Aligning Program Goals, Student Learning Outcomes, and Assessment Measures**

The Department of Computer Science and Engineering already offers three undergraduate degree programs. The new program would utilize the same assessment procedures.

The assessment plan for the new courses in the BS in Artificial Intelligence degree (including the core courses) will be coordinated by the CSE department and will use both direct and indirect assessment to evaluate how well students are achieving the core outcomes of each individual course.

Regarding direct assessments, they will include an anonymized assessment of student coursework to be sampled at random from the core courses. Thus, the selected work will be cumulative and synthetic to each course, such as final projects, and then the program faculty will develop quality rubrics to assess the outcomes of each course and the level of achievement by current students. Coursework will be sampled annually.

Indirect assessments of the program and new core courses will include standard institutional metrics, including (but not limited to) application statistics, enrollment data, completion and persistence rates, and student surveys (current and graduate). The program will also conduct student interviews (group and individual) to understand student perceptions of program and course operation. Annual assessments of the program will be conducted for the first four years in an effort to continually improve the admissions rubric and to identify curricular gaps and employment trends, as well as program strengths and weaknesses. [The](#bookmark19) following table shows a provisional timeline for program assessment. A comprehensive program review will be conducted at the close of the program’s fifth year.

A provisional timeline for program assessment

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment Plan** | **Timeline** | AY 23/24 | | | AY 24/25 | | | AY 25/26 | | | AY 26/27 | | | AY 27/28 | | |
| F | Sp | Su | F | Sp | Su | F | Sp | Su | F | Sp | Su | F | Sp | Su |
| Current Student Survey | Every Summer |  |  | x |  |  | x |  |  | x |  |  | x |  |  | x |
| Graduate Surveys | Annually after graduation for first cohort |  |  |  |  |  |  |  |  |  |  | x |  |  | x |  |
| Program Data | Every Summer |  |  | x |  |  | x |  |  | x |  |  | x |  |  | x |
| Student Coursework | Every Summer |  |  | x |  |  | x |  |  | x |  |  | x |  |  | x |

The objective of the BS in AI is to graduate AI Engineers by achieving the following goals:

**Goal 1:** Understand representations, algorithms and techniques used across works in Artificial Intelligence and be able to apply and evaluate them in applications as well as develop their

own.

**Goal 2:** Understand and apply machine-learning techniques, in particular to draw inferences from data and help automate the development of AI systems and components.

**Goal 3:** Understand the various ways and reasons humans are integrated into mixed human-AI environments, whether it is to improve overall integrated system performance, improve AI performance or influence human performance and learning.

**Goal 4:** Understand the ethical concerns in developing responsible AI technologies.

**Goal 5:** Implement AI systems, model human behavior, and evaluate their performance.

**Measures.**

The overall success of the BS in AI is measured by whether the students can demonstrate achievement of all learning outcomes as they graduate. In order to assess the students’ achievement, the CSE Dept. faculty have selected one direct measure and one indirect measure.

Direct Measure. Key courses are identified in the BS in AI where students have the opportunity to demonstrate the achievement of the program learning outcomes. These courses are chosen to ensure that all of the learning outcomes are demonstrated.

When a key course is under review, student materials are collected that provide evidence that the outcomes have been achieved, such as homework assignments, laboratory assignments, project assignment and exams. External evaluators (faculty not directly involved with the course, engineers from industry and CSE Dept. Advisory Board members) review these materials to establish whether the students in that class have achieved some or all of the program outcomes.

The rubric used by the external evaluators is presented in the following. Note that every assignment is not expected to demonstrated competency in all learning outcomes. Hence, a customized rubric containing only the appropriate learning outcomes is generated for each assignment. The rubrics are generated by any CSE Dept. faculty member from the SECS assessment website. The CSE Dept. faculty meet to review the results of these external evaluations and generate appropriate plans to improve the achievement of the program outcomes.

Indirect Measure. Each CSE M.S. course has a set of course outcomes, developed by the instructing faculty and the CSE Dept. Graduate Committee, which ensure the logical sequence of topics necessary to the eventual achievement of the program outcomes. At the end of each semester, the students in each course rate how well that particular course section achieved its outcomes. The CSE faculty review all of these course evaluations each semester at a department faculty meeting and generate appropriate plans to improve the achievement of the program outcomes.

**Step 4: Participation in Assessment Process**

1. Who is involved in the assessment planning process in your program? (i.e. all faculty, tenured faculty only, all full-time faculty, etc.)

All faculty, students, industry advisory board and alumni

2. Who is involved in the implementation of assessment in your program?

CSE chair, CSE academic programs coordinator

3. Who is involved in discussing the results?

All faculty, students, industry advisory board and alumni

4. Do faculty in your program receive credit or recognition for their work on assessment? If yes, what type?

Yes, part of the annual service activities.

**Step 5: Plan for Analyzing and Using Assessment Results to Improve Program**

1. How will you analyze your assessment data?

The CSE Dept. faculty has chosen an embedded approach to program assessment. Key courses have been identified the BS in AI program where students have the opportunity to demonstrate the achievement of the program outcomes; the sets of key courses are chosen to ensure that all of the program outcomes are demonstrated. Student materials are collected from the key courses that provide evidence that the outcomes have been achieved. External evaluators, including faculty not directly involved with the course and departmental advisory board members, review these materials to establish whether the students in that class have achieved some or all of the program outcomes. Every semester, the CSE Dept. faculty review the results of these external evaluations and generate appropriate plans to improve the achievement of the program outcomes.

Each CSE course has a set of course outcomes, developed by the instructing faculty and CSE Graduate Committee, which ensure the logical sequence of topics necessary to the eventual achievement of the program outcomes. At the end of each semester, the students and faculty in each course rate how well that particular course section achieved its objectives. The faculty identifies the specific program outcome(s) achieved in the course and provide evidence in support of their contention. In addition, students and faculty are encouraged to comment on how well the course fits into the overall scheme of the program and to suggest improvements to the course, the course outcomes and the overall program of study.

B. How will you use results to improve your program?

The CSE Dept. holds a faculty meeting at the beginning of each semester to review all external evaluations and end-of-course evaluations from the prior semester and develop any needed plan for improvement.

**Step 6: Submit Assessment Plan**

Send completed form electronically to [ternes@oakland.edu](mailto:ternes@oakland.edu).