GEOMATICS DEPARTMENT
SURVEY OPTION
Oregon Institute of Technology
NWCCU Assessment Report
2022-2023 Academic Year

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1 Program Introduction

Geomatics education has been offered virtually since the inception of the Oregon Institute of Technology, with an associate degree in Surveying initiated in 1951. The program was accredited by the Engineer's Council on Professional Development (ECPD) in 1953. ECPD is now recognized as ABET. A baccalaureate Surveying Technology degree was offered in 1966 and accredited by TAC-ABET in 1970. The program was one of the first two Bachelor of Science surveying programs nationwide to receive RAC-ABET accreditation in 1984. The geomatics program has enjoyed 70 years of continuous accreditation under ABET or its predecessor, ECPD. Oregon Tech can be proud of having the oldest BS Geomatics program in the nation. The degree title of the program was officially changed from Surveying to Geomatics in 2001, reflecting a global trend recognizing the broadening of the profession and the impact of a revolution in advanced technology. Since 2007, the department has offered the BS Surveying option (former BS Geomatics degree) and the BS GIS option on the Klamath Falls campus.

Table 1-1 Geomatics department enrollment trends

Fall Terms	**Year (2018-19)**	**Year (2019-20)**	**Year (2020-21)**	**Year (2021-22)**	**Year (2022-23)**
Full-time Students	34	38	21		

2 Program Summary

On June 12, 2024, the Geomatics Department faculty met and reviewed the department mission, program educational objectives (PEOs) and Program Student Learning Objectives (PSLOs) listed below. Faculty affirmed that the department mission, PEOs, and PSLOs still meet the goals of the program.

The mission of the Geomatics Department is to provide students with fundamental knowledge and skills in the geomatics discipline. The Surveying Option prepares students to pass the Fundamentals of Surveying (FS) examination and pursue licensure as a registered Professional Land Surveyor (PLS). The GIS Option prepares students to become certified GIS Professionals. All students learn the professional responsibility of protecting the health, safety and welfare of the public, and become aware of global and cultural issues.

Program educational objectives are statements that describe the expected accomplishments of graduates during the first few years after graduation, usually 3-5 years. These objectives are consistent with the mission of the program and the institution**.**

Graduates of the Oregon Tech Geomatics Options will:

1. Acquire the ability to obtain professional licensure and/or certifications in the geospatial industry.
2. Advance in the geospatial industry during their career by becoming involved in local, state, national, or international professional organizations.
3. Obtain industry positions requiring increased responsibility.
4. Assume responsibility for lifelong learning in professional and personal development.
5. Demonstrate readiness for graduate education and/or advanced technical education.

(1) An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
(2) An ability to formulate or design a system, process, procedure or program to meet desired needs.
(3) An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use

Geomatics student professional learning opportunities include:

1. Geomatics Student Club community service activities. Each year, students in the Geomatics Club are encouraged to take on survey/GIS-related projects that benefit the community. These projects provide the students with exposure to real-world projects, negotiations, and fulfillment of a specific scope of work, as well as the opportunity to work with other disciplines.
2. The National Society of Professional Surveyors (NSPS) National Geomatics Student Competition. If a critical mass of students are committed to participating, a fundraising drive is initiated to supplement funding provided by the department and professional organizations. In 2020, two Geomatics students won the NSPS Student Project of the Year, which involved a surveying/GIS application.
3. Professional Land Surveyors of Oregon (PLSO) annual conference. Students volunteer as runners to assist with conference details, attend technical paper presentations, and staff an Oregon Tech Geomatics department booth.
4. GME 468 Geomatics Practicum. Students are responsible for completing several community service projects for city, county, state, and federal agencies.
5. Industry speakers are invited to present at the PLSO Student Chapter meetings.
6. Students are encouraged to participate in professional organizations, such as becoming a student member of PLSO.

3 Summary of Six-Year Assessment Cycle

Performance Criteria:

GME 241 Students must analyze land records and field surveying data to support a legal decision regarding land boundaries.

Students are rated based on the following scores:

1) Below 50% of the score
2) Above 50% of the score
3) Above 60% of the score
4) Above 70% of the score
5) Above 80% of the score

4.1.2.1 GME 241

Table 4-8Rubric For
PLSO (3): An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions. GME 241 – Legal Aspects of Land Survey I

Performance Criteria	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**	**Above 80% of the score (5)**
Ability to analyze field data and support legal decision	Little or no ability to effectively analyze data	Some, but limited ability to effectively analyze data	Some limitations on the ability to effectively analyze data	Ability to effectively analyze data	Excellent ability to effectively analyze data

Departmentally Expected Score:

For PSLO (3), the Geomatics Department expects 70% of students to score a 4 or 5 in all categories.

Table 4-9 GME 241: Assessment results

Performance Criteria	**Assessment Method**	**Measurement Scale**	**Minimum Acceptable Performance**	**Results**
Report Score 1	HW4 - Research	1 to 5 scale	70%	76%
Report Score 2	HW5 - Research	1 to 5 scale	70%	88%

Table 4-10 GIS 241: The number of students assessed. Appendix C

Performance Criteria / Number of Students Assessed	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**

Report Score 1	3	1	0	3	10	17

Table 4-11 Rubric For
PLSO (3) "An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions." GIS 316 – Geospatial Vector Analysis I.

Performance Criteria	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**	**Above 80% of the score (5)**
Understanding the problem of concerns	No evidence of understanding the problem of concerns	Some, but limited understanding of the problem of concerns shown	Some understanding of the problem of concerns	Clear evidence of understanding the problem of concerns	Suggestions to solve the problems
Defining relevant indicators	No evidence of understanding the concept of indicators	Some, but limited understanding of the concept of indicators	Some understanding of the concept of indicators	Clear evidence of understanding of the concept of indicators	Clear definitions of indicators with good examples.
Understanding how to analyze, interpret, and visualize data and draw conclusions.	No evidence of understanding how to analyze, interpret, and visualize data and draw conclusions	Some, but limited understanding how to analyze, interpret, and visualize data and draw conclusions	Some understanding how to analyze, interpret, and visualize data and draw conclusions	Clear evidence of understanding how to analyze, interpret, and visualize data and draw conclusions	Providing the specific units how to analyze, interpret, and visualize data and draw conclusions

Departmentally Expected Score:

For PSLO (3), the Geomatics Department expects 70% of students to score a 4 or 5 in all categories.

Table 4-12 GIS 306: Assessment results

Performance Criteria	**Assessment Method**	**Measurement Scale**	**Minimum Acceptable Performance**	**Results**
Understanding the problem of concerns	Lab6: MAUP	1 to 5 scale	70%	

Understanding how to analyze, interpret, and visualize data and draw conclusions.

6 “Closing the Loop” – Changes Resulting from Assessment

The following is a summary of areas identified during the last assessment cycle as areas that need additional monitoring or improvement:

No significant shortcomings were identified, and with the department currently understaffed no major curriculum changes will be undertaken.

Senior Exit Survey – data from the Senior Exit Survey for 2022 are shown in Appendix E.

Casual conversations during the year indicate that student progress toward the program and student learning objectives were adequate to excellent for the courses under assessment for the 2022-2023 academic year.

7 NCEES Fundamentals of Surveying Exam Results –

The department expectation for students taking the NCEES Fundamentals of Surveying Exam is 90%. The data available from NCESS for this assessment cycle shows students' passing percentages are 67% (Fall 2022), 50% (Spring 2022), and 100% (Spring 2023). Students are required to take the FS exam as a graduation requirement and are encouraged to form study groups during the winter term and take the exam during the spring quarter of their senior year.

8 Appendices

8.5 **2022-23**

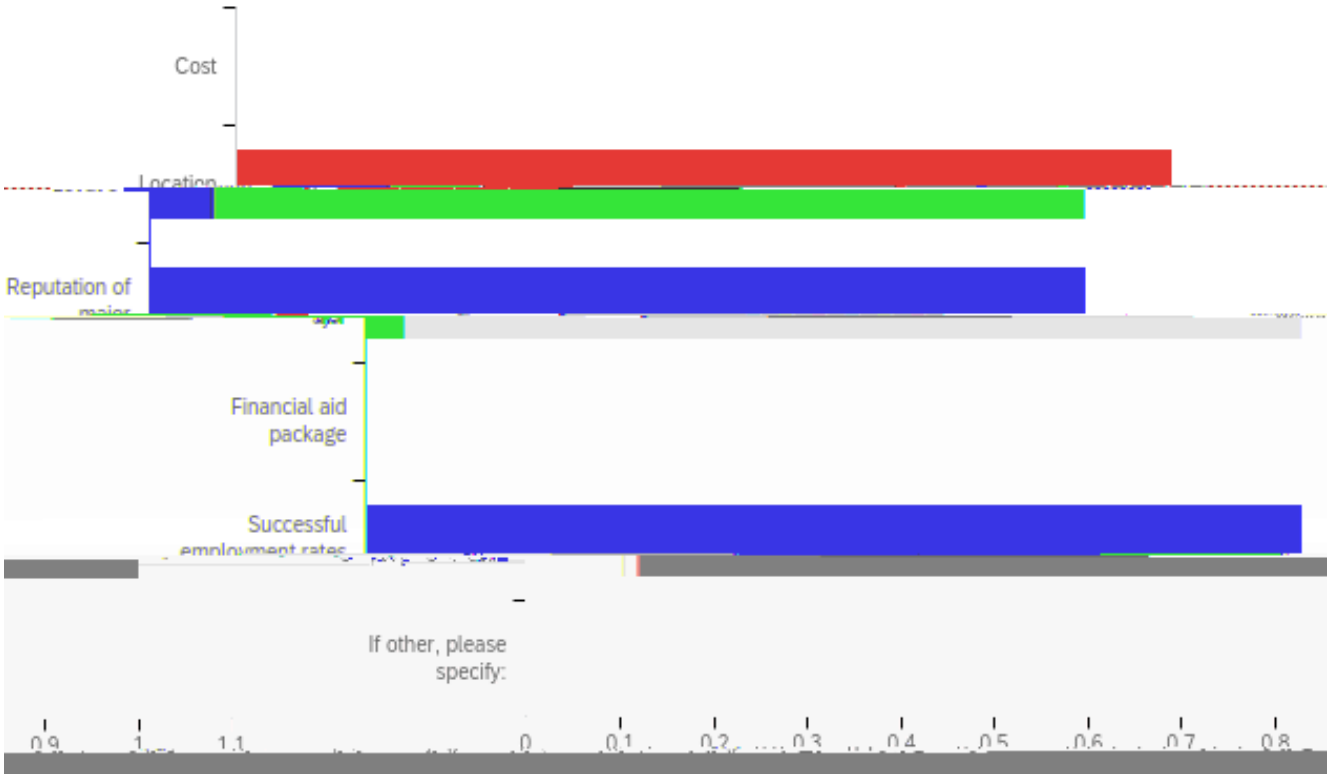
	and societal context.									
9	i. A recognition of the need for, and an ability to engage in life-long learning.	0.00%	0	0.00%	0	100.00 %	1	0.00%	0	1
10	j. A knowledge of contemporary issues.	0.00%	0	0.00%	0	100.00 %	1	0.00%	0	1
11	k. An ability to use the									

	of the need for, and an ability to engage in life-long learning.						
10	j. A knowledge of contemporary issues.	3.00	3.00	3.00	0.00	0.00	1
11	k. An ability to use the						

	formulate or design a system, process or program to meet desired needs.									
4	d. An ability to function on multi-disciplinary teams.	100.00 %	1	0.00%	0	0.00%	0	0.00 %	0	1
5	e. An ability to identify and solve applied science problems.	0.00%	0	100.00 %	1	0.00%	0	0.00 %	0	1
6	f. An understanding of professional and ethical responsibility.	0.00%	0	0.00%	0	100.00 %	1	0.00 %	0	1
7	g. An ability to communicate effectively.	0.00%	0	100.00 %	1	0.00%	0	0.00 %	0	1
8	h. Th0 (									

	for, and an ability to engage in life-long learning.									
10	j. A knowledge of contemporary issues.	0.00%	0	0.00%	0	100.00%	1	0.00%	0	1
11	k. An ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1

Q BGMS 3 - What attracted to you to Oregon Tech? Please check all that apply.



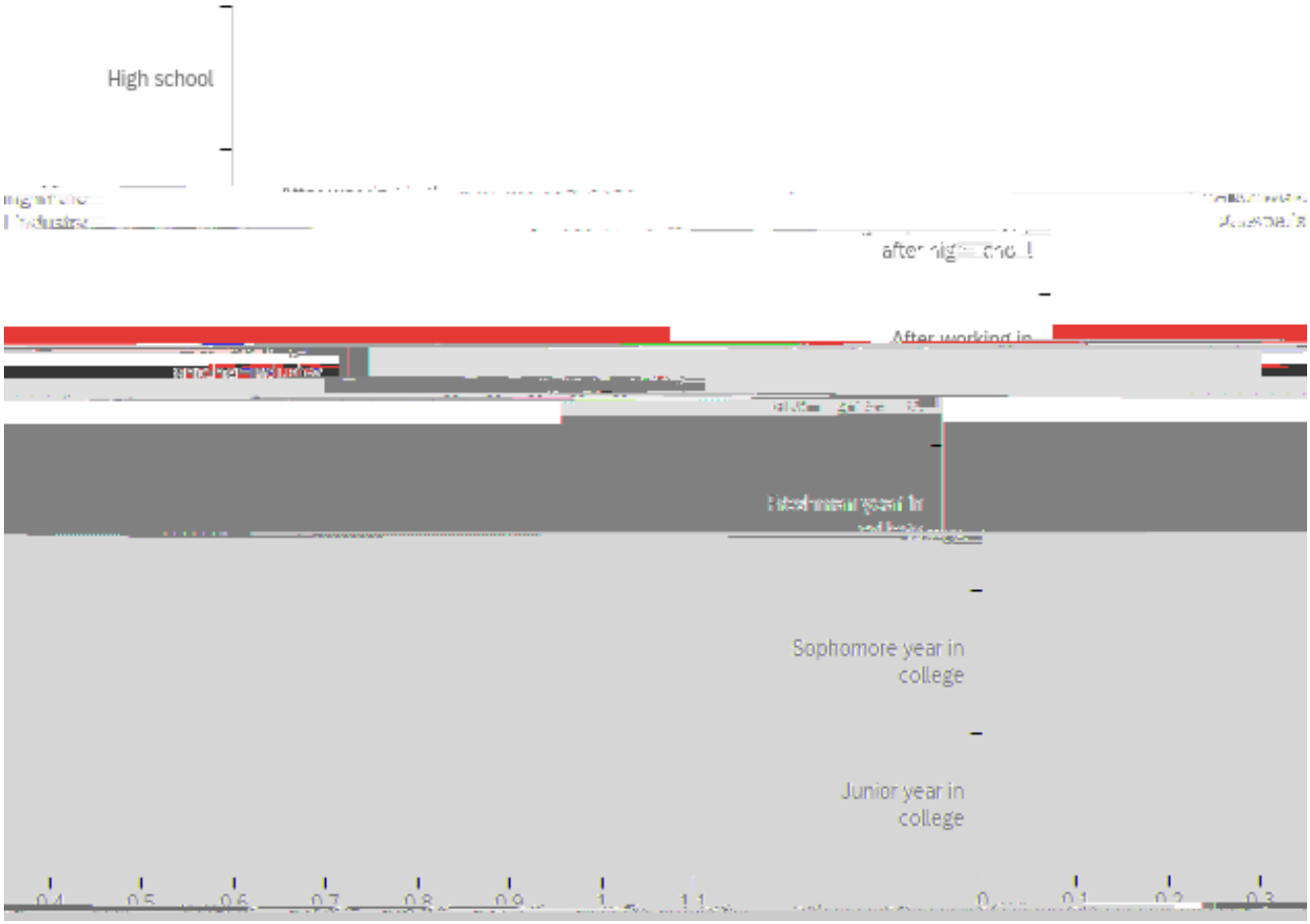
#	Answer	%	Count
1	Cost	0.00%	0
2	Location	33.33%	1
3	Reputation of major	33.33%	1
4	Financial aid package	0.00%	0
5	Successful employment rates	33.33%	1
6	If other, please specify:	0.00%	0
	Total	100%	3

Q BGMS 3_6_TEXT - If other, please specify:
If other, please specify: - Text

#	Answer	%	Count
1	Yes	100.00%	1
2	If not, which university was your first choice?	0.00%	0
	Total	100%	1

Q BGMS 4_2_TEXT - If not, which university was your first choice?
If not, which university was your first choice? - Text

Q BGMS 5 - When did you choose Geomatics as a major?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	When did you choose Geomatics as a major?	3.00	3.00	3.00	0.00	0.00	1

#	Answer	%	Count
1	High school	0.00%	0
2	After working in the geospatial industry after high school	0.00%	0
3	After working in another industry after high school	100.00%	1
4	Freshman year in college	0.00%	0
5	Sophomore year in college	0.00%	0
6	Junior year in college	0.00%	0

	Total	100%	1

Q BGMS 6 - How many summer internships did you complete?

How many summer internships did you complete?

3