Weber State University
Biennial Report on Assessment of Student Learning

Cover Page

Department/Program:
Academic Year of Report: 2022 and 2023 (covering Summer 2021 through Spring 2023)
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Report due 11/15/2023

The Institutional Effectiveness website hosts a page for each program that displays assessment reports and information. All available biennial assessment and program review reports are located at the bottom of the program's page on our site. As a part of the biennial report process, we ask that you please review your page for completeness and accuracy, and indicate below the changes that need to be made in sections A-E.

Program page link: https://www.weber.edu/ie/Results/Computer_Engineering.html

A. Mission Statement

Information is current; no changes required.

B. Student Learning Outcomes

(Please include certificate and associate credential learning outcomes)

Information is current; no changes required.

C. Curriculum Grid

Information is not current; changes are required.

Please remove rows for ECE 3120, ECE 3310 and ECE 3510 from the curriculum grid. These are not required courses for computer engineers.

Note: a new course ECE 3620 was added in 2023 but the course has not yet been offered and therefore not assessed. The curriculum grid will be updated in the 2025 Biennial assessment to reflect the new course.

If instead you would like to add it at this time, the matrix is

ECE 3620	Microprocessor Architecture	M	M			M	H	M

D. Program and Contact Information

Information is current; no changes required.

E. Assessment Plan

Information is not current; changes are required.

Replace the last paragraph with:

At the program level, if the mean score for a given course is 2.85 or greater, no action is taken, but a mean score of less than 2.85 suggests deficiencies in the course or program that require discussion and correction by the program faculty:

F. Student Achievement

Of students who reached the 90 credit mark in 2021-2022, only 1 student (3%) has graduated withinn 2 years. This is in stark contrast with pre-COVID years where an average of 11 students (about 31%) graduated within 2 years. However, it should be noted that this metric is misleading for the Computer Engineering Program because many of our students start in other disciplines or accumulate a significant number of credits in lower division mathematics, and therefore reach the 90 credit mark even before taking junior Computer Engineering courses. A more representative metric would be to measure how long it takes a student to complete his or her final 30 credits.

Enrollments of more traditional students has surged since the COVID era, and we expect the graduation rates to normalize again before the next biennial report..

G. Evidence of Learning

Instructors assess each outcome of each course using a 4-point score based on the ability of 85% of the class to meet the thresholds laid out in the course assessment rubrics. (For classes of 6 students or less, all but one student must meet the threshold). Course assessments of courses taught in the 2022-2023 academic year are included here.

ECE COURSE RUBRIC	Computer Engineering Majors
COURSE	ECE 1270 Intro to Electric Circuits (4)
SEMESTER	Fall
YEAR	2022
INSTRUCTOR	Dyer
NUMBER OF CE STUDENTS	10

S = 1 or 2: action initiated by instructor
S = 3 or 4: no action initiated by instructor

Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Analyze a basic circuit using node and mesh techniques.	1	Cannot identify nodes or meshes within a circuit	Can identify and write nodes anc meshes equations to describe a with independent sources	Can identify and write node and expressions to describe a circuit independent and dependent soı	Can utilize node and mesh to solve circuits and find voltages and currents within a circuit with independent and dependent sources	3	N	
Derive Thevenin and Norton equivalent circuits.	1	Cannot derive the Thevenin and I equivalent of a circuit	Can derive the Thevenin or Norto equivalent circuit but not both	Can derive both the Thevenin anc Norton equivalents of a circuit	Can derive and convert between Thevenin and Norton equivalent circuits	**3**	N	
Explain the function of passive circuit elements.	1	Cannot explain the function of pa circuit elements	Can explain the function of 1 of tl passive circuit elements	Can explain the function 2 of the passive circuit elements	Can explain the function all of the passive circuit elements	**4**	N	
Utilize Phasors to determine sinu steady-state waveforms response.	1	Cannot apply phasors to determi response	Can utilize phasors to convert waveforms and circuit elements I cannot determine response	Can utilize phasors to convert waveforms and circuit elements t apply circuit analysis	Can utilize phasors to convert waveforms and circuit elements to determine response	3	N	
Conduct tests on basic circuits.	1	Cannot utilize lab equipment to t basic circuits	Can utilize frequency independe laboratory equipment to test bas circuits	Can utilize all necessary lab equ to test basic circuits	Can utilize all necessary lab equipment to determine parameters of basic circuits	3	N	
					Average Score for Course =	**3.2**		
					(Transfer this number to course continuous improvement record)			

ECE COURSE RUBRIC	Computer Engineering Majors
COURSE	ECE 2700 Digital Circuits (4)
SEMESTER	FA
YEAR	22
INSTRUCTOR	Gardner
NUMBER OF CE STUDENTS	5

S = 1 or 2: action initiated by instructor
S = 3 or 4: no action initiated by instructor

Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Design and build combinational circuits using gates and inverters.	1	Cannot derive logic expressions.	Derives logic expressions but cannot design and build combinational logic circuits.	Designs and builds combinational logic circuits but is unable to test them without help.	Design, builds and tests conbinational logic circuits without help.	3		
Design and build sequential circuits using gates, inverters and flip flops.	1	Cannot derive state diagrams from problem statements.	Derives state diagrams but is unable to design state machines from them.	Designs state machines but is unable to build and test them without help.	Designs, builds and tests state machines with no help.	3		
Compute propagation delays and maximum clock frequency.	1	Recognizes the critical path through a combinational circuit.	Computes propagation delays for combinational circuits but not for sequential circuits.	Computes minimum clock period (maximum clock frequency) for sequential circuits.	Computes maximum clock freqency for sequential circuits in the presence of clock skew.	2	Y	Small sample size with abnormally poor
Analyze circuits that use medium scale integrated devices.	1	Cannot analyze circuits containing any medium scale integrated device.	Analyzes circuits with an integrated device that is based in combinational logic.	Analyzes circuits with an integrated device that is based in sequential logic.	Analyzes circuits with multiple integrated devices.	2	Y	Small sample size with abnormally poor
Convert numbers from/to binary, decimal and hexadecimal.	1	Cannot convert the base of any number.	Converts numbers from binary to decimal or vice versa.	Converts numbers from binary to both decimal and hexdecimal.	Converts numbers from binary, decimal or hexadecimal to any of the other two bases.	3		
Design logic circuits that use binary numbers.	1	Cannot design any device that uses binary numbers.	Designs a device to add binary numbers.	Designs an ALU to perform simple arithmetic operations.	Designs a binary multiplier or divider.	3		
					Average Score for Course =	2.7		
					(Transfer this number to course continuous improvement record)			

ECE COURSE RUBRIC	Computer Engineering Majors							
COURSE	ECE 3610 Digital Systems (4)							
SEMESTER	Fall							
YEAR	22						S = 1 or 2: action initiated by instructor	
INSTRUCTOR	Gardner						S = 3 or 4: no action initiated by instructor	
NUMBER OF CE STUDENTS								
Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Analyze microprocessor architecture.	1	Cannot identify major components or pipeline stages of a microprocessor.	Identifies components and/or pipeline stages but cannot determine how instructions affect them.	Determines the effect of various instructions on the components and/or pipeline stages.	Determines the timing of instructions as they pass through components and/or pipeline stages.	3		
Design a digital system using a hardware description language.	1	Cannot define the functional blocks and interfaces necessary to solve a problem.	Defines functional blocks and interfaces but cannot reduce them to hardware description language.	Writes working hardware description language for a digital system.	Writes working hardware description language that is well organized and documented.	3		
Write a test bench using a hardware description language.	1	Cannot write a test bench that works.	Writes a test bench that does not test all the necessary cases.	Writes a test bench that tests all necessary cases.	Writes a test bench that tests all necessary cases and reports errors when they occur.	3		
Simulate and debug a digital system using software design tools.	6	Unable perform a circuit simulation.	Performs circuit simulation but is unable to make corrections in the digital system without help.	Uses simulation results to make corrections in the digital system.	Uses simulation results of internal (nested) nodes to make corrections.	3		
					Average Score for Course =	3.0		
					(Transfer this number to course continuous improvement record)			

ECE COURSE RUBRIC	CE				
COURSE	ECE 3890 Internship (1)				
SEMESTER	Fall				
YEAR	2022				S = 1 or 2: action initiated by instructor
INSTRUCTOR	Hearn				S = 3 or 4: no action initiated by instructor
NUMBER OF CE STUDENTS	3				

Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Students shall participate in tean problem-solving activities	5	Student project was self motivate little to no industrial support.	Student project was supported by industry partners but the student interacted with a single point of	A team (composed sole of studer based project was supported by a industry partner.	A team (composed of both studer and employees) based project was supported by an industry partner.	2		
Students shall demonstrate ethic workplace	4	Student violated an ethical polic	Students did not understand the ethics in engineering.	Students conceptually understan	Students identified an unethical situation and took the correct course of action.	3		
Students shall demonstrate professionalism in the workplace	4	Students did not demonstrate professionalism.	Students completed the required hours/week requirement.	Students identified specific profe related goals and tried to obtain	Students set and obtained all professional related goals.	3		
Students shall demonstrate communications (presentations, memos, meetings, reports, etc.) in the workplace	3	Students did not complete assigr course work.	Students took part in team meeti but did not complete any written evidence (including assigned coursework).	Students took part (responded) ir verbal and written forms of communications and completed all required coursework.	Students took part (lead) in both and written forms of communications.	3		
Students shall discus how the cor provides engineering solutions in a global, economical, environmental, and social context.	2,4	Students did not know the impac the company.	Students were able to identify at one impact of the company.	Students were able to paint a cor picture of the companies impact.	Students were identified areas ir improvements could be made that would increase desirable impacts and/or decrease undesirable impacts.	3		
Students shall learn industrial pr and practices of the company.	7	Students are unable to identify a one policy or procedure.	Students know were to find comp policy and procedure manuals.	Students understand and are abl identify at least one policy and procedure.	Students consistently cite the cor policy and procedure manual.	3		
Students shall explain how the cc stays abreast of contemporary issues.	4	Students are unaware of contem issues related to the company.	Students were able to identify at one contemporary issues related company.	Students were able to paint a cor picture of the contemporary issue related to the company.	Students identified areas in whic improvements could be made that would keep the company a leader in the industry.	3		
Students shall demonstrate techr skills, and modern engineering tools, used within the company.	6	Students did not use any techniq skills, or engineering tools in ful Co-op/Internship requirements	Students use only one technique or engineering tools in fulfilling Co-op/Internship requirements	Students use either hardware or software based techniques, skill engineering tools in fulfilling the Co-op/Internship requirements	Students use either hardware an software based techniques, skills, or engineering tools in fulfilling the Co-op/Internship requirements	4		
					Average Score for Course =	3.0		
					(Transfer this number to course continuous improvement record)			

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ECE COURSE RUBRIC	Computer Engineering Majors							
COURSE	ECE 4010 Senior Project (2)		COMPONENTS					
SEMESTER			Design Document 1c	Goal Sheets 4d, 5d, 6d	Survey 4d, 5d, 6d, 7d, 9f, 11i, 12j			
YEAR			Project Plan 2c, 2f	Log book 8f			S = 1 or 2: action initiated by instructor	
INSTRUCTOR			Design Review Evals 3c, 3g	Contract 10g			S = 3 or 4: no action initiated by instructor	
NUMBER OF CE STUDENTS	2	(1 withdrawn)						
Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
1. Define the requirements of a design.	2	Cannot ascertain any relevant requirements.	Defines functional requirements only	Defines all relevant requirements.	Documents all relevant requirements in a well organized way.	3.5	N	Gavin would have scored 3, Trenton would have scored 4.
2. Develop a project plan.	2,4	Cannot break a project into tasks.	Breaks a project into tasks.	Schedules tasks and identifies milestones.	Documents a project plan that includes the list of stakeholders, the task descriptions, the schedule and	4	N	
3. Conduct a design review.	2,3	Unable to prepare or give a design review presentation without help.	Gives a presentation but cannot answer questions.	Gives a presentation and answers questions satisfactorily.	Makes a presentation that is interesting and engages the audience.	3	N	
4. Share the workload.	5	Does not set goals or sets goals that are substantially less work than those of the other teammates.	Sets goals with the team but often does not reach them.	Sets goals with the team and usually reaches them.	Provides leadership in the goal setting process and always reaches goals.	3	N	
5. Fulfill assigned duties as a team member.	5	Rarely fulfills assigned duties.	Often fails to fulfill assigned duties.	Fulfills assigned duties almost all the time	Fulfills assigned duties and performs additional work if necessary.	3	N	
6. Contribute individual expertise to the group	5	Does not express his strengths or weakness to the team.	Is willing to use his expertise to help the team but does not volunteer.	Volunteers his expertise when it is helpful.	Carries a heavier share of the load for those times in the project when his expertise is needed.	3	N	
7. Demonstrate collegiality and congeniality with teammates.	5	Belittles other teammates	Is polite to other team-mates.	Is friendly to other teammates and shows respect for their technical ability.	Causes other teammates to feel a sense of accomplishment for their contribution to the project.	3	N	
8. Maintain an engineering logbook	4	Does not use a logbook.	Fills in the log book after the fact.	Makes useful and contemporaneous notes in the log book.	Maintains the log book with "good documentation practices."	3	N	
9. Manage a budget	4	Does not create a project budget before spending money.	Spends money off-budget or fails to keep receipts.	Spends money only when budgeted and keeps all	Finds ways to complete the project under budget.	3	N	
10. Write a project proposal	3	Does not write a project proposal.	Proposes a project, but fails either to state the problem or explain an approach to solving	Writes a proposal that states the problem, proposes a solution and names the	Writes a proposal that also gives the schedule, milestones and budget.	3.5	N	
11. Describe the concepts and knowledge areas required for a senior project that are not covered in other engineering courses.	7	Cannot name any required concept or knowledge area that is not covered in an engineering course.	Names a concept or knowledge area required for the project, but cannot explain how it applies.	Names one concept or knowledge area and explains how it applies to the project.	Names multiple concepts and/or knowledge areas and explains how they apply to the project.	4	N	
12. Describe how the student's senior project addresses contemporary issues.	4	Cannot name a contemporary issue addressed by the senior project.	Names one or more contemporary issues addressed by the project.	Explains how the project addresses contemporary issues from a technical standpoint.	Explains how the project addresses contemporary issues from a societal, economical or political standpoint.	3.5	N	
					Average Score for Course =	3.3		
					(Transfer this number to course continuous improvement record)			

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ECE COURSE RUBRIC	Computer Engineering Majors							
COURSE	ECE 4100 Control Systems (4)							
SEMESTER	Fall							
YEAR	2022						S = 1 or 2: action initiated by instructor	
INSTRUCTOR	hearn						S = 3 or 4: no action initiated by instructor	
NUMBER OF CE STUDENTS	2					* Scores determined by other faculty from evidence found after co		
Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Students shall apply block and signal flow diagrams to circuits	1	Student does not understand block or signal flow diagrams	Student can only apply either block or signal flow diagrams to circuits	Student can apply both block and signal flow diagrams to simple circuits	Student can apply both block and signal flow diagrams to electromechanical systems	4		
Students shall describe steady and transient behavior	1	Student does not understand steady and transient behavior	Student is able to describe steady state behaviors for simple systems.	Student is able to describe steady state and transient behaviors for simple systems.	Student is able to describe steady state and transient behaviors for electromechanical systems.	4		
Students shall describe state space	1	Student do not understand state space	Student is able to relate state space models to transfer function models.	Student is able to describe either controllable or observable state space systems	Student is able to describe both controllable and observable state space systems	2	yes	allocate more time for state space systems
Student shall design a stable electromechanical system	1	Student can not analyze a stable electromechanical system	Student can analyze a stable electromechanical system	Student can design a stable electromechanical system	Student can optimize the design of a stable electromechanical system for various requirements.	3		
Students shall utilize root locus concepts to estimate system response	1	Student does not understand root locus concepts.	Student understands root locus analysis concepts.	Student can utilize root locus analysis and design concepts for 2nd order systems.	Student can utilize root locus analysis and design concepts for higher order systems.	3		
Students shall determine transfer functions characteristics from experiment data sets.	6	Student can perform the required experiments but cannot interpret the resulting data sets.	Student can conduct and interpret experiments need to determine a 1st order transfer function.	Student can conduct and interpret experiments need to determine a 2nd order transfer function.	Student can conduct and interpret experiments need to determine a higher order transfer function.	2	yes	allocate more time for empirical TFs
					Average Score for Course =	3.0		
					(Transfer this number to course continuous improvement record)			

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ECE COURSE RUBRIC	Computer Engineering Majors	
COURSE	ECE 1400 Fundamentals of Engineering Computing	
SEMESTER	Spring	
YEAR	2023	S = 1 or 2: action initiated by instructor
INSTRUCTOR	West	S = 3 or 4: no action initiated by instructor
NUMBER OF CE STUDENTS	11	

Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Solve engineering problems in Pyt	1	Able to use Python in interactive mode only	Can write simple though incompl Python scripts	Can write Python programs with some instructor assistance	Able to independently solve engi problems Python software solutions	3		
Solve engineering problems in C	1	Able to use Python in interactive mode only	Can write simple though incompl C programs	Can write C programs with some instructor assistance	Able to independently solve engi problems C software solutions	3		
Understand C memory manageme	1	Does not understand C memory management	Understands dynamic arrays but fails to properly manage memory	Can manage dyanmic memory mar ment with minimal memory leaks	Is able to construct complicated C-based data structures	3		
Productive UNIX environmen user	1	Does not understand UNIX termir navigation	Is able to navigate a UNIX termin using rudimentary commands	Is able to manage a software proje local computer	Is able to manage sophisticated software projects on a remote server	3		
					Average Score for Course =	3.0		
					(Transfer this number to course continuous improvement record)			

ECE COURSE RUBRIC	Computer Engineering Majors
COURSE	ECE 2260 Fundamentals Of Electric Circuits (4)
SEMESTER	Spring
YEAR	2023
INSTRUCTOR	Dyer
NUMBER OF CE STUDENTS	12

S = 1 or 2: action initiated by instructor
S = 3 or 4: no action initiated by instructor

Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Analyze transient responses for 1[st] 2nd order circuits	1	Cannot determine transient resp from 1st and 2nd order circuits	Can determine the natural respo from 1st order circuits	Can determine the natural respons from 1st order and the step respon of 1st order circuits or the natural response of 2nd order circuits.	Can determine the natural and step responses of 1st and 2nd order circuits	3	N	
Apply Laplace transforms to circui	1	Cannot apply Laplace transforms circuits	Can apply Laplace transforms to circuit elements but cannot solve circuit	Can apply Laplace transforms to circuits and solve the circuit in s-domain.	Can apply Laplace transforms to circuits and solve them in s-domain and perform the invers Laplace transform to return to time-domain.	3	N	
Apply Fourier transforms to signal	1	Cannot apply Fourier transforms signals	Can apply Fourier transforms to signals but cannot solve	Can apply Fourier transforms to signals and solve	Can apply Fourier transforms to signals and solve and apply inve transforms	3	N	
Analyze and construct passive filt	1	Cannot analyze or construct pass filters	Can construct low pass and high pass filters but not analyze them.	Can construct and analyze low pass and high pass filters.	Can analyze and construct multipole filters.	3	N	
					Average Score for Course =	**3.0**		
					(Transfer this number to course continuous improvement record)			

ECE COURSE RUBRIC	Computer Engineering Majors							
COURSE	ECE 3710 Embedded Systems (4)							
SEMESTER	Spring							
YEAR	2023						S = 1 or 2: action initiated by instructor	
INSTRUCTOR	Brown						S = 3 or 4: no action initiated by instructor	
NUMBER OF CE STUDENTS	6							
Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
Write a computer program in assembly language.	1	Cannot write a program that assembles.	Writes a program that assembles but does not work.	Writes a program that assembles and works but is poorly organized and	Writes a program that assembles, works and is well organized and documented.	**4**	N	
Write code to handle interrupts.	1	Cannot write interrupt handlers, or interrupt handlers cause the system to crash.	Writes interrupt handlers that do not cause the system to crash.	Writes interrupt handlers that work.	Writes interrupt handlers that work and are well documented.	**3**	N	
Debug a computer program using both hardware and software tools.	1	Debugs computer programs using trial and error.	Debugs computer programs using an interactive debugger only.	Debugs computer programs using an interactive debugger and basic laboratory equipment.	Debugs computer programs using an interactive debugger and a logic analyzer.	**2.5**	Y	Require oscilloscope output from DAC to be recorded in lab book.
Interface peripherals to a microcontroller or microprocessor using a bus.	1	Cannot interface peripherals to a microcontroller or microprocessor.	Interfaces peripherals using I/O ports only.	Interfaces one peripheral using a bus.	Interfaces multiple peripherals using a bus.	**3**	N	
Document the hardware and software of an embedded systems design.	2,3	Cannot document a design using an acceptable format.	Uses an acceptable format to document a design but leaves out important aspects.	Uses an acceptable format to document all the important aspects of a design.	Uses an acceptable format to document a design completely, clearly and concisely.	**3**	N	
Design a test plan and use it to verify that a system satisfies its requirements and costraints.	6	Can only perform tests on an ad hoc basis.	Designs a test plan but fails to verify the system satisfies the requirements or constraints.	Designs a suitable test plan and verifies that the requirements and constraints are satisfied.	Designs a suitable test plan and documents the requirements and constraints verified by each test.	**3**	N	
					Average Score for Course =	**3.1**		
					(Transfer this number to course continuous improvement record)			

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ECE COURSE RUBRIC	Computer Engineering Majors			
COURSE	ECE 4020 Senior Project (2)	COMPONENTS		
SEMESTER	Spring	Project Plan 1c, 1f	Goal Sheets 5d, 6d, 7d	
YEAR	2023	Design Document 2c, 2g, 3b, 13c	Log book 9f	S = 1 or 2: action initiated by instructor
INSTRUCTOR	Brown	Design Review Evals 4c, 4g	Survey 5d, 6d, 7d, 8d, 10f, 11i, 12j	S = 3 or 4: no action initiated by instructor
NUMBER OF CE STUDENTS	1			

Performance Indicator (PI)	Student Outcomes	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score (S)	Initiate action by instructor ?	Action to be initiated
1. Develop a project plan.	2,4	Cannot break a project into tasks.	Breaks a project into tasks.	Schedules tasks and identifies milestones.	Documents a project plan that includes the list of stakeholders, the task descriptions, the schedule and	4		
2.Write a design document.	2,3	Fails to document the design using any approved format.	Uses an approved format to document the design, but does not give enough detail to implement it.	Writes a document that describes a design completely using an approved format.	Writes a design document that is complete, clear and concise.	4		
3.Write a test plan.	6	Cannot figure out how to test the design.	Enumerates tests, but fails to list clear procedures or expected results.	Writes a test plan with clear procedures and expected results.	Writes a test plan that also ties each test to the requirement(s) it verifies.	3		
4. Conduct a design review.	2,3	Unable to prepare or give a design review presentation without help.	Gives a presentation but cannot answer questions.	Gives a presentation and answers questions satisfactorily.	Makes a presentation that is interesting and engages the audience.	3		
5. Share the workload.	5	Does not set goals or sets goals that are substantially less work than those of the other teammates.	Sets goals with the team but often does not reach them.	Sets goals with the team and usually reaches them.	Provides leadership in the goal setting process and always reaches goals.	3		
6. Fulfill assigned duties as a team member.	5	Rarely fulfills assigned duties.	Often fails to fulfill assigned duties.	Fulfills assigned duties almost all the time	Fulfills assigned duties and performs additional work if necessary.	3		
7. Contribute individual expertise to the group	5	Does not express his strengths or weakness to the team.	Is willing to use his expertise to help the team but does not volunteer.	Volunteers his expertise when it is helpful.	Carries a heavier share of the load for those times in the project when his expertise is needed.	3		
8. Demonstrate collegiality and congeniality with teammates.	5	Belittles other teammates	Is polite to other team-mates.	Is friendly to other teammates and shows respect for their technical ability.	Causes other teammates to feel a sense of accomplishment for their contribution to the project.	3		
9. Maintain an engineering logbook	4	Does not use a logbook.	Fills in the log book after the fact.	Makes useful and contemporaneous notes in the log book.	Maintains the log book with "good documentation practices."	3		
10. Manage a budget	4	Does not create a project budget before spending money.	Spends money off-budget or fails to keep receipts.	Spends money only when budgeted and keeps all	Finds ways to complete the project under budget.	4		
11. Describe the concepts and knowledge areas required for a senior project that are not covered in other engineering courses.	7	Cannot name any required concept or knowledge area that is not covered in an engineering course.	Names a concept or knowledge area required for the project, but cannot explain how it applies.	Names one concept or knowledge area and explains how it applies to the project.	Names multiple concepts and/or knowledge areas and explains how they apply to the project.	3		
12. Describe how the student's senior project addresses contemporary issues.	4	Cannot name a contemporary issue addressed by the senior project.	Names one or more contemporary issues addressed by the project.	Explains how the project addresses contemporary issues from a technical standpoint.	Explains how the project addresses contemporary issues from a societal, economical or political standpoint.	3		
13. Enumerate design requirements and constraints, then create a design that conforms to them.	2	Cannot list at least one requirement and one constraint.	Misses major requirements and constraints, or the design does not conform to them.	Lists all major requirements and constraints, and the design conforms to them.	Makes an exhaustive list of require-ments and constraints, and con-formance to them is documented.	3		
					Average Score for Course =	3.1		
					(Transfer this number to course continuous improvement record)			

Appendix A

Most departments or programs receive a number of recommendations from their Five/Seven-Year Program Review processes. This page provides a means of updating progress towards the recommendations the department/program is enacting.

Date of Program Review: August 2019	Recommendation	Progress Description
Recommendation 1	Disagregate course assessments for electrical and computer engineering	Completed
Recommendation 2	Remap course matrix to align with new ABET student outcomes (1-7 vs. a-k)	Completed

Additional narrative:

Appendix B

Please provide the following information about the full-time *and adjunct faculty* contracted by your department during the last academic year (summer through spring). Gathering this information each year will help with the headcount reporting that must be done for the final Five-Year Program Review document that is shared with the State Board of Regents.

Faculty Headcount	2019-20	2020-21	2021-22	2022-23
With Doctoral Degrees (Including MFA and other terminal degrees, as specified by the institution)				
Full-time Tenured	3	3	3	3
Full-time Non-Tenured (includes tenure-track)	4	4	5	5
Part-time and adjunct	0	0	0	1
With Master's Degrees				
Full-time Tenured	0	0	0	0
Full-time Non-Tenured	0	0	0	0
Part-time and adjunct	1	1	1	1
With Bachelor's Degrees				
Full-time Tenured	0	0	0	0
Full-time Non-tenured	0	0	0	0
Part-time and adjunct	0	0	0	0
Other				
Full-time Tenured	0	0	0	0
Full-time Non-tenured	0	0	0	0
Part-time	0	0	0	0
Total Headcount Faculty				
Full-time Tenured	3	3	3	3
Full-time Non-tenured	4	4	5	5
Part-time	1	1	1	2

Appendix C

Please respond to the following questions.

1) Looking back at your previous biennial report where you identified strategies for improvement, what progress has been made in implementing improvements?

   All improvements identified in the previous program review have been adopted.

2) Please take a few minutes to review the new DFWI dashboard in the Report Gallery. This dashboard allows you to see the percentage of students in each course who earn a D+, D, D-, E, W, UW, or NC grade. The data can be filtered by several parameters. Reflect on the DFWI rates overall and of your underserved minority students versus your Caucasian students:

   a. What are you seeing?
      DFWI Rates are relatively stable over all demographich groups where data are available except age. Students over 25 are significantly more likely to fail ECE courses.
   b. What concerns you?
      The failure rate for ECE 1400, an introductory course, is altogether too high.
   c. What additional data could be beneficial?
      We suspect that there may be a correlation between teacher and student outcome, but there is not way to compare one teacher's DFWI rates for a particular course with another.

3) We have invited you to re-think your program assessment. What strategies are you considering? What support or help would you like?

   Departments deal mostly in tactics rather than strategy. But we are considering refactoring ECE 1400 to give students more time to digest the material.

Glossary

Student Learning Outcomes/Measurable Learning Outcomes

The terms ‘learning outcome’, ‘learning objective’, ‘learning competency’, and ‘learning goal’ are often used interchangeably. Broadly, these terms reference what we want students to be able to do AFTER they pass a course or graduate from a program. For this document, we will use the word ‘outcomes’. Good learning outcomes are specific (but not too specific), are observable, and are clear. Good learning outcomes focus on skills: knowledge and understanding; transferrable skills; habits of mind; career skills; attitudes and values.

- Should be developed using action words (if you can see it, you can assess it).
- Use compound statements judiciously.
- Use complex statements judiciously.

Curriculum Grid

A chart identifying the key learning outcomes addressed in each of the curriculum’s key elements or learning experiences (Suskie, 2019). A good curriculum:

- Gives students ample, diverse opportunities to achieve core learning outcomes.
- Has appropriate, progressive rigor.
- Concludes with an integrative, synthesizing capstone experience.
- Is focused and simple.
- Uses research-informed strategies to help students learn and succeed.
- Is consistent across venues and modalities.
- Is greater than the sum of its parts.

Target Performance (previously referred to as ‘Threshold’)

The level of performance at which students are doing well enough to succeed in later studies (e.g., next course in sequence or next level of course) or career.

Actual Performance

How students performed on the specific assessment. An average score is less meaningful than a distribution of scores (for example, 72% of students met or exceeded the target performance, 5% of students failed the assessment).

Closing the Loop

The process of following up on changes made to curriculum, pedagogy, materials, etc., to determine if the changes had the desired impact.

Continuous Improvement
An idea with roots in manufacturing, that promotes the ongoing effort to improve. Continuous improvement uses data and evidence to improve student learning and drive student success.

Direct evidence
Evidence based upon actual student work; performance on a test, a presentation, or a research paper, for example. Direct evidence is tangible, visible, and measurable.

Indirect evidence
Evidence that serves as a proxy for student learning. May include student opinion/perception of learning, course grades, measures of satisfaction, participation. Works well as a complement to direct evidence.

HIEE – High Impact Educational Experiences
Promote student learning through curricular and co-curricular activities that are intentionally designed to foster active and integrative student engagement by utilizing multiple impact strategies. Please see https://weber.edu/weberthrives/HIEE.html