ABET ECE
Autumn 2025 Report

Tai Chen, ABET Faculty Coordinator

ELECTRICAL & COMPUTER ENGINEERING

Outline of the 2025 ABET Report

- Review of student outcome assessments
- Summary of the assessment results
- Follow-up items from the 2025–2026 ABET program review
- Discussion, recommendations, and action items

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Assessments

Assess students' work on 7 Student Outcomes (SOs):

(1) **Problems** An ability to identify, formulate, and solve **complex engineering problems** by applying principles of engineering, science, and mathematics
(2) **Design** An ability to apply engineering design to produce solutions that meet specified needs with consideration of **public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors**
(3) **Communication** An ability to **communicate** effectively with a range of audiences
(4) **Responsibility** An ability to recognize **ethical and professional** responsibilities in engineering situations and make informed judgments, which must consider the **impact of engineering solutions** in global, economic, environmental, and societal contexts
(5) **Teams** An ability to function effectively on a team whose members together provide **leadership**, create a **collaborative environment, establish goals, plan tasks, and meet objectives**
(6) **Experiment** An ability to develop and conduct appropriate **experimentation, analyze and interpret data**, and use engineering judgment to **draw conclusions**
(7) **Learning** An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Assessments

- Assess required courses (Core and Capstone) and 400-level suggested courses
- Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the outcome being measured.
- Assess students' work with 4 levels (novice (N), developing (D), competent (C), exemplary (E))
- Satisfactory of a SO: >75% of the sampled students in both C/E levels.

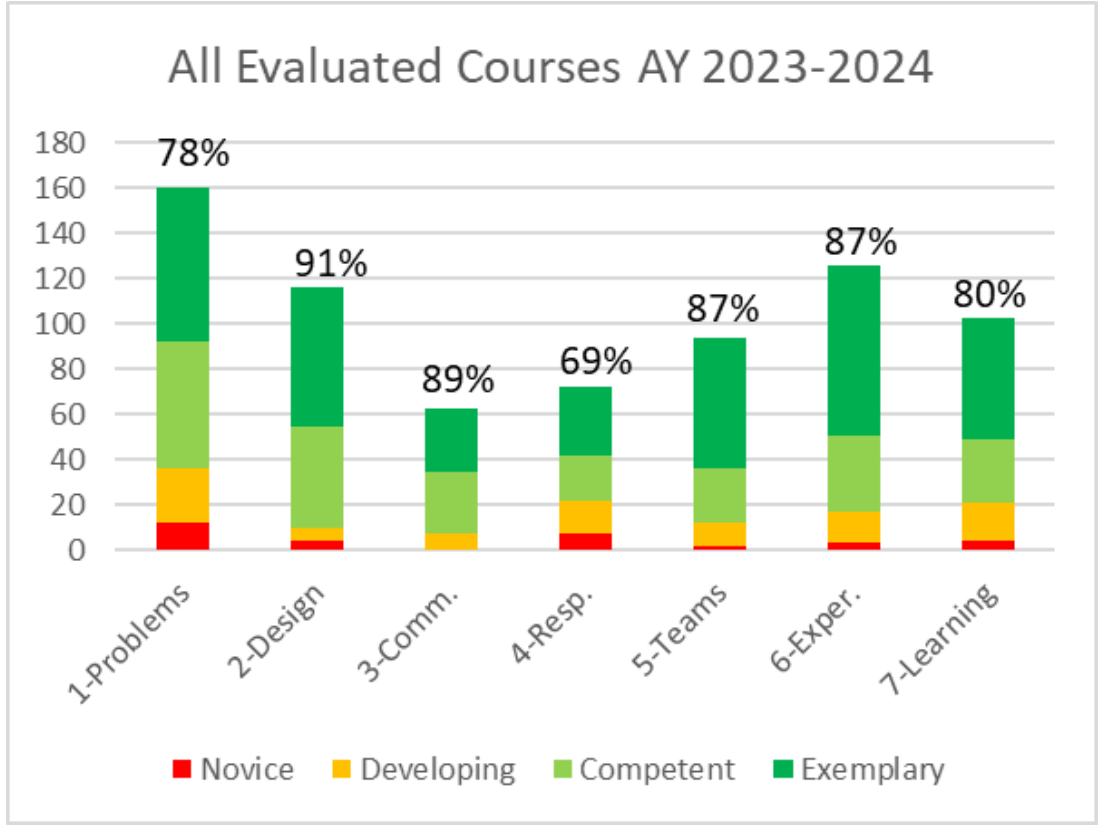
AY2024-2025 Overall Data

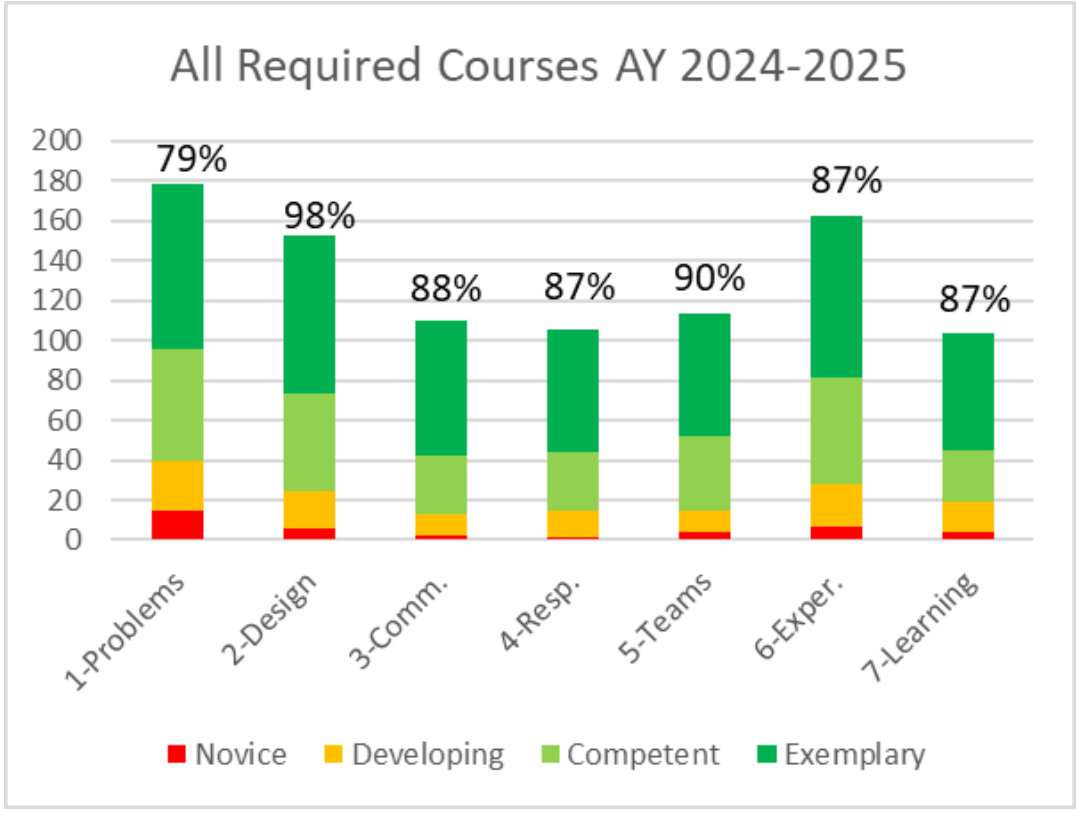
- Overall number of assigned assessments: 1003
- Compliance rate: 92%

		Novice	Developing	Competent	Exemplary		Assessed	Achieved	Percent
1-Problems	AY2425	15	25	56	82		178	138	78%
2-Design	AY2425	6	18	49	80		153	129	84%
3-Comm.	AY2425	2	11	29	68		110	97	88%
4-Resp.	AY2425	1	14	29	61		105	90	86%
5-Teams	AY2425	4	11	37	61		113	98	87%
6-Exper.	AY2425	7	21	53	81		162	134	83%
7-Learning	AY2425	4	15	26	59		104	85	82%

Overall Assessed Outcomes, All Evaluated Courses

- The student outcomes are satisfactory across the board





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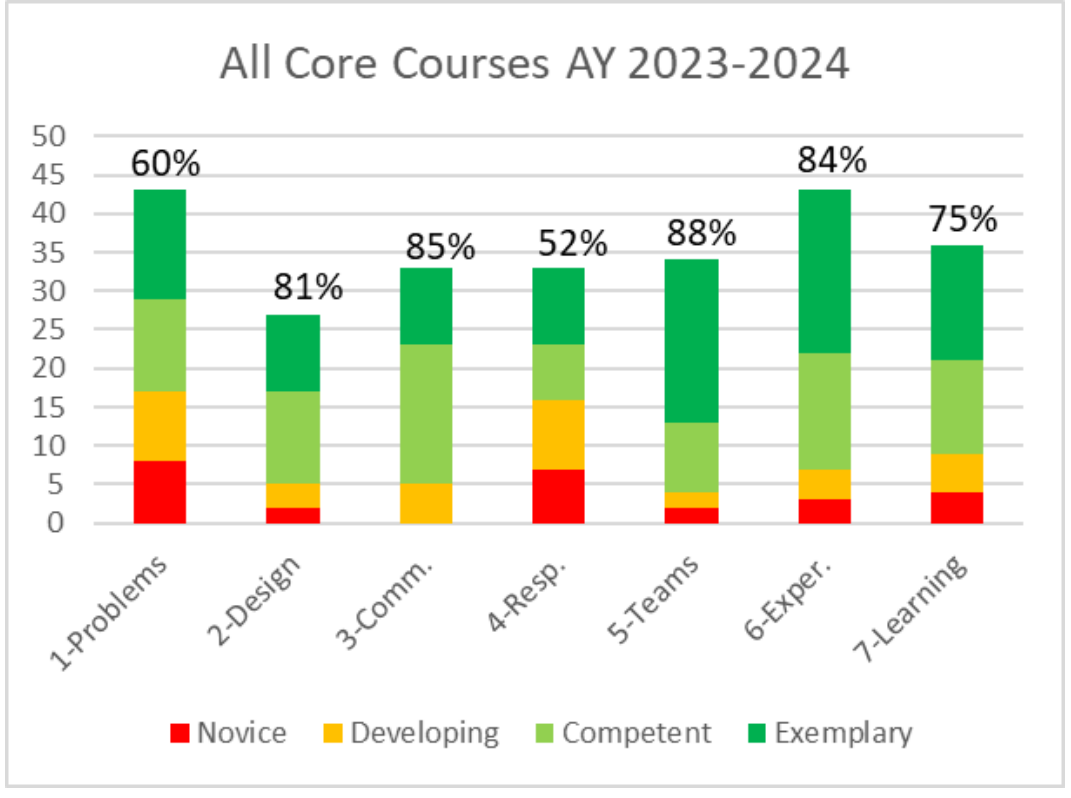
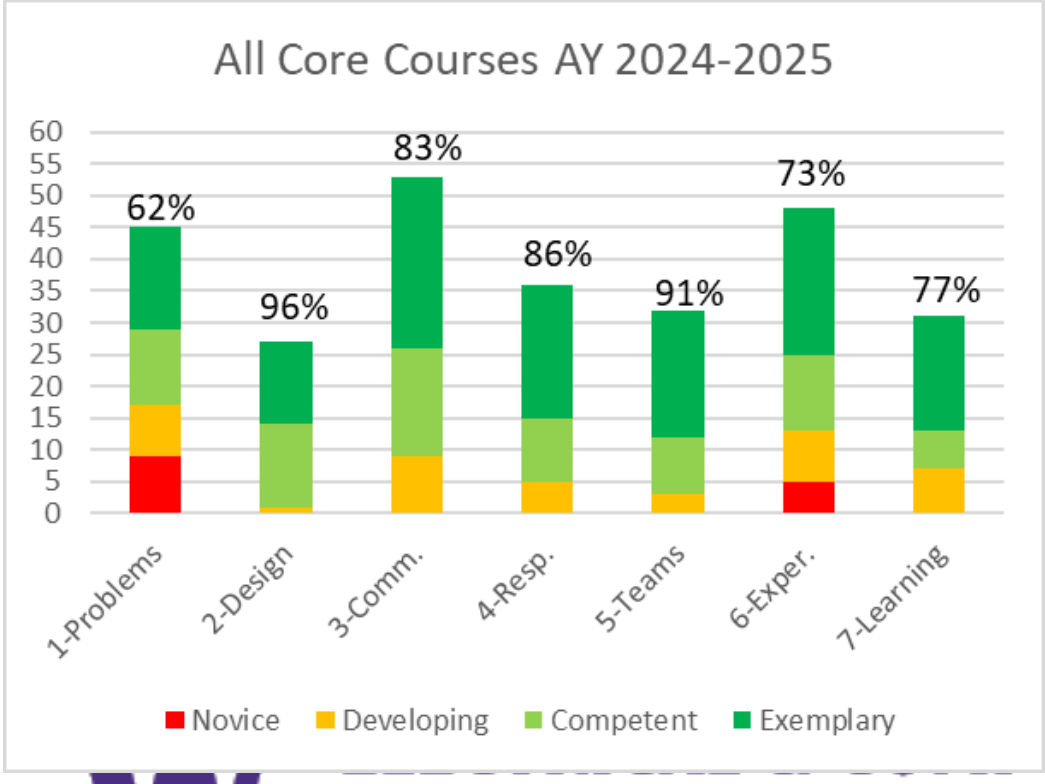
Core and Required Courses

- Student Outcomes: EE215 outcome 1; EE242 outcomes 5 & 7, EE271 outcome 2, EE280 outcome 6, EE393 outcome 3, EE398 outcome 4
- Problem areas outcome 1 (problem) and 6 (experiment)





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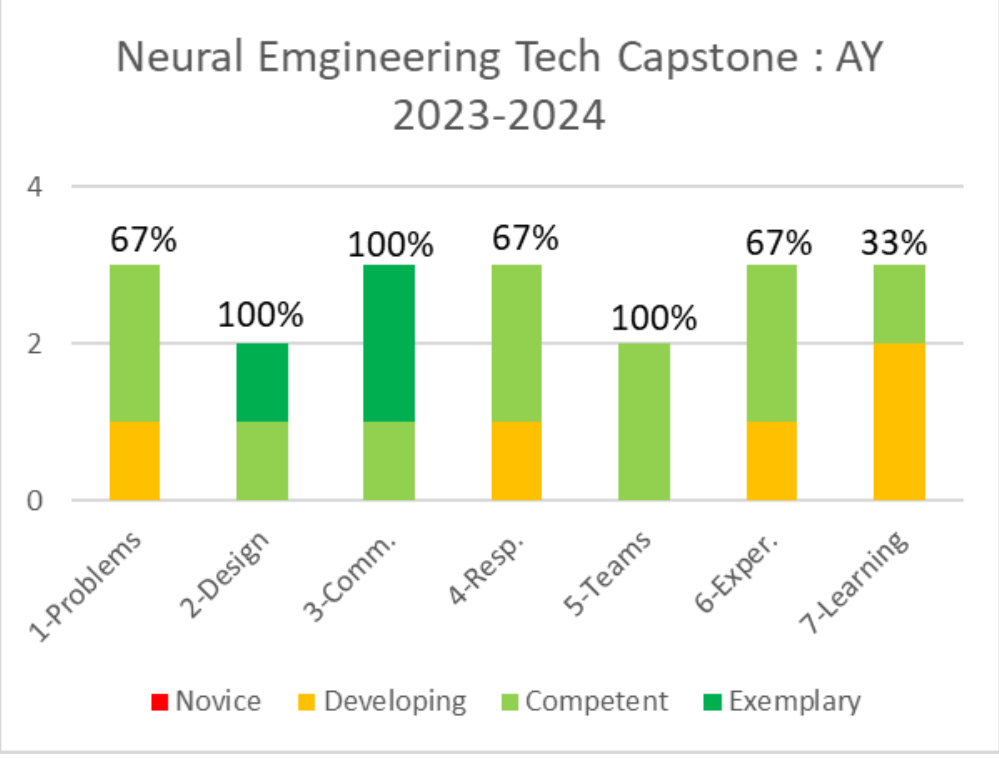
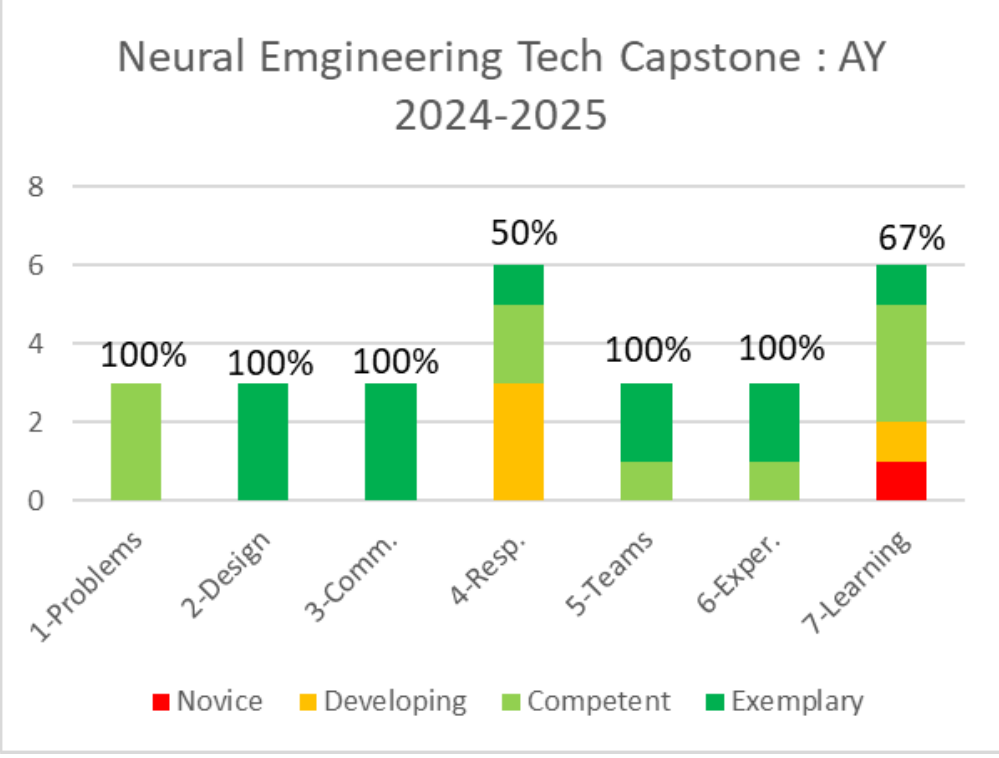
Capstone Courses

- EE461: prerequisites: EE460 & EE466.
- Pathways: Neurotechnology





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Capstone Courses

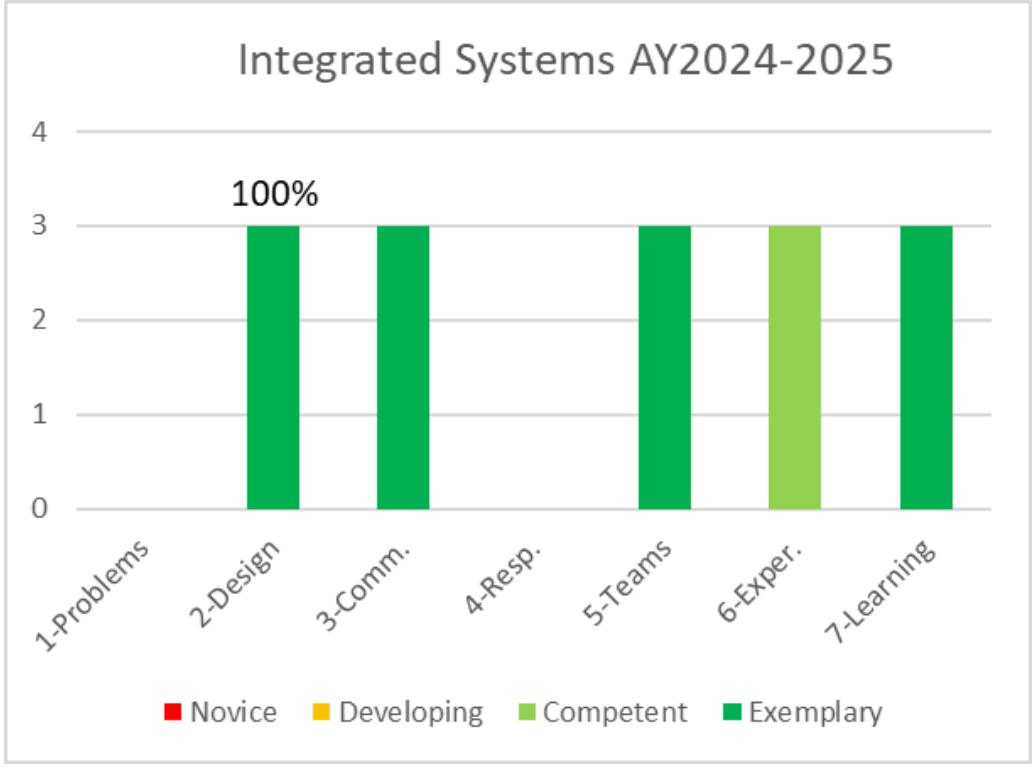
- EE461: prerequisites: EE460 & EE466.
- Pathways: Neurotechnology

2023-2024	Novice	Developing	Competent	Exemplary	Percentage Satisfactory
1-Problems	0	1	2	0	67%
2-Design	0	0	1	1	100%
3-Comm.	0	0	1	2	100%
4-Resp.	0	1	2	0	67%
5-Teams	0	0	2	0	100%
6-Exper.	0	1	2	0	67%
7-Learning	0	2	1	0	33%

2024-2025	Novice	Developing	Competent	Exemplary	Percentage Satisfactory
1-Problems	0	0	3	0	100%
2-Design	0	0	0	3	100%
3-Comm.	0	0	0	3	100%
4-Resp.	0	3	2	1	50%
5-Teams	0	0	1	2	100%
6-Exper.	0	0	1	2	100%
7-Learning	1	1	3	1	67%

Capstone Courses

- EE437: prerequisites: EE473.
- Pathways: Integrated Systems



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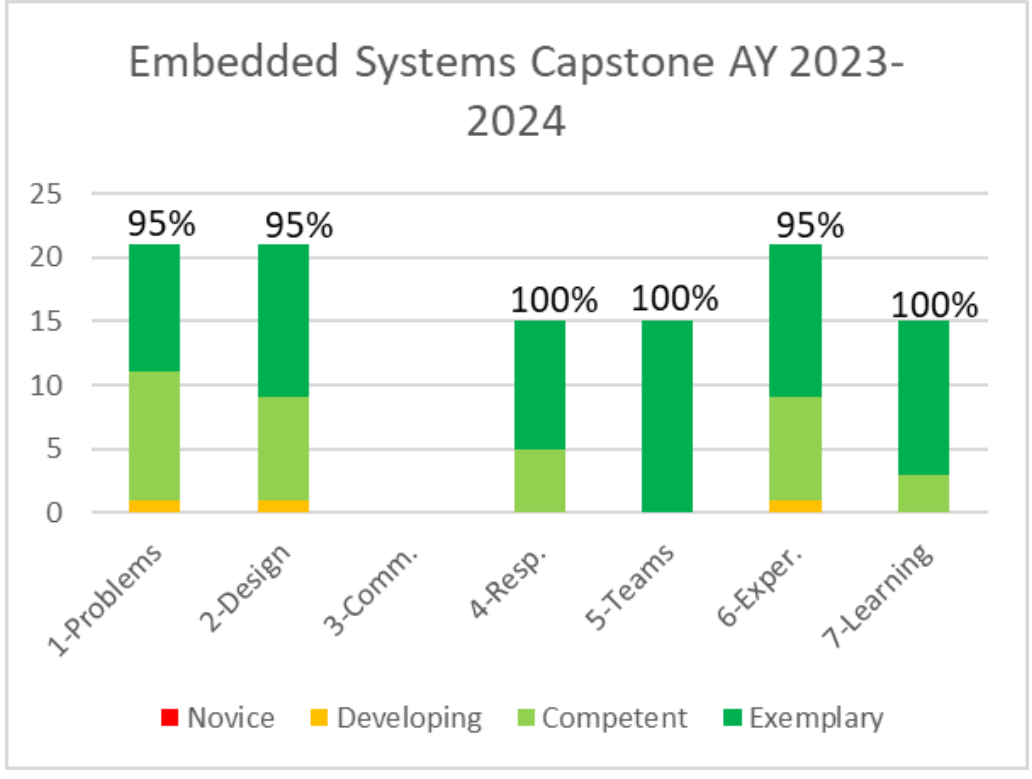
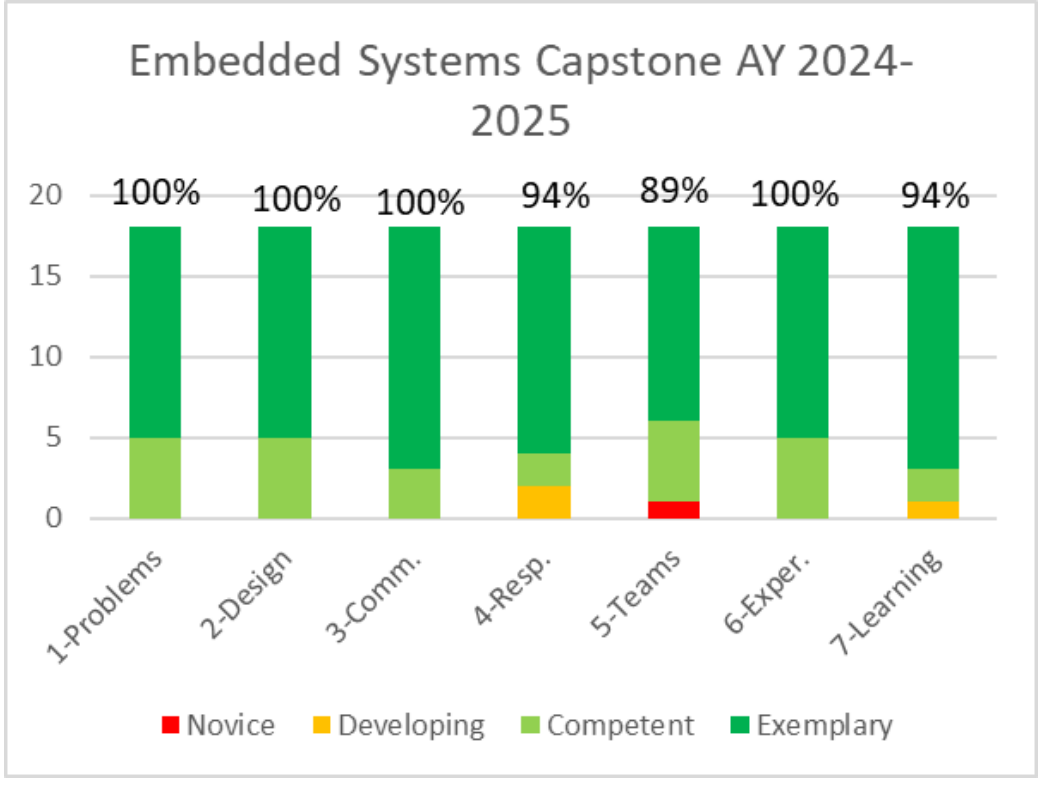
Capstone Courses

- EE475: prerequisites: EE474.
- Pathways: Computing, Embedded systems, Machine learning, Sensing and Communication





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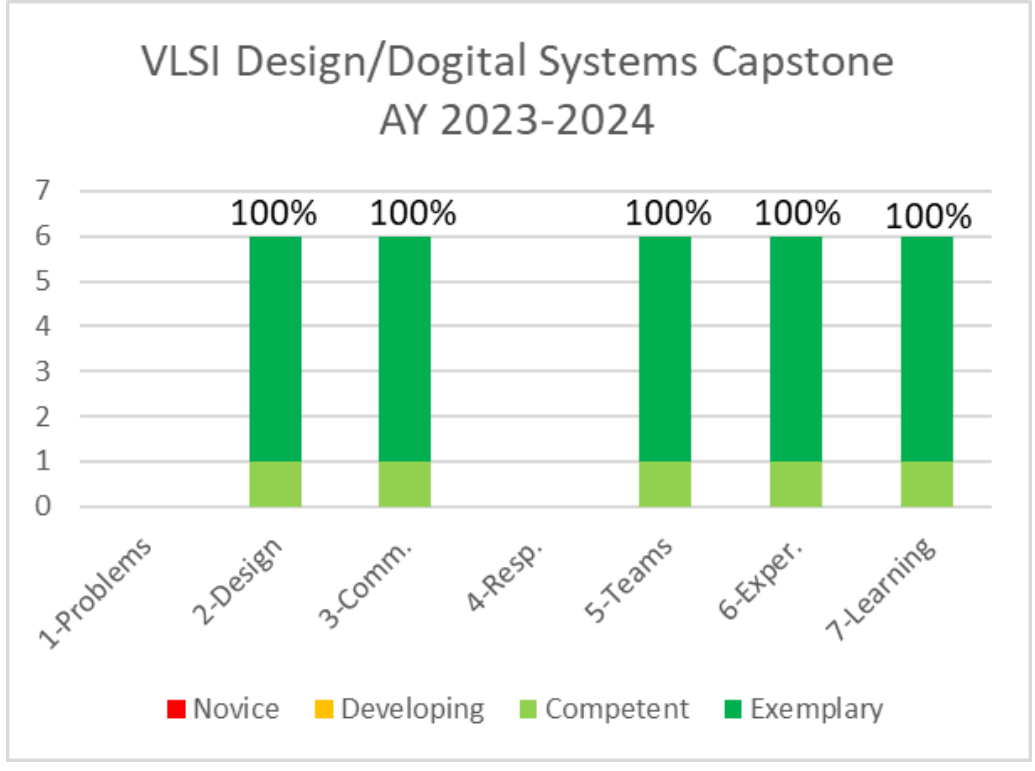
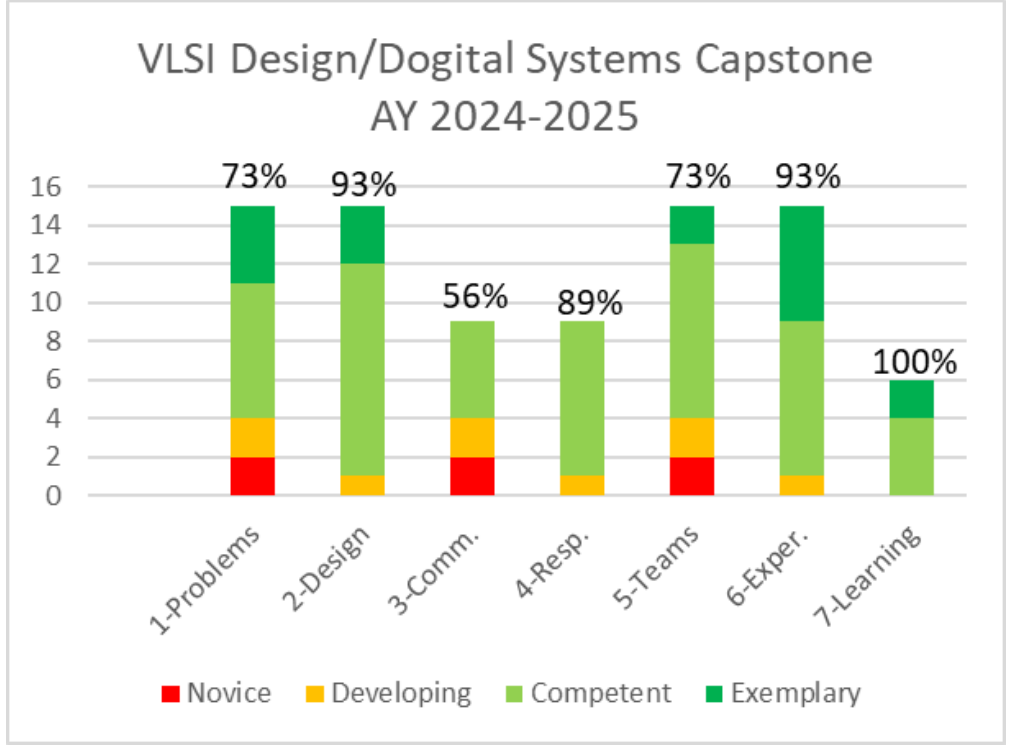
Capstone Courses

- EE478: prerequisites: EE476 & EE477.
- Pathways: Computing, VLSI Design/Digital Systems





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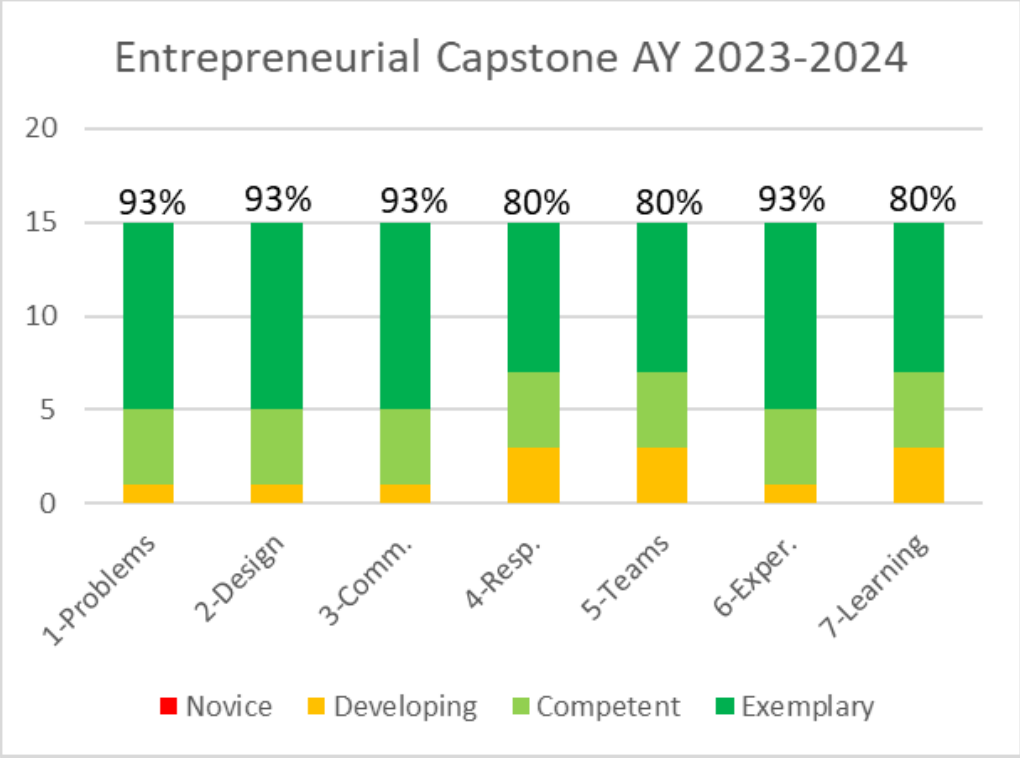
Capstone Courses

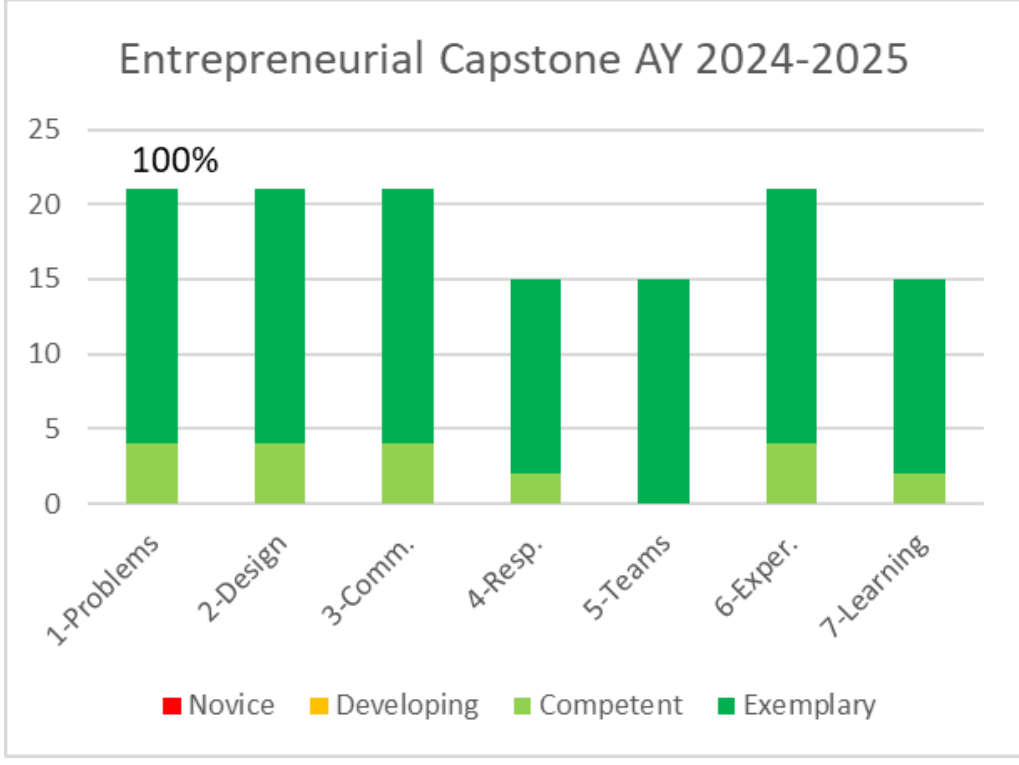
- EE478: prerequisites: EE476 & EE477.
- Pathways: Computing, VLSI Design/Digital Systems

2024-2025	Novice	Developing	Competent	Exemplary	Percentage Satisfactory
1-Problems	2	2	7	4	73%
2-Design	0	1	11	3	93%
3-Comm.	2	2	5	0	56%
4-Resp.	0	1	8	0	89%
5-Teams	2	2	9	2	73%
6-Exper.	0	1	8	6	93%
7-Learning	0	0	4	2	100%

Capstone Courses

- Engineering Entrepreneurial Capstone: EE497 & EE498
- Pathways: all pathways except Embedded systems





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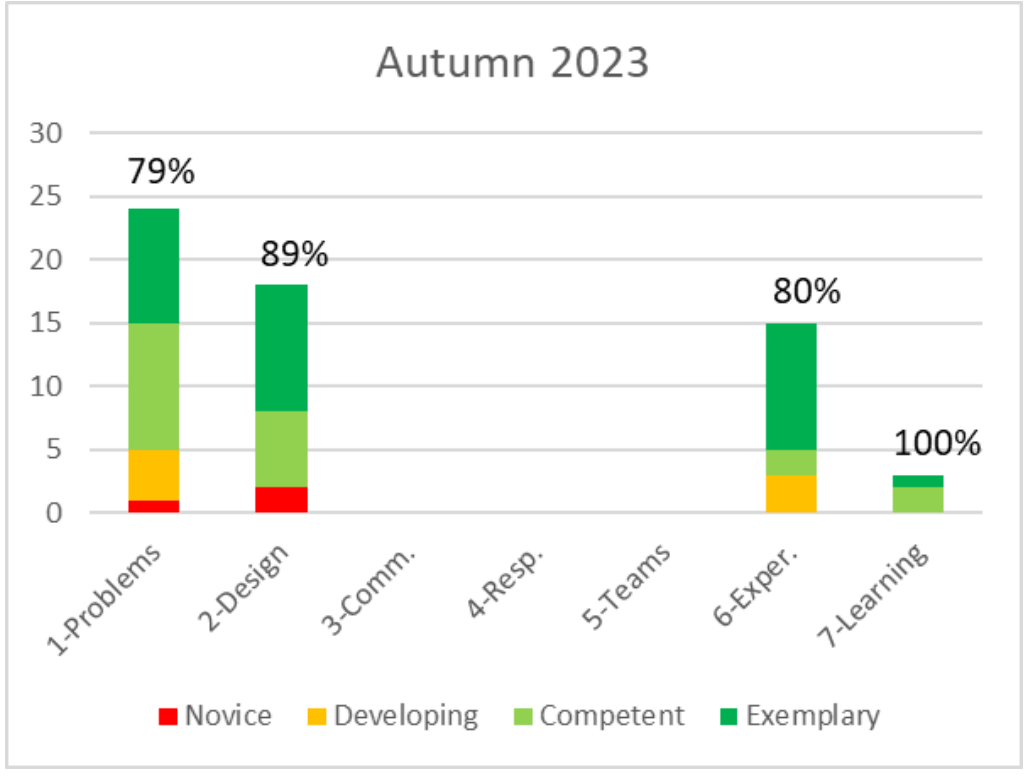
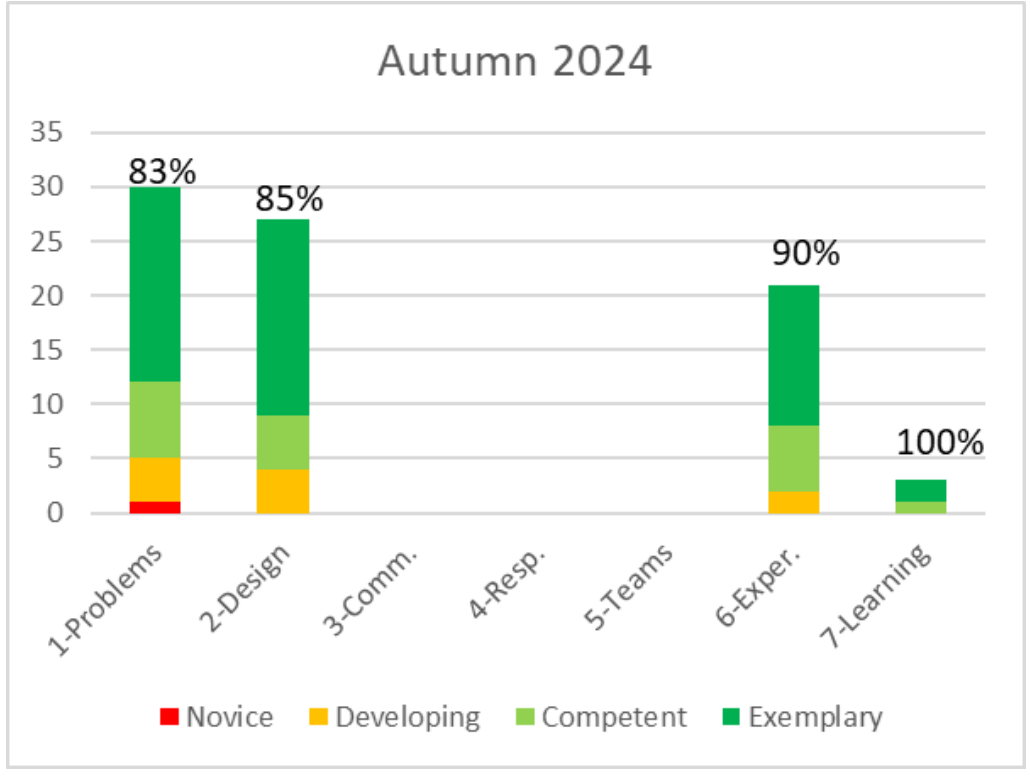
Suggested Courses for All Pathways

- Autumn 2023 & 2024: EE416, EE418, EE440, EE447, EE452, EE454, EE469, EE482, EE487





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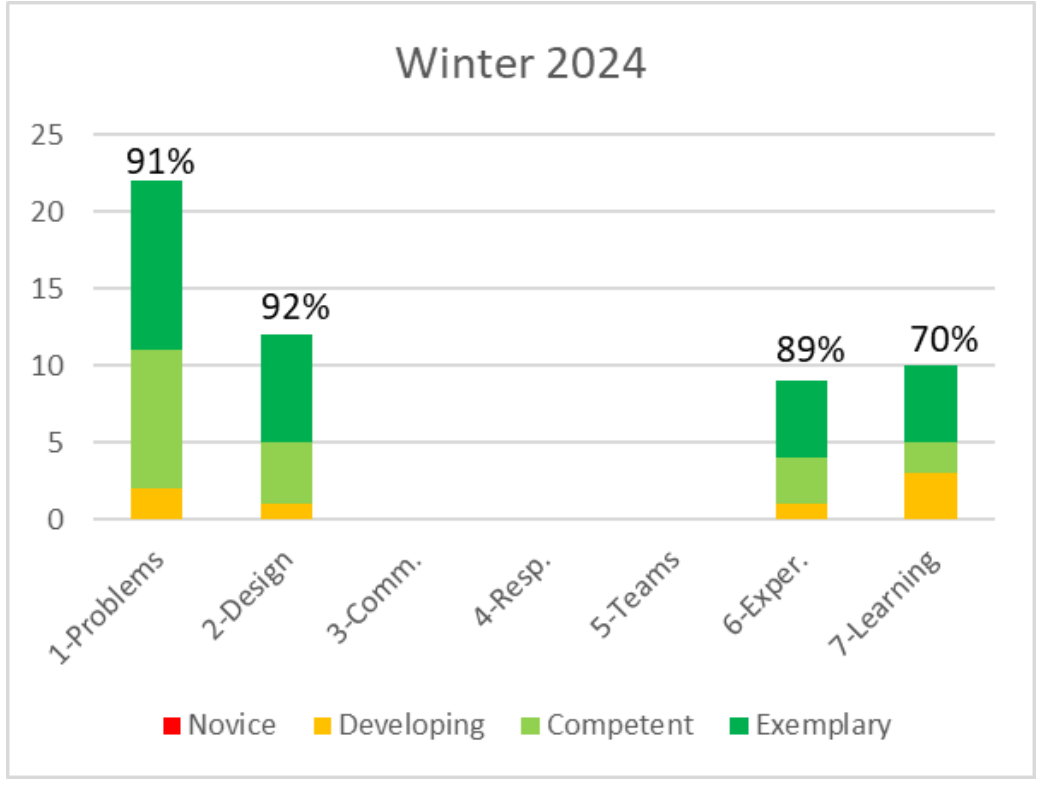
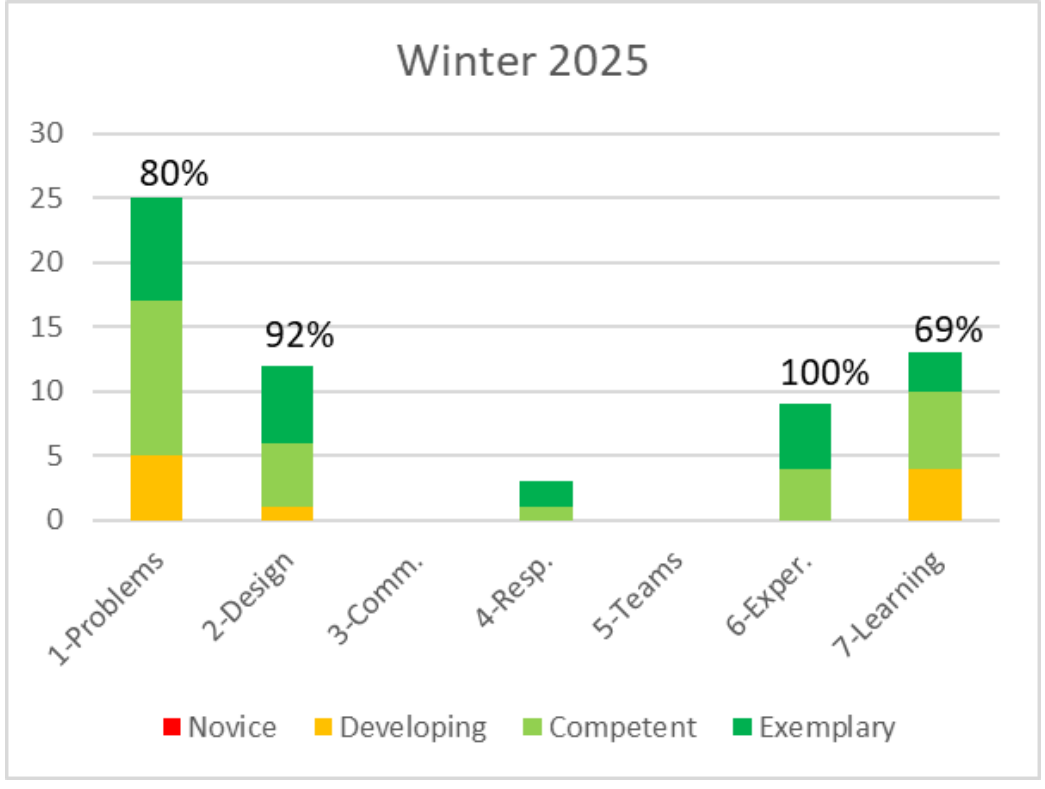
Suggested Courses for All Pathways

- Winter 2024 & 2025: **EE421**, EE433, EE455, EE488





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Suggested Courses for All Pathways

- Winter 2024 & 2025: **EE421**, EE433, EE455, EE488

W2024	Novice	Developing	Competent	Exemplary	
1-Problems	0	2	9	11	91%
2-Design	0	1	4	7	92%
3-Comm.	0	0	0	0	
4-Resp.	0	0	0	0	
5-Teams	0	0	0	0	
6-Exper.	0	1	3	5	89%
7-Learning	0	3	2	5	70%

W2025	Novice	Developing	Competent	Exemplary	
1-Problems	0	5	12	8	80%
2-Design	0	1	5	6	92%
3-Comm.	0	0	0	0	
4-Resp.	0	0	1	2	100%
5-Teams	0	0	0	0	
6-Exper.	0	0	4	5	100%
7-Learning	0	4	6	3	69%

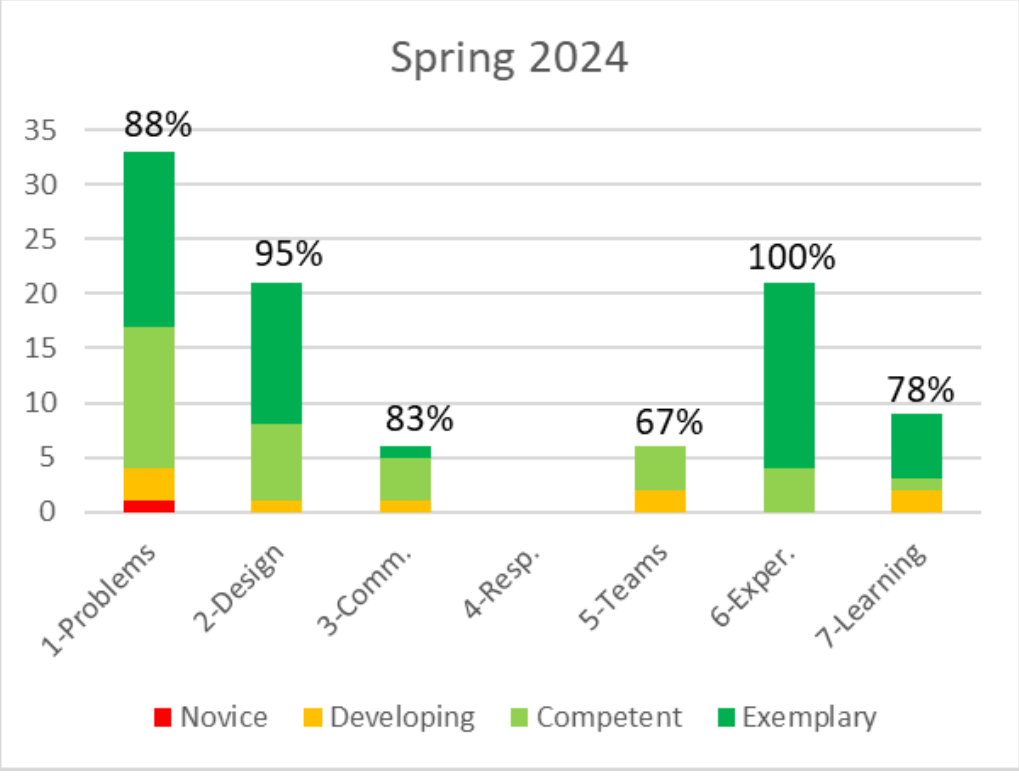
Suggested Courses for All Pathways

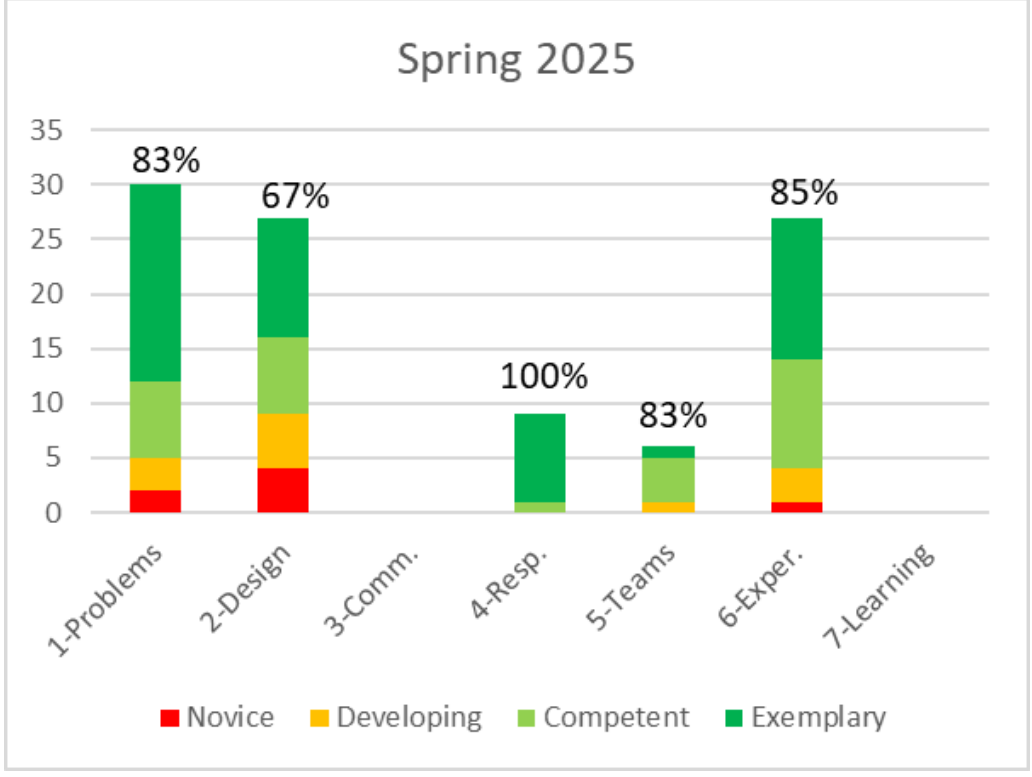
- Winter 2024 & 2025: **EE421**, EE433, EE455, EE488

EE 421	2025	Winter	Anatram	7	1-Problems	Wi25	0	3	3	1	57%
EE 421	2025	Winter	Anatram	7	7-Learning	Wi25	0	3	3	1	57%

Suggested Courses for All Pathways

- Spring 2024 & 2025: EE419, EE442, EE443, EE447, EE451, EE469, EE484





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Suggested Courses for All Pathways

- Spring 2024 & 2025: EE419, EE442, EE443, EE447, EE451, EE469, EE484

Spr2024	Novice	Developing	Competent	Exemplary	
1-Problems	1	3	13	16	88%
2-Design	0	1	7	13	95%
3-Comm.	0	1	4	1	83%
4-Resp.	0	0	0	0	
5-Teams	0	2	4	0	67%
6-Exper.	0	0	4	17	100%
7-Learning	0	2	1	6	78%

Spr 2025	Novice	Developing	Competent	Exemplary	
1-Problems	2	3	7	18	83%
2-Design	4	5	7	11	67%
3-Comm.	0	0	0	0	
4-Resp.	0	0	1	8	100%
5-Teams	0	1	4	1	83%
6-Exper.	1	3	10	13	85%
7-Learning	0	0	0	0	

Suggested Courses for All Pathways

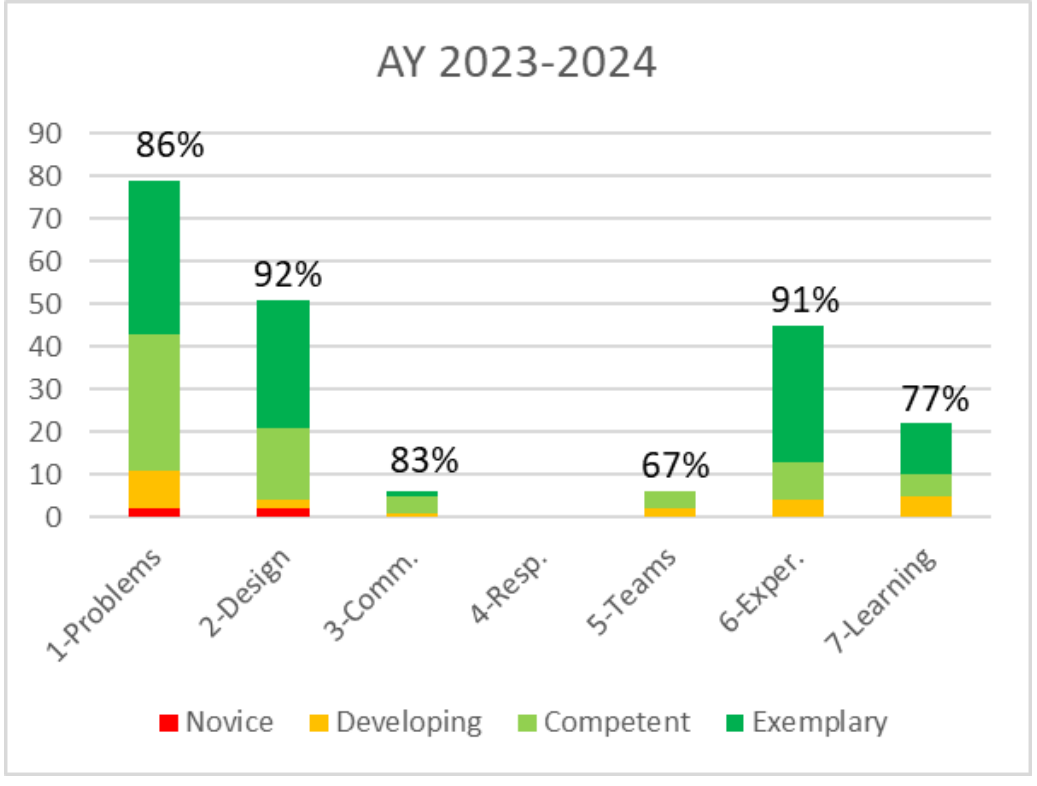
- Spring 2024 & 2025: EE419, EE442, EE443, EE447, EE451, EE469, EE484

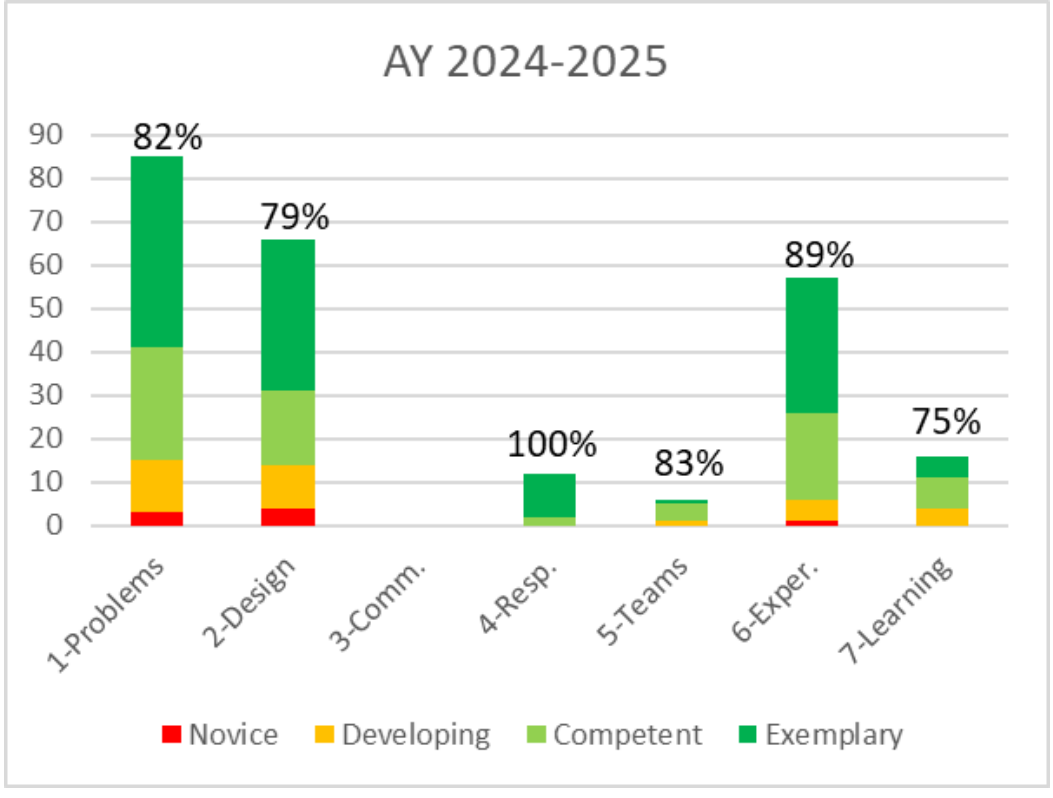
EE 447	2024	Spring	Makhsous	6	1-Problems	Sp24	0	1	2	3	83%
EE 447	2024	Spring	Makhsous	6	2-Design	Sp24	0	1	2	3	83%

EE 469	2024	Spring	Hussein	9	1-Problems	Sp24	0	1	2	6	89%
EE 469	2024	Spring	Hussein	9	2-Design	Sp24	0	0	1	8	100%
EE 469	2024	Spring	Hussein	9	6-Exper.	Sp24	0	0	0	9	100%

EE 469	2025	Spring	Hameed	12	1-Problems	Sp25	2	1	3	6	75%
EE 469	2025	Spring	Hameed	12	2-Design	Sp25	2	2	3	5	67%
EE 469	2025	Spring	Hameed	12	6-Exper.	Sp25	1	2	4	5	75%
EE 447	2025	Spring	Blake	9	1-Problems	Sp25	0	2	2	5	78%
EE 447	2025	Spring	Blake	9	2-Design	Sp25	2	2	1	4	56%

Suggested Courses for All Pathways





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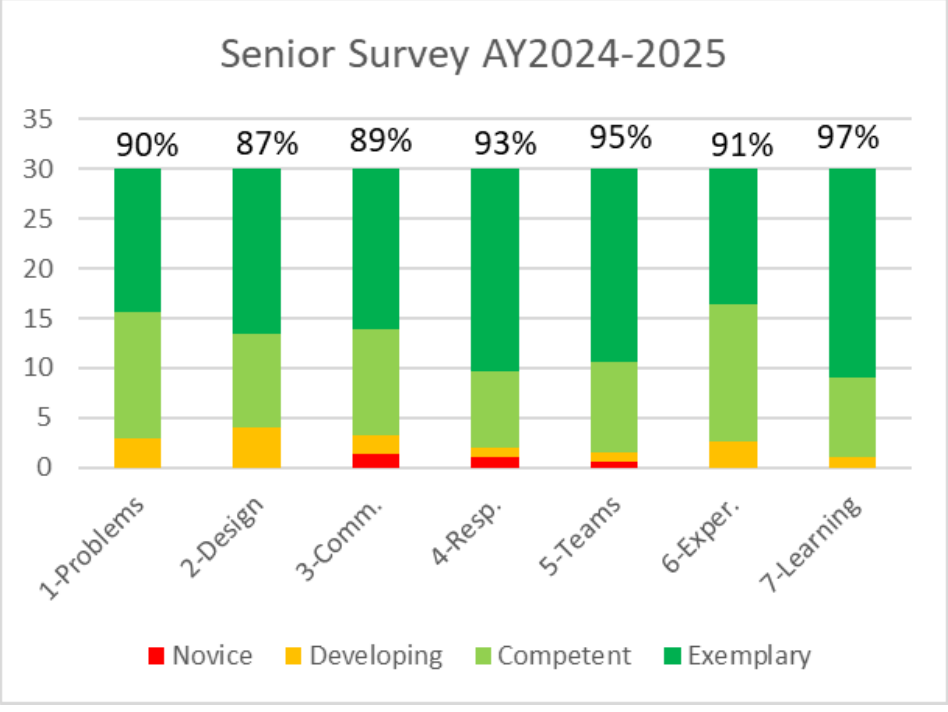
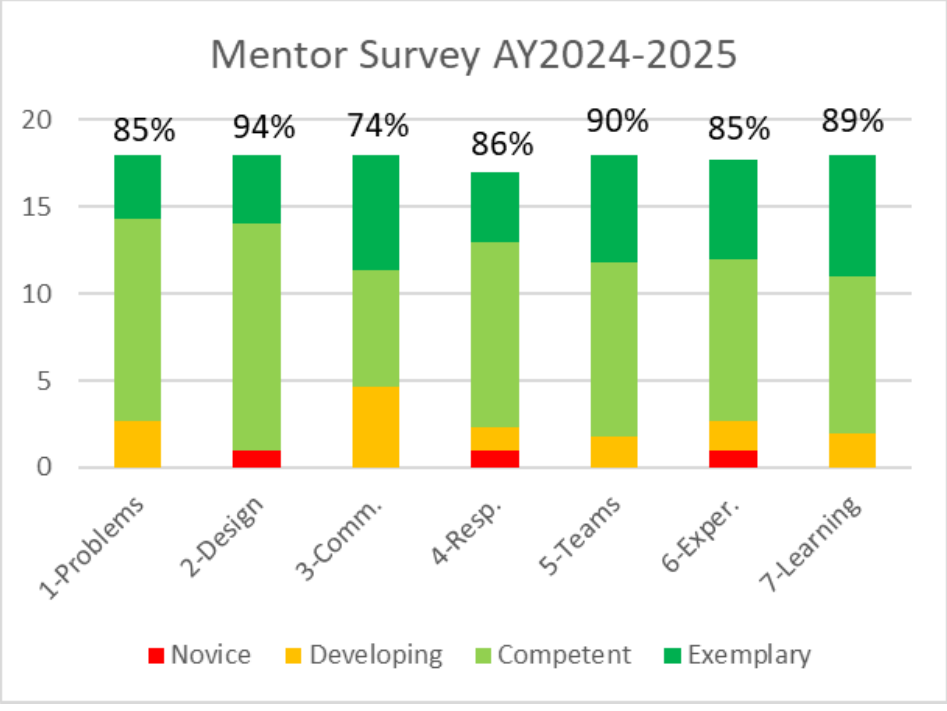
Surveys





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Summary: percent satisfactory (competent or exemplary)

AY2425 Summary	problems	design	commun.	respons.	teams	exper.	learning
Capstones	1	2	3	4	5	6	7
VLSI Design/Digital Systems	73%	93%	56%	89%	73%	93%	100%
Embedded Systems	100%	100%	100%	89%	94%	100%	94%
Intergrated Systems		100%	100%		100%	100%	100%
Neural Engineering	100%	100%	100%	50%	100%	100%	67%
Entrepreneurial Capstone	100%	100%	100%	100%	100%	100%	100%
Technical Writing			83%				
Professional Issues				86%			

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Evaluation of Results, Conclusions, and Recommended Actions

- Conclusions:
  - Core courses:
    - Student outcome 1-**Problems** (62%, EE215) and outcome 6-**Experiments** (73%, EE280)
    - Excellent return rate on assessments
  - Pathways
    - Neurotechnology: outcomes 4, 7 (Courses EE460 & EE466)
    - VLSI: outcomes 1, 3, 5 (EE476)

Next steps and actions

- **Core Courses:** Assess *Student Outcome 1* and *Outcome 6* in conjunction with other core courses.
- **Neurotechnology Pathway (EE460 & EE466):** Evaluate *Outcomes 4 and 7*; consult with course instructors to determine if students require additional preparation.
- **VLSI Design Pathway (EE476):** Evaluate *Outcomes 1, 3, and 5*; consult with course instructors to determine if students require additional preparation.

Next steps and actions

- Alternate assessment of odd- and even-numbered student outcomes each year.
- Review individual student outcomes closely to identify areas for improvement.
- Provide a standardized capstone report template and implement it across all capstone courses.
- Coordinate with Payman to discuss the timing and format of group chair reports.