Report on the Status of Tier 1 Engineering Initiative Goals

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Introduction

The Governor's Tier 1 Task Force outlined 16 programmatic goals along with three infrastructural / facility goals. This report focuses on the 16 programmatic goals. As outlined by the Task Force, the 16 goals fall under four general categories:

1. Excellence in undergraduate education
2. World-class research
3. Productive economic development through partnerships
4. K-14 STEM education

To make progress toward these goals, the state has generously provided $9.3M per year in support of the Tier 1 Initiative. We have endeavored to allocate these resources in the most strategic way possible to meet the overarching goals of the Task Force. The budget for Fiscal Year 2026 is allocated according to the following general categories:

$27.5M	27.5 faculty salaries
$0.79M	13.1 staff salaries
$1.33M	fringe
$1.55M	33 graduate assistantships
$1.36M	faculty start-up packages
$0.63M	equipment, renovations, maintenance
$0.48M	undergraduate scholarships
$0.36M	teacher workshops in computational science
$0.18M	marketing, makerspace, career services
$10.5M	seed grants

Note that the number of faculty lines currently allocated from Tier 1 funds is well aligned with the 25-30 lines recommended by the Task Force in the Tier 1 report. What follows below is a listing of the 16 programmatic goals and for each these goals a brief summary of the current situation and plans for moving forward.

Goal #1: Drive the College into the top quartile of engineering rankings for graduate education.

The following table of productivity metrics by 'benchmark' Tier 1 public institutions was provided by the Task Force:

	Engineering Metrics						
	Research Funding $/TT[1]	Ph.D. grads/TT[1]	MS grads/TT[1]	BS grads/TT[1]	US News (Graduate Engr)[2]	25th and 75th Percentile ACT Scores[2]	Acceptance Rate %[2]
School							
Cal-Berkeley	861,226	1.06	1.54	3.87	3	28-34	22
Illinois Urbana-Champ.	572,606	0.71	1.41	3.59	5	26-31	68
Georgia Tech	534,098	0.71	2.49	4.33	5	28-33	51
Michigan	520,826	0.59	2.33	3.55	7	28-32	46
Texas at Austin	634,067	0.70	1.78	3.88	8	25-31	47
Purdue University	653,849	0.71	1.52	4.43	10	23-29	68
Texas A&M	843,966	0.61	2.09	3.79	12	24-29	64
UCLA	652,464	0.87	2.86	4.99	16	26-33	25
Wisconsin-Madison	684,203	0.70	2.67	3.66	17	26-30	51
Washington	495,711	0.48	1.79	3.51	26	23-30	58
Statistics							
Average	645,301	0.71	2.05	3.96		26-31`	50
Max	861,226	1.06	2.86	4.99			
Min	495,711	0.48	1.41	3.51	199		
University of Wyoming	162,200	0.14	0.74	2.43	132		
Wyoming Ratio	0.19	0.20	0.36	0.61	34%	22-27	96
University of Utah	551,417	0.47	1.47	2.62	51		
Utah Ratio	0.85	0.66	0.72	0.66	74%	21-27	83
University of Arizona	349,955	0.53	1.23	2.85	48		
Arizona Ratio	0.54	0.74	0.60	0.72	76%	21-27	74
1. Source: ASEE 2011 Database							
2. Source: US News and World Report (2014)							

Also included in this table were productivity metrics for two institutions that in 2011 were right at the top quartile in rankings—the University of Utah and the University of Arizona. Note that none of these institutions are non-selective like UW in terms of its open enrollment policy. Our updated numbers for the most recently available data (2022) are found here:

	Engineering metrics 2022						
	Research Funding $/TT[1]	PhD grads/TT[1]	MS grads/TTP[1]	BS grads/TT[1]	US News (Grad Eng)[2]	25th-75th % ACT	Acceptance Rate %[2]
School							
Cal Berkeley	941,751	1.06	4.58	7.22	3		12
U. Illinois	571,073	0.78	2.56	5.33	7		44
Georgia Tech	673,960	0.83	2.98	5.81	4		16
U. Michigan	708,669	0.70	2.55	5.16	11		18
UT Austin	1,065,227	0.70	1.36	5.15	7		29
Purdue	824,280	0.94	1.21	6.47	5		50
Texas A&M	817,381	0.73	1.71	6.98	15		63
UCLA	553,018	1.10	3.35	5.75	13		9
U. Wisconsin	544,062	0.56	1.64	6.29	27		43
U. Washington	608,447	0.67	3.21	5.25	20		43
Statistics							
Average	730,787	0.81	2.51	5.94	11		33
Max	1,065,227	1.10	4.58	7.22	27		63
Min	544,062	0.56	1.21	5.15	3		9
U. Wyoming	292,612	0.39	0.49	3.82	n/a	22-29	97
Wyoming ratio	0.40	0.48	0.19	0.64			
U. Utah	400,500	0.62	1.40	3.81	58		87
Utah ratio	0.55	0.77	0.56	0.64			
U. Arizona	196,906	0.25	1.30	3.35	69		86
Arizona ratio	0.27	0.31	0.52	0.56			
Source 1: ASEE 2022 Database							
Source 2: US News and World Report (2025)							

There are several promising changes to note between 2011 and 2022. The research funding per faculty member has increased from $162,200 to $292,612. In terms of degrees awarded per faculty member, the BS/MS/PhD numbers changed from 0.14/0.74/2.43 to 0.39/0.49/3.82. The only decrease for degree production was for master's students. We are currently evaluating where improvements can be made in our master's degree programs. Overall, our updated metrics compare favorably with those from the University of Arizona and reasonably close to those from the University of Utah, institutions with graduate programs that are ranked near the upper quartile.

We are currently unranked because of a lack of data reported to US News and World Report. Moving forward, we will recommence reporting UW data.

Goal #2: Provide Tier 1 scholarships of $6000/yr annually to the top quartile of entering first-year students with supporting lasting for four years for continuing students.

For Fiscal Year 2026 we are allocating $8000/yr to 61 students, for a total of $488,000. This number of students represents 5.5% of our engineering student population. Moving forward, we are working to raise private funding to enable more of these recruiting scholarships.

In terms of recruiting, we have a dedicated Tier 1-funded staff member who fans out across the state and meets with every high school every year. This staff member sometimes has recruited outside of the state, such as joining UW Admissions personnel when they have visited Calgary. I have asked our recruiter to travel more beyond the Wyoming borders; he is traveling this academic year to Buffalo (NY), California, Alberta, Houston, and the Front Range.

Finally, we are pushing on establishing and re-establishing 2+2 transfer agreements with a slew of two- and four-year colleges, including the Southern Alberta Institute of Technology, the Northern Alberta Institute of Technology, Aims Community College (Greeley, CO), and Canisius University (Buffalo, NY).

Goal #3: Track the performance of Tier 1 scholarship students using metrics of GPA, freshman-to-sophomore retention in engineering at UW, time to degree, job placement upon graduation and employer/employee satisfaction after graduation.

We annually track the performance of our Tier 1 scholarship recipients. The vast majority maintain high GPAs (>3.5) while at UW and graduate in a timely manner. Fully 98% of our scholarship recipients graduate within six years, much higher than the UW average of approximately 60%. Our freshman-to-sophomore retention numbers are also outstanding—98% compared to UW's overall 75-79%. We discuss job placement and career issues in general under Goal #8.

Goal #4: Undertake major undergraduate curricular innovation to make use of all three pillars of engineering education by infusing computational science into the core Engineering Science courses.

One recent change to our approach to Engineering Science (ES) courses was to hire dedicated and excellent instructors to focus exclusively on the teaching of those particular courses. These teachers have proven to be excellent instructors who are popular with our students; they won multiple teaching awards in just the 2024-2025 academic year. This change to a cohort of four dedicated instructors has led to consistency in the student experience along with decreased pressure on individual departments to scramble to assist with the teaching of ES courses. In terms of infusing computational science, for the Fall 2025 semester our ES instructors have begun to incorporate Python-based programming

exercises into ES 2120 Dynamics; they intend to incorporate more such programming challenges into the remaining ES courses beginning with the Spring 2026 semester.

Goal #5: The College aspires to have a consistent pass rate for the FE exam of at least 90%.

Unlike most universities, we require all of our engineering students to take the Fundamentals of Engineering exam. The driver behind this requirement is industry—engineering firms in and out of Wyoming need engineers that are on the path toward becoming licensed as as professional engineer. Requiring our students to take this exam makes them more marketable and prepares them for the next phases of their engineering careers.

Our pass rate is 70%, which matches the national average. As has been discussed before in previous Tier 1 reports, meeting the national average is a positive outcome since taking the FE exam is not a requirement at most other institutions and thus their subset of students who do take it are more motivated than average. However, moving forward, we are re-instituting several prior practices that help to prepare our students for the FE exam, including providing practice tests and review sessions.

Goal #6: The College aspires to have 90% of its graduates complete at least one professional internship by the time of graduation. The College will actively partner with prospective employers to achieve this goal.

Surveys of our graduating seniors show that about two-thirds of our students are getting experiential education opportunities, either in the form of off-campus internships, on-campus research, or field-relevant off-campus jobs. However, the response rate from our graduating seniors is not high and so moving forward we are considering requiring an exit survey in order to graduate, akin to what the College of Business has been requiring.

New efforts established in 2025 include i) a CEPS-funded partnership with the Wyoming Research Scholars Program that guarantees additional internships specifically for engineering majors; ii) an experiential education program led by the UW Office of Industry and Strategic Partnerships; iii) a strong push for student attendance at the engineering-oriented career fairs held on campus; iv) Cowboy Connection Program whereby students are interviewed monthly by CEPS alumni; v) an Employer Engagement Guide created by our new CEPS marketing hire to inform potential employers of our students and their skillsets; and vi) targeted efforts to raise private dollars to support undergraduate experiential education.

Goal #7: The College aspires to develop a unique relationship with its industry and agency partners by exploring opportunities to formally develop a required UW/industry/agency leadership program for all undergraduate engineering and computer science students.

We encourage engineering students to participate in the UW Leadership Academy run by College of Business. We also encourage our students to consider the leadership minor offered by CoB.

On our end of things, our College has a tradition of regularly inviting agency and industry guests to visit classrooms to speak about their career experiences and leadership topics. Similarly, industry partners frequently visit campus and train students on the art of writing cover letters, resumes, elevator speeches, networking, interviewing, etc. We also have hired a professional coach to provide leadership training for our CEPS majors. Going forward, we are looking into a more direct partnership will the CoB's UW Leadership Academy, and we are also aiming to bring in a broader array of industry personnel to speak with our students.

Goal #8: Develop a systematic approach to collect employment data by initiating an aggressive survey in January of the preceding academic year's graduates.

The CEPS career services center partners with UW's career services center for post-graduation surveying; these efforts yield response rates of about 60-70%. We acknowledge that our surveying of students could be improved, especially when it comes to getting information on their internship experiences and post-UW employment. To help improve the survey response rate for students who are about to graduate, we are considering requiring an exit survey, similar to what CoB does.

In a survey of our Spring 2024 seniors, just over two-thirds had already accepted offers of employment. Another 14.1% were headed to graduate school, 1.7% were going to join the military, 0.7% were not seeking employment, 0.3% were planning to volunteer, and 15.7% were still looking for employment. Fully 40% of the Spring 2024 seniors were planning to stay in Wyoming. The median annual salary offers for our Spring 2024 seniors varied by discipline, and ranged from $66k to $110k.

Goal #9: Survey the landscape of various forms of alumni involvement with engineering schools. The College will make a concerted effort to engage our alumni in activities designed to enhance the undergraduate experience.

As mentioned for Goal #6, we are initiating the Cowboy Connection Program where students are able to interview regularly with alumni in relevant industries. Also, alumni are frequently visitors in the classroom, where they provide insight to possible career paths.

We have hosted two rounds of 'speed networking' between students and alumni, and we invite alumni to participate as judges for our senior design projects. New efforts include reaching out to the UW Alumni Association and the UW Foundation to coordinate visits by distinguished alumni, and encouraging these special guests to speak to larger groups of students outside of the classroom setting.

Goal #10: Boldly develop niche areas over the next decade, with the goal of achieving international prominence in each.

The niche areas outlined by the task force were:

- Unconventional reservoirs
- Advanced energy technologies and energy conversion and delivery
- Computational science and engineering for fluid dynamics and materials science
- Atmospheric sciences
- Water resources
- Biological and biomedical engineering

We are doing well in most of these areas but still aim to improve in all. The High Bay Research Facility has been very productive and the Center of Innovation for Flow Through Porous Media is internationally renowned for its expertise with unconventional reservoirs. Our cooperative agreement with the National Science Foundation for our airborne research facility in atmospheric science provides a unique opportunity for our researchers to maintain a competitive advantage over their peers elsewhere who do not operate their own cutting-edge facility. We have several faculty members at the top of their fields in hydrology, water resources, wastewater treatment, etc. We have made some excellent recent hires in biomedical engineering to build upon our pre-existing expertise in that field, and there are many faculty across the College who work in fluid dynamics and materials science. Our computational facilities, both on- and off-campus, are exceptional and we have been partnering with the School of Computing to bring in top researchers in AI and cybersecurity.

Since the original Tier 1 Task Force report, we have also made inroads into research expertise in controlled environment agriculture, nuclear energy, and quantum information science and engineering. In part to take advantage of recent priorities laid out by federal agencies, and in part because they address national security as well as Wyoming's economic security, two of our current emphases are in computational science and critical minerals / advanced materials. Computational science foci include AI, cybersecurity, simulation, modeling, and data science. Materials foci span quantum, nuclear, composites, mechanics of materials, materials synthesis, biomaterials, and others. New working groups have been established in both areas, with the aim of assessing our current

expertise, activities, and instrumentation, surveying what is being done at other institutions, compiling interest of current faculty in collaborating in new partnerships, and laying the groundwork for new efforts. It would be advantageous to chart a path that unifies materials science, engineering, and data science to establish a new paradigm of education and research that integrates data, computation, and experiment, all with an eye toward accelerating intelligent materials conception to market deployment.

Goal #11: Strive to create an atmosphere that promotes industry collaboration on research and academic programs that are responsive to the most current technologies. Periodically conduct workshops with corporate CEOs and research VPs to keep the College connected to the most pressing challenges of the day. A further important aspect between the College and industry is the opportunity to hire "professors of practice," engineers and executives from industry on loan to UW for one year (or more) who would bring their wealth of practical experience to bear on the education of our students.

We work closely with UW's new Office of Industry and Strategic Partnerships in addition to our pre-existing industry advisory boards for each engineering department. Our center for student success annually surveys employers on needed skills for our graduates, and we have hired several professors of practice to shore up our teaching and practical connections to industry. To highlight just two recent industry partnerships from the Fall 2025 semester—HF Sinclair provided funding and recommendations for an upgrade to our process control teaching lab in chemical engineering, and the new Multidisciplinary Advanced Stimulation Lab (Department of Energy and Petroleum Engineering) was purpose-built to bring industry partners into UW research labs.

Goal #12: Ensure stability of graduate assistant researchers by adding 100 fellowships to the College.

For Fiscal Year 2026 we are funding 33 graduate assistantships with Tier 1 dollars, with several targeted toward the new emphases outlined above for Goal #10.

Goal #13: Recognize entrepreneurial activity as a third leg of the College's mission along with excellence in teaching and research.

The College partners with UW's Center for Entrepreneurship and Innovation, and we are a hub for the NSF Great Plains I-Corps program that provides training on how to move new ideas and technology to market. This semester UW hosted *Innovation Week* where multiple workshops/panels were held on best practices for incorporating all facets of entrepreneurship into campus activities. A student entrepreneurship club was recently

launched. Finally, the College's Faculty Council has been tasked with the tenure and promotion process.

Goal #14: Develop a professional marketing plan to promote the engineering initiative to prospective students, citizens in the state, and our peer institutions across the nation.

A full-time marketing specialist is funded by Tier 1 dollars. This staff member has expanded our online presence to social media platforms such as Instagram, LinkedIn, and Facebook. Furthermore, they work collaboratively with our recruiting specialist to encourage the next generation of engineers and scientists to train for their careers at UW. Moving forward, our marketing specialist plans to produce marketing videos for each CEPS program and to comprehensively upgrade our department websites.

Goal #15: Develop a one-semester engineering course for middle school kids involving college preparation, the benefits of an engineering degree and higher education in general, examples of 'cool' engineering, and the science and math behind engineering.

The College is proud to confirm that we carry out several STEM outreach programs that absolutely address the spirit of this goal of the Task Force.

The Engineering Summer Program brings up to 36 high school juniors to campus during the summer for a week of enriching hands-on engineering experiences.

The Engineering Summer Program for Teachers brings 80 middle and high school teachers to campus for a 5-day workshop. The teachers learn how to teach physical computing using programming languages such as Python and C and Raspberry Pi and/or Arduino microcontrollers.

The Machine Learning workshop brings 36 teachers to campus for a 4-day workshop. In Summer 2025 the teachers created their own Large Language Model (akin to ChatGPT) using an electronic textbook. They also learned how to program robots.

Wyoming Astro Camp brings 26 middle schoolers to campus for 7 days of activities that span a wide range of STEM fields. Similarly, the Teton STEM Academy works with 24 high school students for 8 days on campus, again with curriculum that touches several STEM fields.

Our CEPS Student Ambassadors program works closely with the UW Science Initiative to provide hands-on activities to K12 classrooms throughout the state, plus other venues such as the Wyoming Air National Guard STEAM Experience and UW's own STEM Carnival. For the 2024-2025 academic year, the Student Ambassadors visited 114 classrooms in 23 different Wyoming counties.

Engineering Week touched 4,462 Wyoming 3rd graders during 16-22 Feb 2025. The events include partnering with professional engineers to engage students in hands-on activities.

Goal #16: Work with the UW Foundation to formalize plans for a fundraising effort devoted to an excellence endowment of $30M-$40M for engineering.

We have just begun working with the UW Foundation to plan for our upcoming capital campaign.