

Supplement of Accreditation Criteria for Accrediting Engineering Programs

EAC2024

Institute of Engineering Education Taiwan

Criterion 1: Program Educational Objectives

This criterion assesses the program's educational objectives (PEOs).

Criterion		Self-study Report	Supporting Documents/Displays On-Site
1.1	Publish detailed PEOs that demonstrate the program's characteristics and relevance to contemporary trends and societal demands.	Demonstrate evidence of communication of the program's educational objectives with its constituencies.	1) Promotional materials on the program's educational objectives. 2) Evidence of agenda/minutes for the formation of the program educational objectives, including bylaw of the advisory board. 3) Assessment of the educational objectives through interviews or surveys of alumni, employers, etc. 4) Evidence of meeting minutes on the reflection of the evaluation of the program's educational objectives, etc.
1.2	Describe the relationship between the PEOs of the program and those of the institution, as well as the process of establishing these objectives.	1) Demonstrate involvement of faculty members and advisory board in the process of forming, reflecting and evaluating the program's educational objectives. 2) Demonstrate the relationship of educational objectives between the institution, the college, and the program.	
1.3	Institutionalize an effective assessment process to ensure the achievement of the PEOs.	1) Demonstrate the use of diverse assessment methods on the level of achievement of the program's educational objectives on a regular basis. 2) Demonstrate evidence of reflection on the evaluation of the program's educational objectives.	

Criterion 2: Students

This criterion assesses the quality of education for students.

Criterion		Self-study Report	Supporting Documents/Displays On-Site
2.1	Develop and implement appropriate regulations that are consistent with the PEOs.	1) Demonstrate policies on student enrollment, graduation, and career search are in place. 2) Demonstrate results in tracking of student enrollment, graduation, and career advising.	1) Policies on enrollment and graduating. 2) Policies and records of execution of student dropout/suspension advising and early warning system. 3) Records and results of transfer student advising.
2.2	Develop and implement measures and policies encouraging students to engage in academic exchange and related learning activities.	1) Demonstrate results in encouraging students to partake in academic exchange, personal growth, and related learning activities 2) Record of domestic and international intercollegiate competition.	4) Records and results of advising on graduating, advancement, and career search. 5) Records and results of student advising on club activity, domestic/international academic exchange, internship, scholarship, intercollegiate competition, etc.
2.3	Institutionalize an effective advising and assessment system.	1) Demonstrate mechanism for student advising such as office hour, faculty advisor-student time, early warning systems, etc. 2) Demonstrate results of student advising.	6) Records and results of financial support and advising for high-achieving and low-income students. 7) Policies on graduation.

Criterion 3: Graduate Attributes

This criterion assesses the graduate attributes. The program must demonstrate that students have attained the following outcomes by graduation:

Criterion		Self-study Report	Supporting Documents/Displays On-Site
3.1	Ability to apply knowledge of mathematics, science, and engineering.	1) Demonstrate the relationship between the program's educational objectives and the graduate attributes. 2) Demonstrate the program's graduate attributes encompass EAC 2024 graduate attributes. 3) Demonstrate achievement of graduate attributes through rubric-assessment of student performance on the Capstone design project. 4) Demonstrate achievement of graduate attributes through graduate surveys. 5) Demonstrate the program has a systematic yearly reflection on the assessment and student outcomes attainment, as well as action plan for improvement.	1) Records of meetings on the formation and revision of the graduate attributes. 2) All records and assessments on related engineering design courses and Capstone design projects, including transcript analysis of graduates. 3) Related questionnaires and surveys from graduates.
3.2	Ability to design and conduct experiments, as well as to analyze and interpret data.		
3.3	Ability to apply techniques, skills, and modern tools necessary for engineering practice.		
3.4	Ability to design an engineering system, component, or process.		
3.5	Ability to manage projects, communicate effectively, work in multi-disciplinary environments, and function on teams.		
3.6	Ability to identify, formulate, research literature, analyze, and solve complex engineering problems reaching substantial conclusions.		
3.7	Knowledge of contemporary issues; an understanding of the impact of engineering solutions in a sustainable, social good, and global context; and the ability and habit to engage in life-long learning.		
3.8	Apply ethical principles and commit to professional and information ethics responsibilities and norms of engineering practice, and a sense of respect for diversity.		

Criterion 4: Curriculum

This criterion assesses the curriculum of the program:

Criterion		Self-study Report	Supporting Documents/Displays On-Site
4.1	The design and contents of the curriculum must be consistent with the PEOs, and the program must demonstrate through transcript analysis that the coursework of each graduate includes the following three major components: mathematics and basic sciences, technical and professional engineering components, and general education. Specifically:	1) Demonstrate a curriculum map (Must include guidelines on prerequisites.)	1) Lists and portfolios of professional courses including: <ul style="list-style-type: none"> ▪ Syllabus (must demonstrate the courses' correlation with the graduate attributes). ▪ Instructor self-made handouts if any. ▪ Sample of midterm and final examinations organized by score of high, middle, and low, with 2 each. ▪ Sample of homework organized by score of high, middle, and low, with 2 each. ▪ Course analysis table. 2) Sample of finished Capstone project/report organized by the score of high, middle, and low, with 2 of each. 3) Transcript analysis of 6 graduates each year, organized by the score of high, middle, and low, with 2 of each. 4) Records of student internships and related information. 5) Records of industry-experience events for students and related information.
	4.1.1 mathematics and basic science courses must be at least 9 credits each, and the total must account for at least one-fourth of the credits required for graduation.	2) Provide a yearly listing of courses offered and demonstrate the courses' alignment with the graduate attributes and demonstrate curriculum can cultivate achievement of graduate attributes with each attribute cultivated by at least 2 to 3 courses.	
	4.1.2 technical and professional engineering components must account for at least three-eighths of the credits required for graduation including the Capstone design project.	3) Demonstrate curriculum can cultivate knowledge, skills, and attitude toward sustainability, and can fulfill curriculum requirements of criteria 3.6 and 3.7.	
	4.1.3 The general education component must complement the technical contents of the discipline and be consistent with the PEOs.	4) Capstone curriculum: <ul style="list-style-type: none"> ▪ Syllabus. ▪ Capstone Course Checklist. ▪ Course analysis table. 5) List of finished Capstone design projects/reports. 6) Demonstrate student fulfillment of curriculum requirements of criteria 4.1.1-4.1.3 using transcript analysis. * Minimal credits required for graduation are set by the Ministry of Education, which is 128.	
4.2	Design and implementation of the curriculum must correlate with the development of the industry, reflect, and improve to prepare students to	1) Demonstrate the curriculum and instructions fulfill the future needs of the industry including feedback from the advisory board, curriculum committee,	

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	culminate the learned knowledge and skills in engineering practice.	etc. 2) Demonstrate regulations and results of incorporation of seminars by professionals, field trips, internships, competitions, and other industry-related activities to provide students with experiences in the industry.	

Criterion 5: Faculty

This criterion assesses the faculty of the program with regard to the following:

Criterion		Self-study Report	Supporting Documents/Displays On-Site
5.1	The full-time faculty must be of sufficient number.	1) Demonstrate the qualifications, competencies, and sufficient number of faculty members to cover the professional subject knowledge that the program offers. 2) Statistics on faculty weekly workload.	1) Faculty hourly instruction duty roster. 2) Faculty review meeting minutes. 3) Records and procedures on faculty hiring, promotion, and evaluation. 4) Records and results of faculty involvement with the formation and execution of the program's educational objectives. 5) Lists of faculty office hour and related records. 6) Records of industry-academia cooperation and involvements. 7) Policies on encouraging faculty professional development and research. 8) Policies on encouraging faculty participation in domestic/international field related/ professional societies and activities.
5.2	The faculty must be involved in the formation and execution process of the PEOs.	Demonstrate with records and results of faculty members' involvement in the formation and execution of the program educational objectives.	
5.3	The faculty must have the qualification and competencies to cover the professional knowledge of the subject areas in which they teach.	1) Demonstrate incorporation of academic research into instruction by the faculty members. 2) Demonstrate professional knowledge and/or certifications/licenses on the subjects the faculty members teach. 3) Statistics on research projects and expenditures.	
5.4	The program must demonstrate the effectiveness of faculty-student	Demonstrate the effectiveness and results of the faculty-student interaction system, such as	

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	interactions and student advising.	student advising, office hour, and other real-time student inputs on curriculum.	
5.5	The program must demonstrate the effectiveness of interactions of the faculty with industry.	Demonstrate faculty-industry interactions including consultancy, partnership, advisory committee, and other educational training-related activity.	
5.6	The program must provide the faculty with the appropriate channels and incentives for professional growth and development.	1) Demonstrate how the program assists faculty members to create an atmosphere of teamwork aimed for professional development. 2) Demonstrate how the program assists faculty members to grow in teaching pedagogy, course designs, and assessment. 3) Demonstrate how the program assists faculty members in balancing teaching and research. 4) Demonstrate how the program encourages faculty members to pursue professional growth.	
5.7	The faculty must participate in relevant academic and professional organizations and activities.	Demonstrate records and results of faculty research and involvement with professional organizations and activities.	

Criterion 6: Space and Facilities

This criterion assesses instructional facilities, space, and hard and software:

Criterion		Self-study Report	Supporting Documents/Displays On-Site
6.1	The program must provide an environment to foster effective faculty-student interaction and support the development of professional knowledge and skills of students.	1) Demonstrate appropriate number/amount of facilities and space to support student hands-on learning activity, e.g.: <ul style="list-style-type: none"> Hands-on learning and working space. IT infrastructure and support. Library resources. Self-study computer software Group/teamwork space Safe, healthy, and motivated environment. 	1) Plans and records of facilities and space usage. 2) Management policies on labs and teaching facilities. Inventory of labs and teaching facilities. 3) Lab course syllabi, manuals, and safety guides. 4) Records and logs on environmental safety and health seminars/meetings.
6.2	The program must provide enough opportunities, guidance, computing and information infrastructure for students to learn the use of the specialized equipment and tools.	2) Demonstrate professional facilities, tools and IT infrastructure that are of industry standards.	
6.3	The program must provide a safe learning environment and have appropriate system in place to maintain, upgrade, and manage these facilities.	3) Demonstrate the program has an appropriate regulation on facilities/infrastructure/space maintenance and management, e.g.: listings of facilities/infrastructure/space, user manuals, maintenance records, etc.	

Criterion 7: Institutional Support and Financial Resources

This criterion assesses the institutional support and financial resources of the program:

Criterion		Self-study Report	Supporting Documents/Displays On-Site
7.1	The institution must provide adequate administrative personnel and financial resources to assure the quality and continuity of the program, along with constructive leadership and management.	1) Demonstrate sound and proper plans for current objectives and future goals. 2) Explain in detail the budgeting policies and past budget allocation of the institution and of the program to demonstrate sufficient financial support.	1) Policies and records of program chair selection. 2) Policies and budgeting on supporting faculty and student growth (training, professional growth, research, domestic and international exchanges). 3) Job descriptions of the teaching assistants, administrative staff, and technicians. 4) Policies and budging for facilities and space.
7.2	Resources must be sufficient to support the ongoing professional development of the faculty and students.	Demonstrate the program has appropriate regulations and records on financial and other capacities (grants, incentives, materials, etc.) to support the professional growth of the faculty members and students.	
7.3	Administrative personnel and technical staff must be adequate to meet the program's needs.	Demonstrate a sufficient number of teaching assistants, administrative staff, and technicians to support the program.	
7.4	Financial resources must be sufficient to acquire, maintain, and operate the facilities, infrastructure, and equipment appropriate for the program to support educational needs.	Demonstrate financial resources of the program sufficient to acquire, maintain, and operate the facilities, infrastructures, and equipment.	

Criterion 8: Continuous Improvement

This criterion assesses the mechanism and implementation of continuous improvement. The program seeking accreditation must:

Criterion		Self-study Report	Supporting Documents/Displays On-Site
8.1	Have a mechanism for continuous improvement.	1) Demonstrate the program has a system of internal evaluation through a curriculum committee or health, safety, and environment committee and other means and provide a list of the committee members. 2) Demonstrate the program has a system of external assessment through an advisory board and other means and provide a list of the board members.	1) Records of related works and meetings for internal evaluation. 2) Records of related works and meetings for external assessment.
8.2	Demonstrate implementations of continuous improvement.	1) Demonstrate results of improvement through related works and meetings for internal evaluation and external assessment. 2) Demonstrate results of improvement made on the weakness identified from the last review.	