

Examination & Accreditation Guideline on Engineering Design Education

28 April 2010

Examination & Accreditation Coordination Committee
Chair: Tetsuya MIKI

In terms of engineering design education (hereinafter referred to as "engineering design"), it is titled as "JABEE's Guideline and General Policy on Engineering Design Education" in Feb. 2009.

It is expected to include evaluation on following evaluation aspects of engineering design into evaluation on degree of conformance to the criteria comprehensively at the examination of year 2010. Specifically, it is asked to consider underlined evaluation aspects at the time of examination.

(Evaluation Aspect of Engineering Design)

1. Whether a specific goal is set for engineering design ability.
2. Whether students have learning experience of engineering design or development of a solution to a complex problem.
3. Whether open ended complex engineering problems are assigned which enabling students to develop following abilities:
 - (1) Able to propose multiple ideas.
 - (2) Able to apply various kinds of knowledge learned.
 - (3) Able to communicate with others and collaborate with others as a team.
 - (4) Able to create new concept or a thing by combining principles and knowledge that is commonly acknowledged of.
 - (5) Able to consider restricted conditions, such as cost, and evaluation measure.
 - (6) Able to consider influence on nature and society: public health and safety, culture, economy, environment and ethic.
4. Whether outcomes assessment is implemented including items as follows:
 - (1) If the contents of the problems are deeply studied.
 - (2) If the design outcome or solution is made under consideration of restricted conditions.
 - (3) If the design outcomes or solutions are presented well and easily to understand.
 - (4) Other than above, if ever learning objectives related to the design education of each program are satisfied. (e.g. Ability to conceptualize, ability to express and describe the ideas in drawings, sentences, equations, programs, etc., ability to continuously plan and to work as planned)
5. Whether evidential materials are available for 2. 3., and 4 mentioned above.

Additionally, if the program put the undergraduate research as an only course for the engineering design education, the research study course should satisfy 1-5 mentioned above. Further, common learning objectives should be set and all students should have substantially equivalent learning experiences to achieve the objectives. An undergraduate research won't be recognized as design education if students just follow the instructions of supervisors.