From Experience of JABEE Examiner to Examine Outcome-Based Education

Hiroomi Homma
Professor Emeritus of TUT
Visiting Prof. TUT & USU
JABEE Examination Scheme

• Pool of high quality of examiners
  – *This is essential for accreditation work*
Examiner Recruit

- Examiner candidates
  
  • Recommendation from supporting Engineering Societies
    - JSME(36,000), JSAE(46,000), JSCE(36,000), AIJ(34,000), IEEJ(27,000), IEICE(32,000), CSJ(27,000), SCEJ(7,400),------
Examiner Training

• Workshop and training for examiners (two days)
  – Every year workshops are held for examiner team leaders, examiners, and new examiner candidates
  – Elaborate explanation or interpretation of criteria, and several case studies
Observer Internship

– Observers on examination of an education program

• New examiner candidates must participate in examination of an education program as observers
Examination Procedures

1. Education programs apply for JABEE examination (April)

2. Examination teams are formed by field-wise primary Engineering societies and a team leader (chair) is appointed (June)  
   leader + two members
3. Submission of self-review report by education program (July)
4. Examination based on self-review by teams (August – October)
5. Questions and confirmation from team members are collected by the team leader, and the team leader contact the program leader to ask about questions
6. On-site examination (Nov-Dec)

① Confirmation of self-review report and interview of teaching staff and students

② Opinion exchange among team members about evaluation on each criterion

③ Drafting up first examination report handed to the education program leader
7. Submission of second examination report to field-wise primary engineering society after the team modifies the first examination report or does not, receiving claims from the education program on the first examination report (Dec)
8. Examination committee in each field (Feb)

① JABEE committee members and team leaders

② Adjustment of examination results among teams to assure equity of examination

③ Modification of the second examination report

④ Third (final) examination report to the primary engineering society
9. Examination & Accreditation Coordination Committee in JABEE (March)

10. Accreditation Commission, JABEE Board of Directors (April)
Examination Skill

• Full understanding of criteria
  – Objectives and intensions of each criterion: design ability, demonstration ability,
    communication ability,
  – Understanding connectivity between each criterion

• Full understanding of judgment baseline
  – A: accepted, C: concern, W: weakness, and D: deficiency
Education Program

• Design new subjects and curriculum to cultivate the following skill and abilities in students
  – Engineering ethics
  – Multidimensional thinking from global perspective
  – Understanding impact onto society and nature by engineering activities
  – Communication skill and ability
  – Design skill and ability

How can we evaluate how much and deeply students can acquire such skill and abilities through new subjects and new curriculum?
Examination based on self-review

• Careful examination of the evidences
  – Attached evidences
    • Setting of clear profile of autonomous professional to be fostered
    • Setting of clear and unique learning outcomes
    • Curriculum satisfies minimum requirements by JABEE and MEXT
– Through internet (homepage of the program)
  • Education and learning outcomes are clearly defined and opened to public
  • Entrance examination is done to admit the students who can acquire the skill and the abilities required by JABEE by their graduation
  • University and Program traditions and resources
• Careful examination of the curriculum
  – The curriculum is well designed for students to achieve education and learning objectives (outcomes)
  – The curriculum is well designed to cultivate skill and abilities required for accreditation criteria in the students
  – How does the program secure the students to acquire the skill and abilities required by JABEE through the curriculum by their graduation
On-site examination

• Two and half days examination
  – First day afternoon
    • Making arrangement with the program leaders
    • Quick observation of evidences
  – First day night
    • Team meeting: adjustment among member examination results
—Second day

• Observation of evidences
  — Education facilities: class room, student laboratory, student workshop, student supporting facility, library, and --- *Education environment*
  — Text books, test questions and results near border-line of pass, student products, --- *Student outcomes*
• Interview with teaching staff
  – Explanation about the program from the leader
  – Every teaching staff collaborates for education
  – System for evaluation of student achievement of learning outcomes
Interview with students including alumnae

- Complaining of the program
- Make sure if the classes has been done according to syllabus
- How the system for evaluation of student achievement of learning outcomes works
- How the program education is effective to work at the companies
Second day night

• Team meeting
  – Final adjustment of examination results for every items by team members
  – Writing draft of first examination report to be told to the program and evaluation summary about the program
–Third day morning

• Courtesy call at Dean of faculty of engineering, or university president
• Final adjustment of the first examination report and print out
• Meeting with the program teaching staff including program leader, the dean, and sometime, president (rector)

• Telling overview of the examination by the team chair and hand the first examination report to the program leader

Finish on-site examination!!
Summary

• It is a key issue to train high qualified examiners
• Professional education will be always updated and then, accreditation criteria will be also updated
• Updated accreditation criteria must be clearly defined and shared by all the parties concerned
Finally, accreditation system of the education program is just beginning of professional education

- Continuing professional development (CPD) for engineers is also inevitable for industrial development
  - One example in Japan
    - JSME, CDP program and a qualification system has been started since 2007
      - Fellow engineer: 66, Prof. Engineer: 38, Senior engineer: 21, Engineer: 1164 as of 2013
Terima Kasih