MINISTRY OF EDUCATION AND TRAINING
THAI NGUYEN UNIVERSITY

DO LE HA

BUILDING THE CRITERIA TO EVALUATE TECHNICAL ADVANCED PROGRAMS IN VIETNAM

Speciality: Theory and history of education
Code: 62.14.01.02

A SUMMARY OF DOCTORAL DISSERTATION IN SCIENCE EDUCATION

THAI NGUYEN - 2016

The dissertation is completed in:
College of Education - Thai Nguyen University

Scientific advisors: Assoc. Prof. Pham Hong Quang, PhD.

Reviewer 1:.....
Reviewer 2:.....
Reviewer 3:.....

PhD. Dissertation will be presented and defended at
College of Education, Thai Nguyen University
At .....am/pm date .....month .....year 2016

PhD. Dissertation would be found in:

- **National Library**
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- **Library in College of Education**

PUBLISHED SCIENTIFIC RESEARCH RELATED TO THE STUDY

1. Pham Hong Quang, Do Le Ha (2011), "Creating the cultural environment for students to study advanced programs", Journal of Education, (271), pp. 1-3.
2. Phan Quang The, Do Le Ha (2013), "Advanced Program at Thai Nguyen University of Technology (TNUT) an effective way for international collaborations", *Australia Awards Alumni Conference 2013, Indonesia*, pp. 28-29.
3. Do Le Ha (2014), "Management and training organization orientation of advanced programs to meet the basic requirements of ABET accreditation", Journal of Science and Technology, Thai Nguyen University, 125 (11), pp. 121-125.
4. Do Le Ha (2016), "Creating evaluation criteria for engineering advanced programs in Vietnam", Journal of Educational Equipment, (125), pp. 24-26.

INTRODUCTION

1. The need of the study

In higher education, evaluation is the process of forming and developing concepts, argument about education results. It is based on analysis and comparision between collected information and the aim and criteria of the program. Evaluation also promotes suitable decisions to improve the fact and raise the quality and effect of education. Evaluation is a compulsory part of the education processes. Evaluation takes a very important part in helping institutions to continue to improve and renovate their curriculum. Vietnam's Ministry of Education and Training has implemented 35 advanced programs (AP) at 23 leading universities of Vietnam. The curricula are imported from the top 100 universities in the US and accredited by ABET. However, there are diffirences in accreditation between the US and Vietnam. This is the reason for creating criteria for the advanced programs in Vietnamese conditions for evaluating the effective, atainable features and applying in Vietnam universities. We chose the title named "Building the criteria to evaluate engineering advanced programs in Vietnam".

2. The purposes of research: to build the criteria for evaluating engineering advanced programs in Vietnam.

3. Objects and Subjects of the research

3.1. Objects of the research: The process and tools for evaluating engineering advanced programs.

3.2. Subjects of the research: the content of criteria for engineering advanced programs at Vietnamse universities.

4. Duties of the research: Study the theory background of evaluation for advanced programs; Analysis of the actual implementation and evaluating of AP in Vietnam; Building the criteria for engineering advanced programs at Vietnamse universities; Do experiments to verify the reality and feasibility of the proposed criteria.

5. Scientific hypothesis: Building the criteria for technical AP suitable for conditions and human resources of Vietnamese universities to improve the qualities of AP in universities.

6. The scope of the study

- The scope of the study: the study of building the criteria for engineering advanced programs at Vietnamse universities based on existing curricula evaluation models and criteria to evaluate curricula of several countries all over the world.

- The scope of the survey: Conduct surveys at universities that have already implemented engineering AP and AP at other non-technical fields.

7. Some approaches and method of the research

7.1. Some research approach viewpoints

To study and formulate the criteria for evaluating AP in relation to the conditions of implementation, self-assessment and accreditation programs, in the dialectical relationship with the improvement and development programs, in relation to evaluation model of Vietnam and all over the world.

7.2. Research methods

7.2.1. Theoretical research methods

7.2.2. Practical research methods

7.2.3. Support methods

8. Scientific points of the dissetation

AP evaluation is to help the universities promote the strengths, detect weaknesses and improve the quality of the programs. It also aims at quality accreditation program and publicizes the quality of training. AP evaluation is conducted following the specified process in order to ensure objectivity, development and accuracy, etc and it depends on the evaluation criteria.

In reality, AP implemented in the universities of Vietnam has many advantages, but there are still shortcomings. Self-assessment activities of universities are not focused and are non-effective, because no set of existing evaluation criteria has been consistent with AP.

The criteria creation will be based on the use of the program evaluation model of the advanced countries in the world, the conditions to implement AP, and the cultural and educational environment of Vietnam. The criteria are tools to help in an institution’s self-assessment and will lead to accreditation of technical AP in Vietnam.

9. The contributions of the thesis

The thesis will complete the theoretical basis for evaluating AP and built the criteria for evaluating AP, detect shortcomings and evaluated the implementation of AP. The thesis also recommended criteria for evaluating technical AP in Vietnam.

10. The structure of the thesis: 3 parts

Except for the introduction, conclusion, recommendations, the thesis consists of 4 chapters: Chapter 1: Rationale for building criteria of advanced programs; Chapter 2: Status of implementation and evaluation of engineering advanced programs in Vietnam; Chapter 3: Developing criteria for evaluating engineering advanced programs in Vietnam; Chapter 4: Do experiment to evaluate the criteria of engineering advanced programs in Vietnam.

Chapter 1:
RATIONALE FOR BUILDING CRITERIA OF ADVANCED PROGRAMS

1.1. An overview of Research Issues

1.1.1. An overview of research issues in the world

1.1.1.1. Research on the program

There are many research on this subject as "*Curriculum*" by John Frank Bobbit (1876); *"Curriculum Development: Deductive Models"* by Fred C. Lunnenburg (2011); *"Curriculum Theory and Multicultural Education"* by Genva Gay (1980); *"Building curriculum, practical instructions"* by Jon Wiles, Joseph Bondi (2006). These studies include the following approachs: ***The first approach***: Study by content approach; ***The second approach***: Study by target approach; ***The third approach***: Study by continuous developement approach.

1.1.1.2. Study on evaluation criteria of curriculum quality.

Researchs on this subject including *"Basic Principles of Curriculum and Instruction"* by Ralf Tyler (1949); *"Managing institutions' quality"* by Warren Piper (1993); "*Quality Assurance in training and education"* by Freeman R. (1994); *"International developments in assuring quality in higher education"* by Craft A. (1994) are followed 3 approachs as: ***the first approach***: According to

the accreditation criteria by quality assurance within and outside the university; ***The second approach***: According to the standard output of the criteria; ***The third approach***: According to the results achieved of the learner and the continuous development of curriculum.

1.1.2. An overview of research issues in Vietnam

1.1.2.1. Study on the curriculum: Authors researched on curriculum as "Building curriculum" of Nguyen Kim Dung (2004); *"Education and human resource development in 21st century*" by Tran Khanh Duc (2014); *"Develope faculty training program: theoretical and practical issues"* by Pham Hong Quang (2013); *"Develope higher education by outcomes approach"* by Nguyen Thanh Son (2014), focused on implementation of curriculum in the world applied in Vietnam, analyzed the relationship between curriculum and teaching operation; How the yearly system can be changed to credit system; Evaluate current curriculum of some majors and state the approaches to meet the requirements of training and the needs of society.

1.1.2.2. Study on evaluation criteria of curriculum quality

Researchs on evaluation criteria as "The study on building evaluation criteria for Vietnamese universities" by Nguyen Duc Chinh, Nguyen Phuong Nga (2010); "Concepts often used in quality assurance of higer education" by Nguyen Kim Dung and Pham Xuan Thanh (2003); "Evaluation: concepts, princiles, processes, classification, methods" by Tran Bich Lieu (2007). Researchs on program evaluation in Vietnam are implemented according to targeted approach, focusing on reference, applied the model of the evaluation model of some countries around the world in Vietnam; approach to accredit programs built by universities. However, no study has evaluated joint training programs, AP.

1.2. Definitions

1.2.1. Curriculum: Curriculum is the components of a training process, methods, conditions, organizational processes and evaluation and ensure the implementation of the objectives of training.

1.2.2. Advanced Programs: "Advanced program is designed, constructed by the universities based on the curriculum currently applied in the leading universities in the world, including the content, teaching methods, organization processes and management and are

taught in English; Marxism - Leninism subjects according to the mandatory provisions for Vietnamese students".

1.2.3. Evaluation the quality of the curriculum:

1.2.3.1. Evaluation in Education: The results of the evaluation helps to overcome the present shortcomings to improve the quality of training, meet the requirements of the labor market.

1.2.3.2. Curriculum evaluation is the process of forming concepts, judgments of the curriculum based on process of collecting information on inputs, implementation process, output, satisfication of the outputs versus training objectives and requirements of the society in related to the mission, the conditions the program resources of the institution, pointing out the strengths and shortcomings, correction plan to develop curriculum to improve quality.

1.2.4. The evaluation of advanced programs is the process of forming concepts, judgments based on gathering information, data, evidence of the implementation of the objectives and training plans. It is related to the context, the mission and the values of the university, determine the standard output of the program and the appropriateness of advanced programs in Vietnam. Evaluation AP is to point out the advantages and shortcomings of the program and the proposed plan to overcome these disadvantages, improve and develop the curriculum, improve the quality of advanced programs in Vietnam.

1.2.5. Criterion and criteria

Criterion is the level of requirements and conditions that the program needs to be recognized as meeting the quality standards of education.

Criteria are the level of requirements and conditions to be achieved in a specific aspect of the criterion.

1.3. The evaluation model and accreditation of higher education programs in a number of countries in the world

1.3.1. The evaluation model of quality

- Type of model: awareness model; procedures model; mathematical models.

- **Some typical models:** Model of Tyler (1949); CIPP assessment model (1971); USA Evaluating Model; Organizational Elements Model; Kirkpatrick model; Saylor model, Alexander and Lewis model. From the analysis of the above evaluation model, although expressed in different names, different ways of content reprenting, they are focused on determining the evaluation of objectives, input, process and effectiveness of training.

1.3.2. Accreditation of higher education programs in a number of countries in the world

1.3.2.1. Accreditation of higher education programs in the US

Accreditation in the United States is to satisfy 2 purposes *"1) ensure for the parties involved in the education that a curricula or an institution has achieved or exceeded the certain standards of quality. 2) Support the continuous quality improvement ".*

1.3.2.2. Accreditation of higher education programs in Austria

1.3.2.3. Accreditation of higher education programs Finland

1.4. The scienticfic basics of building the evaluation criteria of advanced programs

1.4.1. Features of the advanced program

Train high-quality human resources; Designed or imported from advanced countries but is implemented in terms of cultural and educational conditions of Vietnam; use textbooks in English of advanced countries; Evaluation of process; English learning outcomes required upon graduation; The modern learning environment is a priority focus,; faculties are foreigners; fostered both at home country and abroad; Facultied have to do many researchs.

1.4.2. Implementation conditions: except for AP facilities in Vietnam are new, basically corresponding to the universities of the United States, there are several differences as objectives, input qualifications, teaching ability of teachers, teaching environment, management and cultural education.

1.5. Evaluation criteria: The ABET accreditation criteria; criteria AUN - AQ; Assessment tool of Vietnam**.**

Summary of Chapter 1: The thesis focuses on clarifying the concepts related to curriculum, developing curriculum, advanced

programs, accreditation and evaluation programs; describes several models of quality evaluation.

Chapter 2

STATUS OF IMPLEMENTATION AND EVALUATION OF ENGINEERING ADVANCED PROGRAMS IN VIETNAM

2.1. Status of implementation engineering advanced programs in Vietnam

2.1.1. The partner foreign insitutions

2.1.2. Admissions

2.1.3. Training management

2.1.4. Training organizations

2.1.4.1. Develope programs

2.1.4.2. Textbooks, reference

2.1.4.3. Organization of teaching

2.1.4.4. Organization of evalation

2.1.4.5. Invite foreign lecturers

2.1.5. Retrain human resources

2.1.6. Research and technology transfer

2.1.7. Graduation results and employment of graduatees

2.2. Status of evaluation engineering advanced programs in Vietnam

2.2.1. Status of self - evaluation

2.2.1.1. The manner, content, the tools, evaluation criteria

- *Self evaluation Method:* In two ways:

Option 1: The University implementing AP does self evaluation by grading form created by MOET. This is mandatory for all advanced programs; Option 2: The univerrrsssity collaborates with the partner institution, self-constructs the criteria and then self-evaluates. This approach implemented by the universities themselves.

- *Evaluation contents:* Evaluate the quality of the program by the evaluation of lecturers and students of AP, evaluate the capacity of lecturers and students on the status of implementation of the AP.

- *Applied tools, criteria:* evaluation survey.

2.2.1.2. Status of the self-evaluation

- Evaluation of the faculty and students of AP; the operational status of the AP; The two partner universities build the evaluation criteria themselves.

2.1.1.3. Relevance

2.2.2. The reality of the external evaluation APAM

2.2.2.1. The manner, content, the evaluation criteria

- Method: often according to AUN; Content: Evaluate the quality of AP to improve the curriculum quality in Southeast Asia.

- Applied criteria: The evaluation criteria of the AUN.

2.2.2.2. The status of evaluation

By December 10/2015, of 18 engineering advanced programs, only two programs (Biotechnology and Information Technology) has received a certificate of AUN. Four programs have bacically completed the self-assessment report, 12 programs are in the process of implementation, has sent staff to training, prepared for self-reports for external assessment conducted in 2015-2016 academic year.

2.2.2.3. Relevance: The majority of universities implementing AP evaluate under AUN is considered appropriate solution at this time. Evaluation according to AUN is considered rehearsing steps for evaluation by ABET.

2.3. Difficulties in the evaluation AP: AP is a new factor of Vietnam higher education and is limited in human resources for imlemeting evaluation, AP Management and cultural reception.

2.4. General assessment of evaluation AP: The evaluation and accreditation AP has received the attention of all levels of management. For the external evaluation, most of universities choose evaluation of AUN, no public university implemented evaluation according to the United States criteria.

Summary of Chapter 2: The current status and evaluation of AP impplementes in Vietnam are presented in this chapter. The author has pointed out the difficulties in evaluating the technical AP, so that the author proposes the appropriate evaluation criteria to practical implementation of AP as well as higher education Vietnam.

Chapter 3
DEVELOPING CRITERIA FOR EVALUATING ENGINEERING ADVANCED PROGRAMS IN VIETNAM

3.1. The principles and basic requirements for the construction of evaluation criteria

3.1.1. These principles need to thoroughly understand

3.1.1.1. The principle of ensuring continuity

3.1.1.2. The principle of ensuring purpose

3.1.1.3. The principle of ensuring systematicness

3.1.1.4. The principle of ensuring effectiveness

3.1.1.5. The principle of ensuring objectivity

3.1.2. Requirements for the content of the criteria: must reflect the objectives of the program, the vision, the mission of the universities; quantified in scale; specify data and evidence.

3.1.3. Requirements for expert capacity: having appropriate technical capacity, highly qualified; knowledgeable about the curricula, the practical status of higher education Vietnam, evaluation program, and theory of program evaluation and understanding of AP.

3.1.4. Affecting factors

3.2. Criteria proposal: 9 criterions and 42 criteria.

3.3. Do experiemnts

3.3.1. Purposes

3.3.2. Subjects

3.3.3. Contents

3.3.4. Experimental methods

3.3.5. Experimental tools

3.3.6. Experimental process

3.3.7. Experts consulting results on the criteria: total experts consulted include 60 people (by form) and 20 (by interviews).

3.3.8. Results of the survey: expert of assessment and quality assurance program of ABET, US and evaluators, managers, lecturers.

3.3.9. General comments on the survey results

- Pros: Good ideas, basically, all of the criterions and criteria given are considered appropriate, objective and reliable at the various levels.

- Cons: The survey is divided into 3 levels led to the disparity between 3 levels are too high. The evalation criteria are more qualitative, not quantified by content criteria and has some technical errors, inconsistencies in the presentation. It need clarify the objectivity and selection evaluation team;

3.3.10. Adjust the evaluation criteria

3.4. Recommend criteria for evaluating the engineering AP in Vietnam: 9 criterion and 42 criteria

CRITERION 1: STUDENTS

1. Description

The curriculum is to assess the complete learning process of students. Students must be advised regarding curriculum and career matters and student progress must be monitored graduates to attain program educational objectives. The program must have and enforce clear policies for accepting both new and transfer students and awards appropriate academic transfer credit taken at the institution. The program must have and enforce procedures, legal document, detail requirements and enrollment procedure to ensure student meet the learning outcomes. Annually check and refill the criteria.

2. Criteria

Criteria 1: Student Admissions

Expected conditions and enrollment procedure for a new student.

Criteria 2: Evaluating Student Performance

Evaluation of student input quality is to guide appropriate training process for each student, evaluate the process of each cource, made punishment, evaluate graduates and recognize the graduation results.

Evaluate the progress of students during the learning processes; the capacity profile of graduatees is built in the approach of the program outcomes.

Comprehensive evaluation of knowledge, skills, attitudes toward learning, training of students based on ensuring objectivity and meeting its objectives.

Criteria 3: International cooperation in curriculum and student exchange

There are at least 20% of the courses inviting foreign lecturers to teach based on the requirements of specialization and legal of Vietnam.

There are regulations on the process of receiving, exchanging student between Vietnam and foreign countries to study AP courses.

Criteria 4: Advising and Career Guidance

Advising and Career Guidance must be carried out periodically and continuously with clear contents and procedure. Endure that advising and providing career guidance to students are effective.

Criteria 5: Practical experiences

Summarize activities outside of the campus together with learning process to gain practical experiences as professional practical experience, life, social activities, military training, industrial experience, etc, with clear content, proposed output and evaluate output.

Activites inside the campus in accordance with capacity approach and strengthen practical solutions after graduation.

Criteria 6: List of replacement courses for graduation thesis and thesis grading.

There is a list of replacement courses for graduation thesis

Criteria 7: Graduation Requirement

There is a requirement of accumulated credit, minimum accumulated grade, capacity profile, diplomas and certificates as military certification, certification of foreign languages and other certificates applying for graduate students.

The transcipts upon graduation must be provided.

Criteria 8: the honesty of students

There must be a practical activity for political and ideological education, promoting the love for their country, responsibility for family and society, virtues training for students Clear regulations and penalty students violated.

CRITERION 2: PROGRAM EDUCATIONAL OBJECTIVES

1. Decription

Program educational objectives are published and consistent with the mission, strategic objectives, vision of the universities towrds the requirements of the labor market. State the requirements of student outcomes after graduation for knowledge, skills, attitudes, job placement, foreign language skills, computer skills, etc. Records on periodically reviews the curriculum, describe how this process is systematically utilized to ensure that the program's educational objectives are based on the needs of different groups of the program and levels of achievement set targets.

2. Criteria

Criteria 1: Mission and vision of the institution

Provide the institutional mission and vision statement of the university and faculties in consistency with training objectives.

Criteria 2: Training objectives and Student Outcomes

The training objectives describe the requirement of knowledge, skills, attitudes, that students must achieve after studying. The training objectives must present the objectives of each courses and are published in each academic year and course outlines.

Criteria 3: The consistence of training objectives with outputs and institution missions

Program and course objectives must meet the announced output standard by political qualities, moral, professional knowledge, professional skills required by each career; job placement; English proficiency; information technology, community development objectives, skills to solve technical problems in order to meet the requirements of the labor market. Contents of outcomes are consistent with requirements of the industry using technical engineers, local use, Vietnam labor market and regional, international integration.

Criteria 4: Human resources participating in curriculum construction

Construct the procedure and demonstrate the role of the recources participating in the curriculum construction at each level as

the role of managers, faculty, alumni, employers in the curriculum construction and development.

Criteria 5: Review of the Program Educational Objectives

Every year, the university must conduct a review and adjustment of training objectives towards improving and enhancing quality but still matching with the strategic mission of the university, which presents roles, the manner of review and adjustment the training objectives for the management, faculty, alumni, employers, labor markets.

CRITERIOR 3: STUDENT OUTCOMES

1. Description

Student outcomes must achieve expected results of activities, scientific research carried out by faculty and students and meet the requirements of the employers.

2. Criteria

Criteria 1: Outcomes towards capacity approach

Out comes must be clearly presented including: ability to apply knowledge of mathematics, science and engineering in specific engineering problem; ability to design and conduct experiments, as well as analyze and interpret data; Ability to design a system, a component, a process to meet desired requirements with practical constraints such as economic, environmental, social, political, ethical, health and safety, can produce and sustainability; Ability to work in interdisciplinary teams; Ability to identify, express and solve technical problems; An understanding of professional knowledge, ethics; Ability to communicate effectively ; Ability to understand the impact of engineering solutions in a global context, economic, and social environment; Awareness of the need and ability to learn lifelong time; Knowledge of contemporary issues; Ability to use the methods, skills and modern engineering tools necessary for engineering practice.

Criteria 2: The relationship of student outcomes to educational objectives

Describe relationship between the student outcomes prepare graduates and the program educational objectives, the relationship

between the objectives of each course and learning outcomes, the relationship between the objectives of knowledge and learning outcomes. The relationship between educational objectives and outcomes cater to professional development.

CRITERIOR4: CONTINUOUS IMPROVEMENT

1. Description

Describes the results of input evaluation, process anf graduation to show the continuos improvement of students. Outcomes of programs are defined and regularly reviewed and finalized, adjusted and evaluated by a identified process, evaluation results must be recorded in word. Product evaluation process shows outcomes are evaluated continuously and shows how perfect these products are. There should be evidence that the results of the evaluation program are used to further improve the curriculum.

2. Criteria

Criteria 1: Outcomes of each course and training process

Listing evaluation data regularly during the training process of students in order to motivate students and periodically evaluate the capacity of students through each stage, forms and evaluation criteria. Capacity profile of student through learning stages, accumulated results and level of satisfaction of the student learning outcomes in each subject. Profiles of senior meet outcomes of the curriculum and achieve proposed training objectives. How are the evaluation results and capacity profiles kept?

Critera 2: Planning and plans for improvement, review and adjustment of the annual curriculum

Describe the use of input evaluations for the organization of training and program improvement, how lecturers use regular evaluations to innovative methods and forms of teaching, the use of periodiccal evaluation results and review to develop curriculum in the training process.

Describe the use of evaluation results of graduatee outcomes to improve and develop training programs.

Plan of curriculum development of faculties, university through each academic year, each training course. Plan of program development in the future.

Criteria 3: Monitoring systems and monitoring tools

Description of monitoring input, process and outputs. Tools for doing input survey. Tools for survey, evaluate graduates, self-evaluation of the university. Human resources take part in the evaluation process.

Criteria 4: The implementation of self-evaluation of the institution

Describe the deployment of regular self-assessment of the institution.

CRITERIOR 5: CURRICULUM

1. Description

The curriculum includes courses in technical fields, rather than prescribing specific subjects. The curriculum shows a balance between specialized contents and time for each topics consistent with expected outcomes and objectives set by the program and training institutions, including: Time for learning math modules and the basic science matching each major, time for specialized knowledge especially basic science and engineering practice. Technical sciences should be based on the foundation of mathematics and basic sciences but also use intensive knowledge with the creative applications. Students are provided a balance between mathematics, basic science and engineering practice, intensive time for technical content of the courses. The arrangement of curriculum to ensure consistency with the objectives of the program and training facilities. Social knowledge and humanity need to be added to the curriculum.

2. Criteria

Criteria 1: The program reflects the vision and objectives of the school

The curriculum takes into account and reflects the vision, mission, aims and objectives of the institution. The vision, mission, aims and objectives are explicit and are known to staff and students..

Criteria 2: The curriculum demonstrates the feature of updating and modernity

The curriculum must show the feature of updating and modernity of new knowledge to improve the practical problem-solving for students. Content for each module to meet the requirements of employers.

Criteria 3: The contents of the curriculum

Contents of the curriculum should demonstrate the consistency between curriculum and educational objectives, the balance between the contents (fundamentals and specializations). The program must demonstrate the requisite courses, parallel courses, fundamental subjects, intermediate courses, specialized courses, projects and schemes and the requirement of these courses. The curriculum is designed to indicate time, quality, connectivity and organization of courses so that students can meet their outcomes and ensure vertical and horizontal interoperability.

Creitera 4: Course Syllabi

Syllabus must specify the general goals and objectives of each sub-component in 3 levels. Syllabus must clearly indicate the method and form of teaching, manner of learning, academic schedule of study places and the time taken, product achieved by students, criteria to evaluate student outcome. Outline must orient for self-study activities and self-research of students. Outline to describe the target matrix of subject according to the degree to which students should achieve. Outlines indicate evaluation forms and criteria, form of learning.

Criteria 5: Practice, internship

The curriculum demonstrates requirements of contents and the manner of organizing practice, engineering internship on the basis of the knowledge and skills gained in the fundamental courses, the combination of technical standards and diversity of reality.

Criteria 6: Evaluation

The training program must reflect the form and proportion of evaluation for each course and demonstrate the ability to self - evaluation by outcomes of the program.

CRITERIOR 6: FACULTY

1. Description

Institutions have to ensure that faculties have sufficient quantity and cover all the curricular areas of the program to interact with students, student advising and counseling, university service activities, professional development, and industrial partners and employers.

Faculties must meet the appropriate quality and are fully competent to organize programs and implement the evaluation process and continuous improvement of programs to ensure the implementation of the objectives of the program. Lecturers are selected based on factors such as the training, specialization, experience in research and teaching, the ability to communicate, enthusiasm for developing more effective programs, academic level and the participating in professional associations.

2. Critera

Critera 1: Faculty Qualifications

Faculties must meet the standardsof Ministry of Eduaction and Training, the qualifications of the faculty must meet the requirements of the curriculum as design curriculum, use different teaching methods, computer skills, ability to evaluate students and self- training.

Criteria 2: Responsibilities of the faculty

The roles and responsibilities of the faculty for the university, faculties and their teaching activities are required by the university including the modification, evaluation and development of the module, the role of teachers in identifying and modifying the curriculum objectives and outcomes.

Critera 3: Develop professional capacity

Brief description of the workload of teaching, scientific research and self fostering of each lecturer in the Faculty, assess the results of the completed work. The university also has the regulations to develop professional activities through foreign language, teaching methods for lecturers.

Criteria 4: Faculty size

Fully reflect the parameters related to the faculties, the fluctuations in the number, extent and quality of the faculty. The amount of time, the quality of the interaction between teachers and students as student counseling, service activities, professional development, etc.

CRITERIOR 7: FACILITIES

1. Description

The university must ensure the facilities for learning and lecturing. Classrooms, laboratories and associated equipment must be adequate to carry out the educational objectives and to create a favorable environment for learners. Facilities (modern equipment, learning resources, labs, etc.) must be sufficient to serve the interaction between teachers and students, enabling the development and professional activities. Students must have instructions to be able to use the equipment, tools and learning resources and library. Information infrastructure and computer must have to support the academic activities of the students and the Faculty, and supports the objectives of the curriculum and institutions.

2. Criteria

Criteria 1: Offices, Classrooms and Laboratories

The university must have well - equipped facilities in terms of their ability to support the attainment of the student outcomes and to provide an atmosphere conducive to learning as offices (such as administrative, faculty, clerical, and teaching assistants) and any associated equipment that is typically available there, classrooms and associated equipment that are typically available where the program courses are taught, laboratory facilities including those containing computers (describe available hardware and software) and the associated tools and equipment that support instruction.

Criteria 2: Computing Resources

The computing resources (workstations, servers, storage, networks including software) used by the students in the program. Students can access these sources via various locations such as student housing, library, student union, off-campus, etc. The university states the hours the various computing facilities are open to students and assess the adequacy of these facilities to support the scholarly and professional activities of the students and faculty in the program.

Criteria 3: Guidance

Students in the program are provided appropriate guidance regarding the use of the tools, equipment, computing resources, and laboratories

Criteria4: Maintenance and Upgrading of Facilities

The tools, equipment, computing resources, and laboratories are periodically maintained and upgraded to be well used by students and faculty in the program.

Criteria 5: Library Services

The library is capable of books, referrencr sources including soft and hard copy, effective tools and software to look for the document, ability to order books, ebooks or any other library sevices relevant to the needs of the program.

Criteria 6: Facilities for outdoor activities

Description of the equipment for the students outside class as playground system, stadium, gymnasium and catering service areas. Ensure the need of student dormitory

CRITERIOR 8: INSTITUTIONAL SUPPORT

1. Description

Sufficient support from the training facilities, financial resources, the constructive leadership is nessessary to ensure quality and continuity of the program. These resources must be sufficient to attract, retain and facilitate the continuous professional development of teachers with high quality. Thoses resources are enough to collect, maintain and operate the facilities and equipment for the technical program. In addition, personnel and training institutions services should be sufficient to meet the requirements of the program.

Institutional supports are leadership, budget and financing, human resources, staff training and supporting faculty professional development.

2. Criteria

Criterion 1: Leadership

Describe the leadership of the program and discuss its adequacy to ensure the quality and continuity of the program and how the leadership is involved in decisions that affect the program.

Criterion 2: Finance

Describe the process used to establish the program’s budget and provide evidence of continuity of institutional support for the

program. Include the sources of financial support including both permanent (recurring) and temporary (one-time) funds.

Describe how teaching is supported by the institution in terms of graders, teaching assistants, teaching workshops, etc.

To the extent not described above, describe how resources are provided to acquire, maintain, and upgrade the infrastructures, facilities, and equipment used in the program.

Assess the adequacy of the resources described in this section with respect to the students in the program being able to attain the student outcomes.

Criterion 3: Personel

Strategic development of the university personnel, including faculty and staff (administrative, teaching and technicians, etc ...). Their job description. The policies implemented personnel training and placing to develope the training program, providing services for the program. The solutions were used to retain faculty, staff member qualified to work long term for the university.

Criterion 4: Support of Faculty Professional Development

Describe the adequacy of support for faculty professional development, how such activities are carried out as consultants for colleagues, attending professional hours, thematic seminars, training to improve professional skills, exchange to partner institutions, seminars, etc., are planned and supported.

CRITERIOR 9: FEEDBACK OF UNIVERSITY AND EMPLOYER

1. Description

The University is encouraged to build training programs with the participation of the employers. Then take the feedback from employers to get information on the quality of labor, the satisfaction of the employer for Education program and the output quality, use the feedback of employers to develop profiles of graduates' performance and develop training programs, faculty competence improvement, innovate methods of training organization forms.

2. Criteria

Criterion 1: The participation of the employers towards the construction of the training program.

Training programs need the input of the individual for the adjustment and update of the actual requirements for training programs.

Criterion 2: The feedback on the quality of students

The university needs to have feedback on the actual quality of the graduates. The results of graduates that meet the requirements of the employer must be summed up. The plan for additional knowledge, new scientific trends should be added to improve the tranining quality

Criterion 3: Feedback from alumni and labor market

Feedback from alumni and labor market adjustments help the university adjust the curriculum to ensure output quality for students.

3.5. How to use the criteria

There are 3 steps in using the critera: Step1: Self-evaluation; Step2: Preparation for evidence and write self-evaluation report; Step3: External Evaluation.

Summary of Chapter 3: The construction of evaluation criteria AP in Vietnam was conducted steps by steps, referring, content legacy, the manner of organizing evaluation of the advanced evaluation tools in the world and the region. The author constructed criteria, carried out experiment, adjusted and propose the criteria to evaluate Advanced Programs in Vietnam. Basically, the criteria focused on clarifying the criteria for compliance with the conditions for implementation in Vietnam.

Chapter 4

DO EXPERIMENT TO EVALUATE THE CRITERIA OF ENGINEERING ADVANCED PROGRAMS IN VIETNAM

4.1. Purposes: Pracitcalize the criteria to detect weaknesses by practical evaluation and evaluate the quality and efficiency of the criteria.

4.2. Subjects: evaluate 2 advanced programs in Mechanical Engineering and Electrical Engineering in 2 criterions and 9 criteria.

4.3. Scope: 2 advanced programs in Mechanical Engineering and Electrical Engineering in Thai Nguyen University of Technology.

4.4. Methods

Select from 1 to 2 advanced programs is currently implementing to evaluate; choose 2 out of 9 criterions for evaluation tools; construct self-evaluation report and evidences; invite external evaluation team; compare the results of self- evaluation and external evaluation; analize results and recommendations (if any).

4.5. Content

4.5.1. Selection of AP for evaluation

4.5.2. Selection of criteria as evaluation tools

4.5.3. Construction of self- evaluation report and evidences

4.5.4. Invite external evaluation team

External evaluation team results

Criterion	Number of criteria	Number of achieved criteria	Number of non-achieved criteria
1	8	6	2
3	2	2	0

4.6. Compare the results of self- evaluation and external evaluation

Results of self- evaluation and external evaluation

Criterion	Number of criteria	Results of of self-evaluation		Results of external evaluation	
		Number of achieved criteria	Number of non-achieved criteria	Number of achieved criteria	Number of non-achieved criteria
Criterion 1	8	8	0	6	2
Criterion 3	2	2	0	2	0

4.7. Analize results and recommendations (if any)

The differences between self- evaluation and external evaluation are acceptable. However, the average rate according to necessary scale is 0.5 higher so all criterions and more curricula should be tested in the future before applying in reality.

Summary of Chapter 4: The author had conducted experiments with 2 criterions of 2 advanced programs in Mecahnical Engineering and Electrical Engineering. The author also suggested continuing experimenting all of the criterion and research in following programs.

CONCLUSIONS

1. Conclusions

The construction of the evaluation criteria Engineering AP in Vietnam is necessary. In addition, the criteria also have positive impact to the quality of the training program.

From the study of the ABET criterions, current status and quality evaluation of AP. Based on fully consideration of culture and practical situation of Vietnamese higher education, the author compared, proposed aspects need to be built into the evaluation criteria engineering AP. To experiment the feasibility, we have also consulted and acquired with expert, constructed the evaluation criteria and invited outside experts to evaluate the criteria using 2 out of 9 proposed crtiteria.

The results show that the criterions and criteria are basically sticking educational actualization and received positive feedback about the scientific, realistic and feasible feature. If well-implemented, synchronized and periodic evaluations, crriculum will be under control, adjusted and improved the quality of training. This can be a basis for continuous improvement programs and change the awareness of accreditation. In summary, the results show that the construction of the evaluation criteria for the Advanced Program is done step by step, consistent with previous recommendations. Self-evaluation of some criteria implies this should be done regularly and systematically. Research has solved the propsed objectives and can be reviewed and used in self-evaluation program of engineering AP in Vietnam.

2. Proposals and recommendation

Based on the research results, the author suggests some proposals and recommendations as follows:

- Proposals for the Ministry of Education and Training: consider and evaluate the results of the thesis to encourage the

universities implementing engineering advanced programs; conduct self-evaluation and get eaperiences through practice, continue to improve towards formally issued the evaluation criteria engineering advanced programs in Vietnam.

- *Proposal for universities* implementing engineering advanced programs: review, plan to use the criteria in the self-evaluation the quality of AP, develope the advantages of the program and plans to overcome the shortcomings in order to implement the objectives of the project " Implementation of advanced training programs at a number of Vietnamese universities in the 2008-2015 period".

- *Recommendations for further studies*

Continue to construct the evaluation criteria for the Engineering Advanced Program in the level of indicators and expand research to build the general evaluation criteria AP of all majors.