

The Executive Summary Report  
on Quality Assurance for  
the Academic  
Year



2010



Quality Assurance Subdivision  
Academic Support Division  
Suranaree University of Technology



## Foreword

This self-assessment report is compiled for the purpose of analyzing and reporting the implementation of Suranaree University of Technology (SUT) by using the indicators and criteria set by the Office of the Higher Education Commission (OHEC) and Suranaree University of Technology during the academic year 2010 (May 2010-April 2011). This report is intended for SUT and its stakeholders, especially the supervisory board and the public in order to develop quality and educational standards of the university into a higher level.

Suranaree University of Technology has established a policy of continuous educational assessment to create a quality corporate culture within SUT beginning with educational quality assurance since the academic year 1998, with the system and mechanism for educational assurance corresponding well to the university policy of “Centralized Services, Coordinated Missions” The educational assessment and assurance have been improved and revised continuously up to now. In the academic year 2010, SUT has used OHEC higher educational standards for internal quality assurance as the main standards in its quality assessment. The university has applied all 23 OHEC indicators and 2 indicators of the “3D Policy for Educational Institutes”, and added 9 SUT indicators, making it a total of 11 components with 34 indicators. Based on the Second 15-Year Long Range Plan on Higher Education (2008-2022), SUT has classified itself as a Research/Graduate University with major emphasis on advanced research and production of quality graduates especially at the doctoral level degree.

To achieve the PDCA for the academic year 2010, SUT has implemented the internal quality assurance on August 22-24, 2011. The appointed Internal Quality Assessment Committees consist of external and internal distinguished scholars. In addition, the university has continuously organized the annual QA Forum, aiming to brainstorm, exchange, and develop mutual understanding and awareness on educational quality assurance. From these activities, the university has taken the assessment results in determining SUT policy in order to strengthen its distinctive features, and, based on the indicators, correct those features lacking behind, and to prepare a strategic plan for the university. Moreover, individual units of SUT have developed a plan, based on the weak points of their self-assessment, to improve and correct the performance results by assigning a certain person a responsibility and putting he/she in plans of actions, and relevant projects/activities in order to develop the units and to propose for the budget in the next fiscal year. This leads to concrete implementation and optimal achievement, which in turn will improve and develop the quality of educational management into a more efficient, effective and continuous manner.



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Rector

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# The Report on Quality Assurance for Academic Year 2010

## Executive Summary

Suranaree University of Technology (SUT) is Thailand's first public autonomous, non-bureaucratic university in the form of a "government-supervised university" which focuses on teaching and doing research in science and technology essential for the national development under the administrative principle of "centralized services, coordinated missions". The university has implemented the educational quality assurance continuously since the academic year 1998. In the academic year 2007, the university adjusted the indicators to make it consistent with the indicators set by the Office of the Higher Education Commission (OHEC). Classifying itself as a graduate production and research-oriented university, SUT has employed the 9 OHEC components and 41 indicators (except the indicators for a university group of a graduate production and social development, and the indicators for a graduate production and art and cultural development) and included them in another 5 indicators determined by SUT, making it a total of 9 components with 46 indicators. In the academic year 2008, SUT has improved its indicators of educational quality assurance by adding 4 more indicators of a mission in the Technology Adaptation, Transfer and Development, making it a total of 10 components and 50 indicators. As for the academic year 2009 (May 2009-April 2010), the university added 2 more indicators of OHEC component 10: "3D Policy for Educational Institutes", making it a total of 11 components and 52 indicators. In addition, since the academic year 2010, SUT has adjusted its educational quality assurance's indicators by using all 23 OHEC indicators, and 2 indicators of the "3D Policy for Educational Institutes", and added 9 SUT indicators, making it a total of 11

components with 34 indicators, that cover all factors affecting the university's quality which are input, process, output and outcome. Such quality assurance indicators can be summed up as follows:

1. Component 1 Philosophy, Commitments, Objectives and Implementation Plans (1 indicator)
2. Component 2 Graduate Production (11 indicators)
3. Component 3 Student Development Activities (2 indicators)
4. Component 4 Research (4 indicators)
5. Component 5 Academic Services to the Society (2 indicators)
6. Component 6 Preservation of Arts and Culture (1 indicator)
7. Component 7 Administration and Management (5 indicators)
8. Component 8 Finance and Budgeting (1 indicator)
9. Component 9 System and Mechanism for Quality Assurance (3 indicators)
10. Component 10 3D Policy for Educational Institutes (2 indicators)
11. Component 11 Technology Adaptation, Transfer, and Development (4 indicators)

The university has implemented its educational quality assurance, with details of components, indicators, and level of appraisal results for each indicator presented in Chapter 2. A summary of strengths /suggestions and weaknesses/solutions of the university provided in Chapter 3 can be summed up as follows:

## Overall Results of Educational Quality Assurance

1. The performance results of the university were at a “very good” level in terms of quality, with the average of 4.78 out of 5 by the OHEC indicators, which was 95.60% (with 20 out of 23 indicators meeting the standards), and 4.50 out of 5, which was 90.00% (with 28 out of 36 indicators meeting the standards) by the combination of the OHEC and SUT indicators.
2. Based on 34 indicators, it was found that the implementation of 31 indicators were at “good” and “very good” levels (4 and 5 points), or classified as distinctive features as explained below:
  - 1) Indicator 1.1 Plan Development Process
  - 2) Indicator 2.1 System and Mechanism for Curriculum Development and Administration
  - 3) Indicator 2.2 Full-Time Instructors Holding a Doctorate Degree
  - 4) Indicator 2.4 System for Faculty and Support Personnel Development
  - 5) Indicator 2.5 Library, Educational Equipment and Learning Environment
  - 6) Indicator 2.6 System and Mechanism for Teaching and Learning Management
  - 7) Indicator 2.7 System and Mechanism to Develop the Educational Achievements According to Graduate Characteristics
  - 8) Indicator 2.8 Success Rate of Morality and Ethics Edification for Students

- 9) Indicator 2.11\* Students' GPAX.
  - b. Graduate level
- 10) Indicator 3.1 System and Mechanism to Provide Information Advice and Services
- 11) Indicator 3.2 System and Mechanism to Promote Student Activities
- 12) Indicator 4.1 System and Mechanism to Develop Research or Creative Work
- 13) Indicator 4.2 System and Mechanism to Manage the Knowledge Gained from Research or Creative Work
- 14) Indicator 4.3 Funds for Research or Creative Work per Full-Time Instructor/Researcher
- 15) Indicator 4.4\* A Total number of Research Articles Published in Recognized Scholarly Journals with Peer Review to the Number of Full-Time Faculty Members
- 16) Indicator 5.1 System and Mechanism for Academic Services to the Society
- 17) Indicator 5.2 Academic Service Process for the Benefit of the Society
- 18) Indicator 6.1 System and Mechanism for the Preservation of Arts and Culture
- 19) Indicator 7.1 Leadership of the Institution Council and Administrators at all Levels of the Institution
- 20) Indicator 7.2 Institutional Development towards Learning Institution
- 21) Indicator 7.3 Information System for Administration and Decision-Making

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Note \* refers to SUT indicators added to the OHEC indicators



- 22)Indicator 7.4 Risk Management System
- 23)Indicator 7.5 \* Satisfaction of Service Receivers on “Centralized Services, Coordinated Missions”
- 24)Indicator 8.1 System and Mechanism for Finance and budgeting
- 25)Indicator 9.1 System and Mechanism for Internal Quality Assurance
- 26)Indicator 10.1 3D Policy for Educational Institutes
- 27)Indicator 10.2 Implementation Results of 3D Policy on Learners’ Knowledge, Attitude, and Behaviors as Determined by the Goals of Desired Learners’ Characteristics of 3D
- 28)Indicator 11.1\* A System and Mechanism for Technology Adaption, Transfer and Development According to the University’s Goals
- 29)Indicator 11.2\* A Percentage of Full-Time Faculty Participating in Suitable Technology Adaptation, Transfer, and Development
- 30)Indicator 11.3\* A Percentage of Activities/Projects in Technology Adaptation, Transfer, and Development Suitable for Full-Time Faculty members
- 31)Indicator 11.4 Satisfaction of Service Receivers on Technology Adaptation, Transfer, and Development

There were 3 indicators (2 indicators and 1 sub-indicator) needed to be improved to meet the standards (assessment result = 2 points), or classified as the weaknesses. They are:

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Note \* refers to SUT indicators added to the OHEC indicators

- 1) Indicator 2.3 Full-time Instructors holding an academic position
  - 2) Indicator 2.9\* A percentage of dismissed students per batch
    - a) undergraduate level
  - 3) Indicator 2.10\* A percentage of undergraduate students graduating on time in each batch
3. Based on the quality assessment results of the indicators that should be improved in order to meet the standards, when arranged in order of importance in accordance with the administrative management perspectives of Balanced Scorecard (BSC), it can be classified into 3 groups as follows:

3.1. Students' and Stakeholders' Group consists of 2 Indicators:

- 4) Indicator 2.3 Full-time Instructors holding an academic position
- 5) Indicator 2.9\* A percentage of dismissed students per batch
  - b) undergraduate level
- 6) Indicator 2.10\* A percentage of undergraduate students graduating on time in each batch

Suranaree University of Technology and its departments involved with the assessment should have measures to support and to encourage students' learning achievement, namely decreasing the number of dismissed students and increasing the number of students' graduation within the time schedule by using the following input and process measures:

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Note \* refers to SUT indicators added to the OHEC indicators

## Input Measures

- Increase proactive public relations with a focus on target groups of students with high capability, such as a group of students from Academic Olympic Camp, Promotion and Development of Mathematics and Science Genius Camp, as well as students from various special programs. Such PR has to be implemented all year round.

## Process Measures

- Allocate more varied scholarships such as teaching assistant scholarships and research scholarships to high caliber students to become the “key force” for acting as “friends help friends” in studying and enhancing the university’s reputation.
- Regular follow-up on students’ study performance in order to assist them and solve their problems, for example, establishing the Development for Student Achievement Committee and increasing the roles of advising lecturer through:-

**The Academic Institutes and Schools.** Each division should have a place for students to organize their activities together.

**The Faculty Development Academy.** The faculty members should immediately create an efficient and effective advisor/lecturer system.

- An arrangement of a learning evaluation and assessment system that helps lessen students’ tensions, for example, increasing the number of examinations in each course will enable students to become more enthusiastic in learning.

- Increase class time or tutor time of fundamental courses for students with low performance to adjust their knowledge base in chemistry, physics, and calculus for examples.
- Encourage more student activities related to academics and learning, such as an Academic Club to provide a system for learning support in the form of “friends help friends”, “seniors helps juniors”, or encourage the Student Council to brainstorm students’ learning problems and solutions and inform them to the university.
- Constantly employ classroom research processes, especially in medium and large sized classrooms to investigate causes of students’ failures, find out solutions, and put the research results in immediate practice.
- Provide methods to assist undergraduate students in increasing their GPA by arranging places for students to give the university feedback about teaching and learning management directly.
- Academic Affairs and Institutes of SUT should find out the causes of students’ GPAX being lower than the target 2.26 : Target  $\geq 2.50$ ), of disqualified students being higher than the target of undergraduate levels of each batch (percentage of 24.15: target < percentage of 10), and of lower rates of undergraduate students’ graduation within the time schedule (percentage of 43.02). Through the institutional research, the results can be compared with those of other universities with the same characteristics, determine measures/solutions, and put them in the plan of action for more serious solutions to the problems with concrete results. To achieve the goal, a person in charge and within the time frame should be specifically assigned.

3.2 Staff, Learning and Innovation Group has 1 indicator.

1) Indicator 2.3 Full-time Instructors holding an academic position

**SUT should do the following:**

3.2.1 Arrange personal development plan of faculty members for their career advancement through support systems, such as yearly teaching plan/workload, and plan for developing teaching materials/books. Implement advisory systems and motivate lecturers who are now with no academic titles or who want to rise in ranks to bring academic achievements in the forms of textbooks, books, and publications in quality journals.

3.2.2 Promote, encourage, and support faculty members to get more and constant publications in national and international academic journals with peer review and are acceptable in their field of study, for example:

- Allocating funds/facilities/equipment for promising faculty with high capabilities to produce quality research with high impact and citation in a refereed journal or in well accepted national and international database continually.
- Providing support systems in data analysis and language correction to fulfill the publication cycle for research.

- Determining the workload by including research missions, that do not affect teaching and learning as a whole, as part of a performance evaluation.
- Developing a quality of university journal towards international journal with high impact factor to support academic output of the faculty members.

3.2.3 Develop concrete academic cooperation with leading institutes by having faculty members participate in activities that support the academic strengths with competent researchers, inviting well-known, recognized scholars in their fields of study to conduct research with SUT faculty and students in order to create bodies of knowledge and research base as well as human resources for SUT.

3.2.4 Aim to be a world class university. SUT should focus on spreading SUT research output published in English, including disseminating university news and information on the website and in English. In doing this, the university should have a proficient organization to support such implementation.

3.3 Internal Process Group has 1 indicator.

- 1) Indicator 2.1 System and mechanism for curriculum development and administration

SUT and its departments involved should do the following:

3.3.1 Forty-one curricula are beyond the assessment cycle with thirty-seven of them now being improved to comply with the Thai Qualifications Framework for Higher Education (TQF) and four curricular should be assessed and improved by the related institutes/ departments immediately, namely the Institute of Science.

- 1) School of Chemistry i.e. Biochemistry program  
(Master's and Doctoral degrees)
- 2) School of Remote Sensing i.e. Geoinformatics program  
(Master's and Doctoral degrees)

## Results of Quality Assessment by Quality Components at the Institutional Level (Academic Year 2007-2010)

### Component 1: Philosophy, Commitments, Objectives and Implementation Plans

1. SUT has an annual operation plan and various projects that comply with its missions and vision as well as the national strategy, and that can respond to both internal and external changes. In addition, the assessment results of the University Development Plan Phase 9 were used for developing the University Development Plan Phase 10 (2007-2011). Besides, there were the strategic plans that accord with SUT's missions, vision, and university council's policy, the 11th National Economic and Social Development Plan (2012-2016), the 2<sup>nd</sup> revision of Strategic Plan for Higher Education Reform, and the Second 15-Year Long Range Plan on Higher Education (2008-2022).
2. The university has adjusted measures or methods for following-up, editing, and appraising its achievements in the unit levels and personal level, based on the annual operation plan. These measurements have been concretely and clearly implemented by the committees of the University Council who follow, edit, and assure the university's performance twice a year. In addition, the follow-up and assessment according to the educational quality assurance system is done annually while the internal audit has been carried out four times a year with its results used for SWOT analysis. The university also has the Risk Management System which is assessed by the Office of the Auditor General of Thailand once a year.



## Component 2: Graduate Production

1. SUT has followed-up the students' performance and takes the results of the faculty teaching evaluation by the students to adjust their teaching constantly and with concrete results.
2. The university carried out institutional research to investigate issues in developing teaching and learning, finding out causes and solutions for teaching and learning problems (<http://www.sut.ac.th/dpn/reschedthai.html>), for example large-classroom learning models, factors affecting SUT students in learning achievement for certain courses and causes of the first year students' retirement.
3. The university has developed modern and standardized curricula by adding innovative courses, especially in the graduate level which has a selected topics course that can keep up to date of new content for teaching each trimester. Besides, the university has strictly implemented the quality control of the curricula which has been continuously well-recognized by academic/professional. In doing this, the university has focused on the involvement of academic units, including public and private sectors with concrete results. In addition, every curricula offered by the university has been implemented according to the regulations set by the Office of Higher Education Commission (OHEC)
4. The university has publicized its curriculum in various forms, such as Educational Marketing Exhibition, SUT Curriculum Public Relations for Target School, and using information technology to reach the target group.

5. The university has conducted need analysis for new curriculum. A public hearing and the assessment of its current curricular have been conducted to adjust and develop curriculum that is suitable for education and the national development's direction. Having the Cooperative Education Training System increases the employment rate and salary of SUT graduates.
6. The university has more faculty members holding Doctoral degrees and concretely keeps its standard in recruiting high potential lecturers by implementing a teaching test, a teaching evaluation (<http://fda.sut.ac.th>), and a performance appraisal (<http://mis.sut.ac.th/MISPublic/Default.aspx>). The university has also supported intellectual personnel with moral in the form of awards such as an excellent teaching award, an outstanding research award, and an innovation of excellence award.
7. The university provides support for faculty holding Master degrees to pursue their studies at the doctoral level, with internal and external scholarships and the Sabbatical leave.
8. SUT Teaching Support Unit to Faculty Development Academy (<http://fda.sut.ac.th>) has organized various trainings related to teaching techniques such as student-center learning, large-classroom learning, life-long learning, and deep and active learning to increase students' satisfaction with faculty's teaching.
9. The university supports faculty for higher academic rank by encouraging and providing support for conducting quality research, implementing One Instructor One Product Project, adjusting payment for faculty's academic rank, supporting publication of research articles in international academic journals, textbooks, and teaching materials.

10. The university has a faculty and a research mentoring system.
11. The university has organized a training on Techniques for Higher Education's Study and a Basic Science Knowledge Preparation Camp for freshmen to be able to adjust themselves to the university learning system that requires quality of self-reliance (<http://web.sut.ac.th/das/>). In addition, the university has offered tutoring classes for undergraduate students having problems understanding the lessons.
12. The university has taken measures for attracting more students with excellent academic records from both inside and outside the university, and allocated the following scholarships:
  - 1) Scholarship for outstanding undergraduate student
  - 2) Scholarship for students participating in Academic Olympiads Camp, Promotion and Development of Mathematics and Science Genius Camp, and students from various special projects.
  - 3) Scholarship for outstanding students to study in the graduate program.
  - 4) Scholarship for potential students to study in the graduate program.
  - 5) Thesis Support Fund (30,000 baht for a Master's Degree and 50,000 baht for Doctoral Degree) and funding for dissemination of research works (3,000 baht/person/year).
  - 6) Graduate Scholarship for university faculty granted outside research funding.

### **Component 3: Student Development Activities**

1. SUT has organized activities to support students' development, leading to more students' participation. The university has assigned no class on Friday afternoon and promoted a budget for conducting various activities. This resulted in a high level of students' satisfaction and concrete benefits for the community.
2. The university has placed an importance on students who have good academic records and also participate in university activities, and achieve outstanding results in sports, to be a role model for other SUT students. In doing this, the university has granted scholarships, certificates for students with outstanding activities, and awards for excellent sport players.
3. SUT has realized the importance of its alumni, thus the university academic institutes have constantly organized SUT Alumni Relations including granting year awards for the role model alumni in order to be a good example and direction for both current students as well as the alumni.

### **Component 4: Research**

1. SUT has been selected as one of the nine National Research Universities despite being the youngest university, thus indicating a great development in a short period of time.
2. The university has a clear direction for more research works that respond to local and national needs. As a result, research activities have been conscientiously conducted through research units and centers in which researchers work collaboratively and effectively as a team.

3. The university motivates its faculty members to produce more quality research work in national and international levels, through various measures such as matching fund, and the development or support research infrastructure. In addition, there has been support for research activities from various internal funding sources. These include the SUT Research and Development Fund and Her Royal Highness Princess Maha Chakri Sirindhorn Innovation and Invention Fund, which emphasize high quality research work leading to innovation and invention. The university has also initiated standard measures in determining instructors/researchers' work load by equating their teaching load with research loads. The instructor who conducts a lot of research will teach less.
4. The university has a research mentoring system and allocates Research Grants for New Researcher, 100,000 baht/new instructor. The university also provides research training to enhance faculty's research skills orientating towards national development.
5. The university has produced various applied research outputs: SUT Mobile Online Test System, Multimedia Motion Software for Problem-based Learning in C Language Computer Programming Course, Bedtime Milk, Battery-powered Lawn Mower, Crop Chopping Machine, Heat Inductor for Household Industry, Ethanol Fuel Generator Using Combined Techniques of Vapor Separation Through Fiber and Absorption, Thai Herbs for Reducing Decreased Sex Drive Symptoms in Men, Small Machine for Aerated Autoclaved Concrete Production Using PLC system, Landmark Audio-Guiding Systems, Position-Reporting GPS System Via GPRS Network, Low Temperature

Stoneware Product, Production Processes of Orange and Lemon Power with Spray Drier and Freezer, Bat Repelling System using High Frequency Wave, Vehicle Speed Detector, Suranaree 473 Sunflower Breeder Seed, Low Calories and High Fiber Gel Product, Environmental Friendly Mosquito Larva Exterminator.

6. The university has established an Intellectual Property Management Office (IPMO-<http://www.sp.sut.ac.th/ipmo/>) that leads to an operation of commercial intellectual property such as Serisin Protein from Silk Cocoon Production Process and Rice Pasta Production Process, as well as a publication of related intellectual property regulations.
7. The university provides funds to support faculty's research presentation both in Thailand and abroad, making SUT researchers and the university become well-recognized and playing major roles in an international platform, as evidence of an increasing number of invited speakers and keynote speakers from SUT instructors/researchers or those taking part in organizing international academic conferences held abroad and hosting international academic conferences in Thailand or at SUT.
8. The university pays emolument to faculty whose research article published in an international journal with impact factor appeared in an international database (SCOPUS or ISI) at a progressive rate. That is, the university will pay extra emolument to the corresponding author whose affiliation is SUT.

## **Component 5: Academic Services to the Society**

1. SUT provides various forms of community services through Technopolis, Public Academic Service Unit, Institute of Agricultural Technology (<http://csu.sut.ac.th/>), academic institutes, centers/institutes and divisions, including coordinating services of the university with public and private sectors.
2. The university has constantly developed a service system such as “one stop service” that increases a continual satisfaction of various service recipients.
3. The university has continuously organized activities to promote relationships among SUT, nearby communities, and the Nakhon Ratchasima province. The university, therefore, promotes policy that encourages executives, faculty members, and staffs in the supportive sections to collaborate on community services. For example, hosting the University Games of Thailand, co-hosting The 24<sup>th</sup> SEA Games, Loy Kratong Festival of Higher Education Network in Nakhon Ratchasima, and taking part in Day of Ya-Mo’s Victory, Thirty-Two Districts Thirty-Two Doctors Project, and Schools in front of Our Home Project.

## **Component 6: Preservation of Arts and Culture**

Although SUT is classified as a technology-oriented university, it also places prime importance upon arts and cultural preservation and promotion by organizing the following activities: Wai Khru (paying respect to teachers) Ceremony, Loy Krathong Festival, Phalang Day, the Baisri Soo Khwan (a regional welcoming ceremony for new students), the Rod Nam Dam Hou, Songkran Festival (Thai New Year), the Tod Krathin and Tod Pha

Phaa (making merit), and Regional Thai Kite Competition. The university has also allocated budget for research on regional technology, Thai house hi-tech, Ancient Thai Technology Museum, and established Thai Studies and Anthropological Collection Room.

### **Component 7: Administration and Management**

1. The university has provided a training program for new generation executives to learn about mechanism and administrative directions of the university in various aspects through experienced executives from internal and external organizations. The training also develops teamwork skills among new generation executives to strengthen their relationship and reduce problems associated with collaboration.
2. The university has developed the Management Information System (MIS) for continuous use, with an emphasis on sustainable self-development. The SUT-MIS database unit takes direct responsibility for MIS and publicizes its use for effective administration and management to university faculty and personnel.

### **Component 8: Finance and Budgeting**

1. SUT has followed the finance regulations based on the principle called “Centralized Services, Coordinated Missions”, and made a plan for utilizing shared resources between internal and external organizations.
2. The financial information of the university has been continuously employed for the analysis of expense, financial status, and stability of the university. The information is as follows:
  - 1) Total expenditure per number of full-time equivalent students.
  - 2) Fix assets per number of full-time equivalent students
  - 3) Percentage of net income in proportion to the operation budget.



The above mentioned have been an integral part in considering university performance according to the plan and in determining expenditure in order for the university to have constant financial stability.

### **Component 9: System and Mechanism for Quality Assurance**

1. SUT has an internal quality assurance system for editing and assessing performance at the institutional level and unit level, by a distinguished expert, both internal and external.
2. The results of internal and external assessment shall be taken into consideration in improving working performance and in determining a university plan. There are also quality assurance committees to follow up the university operation based on its quality assessment results.
3. The university has disseminated its quality assurance system through the university's website (<http://www.sut.ac.th/qa/>).
4. The Student Affairs and the Academic Affairs have organized a workshop on Educational Quality Assurance for SUT students.
5. The university has a system to support an establishment of networks for educational quality assurance between internal and external organizations, by having SUT's educational assurance system under the administrative system of "Centralized Services, Coordinated Missions". Additionally, the university takes part in establishing Educational Quality Assurance Network with various institutions, as evidence in a meeting of 13 public autonomous universities' rectors and 17 higher education institutions' rectors in the lower Northeastern Region, Educational Quality Assurance Committee, Subcommittee of Teaching and Learning Development of Higher Education Institutions' Network in the Lower Northeastern Region.

6. The Office of the Higher Education Commission (OHEC) has implemented a pilot project on 2009-2010 Education Criteria for Performance Excellence (EdPEX) to develop excellence in higher education quality. Many universities have been invited to participate in this project and can be grouped as a group of institutions receiving certificates of honor from an internal quality assurance of higher education competition; a group of institutions achieving external quality assurance period 2 at excellent level; a group of 9 research universities, and a group of 82 institutions having experience in applying these standard criteria. For SUT, Institute of Social Technology was selected as one of the 15 universities to join this project. Institutions participating in the project have to carry it out for 18 months from June 2010 - December 2011.

### **Component 10: 3D Policy for Educational Institutes**

To comply with the 3D Policy for Educational Institutes and to benefit the student development, the Student Affairs was assigned, by SUT, the responsibility of studying the policy specified for being 3D Educational Institutes. With the university decree No. 327/2010 of April 29, 2010 on appointing a committee for policy planning on institution development according to the 3D Policy for Educational Institutes, This working group is responsible for setting policy and a university development plan that complies with the 3D Policy. Therefore, relevant academic units can operate based on the policy and the indicators of the development plan, by providing training and organizing activities on democracy, decency, and being drug-free. Such activities were implemented by academic institutes and student activity clubs on an

ongoing basis. With the operation plan for the fiscal year 2011, SUT has allocated the budget of 700,000 baht to develop an annual plan to be in accord with the 3D Policy for Educational Institutes, by focusing on activities/projects for the development of desired learners' characteristics in 3 dimensions, as follows:

1. **Democracy** is to be aware of the importance of and hold forth the faith and confidence in the Democratic system with constitutional monarchy, contempt against corruption and protest against vote-buying and selling. The university has carried out various activities to promote such characteristics, i.e. an election of Student Council Administration Organization, an election of the Student Clubs' Committees, the Student Dormitory Committees, including activities for honoring the Royal Highness.
2. **Decency** is to have moral value, ethics, decency, conscientiousness, and pride in the Thai ways of life, as well as to practice and adopt them as part of students' life styles. There are activities/projects to promote moral value and ethics of students and faculty members and staff such as making merit, listening to sermons, practicing dharma, wearing traditional Thai costume to Thai festivals like on Songkran Day and Loy Krathong Day.
3. **Drug-Free** is to understand and know about the dangers of drugs, and how to avoid them. The university has organized activities/projects to educate and to campaign students to be aware of the effects of drug abuse, with support in terms of budget, resource, facilities, and operational staff.

In the academic year 2010, SUT has organized 24 learning activities on democracy, 19 ethical activities, and 15 anti-drug activities.

## **Component 11: Technology Adaptation, Transfer, and Development**

SUT has carried out technology adaptation, transfer, and development through Technopolis in coordinating and providing support for faculty to exploit their knowledge and experience in offering academic services, namely Industrial Technology Assistance Program (iTAP), Suranaree University of Technology Business Incubator (SUTBI), Suranaree University of Technology Science Park (SUTSP), Research Center for Cassava and Products (RCaP), Suranaree University of Technology Intellectual Property Management Office (SUT-IPMO), and 32 District 32 Doctors Project.

### **Concerning/Suggestions**

1. The university should implement the MIS system as a major source of quality assurance information to support the university's expansion and the more complicated work system, institution units/personnel.
2. The university should have a system for transmitting its strategic goals and provide mutual understanding to all personnel level for effective achievement.
3. According to the assessment results of Component 2, graduate production has been lower than 3 for a long time, therefore, SUT should find out the causes and determine the solutions more seriously through institutional research. In addition, the assessment results should be a major source for developing policy to solve the problems. This is the most significant SUT agenda which all institutional sections must earnestly cooperate.

## Results of Quality Assessment by Components at Institutional Level

### Executive Summary

Suranaree University of Technology's vision is "a learning organization with academic excellence in science and technology, which creates knowledge, moral ethics, and wisdom for the development of a happy and sustainable society".

The performance results of the university in the academic year 2010 are based on the university's vision. Adhering to SUT's vision, SUT has flexibility in managing its administration principle of "Centralized Services, Coordinated Missions" which enables the university to combine some work units for the optimal use of its resources and distribute administrative power that can bring personnel capabilities together to help develop the university.

Considering the self-assessment's score at the university level, SUT achieved a very good level of performance, with an assessment score of 4.78 points (a 5-point criteria) for OHEC indicators and an assessment score of 4.50 points for OHEC indicators including SUT indicators, and with a full score (5 points) on 8 components which are components 1, 3, 4, 5, 6, 8, 9, and 10. Such results indicates the strengths of the university's performance in Plan Development Process, Student Development Activities, Research, Academic Services to the Society, Preservation of Arts and Culture, Finance and Budgeting, System and Mechanism for Quality Assurance, and 3D Policy for Educational Institutes.

For the indicators of the components that do not obtain a full score but are at a good level to a very good level can be classified into 3 issues, as follows:

First, for Indicator 2.3 of Component 2: Graduate Production, the percentage of full-time lecturers holding academic titles is 17.33% which is lower than a goal of 30%. In addition to that, the indicator relating to students' development, Indicator 2.9 (an additional indicator of SUT to OHEC indicators), the percentages of dismissal of students per batch are 24.15% in undergraduate level and 28.77% in graduate level, which are higher than a goal of lower than 10%. For Indicator 2.10, the percentage of undergraduate students graduating on time per batch is only 43.02% which is also lower than a goal of higher than 60%.

Second, in relation to Indicator 7.3: An Information Technology System for Administration and Decision-making of Component 7, SUT's information technology system for administration does not cover a financial system of the university and is unable to use for an operation of the quality assurance.

Finally, for Indicator 11.2 of Component 11: Technology Adaptation, Transfer, and Development (an additional indicator of SUT to OHEC indicators), the percentage of full-time lecturers participating in suitable technology adaption, transfer, and development is only 31.60%, which is lower than a goal of more than 35%.

The self-assessment results of SUT illustrates the university's determination in implementing as stated in the above mentioned visions. Although some indicators do not reach the university's goals, as previously mentioned, the overall results of its performance is still in very good criteria.

Results from the interview of the external stakeholders of the university indicate that SUT has strengths and is highly recognized from local people for a provision of academic services to society, especially in transferring agricultural technology to the local community and society, even though the number of faculty who take part in academic services do not attain their goal, according to the assessment results.

The interviews of students and alumni reveal that they have positive attitudes and confidence towards the faculty and the university, particularly the academic strength of SUT.

Suggestions for the overall results of internal quality assessment during the academic year 2009 comprise 3 aspects which are:

- A review of the university's visions to increase its explicitness.
- A review of a strategic plan by setting a quality Strategic Plan KPI that is in accords with university potential, is challenging and straight to the goals, and can be linked to all academic institutes and organizations of the university.
- An increase in the efficiency of the personnel development system at all university's levels (administrators, faculty, and supporting personnel).

The university has formulated SUT Development Plan phase 11 (2012-2016) with clear and improved visions, a strategic plan, and personnel development planning in accordance with previous suggestions.

The internal quality assessment committees' aim at exchanging and learning, as well as finding strengths and weaknesses of an operation towards a sustainable development. In the present assessment, however, the committees have provided the overall suggestions, as follows:

## Overall Suggestions

1. Personnel Development Plan and Career Path should be conducted immediately and concretely for the academic and professional lines of work and general administrative staff in order to boost morale and provide emotional support and to lower the resignation rate of competent staff.

The university should analyze and prioritize the academic manpower which is not in line with its mission of being a technology university. The university's manpower (proportion of lecturers per students) in science and technology is much lower than OHEC's standardize criteria and the international standard.

The university should review the proportion of personnel expense per university budget in order to have enough quality personnel for maintaining its competitive capability to compete with high quality organizations.

2. Having successfully implemented a provision for academic services to community, the university is well recognized and highly acceptable. Therefore, the university should expand such activities widely and invite more participation from the personnel.
3. The university has been recognized in terms of producing quality graduates for a long time. However, the ratio of students who graduate on time is still low and the ratio of students who were dismissed is quite high. These weaknesses have existed for so long that the university should have an explicit plan to solve such problems, with no effect on maintaining the quality of graduate students.



4. The university should carefully revise its wide expansion, e.g. having new academic institutes or units in health sciences. However, the university should utilize all existing resources to accelerate its visions of being an outstanding university in technology.
5. Due to the fact that the National Research University Project is a 3-year plan project that will end in the fiscal year 2013, the university should develop a support plan that describes how to make the research mission grow continuously.

**Component 1: Philosophy, Commitments, Objectives, and  
Implementation Plans**

Strength	Suggestion
<p>1. SUT has a good Strategic Development Plan Phase 11 that consists of an analysis of the environment in various aspects.</p> <p>2. There is a strategic plan that is aligned with the university council’s missions, visions, and policy; and with the National Economic and Social Development Plan, the 11<sup>th</sup> issue (2012-2016); Higher Educational Reform Strategy, 2<sup>nd</sup> round (circle 2); and the Second 15 year-Long Term Higher Education Framework (2008-2022).</p>	<p>1. The university should take a critical analysis of the effects in various aspects and have a system to follow new effects in order to adjust the plan according to changes. It is recommended to have an Intelligence Agent to find information to support future planning.</p> <p>2. Administrators in all levels must follow up operational activities that do not meet the criteria of indicators in order to be in line with the annual action plan</p>

Strength	Suggestion
<p>3. The university administrators' visions in determining and developing the university's strategic plan are in line with the university objectives and goals. Methods for university development associated with the National Strategy have been analyzed in terms of strength, weakness, opportunity, and threat in order to determine an explicit strategy that covers all university missions such as teaching and learning, research, academic services to society, preservation of arts and culture, and technology adaptation, transfer, and development.</p> <p>4. In the big picture, personnel staff in every unit has cooperated in an operation of an annual action plan to conform with the commitments and to achieve most of the set goals.</p>	<p>continuously, and must report to the Division of Planning within the specified time frame.</p> <p>3. Informing personnel about the percentage of outcomes compared with goals set in the university plan for every trimester. Determining measures to adjust activities to be more productive to meet set goals.</p>
Weakness	Solution
-	-

## Component 2: Graduate Production

Strength	Suggestion
<p>1. Ratio of doctoral lecturers is 79.45%, higher than OHEC's criteria at 60%.</p>	<p>-</p>
Weakness	Solution
<p>1. In the academic year 2010, a total of 49 out of 90 curricula, which is 54.44%, have been revised according to the 2005 and 2010 National Standard of Higher Education; with 37 curricula revised, which is 41.11%; and only 4 curricula, or 4.44% have not been revised.</p> <p>2. Ratio of lecturers who hold academic titles is still low, especially at the levels of associate professor and professor, the percentages are 13.65 and 3.68, respectively.</p> <p>3. Percentage of undergraduate students who fail to graduate on time increases continually (47.93% at academic year 2009 and 43.02% at academic year 2010).</p>	<p>1. The university should encourage academic institutes to revise and develop their curricula to be in line with the 2005 National Standard of Higher Education and the Thai Qualifications Framework for Higher Education (TQF : HEd) by the academic year 2012.</p> <p>2. Develop support mechanisms to adjust the differences between the assistant professors' position allowance and that of the associate professors. Encourage faculty members to produce more research works in order to attain academic titles by the time set in the principle.</p> <p>3. Although the university, academic institutes, and curricula have been adjusted consecutively, for more than 10 years, i.e. by tutoring, increasing mini-tests, and providing</p>

Strength	Suggestion
	<p>various activities, the percentage of graduation is still less than 50%. The cause of such problem is a limitation of basic knowledge of students resulting in their poor performance on first year scientific courses, therefore the teaching and learning format should be seriously improved by:</p> <ol style="list-style-type: none"> <li>1) Employing the “Science Appreciation” concept by assigning a team to assist freshmen, with a focus on “inspiration”, apart from the teaching team.</li> <li>2) Applying Problem-based Learning (PBL) starting from issues in applied courses for professional to in-depth knowledge in related basic courses, to enable students to understand its significance and apply it for the benefits of in-depth theory learning.</li> <li>4. Develop measures to motivate students from the Science Classroom to pursue their study at SUT.</li> <li>5. Promote learning methods at the university level to students.</li> </ol>

### Component 3: Student Development Activities

Strength	Suggestion
<p>1. The university, by academic institutes, Division of Student Affairs, Center for Cooperative Education and Career Development has developed students in academic knowledge, activities, and professional skills before they graduate.</p> <p>2. SUT students have carried out University Social Responsibility Activities with communities around the university, i.e. temple visit activity and meditation.</p> <p>3. The university has offered all SUT students a required course on Globalization that is in accord with the beginning of the ASEAN Community.</p>	<p>1. Conduct activities for students in every aspect focusing on a provision of knowledge and understanding of the ASEAN Community in order to support the ASEAN Community 2015.</p> <p>2. To support the ASEAN Community 2015, the university should have a process for system development, mechanisms, and format of cooperation in different activities.</p>
Weakness	Solution
<p>1. SUT Students and those who are involved in student development activities lack an understanding of the ASEAN community.</p>	<p>1. Systems and mechanisms to support student development activities should be developed in order to support the start of ASEAN Community 2015.</p>

Weakness	Solution
<p>2. The time for student activities, which is on every Friday at 5 p.m., is not suitable as the students return home on that day.</p> <p>3. Total number of students who volunteer to be committee members of the Council/Organizations have decreased, compared with the previous year.</p>	<p>2. A schedule of student activities should be on Thursday afternoons.</p> <p>3. Publicize or develop mechanisms to motivate students to realize importance and value of teamwork, and to build teamwork skills.</p> <p>4. A special system to support students who participate in useful activities or make reputation to the university should be developed.</p>

#### Component 4: Research

Strength	Suggestion
<p>1. The university has fundamental structures of personnel, divisions, and laboratories, as well as equipment to support research conducted at all levels, starting from basic level, applied research, and research for development.</p> <p>2. SUT receives a large budget for conducting research from external organizations (243.67 million baht)</p>	<p>1. Research outcomes should be applied for the benefits of academic, business and industry sectors, and the community, in order to bring more advantages to the economy and society through fundamental structure of the university.</p> <p>2. The university should determine integrative research policy to</p>

Strength	Suggestion
<p>and internal organizations (77.93 million baht), an average of 1.06 million baht per instructor.</p> <p>3. Proportion of research outcomes published in acceptable academic journals with peer review to full-time lecturers is high (1.04 research /1 lecturer).</p>	<p>develop areas and community to be able to respond to the local needs and research policy of the country.</p> <p>3. Teaching and learning in undergraduate programs which focus on an integration of research and a provision of academic services should be provided in order to develop the students' basic research skills and responsibilities to society.</p> <p>4. Number of high potential researchers should be increased.</p>
Weakness	Solution
<p>1. The university lacks scholarly researchers in Social Sciences and Humanities.</p> <p>2. Results of health sciences research are in the operational process of developing basic structure and staff.</p>	<p>1. Getting support from universities that have researchers who have expertise in Social Sciences and Humanities.</p>

## Component 5: Academic Services to the Society

Strength	Suggestion
<p>1. SUT has an explicit policy or plan for a provision of academic services to society, with Technopolis as a major unit to coordinate university services to other organizations.</p> <p>2. Faculty members' workload of academic services has been systematically determined and has fulfilled the communities' needs and the industry sectors in Nakhon Ratchasima and other provinces nearby.</p> <p>3. There is a concrete cooperation between the communities and the business sectors that meets the needs of the communities.</p> <p>4. There are knowledgeable faculty members who provide academic services to society as well as disseminate their research results to society and communities around the university campus.</p>	<p>1. The university should publicize academic faculty members' services to communities and society in order to enhance the university's reputation and to promote a good image of the university especially in producing high quality dairy products.</p> <p>2. A better format to support the full use of research results for the actual benefits of communities, without any effects on other main missions of the university, should be developed.</p> <p>3. Academic faculty should communicate or deliver knowledge to communities by using simple language or speech that is easy for common people to understand.</p>
Weakness	Solution
-	-



### Component 6: Preservation of Arts and Culture

Strength	Suggestion
<p>1. Realizing the significance of preservation of arts and cultural promotion, the university has allocated a budget to promote activities on a regular basis, and has initiated an establishment and collection of learning resources such as the Thai Studies Anthropological Collection.</p>	<p>1. Publicize various learning resources to encourage more students to make use of them.</p> <p>2. Study the possibility of incorporating activities that sustain preservation and promotion of arts and cultural into a general education course.</p>
Weakness	Solution
-	-

### Component 7: Administration and Management

Strength	Suggestion
<p>1. SUT has flexibility in administrative management of (“Centralized Services, Coordinated Missions” that enables SUT to combine some work centers for making full use of them and to disseminate administrative power that can incorporate potential faculty members to develop the university.</p>	<p>1. The university should implement career path development along with a training road map immediately.</p> <p>2. The university should consider paying extra remuneration for faculty members and staff who have professional expertise, i.e. engineer who have a Professional Engineering License, fellow engineer level.</p>

Strength	Suggestion
<p>2. There is a flexible and short administrative system that enable the university to change the system and solve problems immediately.</p> <p>3. The University Council has a system to follow up, edit, and assess the university's performance, and to follow up important performance results from the university missions concretely and continuously.</p> <p>4. The university has conducted knowledge management within organizations to encourage a development of knowledge and to bring knowledge from external sources, with an emphasis on accumulating knowledge from different sources into one place for the benefits of development and dissemination through website.</p> <p>5. There are database systems for administration, teaching and learning, and research that can be used in an implementation of quality assurance.</p>	<p>3. The university should compile a database of durable articles using a management information system.</p> <p>4. Results of the follow-up to and the assessment of subcontracting services should be taken into consideration for decision making on subcontracting services concretely.</p> <p>5. Division of Planning should increase the completeness of Knowledge Management (KM) of SUT and of different organizations by implementing Integrated Knowledge Management in an operation process of all university organizations.</p> <p>6. Division of Planning should continuously improve SUT's Management Information System (MIS) to be able to operate with full capacity and more effectively; with speed, accuracy, unambiguity, and ability to be examined. It should also publicize to university personnel to encourage them to make use of MIS more frequently.</p>

Strength	Suggestion
6. There is a risk management plan that carries out the Internal control and treatment plan, and the follow-up of the performance results according to the plan.	
Weakness	Solution
-	-

### Component 8: Finance and Budget

Strength	Suggestion
<p>1. There is a unit cost of graduate production per course.</p> <p>2. SUT follows financial regulations determined by the university under the administrative principle of “Centralized Services, Coordinated Missions”, and has a plan for the mutual use of resources from internal and external organizations.</p> <p>3. Financial data of the university has been used in expenditure analysis, and financial status and stability analysis continuously.</p>	<p>1. Results of Unit Cost of graduate production should be taken into consideration for a suitable and reasonable manpower development plan.</p> <p>2. There should be training in different divisions to provide knowledge and create understanding of SUT’s finance, i.e. budget, request for budget resolution, summary of financial expenses report, in order for the divisions to be aware of and to make use of them.</p>

Strength	Suggestion
<p>1) Total expenses per number of full-time students or equivalent.</p> <p>2) Fixed assets per number of full-time students or equivalent.</p> <p>3) Percentage of net income in proportion to the operation budget.</p> <p>The above data are used as part of an evaluation of performance according to plan and a decision on expenses in order for the university to have a continuous stable financial status.</p>	
Weakness	Solution
-	-

### Component 9: System and Mechanism for Quality Assurance

Strength	Suggestion
<p>1. SUT has an explicit system and mechanism for managing and administrating internal quality assurance; a network system of operation; a cooperation of staff in each division; as well as sharing, and focusing on problem solving through quality assurance</p>	<p>1. The university should determine measures to encourage a development of a data storage system of each division in a modern and systematic way.</p> <p>2. The university should take urgent action to develop a database</p>

Strength	Suggestion
<p>mechanisms, and it is regarded as part of a continuous administrative process.</p> <p>2. The university has measures that support all divisions to carry out internal quality assurance, and use the results of the assessment to develop their educational quality.</p>	<p>system to be used as a main data resource in quality assurance at all levels, and to be completed by academic year 2012.</p> <p>3. The university should determine measures to concretely develop and improve quality of the divisions' operation results, according to indicators, leading to a "Culture of Quality", in order to support external quality assurance such as OHEC, The Office for National Education Standards and Quality Assessment (Public Organization) (ONESQA) and The Thailand Research Fund (TRF), including various professional council organizations.</p> <p>4. The internal organization assessment should be separated from the institutional assessment.</p>
Weakness	Solution
-	-

## Component 10: 3D Policy for Educational Institutes

Strength	Suggestion
<p>1. The university has created a concrete institution development plan in accordance with the 3D Policy for educational institutes, and conducted a resource management plan to support the implementation as stated in the plan, by appointing a working group, dated April 29, 2010, to set policy of an institution development plan to be in line with the 3D Policy. The working group is responsible not only for determining the policy but also for carrying out the academic institute development plan according to the 3D Policy, in order to enable relevant divisions to implement in accordance with policy and development plan of Indicator 10.1, and 10.2.</p>	-
Weakness	Solution
-	-

## Component 11: Technology Adaptation, Transfer, and Development

Strength	Suggestion
<p>1. SUT has added a mission on Technology Adaptation, Transfer, and Development to its quality components. Such mission greatly promotes the university as being a technology university.</p> <p>2. Faculty members have applied their knowledge and experiences to organize academic services through activities or projects related to Technology Adaptation, Transfer, and Development, with 72.61% of the services meeting the needs of nearby communities, which is higher than the set goal. In addition, receivers are very satisfied with the services, reflected by the average satisfaction score of 4.40 out of 5.</p>	<p>1. The university should have measures to support and encourage faculty members from every academic institute to use their knowledge and experiences to organize academic services through activities and projects of Technology Adaptation, Transfer, and Development, and through mechanisms from institute committees.</p> <p>2. The university should find more cooperation with public and private sectors, and ASEAN countries, which will lead to the dissemination of reputation and good image of the university.</p> <p>3. The university should widely publicize to the public about the university' activities and projects, which will attract more people to use the services.</p>

Weakness	Solution
<p>1. There are few integrations of skills and proficiency from academic institutes.</p> <p>2. The percentage of faculty members who participate in the activities of Technology Adaptation, Transfer, and Development is only 31.60% from the total of 326 faculty members.</p>	<p>1. Organizations that monitor and are responsible for organizing activities of Technology Adaptation, Transfer, and Development should use strategies that attract and motivate faculty members to integrate their skills and expertise with related institutes.</p>



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