KMUTT Policies

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Executive Summary

King Mongkut's University of Technology Thonburi (KMUTT) is an autonomous university with administrative and management autonomy in the areas of academic, human resources, and finance and budgeting. KMUTT has a president as the head of the university who is responsible for the management of the university affairs and activities in compliance with the laws, rules, and regulations. KMUTT has set the policy to be principles and guidelines for decision making by university executives and as strategies for implementation by university personnel.

From 2010 to the present, KMUTT has policies on several aspects that have been utilized as guidelines for the management and execution of various activities. These policies have been distributed through two-way organizational communication mechanisms in the form of 6+1 Flagships, which could be summarized as follows:

KMUTT Management Policy: Moving Forward to the 60th Year

KMUTT has the strategic goal to become an Entrepreneurial University by carrying out all missions that meet quality standards and that produce outcomes that meet productivity targets and objectives set to create benefit, and to respond to the demands of and generate satisfaction for customers and stakeholders under the good management and governance. In the digital era, operations require not only great flexibility and agility, but also quick adaptability and dynamic. Communication is also necessary to establish common goals to drive the operations to achieve the goal, to generate an impact, and to create values for the success of KMUTT, the society, and the economy.

Learning Policy

The learning policy focuses on the development of educational innovation in processes, methods, approaches, and teaching techniques. In addition, the policy concentrates on the organizational development to establish the educational management that is based on the Outcomes Based Education (OBE), together with the development of an innovation ecosystem through the creation of teaching and learning environments for the all-round development of learners through holistic activities of KMUTT Student Development 360 (KSD 360): All in All. The policy also aims for the enhancement of entrepreneurial skills among students.

Research and Academic Service Policy

The research and academic service policy concern the conduction of research in science and technology as well as in other related fields to create new knowledge to support educational activities and academic services. It focuses on the production of high impact research that serves as the foundation for the transformation of excellence in science and technology to create an **innovative system** to produce high-quality researchers. In addition, the policy aims to create mechanisms for the development of high-quality graduates by generating academic and research excellence of the KMUTT Research Cluster, along with the enhancement of KMUTT University Research Administrators (KMURA). KMUTT also works closely with both the government and the private sectors in the form of university-industry links to support the enhancement of a high-value economy on the basis of technology and innovations in order to assist the country in escaping the middle-income trap.

Internationalization Policy

KMUTT focuses on the development of academic excellence to become a world-class university that produces human resources with competence in order to improve the competitiveness of the country by emphasizing structural development. In addition, the policy focuses on the process to produce university graduates who possess leadership skills, have potential at the international level, and are good global citizens. This could be done by exposing students to a new worldview through multicultural and multi-language learning. The students could improve their English literacy in accordance with English language proficiency standards, while helping to strengthen the university's reputation, both at national and international levels.

General Administration and Management Policy

KMUTT strives to become **the university of quality** that implements a quality assurance system as part of the university administration by emphasizing the development of the management system in accordance with the good governance principles and by engaging in the continuous development of the system.

- **Planning and Budgeting Policy:** KMUTT has an effective and valuable resource management system that is highly flexible and agile as well as capable of accommodating changes in a timely manner. In addition to being well-integrated with the risk management of the university, the planning and budgeting policy develops a capability in securing funds from other funding sources to ensure sustainable development and survival of the university.

- **Human Resource Management Policy:** This policy emphasizes a proactive human resource management strategy that develops university personnel according to their level of competency. The policy also has mechanisms for the development of personnel potential, the integration of service clusters for collaborative working, and the manpower planning to ensure the development of all personnel to support the future workloads.

- **Information Technology Policy:** KMUTT strives to become a digital university by implementing the information technology system in promoting and supporting information management This allows the university to reduce personnel's workloads, to offer services that can be accessed anytime, anywhere, and to support self-learning.

- **KMUTT Environmental Sustainable Development Policy:** KMUTT aims to become the leading university of learning society and a **green university** with an emphasis on the development of energy and environmental management system in the form of continuous and sustainable development. KMUTT also promotes and creates a positive work environment that offers safety and life security by transforming into a sustainable university.

KMUTT community should collaboratively comply with the established policies and plans. Good policies could help assure that operations progress in the right direction and enhance their effectiveness. They also help employees to set practices and make appropriate decisions on their missions by themselves without having to always wait for their superior as they already have a clear understanding of these policies.

Introduction

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Rationale

Organizational operations require the setting of direction and work plans, which include the setting of operational goals for each core mission for the administration and management of KMUTT. The chief executives have established policies in various areas to be served as a guideline for operations of university departments and personnel based on their roles and responsibilities to ensure that the operations are performed in accordance with the pre-established directions for the university development. For this reason, KMUTT has compiled the policies which have been announced, updated, and published in documentations.

The compilation of policy statements, which are notified or announced by the chief executives to the university community, serves as the foundation for the further development of policy and procedure so that all university departments and personnel can carry out various missions in accordance with these pre-set policies.

Objectives

1) To compile the policies of King Mongkut's University of Technology Thonburi
2) To analyze the policies in different areas that have an impact on the relevant rules and regulations
3) To adjust the methods and the planning of various projects to be consistent with the policies

Definitions

"Policy" is the important principle that serves as a guideline for various operations and decision making to achieve the objectives set by the organization. The policy is, therefore, the statement of intent of the chief executives of the organization, which contains the clear procedure or protocol for policy implementation.

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President's Policy[1] (Associate Professor Dr. Suvit Saetia, from 25 December 2018 – 24 December 2022)

Although KMUTT has clearer organizational core values and policy and increasing strategic management development, questions remain as to how the university will progress in the next 20 years from now. KMUTT has, thus, set up a team for the creation of medium-term and long-term development plans, including the enhancement of productivity and the development of good governance as KMUTT's culture.

Themes of Development: KMUTT has the objectives to produce high-quality human resources, create high-impact research and innovations, and have links at the international level in order to become a high-potential organization. KMUTT also places importance on sustainability such that all personnel, students, and graduates must have an awareness of the environment and sustainability. All kinds of works and operations must embrace sustainability by concretely collaborating with networks and partners.

Strategic Vision: KMUTT has invited advisors from JMAC, who have extensive experience in strategic planning for large Japanese corporations, to organize brainstorming sessions on the future development of the university.

- In the next 40 years, KMUTT has a goal of becoming the Most Impactful STI University in Asia.
- In the next 20 years, KMUTT has a goal of becoming the Most Impactful STI University in ASEAN.
- In the next 10 years, KMUTT has a goal of becoming the Top 3 STI Entrepreneurial University in ASEAN.
- In the next 5 years, KMUTT has a goal of becoming the Best STI University in Thailand for Learning Innovation, with an emphasis on learning innovation that incorporates research.

KMUTT Vision: KMUTT places value on three issues that lead to the transformation into a strengthened and sustainable world society. The three issues include 1) the value of human resources, who must be of high-quality and capable of being a social change agent; 2) the value of teaching and learning process, which contributes to the lifelong learning with an emphasis on both the content and the soft skill; and 3) the value of research and academic services, which should meet the demands of and lead the industrial and social sectors. The accomplishment of these three issues would, without any difficulties, lead KMUTT to become a first-class university.

Definition of Entrepreneurial University: The term "Entrepreneurial University" has a very broad meaning. Nevertheless, the essence of an entrepreneurial university is the ability of the university to create impact from its research with real-world applicability and sustainability. This type of education is believed to contribute to the creation of start-ups.

Strategies for achieving the goal of being an Entrepreneurial University: KMUTT must be sustainable, mainly in terms of human resources and finance. The university also has to be able

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[1] President Meets KMUTT Community on 29 April 2019 at LIB 108, the Library Building

to yield impactful outputs and outcomes, together with having a good management system. The accomplishment of these three issues would allow KMUTT to become the Entrepreneurial University. However, the university must take the following factors into account:

- The arrangement of effective OBE teaching and learning
- Research with real-world applicability
- The creation of a good organizational culture with the emphasis on embracing reciprocal generosity and caring, providing an opportunity to do something new and to give value to challenging works, and offering an opportunity to take risks. Everyone in the organization has a duty to maintain and strengthen the organizational culture.
- The adjustment of the management system that accelerates the transition into a fully digital organization.
- A good organizational communication system that allows for clear and effective communication within an enlarged university with multiple learning centers to reach a common understanding.

KMUTT's Management Policy for the 60th Anniversary with the addition of two policies

1) **Speed:** Work must be done quickly since any delay may cause KMUTT to miss a chance or to fail at some points. For instance, the Ministry of Education grants budget for non-degree programs for manpower development, KMUTT must consider what contributions can it make as the operation of these programs would bring income to the university. The delay in making such a decision may cause a delay in the alteration of the digital platform system.

2) **Communication:** Good communication is necessary to ensure that the KMUTT community share the same understandings regarding goals and directions.
   - The five working principles include transparency and accountability; internationalization; flexibility, agility, and rapid adaptability; simplicity and effectiveness; and willingness to build networks, to have reliable partners, and to collaborate and coordinate well with them.
   - The three important issues include education, research, and innovation; the organizational adaptation that places value on human resources and systems; the ability of employees to work in a happy workplace environment with the guaranteed satisfactory remuneration.

Criteria of EdPEx Management Quality: The management system must take several factors into consideration. Having the established goals and policies, the university management should mainly utilize the EdPEx criteria to consider how the organization should be managed to achieve these goals while taking various factors into account to ensure the alignment between the management system and real organizational goals. These factors include human resource planning, knowledge management planning, analysis and exchange of experiences for improvement purposes, values of stakeholders, and strategic management system.

Culture eats strategy for breakfast: Even if the university has formulated various strategies, inappropriate organizational culture may overwhelm all established strategies. Thus, the personnel should review the strengths of the organizational culture and exchange opinions within a group. The more the university employees join forces together, the stronger the university will be.

The President holds a bi-monthly meeting with academic deans to make plans for goal achievement. The President also holds a semiannual discussion with each faculty on matters that require the university's support to ensure smooth and fast performance. Moreover, the President takes an unofficial visit to each faculty to talk about the university strategies in detail.

In terms of communication, the President may have the Lunch & Learn session with academic deans to hear their opinion. The President also takes an unofficial visit to each faculty to hear their concerns (Sit & Sip) as well as make visits to supporting departments (Walk & Talk).

The human Resources system may need to be transformed in terms of organizational structure, employee recruitment based on individual requirements, and human resource development according to functions, appropriate levels of personnel positions, and generation. Furthermore, the performance evaluation will be conducted, and the salary structure will be adjusted to reward the university personnel for their respective work. In the next five years, the key to achieve the strategic goal lies in human resource development.

The work performance could be improved if the work that progresses slowly could be enhanced to have the normal speed. The university desires to see a faster work speed; thus, any problem should be notified promptly to receive necessary resolutions.

President's Policy[2] : : University Management

From 16 July 2010 to 20 December 2018, the President (Associate Professor Dr. Sakarindr Bhumiratana) launched the management policy to foster the university operations to achieve university goals in four aspects as follows:

1) **Quality**: The university conducts all missions with good quality, which include the production of graduates, research, academic services, and the support on graduate production in accordance with the desirable standards or requirements to meet the needs and improve the satisfaction of customers and stakeholders.

2) **Relevant Excellence**: The university conducts works that create values for customers, are impactful, and are valuable for the success of the university, the society, and the economy of the country.

3) **Productivity:** The university conducts operations that increase efficiency by yielding better productivity using the same or lower amount of resources in terms of time, labor, and equipment while producing the work. At the same time, the university also enhances its effectiveness by producing outputs and outcomes whose quality meets the established goals and objectives.

4) **Governance:** The university has good management and governance, which consist of:

   (1) Effectiveness: The university operations achieve the objectives and goals of work plans under the allocated budget

   (2) Efficiency: The university utilizes resources for operations, including costs, labor, and time to achieve the maximum benefits to meet the needs of all groups of customers and stakeholders

   (3) Responsiveness: The university offers services that can be done within a set time frame. The university also builds trust and credibility to meet the expectations and needs of the diverse groups of customers and stakeholders

   (4) Accountability: The university takes responsibility for its work performances and results according to the established goals. The university also has awareness of its responsibility for social problems

   (5) Transparency: The university has processes that are transparent and straightforward, which allow free access to information. Every step of the operations can also be known and verified.

   (6) Participation: The university provides the university personnel or related parties with an opportunity to participate in perceiving, thinking, and implementing its operations.

   (7) Decentralization: The university gives various departments and their personnel the authority and responsibility to make decisions to improve the satisfaction of clients and stakeholders as well as to enhance the productivity of its operations.

   (8) Rule of Law: The university exercises power under the laws, rules, and regulations in managing the organization fairly without discrimination while taking the rights and freedoms of the stakeholders into account.

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[2] KMUTT's Strategic Plan No. 11, 2012-2017

(9) Equity: The university offers equal treatment and services without any discrimination in terms of gender, race, religion, physical or health conditions, personal status, social status, education, and others.

(10) Consensus Oriented: The university has the consensus-seeking process for its operations among related stakeholders. The process must not result in any unsettled disputes for any key issues, in particular for those who are directly impacted by the university operations.

Administration and Management

Associate Professor Dr. Sakarindr Bhumiratana, the President, and the executives have set the direction for KMUTT with the objective of making KMUTT "the university of science and technology which focuses on the development of educational innovation, research, creativity, and entrepreneurship, all of which create the **value** that leads to the transformation into a strong and sustainable society".

- The value of personnel is the manpower production in science and technology scientific and technological manpower who has employability in the global market and is a social change agent.
- The value of teaching and learning process which leads to innovation for a lifelong learning
- The value of research and academic services is the ability to respond to the requirements of and lead the industrial and social sectors

Directions of the University and Creation of Organizational Culture[3]

KMUTT emphasizes the pursue and the development of the university in accordance with vision and KMUTT Roadmap 2020, which has been adjusted to KMUTT Roadmap 2036. This consists of the development of students and the KMUTT community so that they value sustainable development and be ready to build a strong and sustainable society together based on the principle of a sufficiency economy. The university also strives to become a world-class and smart university which serves as a foundation for further development that has a broader view and is adaptable to the current situation. For instance, it is necessary for the university to contribute to the development of STEM education and workforce (including working-age population, underprivileged people, and elderly people) for the nation and the development in accordance with three-step process goals, which are (1) to become the STI university with the best learning development for students by 2023; (2) to become one of the top 3 entrepreneurial universities in ASEAN by 2028; and (3) to become the most valuable and meaningful ASEAN STI university by 2036. These could be done by capitalizing on the advantages that KMUTT is the national research university, is the university of technology with high-quality personnel, has experience as a leading university and a member of the Center of Excellence, and has a strong collaboration with the private sector, the community, and the government through the operations of Social Labs, Practice Schools, KX and Innovation district.

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[3] KMUTT's Strategic Plan No. 12, 2017-2021

KMUTT has established goals in accordance with the vision to follow up the success of KMUTT operations. The goals can be divided into four different periods, which are a 5-year goal, a 10-year goal, a 20-year goal, and a 40-year goal as follows:

- The 5-year goal focuses on becoming the best science, technology, and innovation (STI) university in Thailand for learning innovation
- The 10-year goal focuses on becoming one of the top three STI entrepreneurial universities in ASEAN
- The 20-year goal focuses on becoming one of the most impactful science, technology, and innovation (STI) university in ASEAN
- The 40-year goal focuses on becoming one of the most impactful science, technology, and innovation (STI) university in Asia

Identity

The distinctive identity of KMUTT are the "competent and good graduates"

Uniqueness

KMUTT uniqueness is "being the science and technology research university"

KMUTT Core Values[4]

KMUTT core values are "professionalism and integrity"

KMUTT has a goal of creating the KMUTT community that has **professionalism and integrity, together with leadership and pioneering skills**. The utmost important missions are to produce quality graduates, to be the institute of knowledge, and to be a good alliance of organizations to generate positive collective impacts on society and the nation.

KMUTT is pushing forward its operations towards the goals based on the following core values:

1) The adherence to professionalism where KMUTT is the expert with expertise, insight, and practical experience
2) The adherence to and the perseverance in integrity as well as the awareness of social responsibility
3) The leadership with pioneering skills as a key mission of KMUTT is to produce quality graduates and to be the institute of knowledge
4) The collaboration with both the internal and external organizations to generate positive collective impacts on the society and the nation

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Core Competency

Core competency that supports KMUTT operations to accomplish its vision consists of:

1) Innovativeness and initiative
2) Knowledge and Technical skills that are achievable and deliverable
3) Commitment to quality with perseverance
4) Engagement with industries and society

KMUTT has established systems and mechanisms that reinforce its cumulative strengths to the extent of becoming the core competency that supports its operations to achieve the vision through thinking process and system. This results in the creation of innovativeness and initiative, together with the development of knowledge and technical skills through studies and practices, which lead to goal accomplishment and work delivery as expected. The commitment to and the perseverance in delivering high-quality work performance become a habit of KMUTT people to create works that continuously generate benefits for the society and the community through mechanisms for close collaboration with the industrial sector. The engagement with industries and society relies on science and technology expertise that is used as a tool to develop the integrated learning process among KMUTT professors, researchers and students as well as to create new collective knowledge with the industrial sector as a partner for the commercialization of research and the development of research questions that address the needs of the industrial sector, all of which contribute to the development of scientific and technological competency and capability of the country.

The main goal of KMUTT is to produce valuable and meaningful people with professionalism and generosity. Thus, a system that supports successful collaborative working is indispensable. As KMUTT also aims at producing social change leaders, re-engineering is required, leading to the emergence of the JMAC Project that involves the improvement of the university management system for efficiency and effectiveness.

To be the **SMART University** [5], KMUTT must create quality works. This requires the professors to produce people with the ability to re-tool, re-skill, and practice generosity in their work by developing tools for work and strengthening the KMUTT culture.

Transformation in response to changes is needed for the survival of the organization and its people. Therefore, the university personnel should jointly brainstorm and seek improvements. They need to be aware of what is happening, learn about it, and plan and develop their works, as well as continuously keeping track of and making the necessary adjustment to their work.

KMUTT promotes the management [6] under the good governance principles with transparency, responsibility, accountability, predictability, and fairness as follows:

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[5] Personnel Development Planning, 6-7 March 2018
[6] Development Plan of King Mongkut's University of Technology Thonburi 2006-2020 (KMUTT Roadmap 2020)

1) The Board of Trustees is the highest-ranking supervisor of KMUTT, while the Executive Board is appointed to oversee each campus of the university, which consists of the Chief Executive, representatives from the public and the private sector, and representatives of the community, etc.

2) Faculty Management has the Faculty Board or School Board, which should be comprised of industry experts and businesspeople as the executive committee. In addition, communication channels for the meeting and exchange of opinions between the Board of Trustees, the Executive Board, and the faculty should be added.

3) Cluster management is done by the Cluster committee and Cluster chairman. Each cluster has the flexibility to add groups or modify the management system with interconnection mechanisms of learning and research that are comprehensive and adaptable to every situation.

KMUTT Educational Reform or KMUTT-ER

KMUTT has introduced "KMUTT Educational Reform" to make an adjustment to an educational system from a content- and employment-oriented educational system to competence-[7] and employability-oriented system. This leads to a shift from a teaching-oriented education to a student learning-oriented education. More precisely, KMUTT has changed its context from being a "provider" to being an "innovator" in the areas of teaching and learning, which aims to facilitate student learning as well as to produce graduates who can become the "change agents" with "4h" multiple intelligence, which are head, hand, heart, and human.

KMUTT Educational Reform can be divided into two phases. The first phase is the reinvention of a formal teaching and learning process, while the second phase involves the transformation of an informal learning context, where learners take ownership of their learning. In this case, KMUTT will support and promote the transformation by developing the teaching systems, processes, approaches, methods, and techniques, together with the organizational development to create the teaching and learning management that focuses mainly on Outcomes-based Education (OBE).

For this reason, KMUTT Educational Reform has become the framework for ecosystem development of new tertiary educational reform for 21st-Century universities. The 21st-Century universities are not only academic institutes but also focus on developing the competence of human resources to enhance the competitiveness of the nation.

KMUTT has pursued the "KMUTT Educational Reform" policy through the area development and the creation of an innovation ecosystem.

- Everywhere is for Learning
- Every Time is Learning
- Everyone is Educator

The integration in the areas of teaching and learning, research, and academic services to the private, community, and social sectors has the purpose to develop world-class quality manpower, both studying age and working age. The manpower should be equipped with innovative skills, be able to work at a start-up company, be a technological entrepreneur, and become a social change agent. The integration also serves as a catalyst for knowledge sharing as well as knowledge and technology transfer within the university and between the university, the community and the society, the industrial sector, higher education institutions, and the public sector, both within the country and abroad.

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[7] Competence consists of knowledge, skills and attitude.

Higher Education Graduates 4.0 of KMUTT will become the "Learning Workers" with versatility characteristics who not only have deep capabilities in STEM (Science Technology Engineering and Mathematics) and HECI (Humanity, Ethics, Creativity, and Innovation) but also able to juggle multiple roles to support a diversity of the digital society and to be the social change agent for the development of society at all levels in response to Thailand 4.0.

Teaching and Learning Policy

KMUTT has the academic policy under the KMUTT Student QF educational framework which conforms to the Thailand Qualification Framework (TQF). KMUTT has identified desired characteristics of graduates, which include the possession of practical excellence and the ability to be a social change agent. In addition, the KMUTT Educational Reform framework creates a learning atmosphere and environment that make every minute spent at KMUTT a time for learning (teacher, space, time, and experience).

Innovation Ecosystem

KMUTT's key goal is to develop educational innovations by developing the teaching and learning environment under the concept of "Everywhere is for Learning. Every Time is learning. Everyone is Educator". This makes every area of the university, the community, and the society that the university gets involved with to be the learning space of students and university personnel, where they can learn and improve their knowledge and skills from real practices. The aim is to produce KMUTT personnel and graduates who have the "System Integrator" skills that meet the needs of engineers, scientists, and technologists to support the development of the industrial sector with increasing system complexity.

- KMUTT builds a learning atmosphere by taking the viewpoint that the whole university is a classroom and an experiment station. Any area on the campus can be used as a demonstration site. The university also creates knowledge for the future through the conduction of lab-based learning, which is the integration between multidisciplinary education and research.

- KMUTT has a plan to build a learning atmosphere by rearranging all university spaces to be learning spaces for KMUTT students and personnel. KMUTT has invested in creating the learning space both indoor and outdoor, such as the transformation of classrooms into X-Classroom, and the conversion of the ground floor of every building into the learning space and learning garden.

- KMUTT has areas for classrooms, laboratories, and learning areas both within and outside the university campus. Furthermore, the university has provided cutting-edge equipment and technology to support the teaching and learning so that students can learn and develop their knowledge and skills from real work practices anytime and anywhere. KMUTT has also engaged in various space developments, which serve different work methods and targets. KMUTT Bangmod campus and Knowledge Exchange (KX) Building will be developed to become the ubiquitous university where all kinds of facilities are provided. These include the Learning Institute for the development of tools and innovations to boost learning, as well as the library that serves as an information source for research and studies and as a space for knowledge sharing, where a support system for the development of e-Learning media allows students to exchange knowledge both inside and outside the classroom. Meanwhile, the KMUTT Bang Khun Thian campus is a science and industrial Park which focuses on the creation of new bioscience technology and enterprises. On the other hand, the KMUTT Ratchaburi Campus aims at producing the new type of engineers by launching a Residential College (RC), which implements the teaching and learning approaches that focus on the integration of liberal arts education with the education form of modular learning that stimulates collective learning. The students stay in a dormitory to facilitate the management of extracurricular learning and activities. Each group of students is also assigned

to an advisor. This exemplifies the attempt to develop the soft skills of students in accordance with the desired characteristics of the graduates under the KMUTT Educational Reform framework.

- **Knowledge Exchange (KX) Building**, which is located at the urban educational service center, serves as the center to promote strengthen technological and innovative competencies of Thailand's manufacturing sector, using knowledge and capabilities of KMUTT and other partner institutions. It is also an open innovation hub that facilitates knowledge transfer and exchange to generate a maximum return of investment on science and technology, together with supporting the transformation to become an innovative and entrepreneurial university.

- **Entrepreneurial University** develops the people to have entrepreneurial skills and awareness of entrepreneurship with the accompanying principles of "dare to think, dare to do, dare to take risks, dare to change, and dare to accept failures". In other words, once failure occurs, they should be able to adjust and change immediately. By developing people, KMUTT aims at creating a positive impact on the country and society.

KMUTT	KMUTT (Bang Khun Thian)	KMUTT (Ratchaburi)	Urban Educational Service Center
Practical Excellence	High Impact Research	Residential College	Knowledge Exchange (KX)

KMUTT-Educational Reform or KMUTT-ER has the following characteristics:

1) The adoption of the Outcome-Based Education as a platform for all programs and curricula to mainly emphasize the learning outcome of learners, as well as to ensure and to take accountability that learners truly attain learning achievement.

2) Learners develop their competence through the module of learning to obtain learning outcomes designed and stated in the curriculum. The learning module to develop competence offers flexibility for
   - Learners to develop themselves in line with the self-paced learning
   - Linkage of educational system and experiences of working-age adults who desire to develop their skills
   - Arrangement of multidisciplinary and/or interdisciplinary education between science and/or engineering with other fields of study, such as engineering with health science or engineering with business, etc.

3) The module of learning is the outcome-based learning arrangement which focuses on developing competencies through experiential learning in the form of 10:20:70, which is 10% of learning from knowledge transfer, 20% of learning from the training under the supervision and support of professors, and 70% of learning from real work experience.

4) KMUTT faculty must be "professional instructors" who possess expertise in their fields, along with having the competence in the research conduction and the management of teaching and learning that stimulates the learning of students.

KMUTT Curriculum Development

The curricula under the KMUTT Educational Reform are the integrated modular curricula that emphasize the competence-based and outcome-based education.

The outcome-based education will be adopted in accordance with the Thailand Qualification Framework (TQF). Consequently, KMUTT has to adjust its curricula, courses, and student learning in the course of the development and improvement of the curricula and the adjustment of teaching formats, which contributes to the learning outcomes of KMUTT students as specified by KMUTT's QF.

- All curricula will undergo adjustments regarding their teaching approaches to support an outcome-based education whose program learning outcomes (PLOs) desire that students have an ability to do and/or to understand something after each teaching and learning session. The curricula will be redesigned with educational outputs as a fundamental focus that specify the competence and unique skills and capabilities that graduates should have upon graduation from the university.

- The curriculum design should make an adjustment on assessment procedures since the preparation process has to be consistent with the content of the curricula.

- KMUTT has plans to develop the curricula, the quality assurance system, the evaluation system, and KMUTT's specific template that is not in line with OHEC's template. In addition, it has a plan for research and curriculum development to create curricula that respond to the needs of stakeholders and have clear processes. The university also has a faculty-level operational plan for the development of human resources and processes that emphasize the improvement of curricula to enhance the quality of teaching and learning.

- The model curriculum and best practices have been developed to be used as an archetype and to ensure their consistency. The experiments concerning the model and best practices have been conducted in the classroom to adjust the teaching methods and assessment. The management of teaching and learning should also allow for the evaluation of learning outcomes (LO).

- Practice-based learning, both in and outside the classroom should have a policy that promotes interdisciplinary curricula by selecting similar subject areas. The ratio of faculty to students must be taken into consideration. In addition, the university should discuss with professional councils for further actions in the case where fields of study require professional licenses and permits.

Work Integrated Learning (WIL)

KMUTT focuses on the promotion of work-integrated learning (WiL) for every curriculum to provide students with an opportunity to apply their knowledge acquired in the classroom in solving real-world problems of enterprises. These students are under the close, systematic supervision of KMUTT professors and mentors from an enterprise. This allows students to improve their skills in accordance with the desired characteristics of graduates and with the needs of the industrial sector.

KMUTT's work-integrated learning (WiL) has three important characteristics as follows:

1) Students must be able to apply their knowledge to solve real-world problems found at an industrial factory. This results in the development of necessary skills of students, such as learning skills, problem-solving skills, and theory application skills.

2) Students must work full-time at an enterprise for at least four months in order for students to have sufficient time to comprehensively solve problems and to assimilate professional skills at work.

3) The faculties or departments must have a student care and support system to ensure that students successfully develop their skills in accordance with KMUTT's expectations.

Working Adult Education (WAE)

KMUTT has continuously pursued working adult education (WAE) programs to develops working-age learners in the labor market, such as industrial personnel, to enhance their knowledge, skills, and qualification. These include the introduction of the Bachelor of Technology (B.Tec) program for the State Railway of Thailand personnel, the development program for SCG Chemicals operational employees, and the Constructionism-Chemical Engineering Practice School (C-ChEPS) project and constructionism - Pulp and Paper Practice School (C-PAPER) for SCG Paper personnel.

Support for Curriculum Development and Teaching and Learning Management

KMUTT aims to have expert employees who have the capability to support an entire system, both at the university- and the department- level.

- **Key Performance Indicators (KPIs)** of curriculum development and teaching and learning should be clearly set with the measurement and evaluation of LOs and/or soft skills

- **Integrated Tool System** is used for outcome monitoring and performance evaluation. Integrated processes with accompanying infographic manuals are also developed to illustrate connections that meet the curriculum quality of an entire system.

- **Reward System** should be established to support the development in teaching and learning. The calendar for curriculum development should be created to recognize and notify of the curriculum development status. In addition, the One-Stop-Service should be founded to provide answers for frequently asked questions (FAQ), as well as to ensure the alignment of the curriculum development system to eliminate redundancy.

Active Recruitment of Students

KMUTT has a policy to not increase the number of undergraduate students while having a mechanism to increase the number of quality Ph.D. students by offering scholarships. The scholarships will be granted to students in programs that focus on academic excellence and high-impact research problems, professional programs that produce work-ready graduates, and programs that focus on engineering and scientific skills to ensure that graduates can conduct research and solve problems for the industrial sector.

- **All-year recruitment of graduate students** without closing the application system is done to ensure the internationalization of student recruitment which can accept both Thai and international students throughout the year.

Evaluation of Curriculum Development

KMUTT implements the internationally accepted criteria, such as AUN-QA (ASEAN University Network Quality Assurance) which is non-field-specific international criteria. Field-specific international criteria could also be adopted; for example, criteria of the Accreditation Board for Engineering and Technology (ABET) for engineering and technology programs or criteria of the Association to Advance Collegiate Schools of Business (AACSB) for business administration and accounting programs.

- The curriculum evaluation plan under AUN-QA will be adjusted for all programs by 2022[8].

ICT for Learning

KMUTT has developed an e-Contents system in different formats, as well as created online lessons (Open Courseware) that cover all fields of study. These e-Contents and online lessons, which are a spatial-based integration of all campuses, are regularly updated to support formal, informal, and non-formal education, as well as lifelong learning.

Development of KMUTT Learning Environment (LE) System

KMUTT has developed KMUTT Learning Environment (LE) system to be a comprehensive learning tool for professors and students. It focuses on the creation of learning spaces as well as online services of resources and technology to create innovative teaching methods and learning experiences that are suitable for users.

KMUTT Teaching Commons (TC)

KMUTT Teaching Commons aims at raising awareness of the importance of outcome-based education (OBE) to stimulate changes in the mindset of professors regarding pedagogy or other teaching techniques. The program also has the objectives to enhance the teaching competency of professors to be in compliance with KMUTT Professional Standard Framework for Teaching and Learning (PSF) as well as to develop a professional learning community to facilitate an exchange of teaching and learning experiences.

X Classroom

X Classroom has been created to transform a classroom environment from being a "knowledge transfer" classroom that focuses on memorizing and understanding learning contents by students into a "transformative" classroom where students develop academic intelligence through "activities" under the advisement of the instructors. Group discussions are also organized, while a flipped classroom is offered in some courses.

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[8] Resolution of the Board of Trustee in the Meeting No. 203 dated 6 July 2016

Learning Space

The Library has developed KLINICS (KMUTT's Learning and Information Commons) to be the "second home for learning", whose service areas are located on the 1st and the 5th floor. After a period of time, KMUTT has the policy to expand the learning space throughout the whole university area and has assigned the Library together with other departments, such as the Faculty of Science, to revamp the learning space. For instance, the Faculty of Science has renovated the science learning space under the concept of "Why" to encourage students to engage in science learning, which can be further used for enhancing teaching and learning and applying to everyday life. Furthermore, a student service hub is located at KMUTT Bang Khun Thian. The Bang Khun Thian campus, together with the KMUTT Ratchaburi campus has renovated the first to the third floor of the Library under the concept of the "Oasis" of the West.

Learning Space according to the Master Plan
- The construction of the Learning Exchange Building
- The construction of Learning Garden at KMUTT Bangmod campus
- The renovation of Science Learning Space at Science Laboratories Building
- The renovation of Science Connect Room at Scientific Instrument Center for Standard and Industry
- The renovation of Learning Space at the Library
- The renovation of Maker Space at Witsawa Watthana Building, Faculty of Engineering
- The renovation of the International Club at the School of Liberal Arts

Policy on the Reclamation of the Ground Floor for the creation of the Open Space

KMUTT promotes the learning space by reclaiming the ground floor of each building to improve the quality of life of students and to support their learning. The Ground floor of all buildings has been renovated to become an open space where students can use as a waiting area before class. Any faculty that has a desire to develop the learning space in accordance with the master plan may apply for funding in the form of Matching Fun.

Library Policies
- To promote users to participate in the provision of information resources and set the rule and regulation which can be accepted
- To promote staff to participate in library administration: giving suggestion or recommendation, and considering the library activities affected to long term implementation
- To support user lifelong learning
- To transfer collected information resources to remote users

Student Development Policy

To develop students, both in-class and out-of-class activities and/or both internal and external activities must be integrated. Student activities should be included as co-curriculum and not extra-curriculum. KMUTT has a policy on student development in various aspects, and it has assigned responsibility to several departments to perform different tasks. For example, the Office of Student Affairs is responsible for the environmental management, the arrangement of activities, clubs, and vocational guidance for students, as well as the provision of consultation for students who have problems. On the other hand, the Health Care Unit is responsible for student health, while the Student Financial Aid unit is in charge of scholarship provision. The curricula are improved to ensure conformity with the Outcome-based Education. These are the mechanisms for the student development of KMUTT.

KMUTT Student Development 360 (KSD 360): All in All

All-round development of students through holistic activities is imperative to ensure that students achieve academic excellence, are good-natured, and have social awareness and responsibility. KMUTT has identified KMUTT Core Values to create students who are professional and possess the expertise, skills, insight, and hands-on experience. These students also need to have a resolute commitment to righteousness and integrity.

The Code of Honor should be the core of practices with the KMUTT Student QF as a goal. The important approaches could be divided into the following four areas:

1) Foster Culture of Innovation

KMUTT promotes the creation and the application of innovations, as well as the enhancement of entrepreneurial skills of students who possess an entrepreneurial spirit and who develop new knowledge or innovative products that are concretely released to the market through a variety of activities. These activities include activities to generate inspiration, the development of content and learning media on Courseware, knowledge transfer, and the development of short-term and long-term incubation mechanisms that are designed to meet the needs and readiness of each group of students under the Hatch mission. The Hatch mission, which is in line with KMUTT's guidelines to promote start-up companies within the university, is a KMUTT Entrepreneurship for startup incubation. The program focuses on the collaboration with key players within the university, including departments that work on entrepreneurship promotion, professors, researchers, and students who are interested in commercializing their works.

KMUTT, with the intention to promote an innovation culture at the university, has offered the Petchra Pra Jom Klao Scholarship for creativity and innovations to students with a background in innovation who wish to pursue their study at KMUTT. The university has concomitantly provided the Chiaranai Petch Scholarship to support and encourage students who have developed and received nationally and internationally recognized outstanding awards for their innovations and creative inventions to continuously enhance their abilities further.

2) Provide Transformative Active Learning Experience

KMUTT focuses on active learning through practices, activities, and experiences as a supplementary to classroom learning as active learning is believed to lead to greater achievements than traditional learning.

- KMUTT organizes roadshows, both in Thailand and in other countries for international students in particular, as an approach to student recruitment by building networks through international alumni and expanding the network of 2B-KMUTT participants. The university emphasizes active

talent recruitment to increase the number of graduate students and non-age group students by creating networks with the industrial sector, public organizations, and the private sector through collaboration with alumni.

- KMUTT gives undergraduate students an opportunity to learn outside the classroom through research. The university offers Undergraduate Research Assistantship funding for undergraduate students with the objectives to enhance their research skills, presentation skills, and problem-solving skills, as well as to instill the love for research in students, and to promote students' development of research development and their pursuit of postgraduate education.

In addition, KMUTT offers student employment scholarships for students who work in various departments of the university to encourage them to spend their free time wisely and to support the development of soft skills in students, as well as to provide impecunious students with an opportunity to earn money.

- Forty percent of KMUTT social engagement budget for student activities is allocated to student activities that generate benefits and a positive impact on society, including activities that promote relationship buildings between students and people in the society. Any group of students or student club may submit a project proposal for this scholarship. The university has also further developed the KMUTT Green University/Green Heart to develop the skills of students, together with their spirit of volunteerism, and sense of sacrifice and responsibility. It also aims to train students on a systematic approach at work and to develop them to be a complete person.
- KMUTT promotes collaboration with international universities under the principle of being a project for collaborative thinking, doing, and learning between students and the community in the form of active learning that encourages the usage of English beyond the classroom walls. The university also organizes the International Problem-Based Activity project to allow for the exchange of cultures, activities, and languages.

3) Increase Collaborative Ways for Nourishment of Our Students

KMUTT has developed the servicing environment through the Service Excellence Initiative both in terms of KMUTT personnel and students to provide support, to take care of, and to foster students to have the desired characteristics of graduates on the "No One Left Behind" basis. The responsibility for the nourishment of students to become quality graduates does not lie with any specific duty or department, but it requires collaboration from all departments, personnel, alumni, or adjacent community.

- Service development in the form of Pull Customer Service or One-Stop Service involves services provided to meet the student requirements when needed. This kind of service can be requested in advance and can be completed provided at one point in the form of self-service that service recipient can perform any service by themselves on a computer or mobile device.
- Student Services Hub is developed as the service center to facilitate comprehensive service for peace of mind. In other words, all necessary services for students can be received in one place, including services on student recruitment, registration, scholarship, payment, welfare, and other basic services for students.

The provision of a 24-hour reading area for students during the exam period, where healthy drinks are also served, is well received by students. Various merchants and student parents support this activity to order to enhance output, impact, and outcomes that are more meaningful.

4) Inspire Students as Change Agents

KMUTT inspire students to become a social change agent through various projects and activities by giving them opportunities to share opinions and to take part in the decision-making with the university. The university allows students to engage in hands-on practices, for which the university is responsible for taking care of and supporting students who have initiatives for useful projects. Students are also given chances to propose new ideas to make changes on activities, to engage in new activities, to share their experience, and to gather and participate in activities for the social benefit, especially activities that allow them to volunteer to help the society on the "Pay It Forward" basis. KMUTT also encourages students to learn about ways of life, generousness, and different lifestyles of people in the society.

The integration of Liberal Art Education is a concrete organization of activities with student activities that promote the development of leadership skills.

KMUTT Entrepreneurship Program

This program promotes the utilization of innovations and the enhancement of entrepreneurship skills in students who have an entrepreneurial spirit and who concretely create new knowledge or innovative products to the market. The program involves various forms of activities, including activities that generate inspiration, the development of content and learning media on courseware, knowledge transfer, and the development of short-term and long-term incubation mechanisms that are designed to meet the needs and readiness of each group of students.

No One Left Behind

KMUTT has the policy to provide financial support to students who have financial difficulties in paying tuition fees to allow them to have readiness for study and research, and to reduce their concerns over education expenses so that they can learn to the fullest extent, both at the undergraduate and postgraduate levels.

Pay it Forward

The development of students to become professional and moral graduates is the key expectation of KMUTT. Additionally, students are given an opportunity to pay back to the society through projects that link the university with the community and the society. Many students have an opportunity to take part in out-of-class learning activities through this program, which encourages students to learn about ways of life, generousness, and various lifestyles of people from different societies, all of which cannot found on campus.

♣ **Implementation Chairs :**

- Senior Vice President for Academic Affairs
- Vice President for Education Development
- Assistant to the President for Educational Development
- Assistant to the President for Academic Affairs
- Faculty/Institute/Office
- Cluster for Educational Development: C4ED
  - Education Development and Services Office
  - Learning Institute
  - Library
- Vice President, KMUTT Ratchaburi
- Vice President for Industry and Partnerships
- Vice President for Student Development
- Assistant to the President for Student Development
- Assistant to the President for Alumni Relations
- Admission and Recruitment Office
- Student Affairs Office
- Student Financial Aid Unit

Policy on Internationalisation

KMUTT has a policy on internationalization to develop students and personnel to have experience, to expand their worldview by learning about diverse cultures and languages, as well as to learn how to live and work together with other people in the global society. The curricular quality has been improved and been internationally recognized. The university also increases the number of international students and personnel, together with encouraging students and personnel to use English for communication on a regular basis.

English Language Proficiency Standards

KMUTT has set the criteria for the assessment of English language proficiency of academic personnel, researchers, and Ph.D. applicants in accordance with the Common European Frameworks of Reference for Languages (CEFR).

- New academic personnel: IELTS or TOEFL score report must be submitted to equate the level of English proficiency according to the CEFR criteria.
- Ph.D. applicants for the academic year 2016 onwards
- In the case where an applicant already has and is able to submit an IELTS or TOEFL score report, the School of Liberal Arts must equate the level of English proficiency according to the CEFR criteria.
- In the case where an applicant does not have a score report for any English language proficiency standard to be equated according to the CEFR criteria, the applicant must pass the Post-Graduate Test and the English speaking and writing test to cover all four skills.
- For the Ph.D. applicant with the year 2016 enrollment ID who has already passed the Post-Graduate Test, the relevant faculty/institute/graduate school must inform the student that he/she is accepted to the Ph.D. program on the condition that the student must pass the test on all four English skills in compliance with the CEFR criteria accepted by the Office of the Higher Education Commission.
- Thus, the thesis advisor must prepare a report on an additional assessment of student's speaking and writing skills. The advisor may measure and evaluate based on thesis writing, thesis presentation, or interview. The assessment result will be submitted to the faculty committee for preliminary consideration of the result according to the criteria for speaking and listening skills set by the School of Liberal Arts in place of the speaking and writing exam proposed by the faculty. This allows students to know about their English proficiency while simultaneously using it to determine how many English courses the student is required to register for.

English Literacy

80 percent of students must be able to communicate well in English in 2021.

English Instruction Policy
- The development of language skills of students (SoLA+IA)
- The development of language skills of personnel (HRD) >> Human Resources Administration Unit

Bilingual Documents

The arrangement of the campus environment must be more internationalized through the usage of signages and documents in both Thai and English, for example.

♣ Implementation Chairs :	
○ Vice President for Internationalisation	○ Human Resource Development Office
○ Assistant to the President for Internationalisation	○ University Relations Office
○ School of Liberal Arts/Faculties/Offices/Institutes	○ Research, Innovation and Partnerships Office
○ International Affairs Office	○ Office of Building and Ground Management
○ Student Affairs Office	

Policy on Research and Academic Service

Policy on Research and Innovation

KMUTT Research Cluster

KMUTT has focused on high impact research and set clear criteria and guidelines for establishing research cluster, research laboratory and supporting mechanisms to strengthen the research cluster by having visiting professors, distinguished visiting professors, and post-doctoral fellowships from overseas and providing advanced research equipment to support the teaching and learning, and research. The university also founded the International Research Advisory Panel (IRAP) to significantly enhance the research quality of KMUTT.

The university has created mechanisms for academic advancement by encouraging university professors and researchers to conduct research in laboratories and research centers of universities, research institutes, and leading corporations in foreign countries.

The Promotion of Effective University-industry Links

- KMUTT develops entrepreneurship by providing training for professors, researchers, and students to allow them to be exposed to the business world and to obtain more business ideas and concepts for academic work.
- KMUTT promotes the WiL (Work-integrated Learning) and provides the Royal Golden Jubilee Ph.D. Program Scholarship to build relationships with the manufacturing and service sector as well as to build the confidence of researchers and students in facing the real-world problems
- KMUTT encourages researchers to conduct research at business enterprises while accepting personnel from business enterprises to work or to be an advisor at the university.
- KMUTT creates linkages and integrates academic services with research and development
- KMUTT develops industrial park services to be able to attract more service users
- KMUTT raises awareness of the roles and benefits of intellectual property, as well as offers services in the areas of technology licensing.

KMUTT University Research Administrators: KMURA

KMUTT strengthens the KMUTT University Research Administrators (KMURA) system by developing the skills and professionalism of research administrators so that they can provide appropriate assistance and support to researchers before and after making a contract for research funding, and during the conduction of research as specified by the contract.

International Research Advisory Panel (IRAP)

KMUTT strengthens research through a mechanism of the International Research Advisory Panel (IRAP) by inviting internationally recognized experts to advise on the making of policy and research strategies. It also has the guidelines for the strengthening of and the development of

research of research groups and research clusters to facilitate the exchange of knowledge on research that leads to future collaborations between the university researchers and the experts.

Policy on Collaborations with Industrial Sector

KMUTT believes that the industrial sector is the key partner in its operations; as a result, it has developed the Innovation Alliance & Partnership both in Thailand and in other countries to address important problems and requirements

1) KMUTT must create linkages and interactions with graduates and users of research and innovations both inside and outside the university in Thailand and other countries, such as Work-integrated Learning, WiL for undergraduate students, Practice School for postgraduate education, the acceptance of master's degree scholarship, specific industries, and the enhancement of quality of existing personnel (WAE/WPL)

2) KMUTT must have mechanisms that facilitate the access of SMEs and SE/ME (Social and Micro Enterprises) to a knowledge base and technology (Knowledge Exchange Junction).

3) KMUTT must promote, support, and facilitate the development of new technological entrepreneurs (Student Entrepreneurship Program)

♣ **Implementation Chairs :**

○ Senior Vice President for Research and Innovations	○ Vice President for Industry and Partnerships
○ Vice President for Research Strategy	○ Assistant to the President for Industry and Partnerships
○ Assistant to the President for Research Promotion	○ Institute for Scientific and Technological Research and Services
○ Research, Innovation and Partnerships Office	○ Pilot Plant Development and Training Institute
○ Science and Industrial Park	○ Faculties
○	

Policy on General Administration and Management

Quality Policy: KMUTT's TQM Model

KMUTT has adopted the **Education Criteria for Performance Excellence (EdPEx)** as the guidelines for leading the organization to efficiently and effectively achieve the goals. The university has also implemented a Total Quality Management (TQM) system and integrated it with the university management system. The EdPEx criteria are used as the strategy to pursue TQM by adapting it to create KMUTT's TQM Model.

The Total Quality Management TQM) under the Quality Assurance Policy

Quality Assurance Plan (proposed to the Board of Trustee)

- The development of a quality assurance system (building confidence and satisfaction of students and other groups of customers) under KMUTT's TQM Model embeds the quality concept into the system and creates the alignment of works to achieve the goals of the university. Human resource development is as important as the development of the work system and administration system.

- **EdPEx** is the guideline for a systematic operation. It also serves as a tool for improving the operational system of departments to ensure the alignment of management. Departments receive training on the writing of an organization profile (OP), which involves the setting of clear vision, goals, and directions of the development of departments. The goals will then be used to develop a competency map for the planning of human resource development and job rotation that meets the OP or the vision of the department.

- **KMUTT adapts the TQM and EdPEx administrative frameworks** to be suitable for the context of the university in the form of KMUTT's TQM Model. It starts with the provision of training to all personnel under the "Train the Trainer and Facilitator" project to ensure that all personnel come to an understanding about quality. It also instills conscience on quality in teaching, research, and work, as well as provides training for new academic staff and for preparing personnel to be middle managers and senior managers in the future.

Management Strengthening

KMUTT strives for achieving the organizational core values as follows:

1) The adherence to professionalism where KMUTT is the expert with expertise, insight, and practical experiences
2) The adherence to and perseverance in integrity as well as the awareness of social responsibility
3) The leadership and pioneership as KMUTT's key mission is to produce quality graduates and to be the institute of knowledge
4) The collaboration with internal and external organizations to generate a positive collective impact on the society and the nation

Policy on Restructuring and Improvement of Work System of Management Support Units

3S Policy (3 Services)[9]

Management policy that focuses on efficiency.

1) Smart: to work with higher efficiency, meaning to work on one thing that results in multiple outcomes
2) Sharing: to be a society of collective thinking and working
3) Sustainable: to continuously develop according to KMUTT Quality Systems

Budget planning requires the planning of both revenues and expenses to track and plan the budget in a professional manner. This allows the university personnel to work smart while facilitating the sharing of work and leading to long-term sustainability.

Integration of Work of Service Clusters

Cluster work is created to ensure collective understanding of services to facilitate substitutions of work in accordance with and service goals.

3S + 1M + 2L Service

1) 3S (One-Stop Service, Self Service, E-Serviced) and Sustainability University Policy
2) Additional Mobile Support in compliance with the 3S policy
3) Using less paper as the university wants to reduce paper consumption
4) The preparation of bilingual documents of each unit, including websites, PR board, and documents or rules which apply to international students and personnel, together with the publication on the website

Productivity Improvement (PI)

KMUTT places value on productivity improvement (PI) to improve working processes, to reduce work procedures, and to reduce complicated and redundant processes for the utmost benefit of service users, including

1) The adjustment and upgrade of the work manual
2) The announcement of the Service Level Agreement (SLA)
3) The identification of the service catalog
4) The development of policies and procedures
5) The building of networking to facilitate learnings and exchanges about PI across departments

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[9] Meeting on "Midterm Advance Operation and Budget Planning" dated 7 April 2011

Planning and Budgeting Policy

KMUTT has set the long-term development plan for 15-20 years)KMUTT Roadmap(to be the framework for the long-term development of the university and supervision of operations of executives and perspective executives.

KMUTT has replaced a 20-year development plan with a 5-year strategic plan. Currently, the university is under the KMUTT Roadmap No. 12 (2017-2021).

Rolling Plan 1+2

The making of an annual operational and budget plan, or the so-called the planning of an operation and budget Rolling Plan 1+2

The medium-term operational planning, the Rolling Plan 2+1, is the transcription of KMUTT's 5-year strategic plan and the revision for an annual adjustment of operational and budget plan to ensure conformity with KMUTT's work, goals of departments, and various risk analysis, as well as to make certain that the plan is in accordance with the principles of PBBS (Performance-Based Budgeting System)

- To enable each department to make a Rolling Plan for both short-term and long-term through planning that takes the overall picture into account in terms of the work plan, manpower plan, financial and investment plan, equipment, and space. The plan must focus on output and outcome, while also identifying performance measurement, identifiable expenses, and responsible persons.
- Personnel management is flexible. In particular, professors are assigned with works that are suitable for each individual's potential and are rewarded with appropriate remuneration for the overall workload. The assignment must take into consideration the balance of workloads between teaching, research, and academic services.

The Adjustment of Plan and Budgeting

Each department can make an adjustment to the plan and the budget five times per year. The case of the adjustment of the plan and overall budget of KMUTT shall be deemed as an adjustment of the activity plan.

Performance-Based Budgeting System (PBBS)
Total Budget Management with PBBS System

1) PBBS is a tool for the overall management of work, personnel, and finance, both for the regular and special projects of the department. Part of the income after a deduction of basic expenses and savings/development, such as personnel expenses and savings/development will be spent on payment to PBBS for
   - Serving as a motivation for the department to make additional planning/seeking more resources in accordance with the potential of the department in the case where it desires additional rewards
   - Increasing work efficiency
   - Distributing the overall workloads and remuneration to personnel to compensate for individual remuneration in the previous form

- Enabling the recruitment of highly efficient personnel with appropriate experience
2) PBBS should be used for the planning to ensure the long-term stability of the department's operation, for savings for investment and development, and savings for the long-term stability of personnel management.

Manpower Plan

Manpower planning is the forecasting process of the manpower requirement of the department in terms of types of manpower, educational background, quantity needed, and time period. In addition, the manpower planning includes a comparison between the existing manpower and the manpower required in the future to ensure that the department has the appropriate quantity and types of personnel with suitable qualifications for the work as needed.

↳Further details are stated in the Manpower Policy and Guidelines🗎

Physical Master Plan

KMUTT has two groups of committees that are responsible for space utilization planning. The first committee, which is the Area Master Plan Policy Committee (AMPC), is in charge of considering landscape architecture, learning spaces, and approval of utilization of KMUTT buildings and facilities. On the other hand, the second committee or the Sub-committee on Building and Ground Management is accountable for a screening of any extension or improvement of buildings and facilities extension.

↳Further details are indicated in the Policy on Building and Ground Management🗎

KMUTT Super KPIs

KMUTT Super KPI is the performance assessment with key indicators that are utilized to generate a benefit for supervision, to enhance effectiveness, and to be a quality assurance that leads to value creation and competitiveness enhancement that could potentially result in the amelioration of KMUTT to be the leading organization at the international level.

- KMUTT has determined that departments have to report their performance in compliance with the Super KPIs at the faculty/office/institute level at the time period of an annual report on performance results (6-month and 12-month) to KMUTT executives (effective as of the budget year 2013).

Follow-up and Assessment Policy

- The performance assessment must be conducted every six months and twelve months, and the assessment results will be used to support the determination of salary increases. Executives at all levels must be responsible for their duties as specified in the operational plan agreed upon before assuming the position. The assessment system and mechanisms are clearly identified; for example, the assessment must be conducted every six months and twelve months (Follow-up and Assessment Policy: KMUTT executives and supervisors).

Financial and Accounting Management Policy

Cashless Society is promoted by encouraging money transfer, and the utilization of debit/credit card or internet banking to reduce risks and to be in line with the government policies.

KMUTT Procurement Policy

1) Procurement must take into account the worthiness, transparency, efficiency, effectiveness, and accountability

2) Continuous procurement without adhering to the budget year (Rolling Plan 1+2)

3) The work must have a systematic connection by considering upstream to downstream processes and must deliver quality work.

4) Employees conduct procurement in a professional manner.

5) The university promotes the utilization of information system for work under the "Anytime Anywhere Anyplace" concept to facilitate the process

6) The university operates continuously and improves work processes to be more effective and efficient. It must also be ready for and accept changes, which is in line with the policy of "being dispersed but work collectively" to reduce any delay in procurement that results in students' loss of opportunity in utilizing learning spaces (Management Strengthening).

7) Procurement must comply with the Green University Policy, such as the selection of environmentally-friendly materials and chemicals, and the reduction of greenhouse effects

Personnel Management Policy[10]

KMUTT must make an adjustment to appraisal methods for faculty promotion in terms of remuneration and academic position to promote the improvement of teaching and learning, the publication of academic works, and the provision of academic services to the society and the nation efficiently and effectively. The university ultimately aspires that professors would develop themselves to be a role model for student development.

Personnel Management System

KMUTT has set the personnel management policy as follows:

(1) KMUTT personnel must be aware that academic positions and executive positions are the honor granted by the university to personnel. Therefore, the university personnel must be conscious of and be aware of their duty to protect KMUTT prestige, as well as be responsible for increased duties of higher job positions without causing any damage to the reputation of the university.

(2) All personnel has duties of self-improvement and continuous operations. Superiors at all levels are responsible for supporting the planning of personnel development that must conform with the obligations and missions of departments. The university must also contribute to support and promote personnel development.

(3) The personnel must be trained to have the leadership and management skills to take part in solving management problems in accordance with the changing context and structure of the university.

Proactive Human Resource Management

- Vice President and heads of department must be responsible for strategic planning, setting of milestones, and division of works and responsibilities with the objectives of organizational and personnel development.

- The term for supporting executives with director-level potential should be set and rotated for the benefit of the university. Moreover, assistant directors or supervisors at the B1 level should be developed to share the workload of directors according to their expertise.

- Support staff who work at various departments must have knowledge, abilities, skills, expertise, and experiences to work on their assignments on their own and/or with others in a professional manner by focusing on efficiency and effectiveness. Although they are not executives, they can receive appropriate remuneration according to their abilities and work performance to encourage and give incentives to employees to continue working for the university.

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[10] KMUTT Manpower Manual

Policy and Guidelines on Manpower

1) At least one of the personnel in the department must attend the training on a quarterly basis according to the university policy (5% of personnel must be developed).

2) A periodical request for approval of manpower framework, which includes both academic personnel and professional personnel, must consider the new manpower framework, the retirement framework that includes the employment plan of people with special abilities, and details of the KMUTT manpower framework, which has guidelines for manpower framework management proposed at the same period.

3) Students with government scholarships are deemed as the commitment of the university. In this case, departments may include them in the manpower framework only when they are already graduated and reported to the university. The departments also have to concurrently enclose work responsibilities for such manpower framework.

> **Remark**

Manpower for Vision Promotion

Conditions of the Manpower for Vision Promotion framework

1) The fundamental intention is to sustainably develop research capabilities.

2) Departments/Laboratories must set aside a part of or total researcher salaries as mandatory expenses for research/academic services that obtain external funding sources to pay contributions to a part of salaries that are supported by the university. In the case where university personnel conduct research or provide academic services and receive remunerations, such remunerations must be firstly included in the calculation as research cost to pay back for an advance payment made by the university, before the direct wage can be paid (In the case of an incomplete repayment, the direct wage could not be paid).

3) Departments that receive funding must report the operating results (compared with the plan) annually for all three years of funding, using the form created by the university.

4) The funding will be provided for 3 years. The responsibilities for researcher salaries and welfares are as follows:

- 1st year – 75% supported by KMUTT and 25% supported by the department
- 2nd year – 50% supported by KMUTT and 50% supported by the department
- 3rd year – 25% supported by KMUTT and 75% supported by the department

KMUTT will make a three-year assessment of operating results and it is expected that the department will make the financial return and self-sustainability of research clusters for the next three years.

5) This framework does not allow the university personnel to take a study leave either during working hours or outside of working hours while receiving a salary from the university. If the department approves the request for study leave, the conditions of the framework must be changed to the framework for department income.

Adjustment of the organizational structure of academic personnel[11]

1) The university supports the academic advancement of academic personnel with increasing diversity. There are three tracks of academic personnel as follows:
   (1) Professors/Instructors who focus on learning and teaching
   (2) Professors/Instructors who focus on research and professional contributions
   (3) Professors/Instructors who focus on social contribution

2) The university drafts broader criteria and procedures of the appointment of an academic position[12], such as the determination of format for academic work used for student teaching and learning to be used as work achievements for an application for an academic position, and the adjustment of workload calculation for professors and researchers that is used for performance evaluation on the My Evaluation system. In addition, the university also sets criteria and procedures for the giving of awards to honor professors with educational excellency, B.E. 2556 (2013) [13] by an expert committee at the university level.

3) All university personnel has to understand their roles and responsibilities, as well as tools for their works. They also have to work well together in a team and have a high level of mutual understanding, which includes the understanding of the cross-departmental or multi-departmental plan.

4) The roles and responsibilities of each type of personnel have been clearly divided for the management of the university. Job descriptions are established and used to determine the roles and responsibilities of each person. The minimum workload of each person is also set (personnel management policy).

5) Manpower planning should exceed five percent by having each department increase the number of its personnel by five percent to ensure that all personnel will be developed and to support a new form of operation in the future,

6) Operational guidelines for a joint appointment in the form of cross-functional or cross-disciplinary works should be established to build an interdivisional network of university personnel within the university and between the university and external organizations. The university personnel should place importance on their main works when performing cross-functional or cross-disciplinary works. The guidelines also render support for the personal development of the university personnel and organizational development.

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[11] Academic Council on 27 August 2012
[12] Academic Council in the Meeting No. 3/2556 in March 2013
[13] สภาวิชาการ ในการประชุมครั้งที่ 1/2557 เมื่อวันที่ 20 มกราคม 2557

7) The university promotes and evaluates work performance to ensure conformity with KMUTT identity. The university personnel should be encouraged and permitted to seek experiences in and to use their experience for joint development with the manufacturing sector and the community. The university also develops mechanisms for attracting people with experiences to be the adjunct faculty and staff who work, teach, and conduct research with KMUTT.

8) The university creates a diverse career path by encouraging professors to gain practical experience from the manufacturing sector and to work with the community and the social sector. Different academic positions are created by the university to support such diversity.

Personnel Development Policy

Under the KMUTT Educational Reform conceptual framework, the university must improve to have a ratio of professor to student at 1: 18 (previously 1:20) to allow professors to adjust their teaching and learning processes to be an outcome-based education. This has an objective to help students in effectively and efficiently developing skills that are necessary for the 21st Century.

Making of Core/Functional/Managerial Competency of KMUTT

- <u>Goals</u>: KMUTT has standards of competency adopted by all departments for performance assessment, for the creation of Individual Development Plan (IDP), for the development of training road map, for job rotation, and for remuneration.
- Professionalism: The university provides services in all areas in a professional manner by developing non-academic personnel, both B1-3 executives and specialists, to become more professional with sufficient capabilities, skills, and experience. The relevant development, assessment, and incentives shall also be properly provided.
- KMUTT has a personnel development policy that allows its personnel to work with external communities. This serves as a tool to develop the social skills of the personnel and to train them to live harmoniously in the society.

Development of Learning Developers

- The university develops the potential of educational personnel through the facilitation process to support the arrangement of active learning by ensuring that personnel who have direct interaction with students, such as professors, advisors, site directors, and facilitators receive necessary development. This results in the enhanced ability of personnel to understand themselves and to accept other people's differences that may influence other people around them, especially students. In addition, they are able to organize processes that allow other people to recognize their identities and other people's identities in the society to eliminate learning limitations and to motivate and stimulate a desire for collective learning.

On the Job Training

The 70-20-10 rule was developed by Morgan McCall, Robert W. Eichinger and Michael M. Lombardo at the Center for Creative Leadership.

KMUTT Professional Standards Framework for Teaching and Supporting Learning

KMUTT aims to enhance the teaching competency of professors in accordance with the KMUTT Professional Standards Framework for teaching and supporting learning (KMUTT PSF). The university adopts the KMUTT PSF as one of the criteria for probationary evaluation and contract renewal of every professor. The university will provide training for professors so that they have an appropriate level of competency as specified in the KMUTT PSF before the probationary evaluation or contract renewal process. The details are as follows:

1) Evaluation Criteria for the development of professors under the KMUTT PSF
   (1) New professors must be able to demonstrate their fundamental competency of being teachers in the dimensions of equal treatment of students, a design of learning contents to support student learning, measurement and assessment of learning outcomes, and classroom management. These competencies will be included as the factor for probationary evaluation under an initial employment contract (first 6-month assessment).
   (2) New professors must be able to demonstrate their knowledge and understanding at the beginner level, which means an understanding of teaching, support for student learning, and an understanding of how to effectuate learning support (further details are listed in the KMUTT PSF) within the first two years. This will be included as the factor for a renewal of a second employment contract.
   (3) New professors must be able to demonstrate their knowledge and understanding at the competent level, which means an efficient understanding and application of knowledge (further details are listed in the KMUTT PSF) within three years after the renewal of the second employment contract. This will be included as the factor for subsequent contract renewals.

2) Guidelines for the development of professors under the KMUTT PSF
   (1) New professors must be able to demonstrate their competency according to the evaluation criteria (1), (2), and (3) under the KMUTT PSF as listed above.
   (2) The employment contracts of professors who have been officially employed since 1 October 2009 onwards and who have never received training for new academic

personnel (The New Academic Staff (NAS)) will be further renewed provided that they must be able to demonstrate their competency according to the evaluation criteria (2) and (3) under the KMUTT PSF as listed above within two years after the contract renewal.

Responsible persons/units :
- Faculty Development (FD) working group establishes the KMUTT Professional Standards Framework for teaching and supporting learning (KMUTT PSF).
- Sub-committee on Personnel Development sets guidelines for development under the KMUTT PSF framework.
- Human Resource Management Office and Educational Development and Services Office adopt the KMUTT PSF framework for practice. This should be clearly communicated and clarified so that deans of each faculty/institute/graduate school have an understanding of this framework and are able to explain it to professors in their department before practice.
- Center for Effective Learning and Teaching (CELT) supports the teaching and learning to generate effective learning outcomes, and develops training programs to enhance teaching competency for the achievement of learning outcomes. It also provides consultations to professors for the improvement and the management of teaching and learning under the principles of KMUTT Educational Reform.

Information Technology Policy

KMUTT has a management system that fully applies information technology to create ICT innovations in a professional manner to become a digital university. The operations are as follows:
1) The university has a vice president for the CIO position with the Computer Center as a secretary, who works closely with the CIO at the faculty level to develop a database system and IT structure that systematically supports all missions in the areas of teaching and learning, research, and management.
2) The e-Transformation has been created to lead the university to the full e-Deployment. The university changes its work from a private domain to a public domain. It has also transformed e-Learning into e-Front office and e-Back office, as well as provide an opportunity for stakeholders and communities to share their insights.
3) Single Original Source database has been made to develop networks of database and information technology for management. The KMUTT Data Warehouse has also been developed.
4) The university has developed a network and internet system to provide network connections anywhere, anytime, and anyplace.
5) KMUTT has developed its website to be a good, attractive, and up-to-date website.

Provision of Horizontal Wireless Network by Service Provider

ICT policy allows collective usage of the application by hiring an external wireless network service provider to provide service on the ground floor of every building to cover all educational areas and outdoor work areas.

KMUTT's Standard for Common Conference Rooms

The university has a guideline for the renovation of common conference rooms to be of the same standards. The standard for conference rooms in the Office of the President has been designed. The wireless information system and the system for electrical control equipment have been installed for centralized administration. The rooms are refurbished to facilitate the VDO conference system through Skype. The standard for conference rooms also takes functionality and user convenience into account.

Google Roadmap

Roadmap of Google Apps is the framework or guidelines for the application of Google Apps to generate benefits to support Google Classroom and administration as follows:

1) The Single Sign On has been made to facilitate access to KMUTT's application.
2) Active Directory has been installed and Google Calendar and Microsoft Calendar have been integrated.
3) Personal Portal has been created.
4) The utilization of Google Apps has been supported and followed up.

KMUTT- Integrated System for Research and Innovation Management (KIRIM)

Research and Innovation Management system (Converis) or KMUTT - Integrated System for Research and Innovation Management (KIRIM).

The Standard for the Replacement of IT Equipment

The university sets principles and standards for the replacement of equipment of IT infrastructure type that has been stored in CMDB database called CI (Configuration Item), which must be controlled to ensure the efficiency of the IT service.

Innovation Service

The university determines to create a working group for the creation of innovation service to take responsibility for monitoring changes in technology or tools.

Online Self Service / Service on Mobile / Customer Self Service on Mobile

The university offers services that are accessible from mobile devices or similar devices, such as information systems, to meet the requirements of the provision of IT service by the university under the principles of "Any time - Anywhere".

An online self-service is offered to service users in the form of Customer Self Service on Mobile that can be substituted for contacting staff in persons at various counters to facilitate services to be more convenient and fast.

ITIL Service

Services are provided under the standard for Information Technology Infrastructure Library (ITIL).

4I Policy

The goals of the service support group consist of

1) Infrastructure Service
2) Integrated Transaction Service
3) Information Services and
4) Innovation Service, which involves the development of innovations in the areas of service that results in quality work and collaboration

Dashboard Development

The system has been developed to show analysis data that can be retrieved by executives or relevant persons for decision making. The data are displayed in the form of graphs and various statistics in the areas of students and personnel, finance, and budgets.

Building and Facilities Management Policy

Policy on the Utilization of Building and Facilities of KMUTT

Physical Development Master Plan (4I+C)

KMUTT has created the Physical Development Master Plan to develop the campus to be an open space, to create a learning environment and social interaction, and to be a green university that has an educational park. The plan places value on the common area and the collective utilization of multi-purpose areas, while the design focuses primarily on convenient pathways.

- The university appoints the Area Master Plan Policy Committee (AMPC) which is responsible for the consideration of space utilization and the supervision of physical conditions of the university to ensure compliance with the master plan.

Design of the partition, decoration, refurbishment, or renovation of space for the utilization of internal area of buildings on all campuses

The construction, renovation, and addition of buildings and facilities at KMUTT allow for a modification and a merging of rooms in accordance with the standard for the space utilization of KMUTT, which has the following guidelines:

(1) The maximum benefit of the space utilization must be considered.

(2) The appropriateness in terms of hygiene and safety must be considered.

(3) Energy conservation must be considered.

(4) The tidiness and aesthetics of working spaces and good atmosphere must be considered.

(5) The flexibility in modifying utilization forms must be considered.

KMUTT Green & Sustainable Development Policy

Policy for the Transformation into a Sustainable Green University

Since 2003, the university has the commitment to be the environmental leader in all activities from its operations, teaching, and learning to research and development. The commitments include

1) To be an archetype of a green university in the areas of the system for safe environmental and energy development by working in collaboration with the community.

2) To produce quality graduates who can be the social change agent of the Thai society to support sustainable development

3) To strive for excellence under the TQM concept to continuously improve the system for safe environmental and energy management.

Green University Policy

Green University Policy has been reviewed under the KMUTT Educational Reform framework.

1) Plants should be grown on terraces of the Office of President Building and other buildings to increase green spaces, to reduce heat in the buildings, and to reduce the urban heat island effect

2) Green Society building should be built to promote collective learning and to create a green network.

3) The walking Campus concept should be adopted to reduce fuel consumption of cars and to reduce pollution on the university campus by creating vehicle access restrictions zones, by installing roofs over pathways to protect against sunlight and rain, and by designating sufficient parking spaces for cars, motorbikes and bikes in appropriate areas (to be operated in 2021).

Policies Related to Sustainable Green University

Policies that support Green University policy include the establishment of the Energy Environment Safety and Health (EESH) center, which is responsible for the development of a system for energy, environment, safety, and health management in accordance with international standards.

- The development and the increase of green spaces within the university
- The development of infrastructure and environment to facilitate learning on green
- The development of green building prototype within the university and the development of demonstration building of a green building
- The promotion of Green Landscaping development by making the Campus Master Plan
- Policy to establish a framework for green building or KMUTT Green Building Code
- The development of Green Curriculum

- Greenhouse gas emission reduction policy
- Policy for a smoke -free and drug –free campus environment
- Policy to reduce the use of paper and plastic on campus
- Bicycle and pedestrian policy on campus

Accountability & Commitment

Teamwork

ICT Literacy

Professionalism

English Literacy

Integrity

Communication

Continuous Improvement

Innovation

KMUTT Core Values

"Professionalism and Integrity"

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