Toward Engineering Educational Leader via Active and Sustainable International Research Collaboration

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ABSTRACT

New challenging ways toward leadership development have been formulated with an objective of sustainable growth of engineering education in not only domestic but also global level. Faculty of Engineering, CHULALONGKORN University has tried to establish challenging attitudes which are required for achievement of development of new generation of engineers with engineer excellence. It is an important issue that the outcome-based management would be undertaken to ensure sustainable development in collaborative research works. Moreover, mutual benefits among each stakeholder involving in the global engineering education will essentially play an important role in our brighter future.

Keywords : Engineering Education, Collaborative research, International Collaboration
Overview

Vision and Mission of CU
Vision, Mission and Core Value of F.Eng.
Present status of F.Eng.
Roadmap and Strategic Clusters toward Engineering Educational Leader

Summary

CHULALONGKORN UNIVERSITY

Established in the Year of 1917, by King Vajiravudh, (King Ram VI)

- 18 Faculties
- 3 Affiliated Institutions
- 3 Colleges
- 11 Institutes
- Totally 132 Departments

Vision and Mission of CU

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Faculty of Engineering
CHULALONGKORN University
## Present Status

<table>
<thead>
<tr>
<th>Degree</th>
<th>Faculty members (Last updated September 2005)</th>
<th>Students</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>%</td>
<td>amount</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>156</td>
<td>5</td>
<td>20,258</td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td>-</td>
<td>-</td>
<td>329</td>
</tr>
<tr>
<td>Master Degree</td>
<td>1,300</td>
<td>46</td>
<td>10,110</td>
</tr>
<tr>
<td>Higher graduate diploma</td>
<td>-</td>
<td>-</td>
<td>313</td>
</tr>
<tr>
<td>Doctoral Degree</td>
<td>1,376</td>
<td>49</td>
<td>1,450</td>
</tr>
<tr>
<td>Total</td>
<td>2,852</td>
<td>100</td>
<td>32,460</td>
</tr>
</tbody>
</table>

## The Century Policy of Chulalongkorn University
- To be a knowledge and reference resource
- To improve and develop Thai human resources to be a sustainable, internationally competent, and collaborative society
- To combine research works to academic works, concentrating in extending fundamental and applied knowledge

## Mission of Chulalongkorn University
- To produce internationally competent, and socially compatible students
- To develop moral and leadership
- To explore fundamental and advance knowledge beneficial to Thai society
- To transfer and apply available knowledge into public knowledge, making Thai an internationally sustainable society
- To conserve, and carry on the beauty of Thai Tradition and Culture
Vision, Mission and Core Value of F.Eng.

- Established on 1 June 1913, by King Vajiravudh (Rama VI)
- Merged into Chulalongkorn University in 1916
- Recognized as the ‘Faculty of Engineering’ under CU since then

Missions, Vision, and Values

- The faculty’s Vision is “Commitment to Engineering Excellence in Asia”
- Goal: “Commitment to the production of high-caliber graduates and academic excellence in Engineering”
Missions, Vision, and Values

Mission Statements
1. To produce world-class engineers, equipped with required skills and suitable for society
2. To instill ethics in its graduates to be responsible leaders of the society
3. To innovate engineering technologies and integrate various bodies of knowledge for the benefit of Thai society
4. To transfer knowledge to the public in an effort to improve Thai society, leading to self-sufficiency in the global community
5. To uphold and disseminate Thai arts and culture

Values: Core values “LEADERS”
- Leadership
- Excellence
- Accountability
- Discovery
- Ethics/team/happy
- Relevancy
- System (SOTUS)

Present status of F.Eng.
FACULTY OF ENGINEERING

Strategic Plans

• Stakeholder Perspective
  - Nationally and internationally accepted academic excellence
  - Student ability accepted at national level and corresponding to international standard

• Internal Process Perspective

• Learning and Growth Perspective
  - Research and teaching activities development
  - Proactive Public relations
  - Academic and extracurricular activity, enhancing student’s morality and ability

• International Process Perspective
  - Information system development
  - Physical system and supporting resource development
  - Support staff and faculty members development

• Learning and Growth Perspective

FACULTY OF ENGINEERING

Strategic Plans

- Financial Perspective
  - Revenue increase
  - Cost reduction

International Collaborations

- Massachusetts Institute of Technology (USA)
- University of Maryland, College Park (USA)
- Oregon State University (USA)
- Welding Institute SLEV Munich (Germany)
- Warsaw Univ. of Technology (Poland)
- Slovak Univ. of Technology (Slovak Republic)

Beijing University (China)
Tsing Hau University (China)
Univ. of Tokyo (Japan)
Tokyo Inst. of Tech. (Japan)
Saitama University (Japan)
Queensland Univ. (Australia)
Univ. of Canterbury (New Zealand)
Korea Science and Engineering Foundation (Korea)

Present Status

- 6 Centers of Excellence
- 23 Research Units
- 11 Professors
- 85 Assoc. Professors
- 84 Assist. Professors
- 127 Lecturers
- 180 Supporting Staffs
9090th Anniversary of Chulalongkorn University

Resources  Planning Niche Areas     National Agenda  Nation
Present 2 4               10...(year)

Increase in Quality of Life
Enhancement of National Competitiveness Focusing on S&T

Increase in GDP
Demand
Supply

Active and Sustainable International Research Collaboration
Mutual understanding with intensive communications among researchers in Clustered Strategic Research Fields
Responding to actual needs of society with focusing points on developing high-caliber engineering graduates with new challenging attitudes

Engineering Educational Leadership
Core Values: Leaders
Accountability
Ethical Business
Innovation
System (CORES)

World Kitchen  OTO Energy
- Infrastructure Engineering
- Automotive Engineering
- Informatics and System Engineering
- Process and Material Engineering
- Nanoengineering
- Energy and Environmental Eng.
Summary

Challenging attitudes are required for achievement of development of new generation of engineers with engineering excellence.

The outcome-based management would be undertaken to ensure sustainable development in collaborative research works.

Mutual benefits among each stakeholder involving in the global engineering education will essentially play an important role in our brighter future.

Acknowledgement

D.L. and T.C. gratefully acknowledge financial support from CU and F.Eng.,CU, respectively. Siriporn M. and Sira S. are acknowledged for preparing slide artworks.

THANK YOU FOR YOUR ATTENTION