



AFEO Midterm Meeting 2019

Engineering Education and Capacity Building, EIT

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30 April – 2 May 2019
The Centre Point Hotel Gadong,
Bandar Ser Begawan
Brunei Darussalam





Education System

Outcome-based

Active and lifelong learning

Updating and learning new technology

Engineering Disciplines Based on COE of Thailand

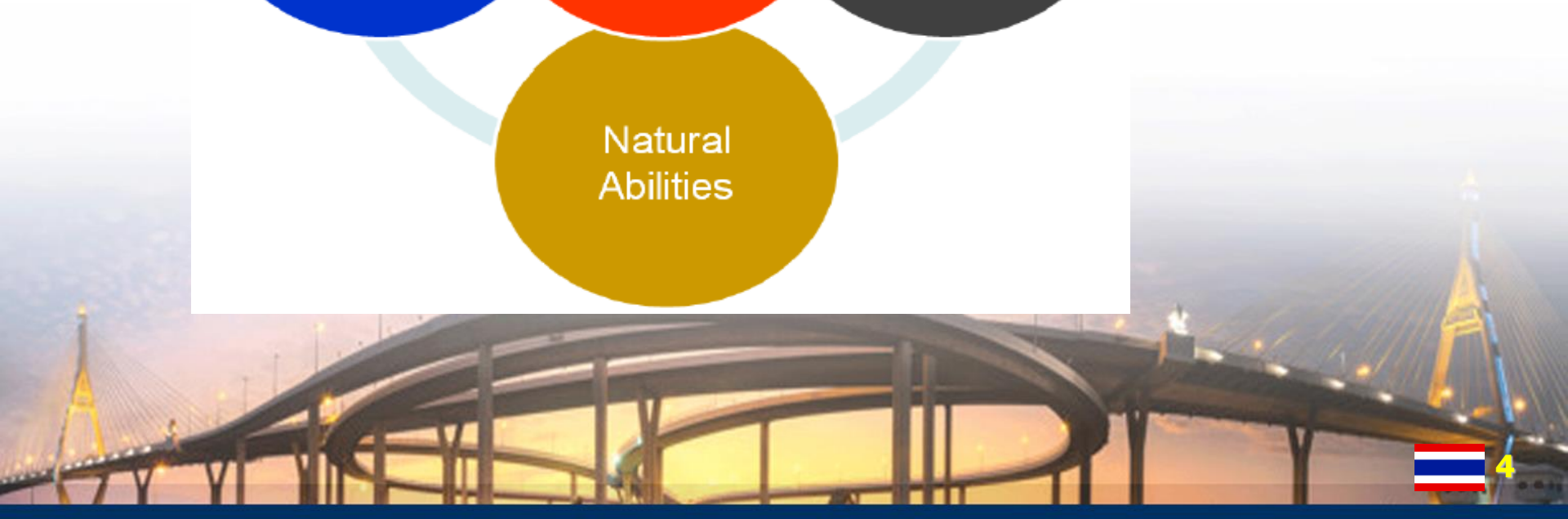
1. Civil Engineering
2. Mining Engineering
3. Mechanical Engineering
4. Electrical Engineering
5. Industrial Engineering
6. Chemical Engineering
7. Environmental Engineering
8. Aviation Engineering
9. Biomedical Engineering
10. Food Engineering
11. Agricultural Engineering
12. Building Services Engineering
13. Fire Protection Engineering
14. Information Engineering
15. Computer Engineering
16. Petroleum Engineering
17. Survey Engineering
18. Water Resources Engineering
19. Coastal Engineering
20. Mechatronics Engineering
21. Automotive Engineering
22. Naval Engineering
23. Energy Engineering
24. Railway Engineering

* 1-7 are Regulated Engineering Disciplines/Professions

Regulated by COE of Thailand

According to the Engineers Act B.E. 1999 (Section 4)

Engineering Education and Capacity Building



Top 10 skills

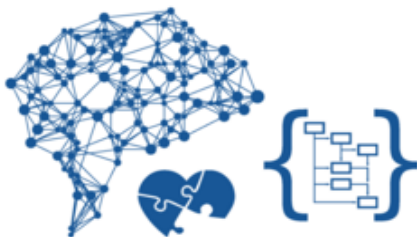
via Outcome-based Learning

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity



STEM Education

(Science, Technology, Engineering and Mathematics)

STEM Education

vs.

Traditional Education

Traditionally it has been the practice to teach the four **STEM** components more or less separately from one another.

By contrast, **STEM education** emphasizes an integrated approach that underscores the interrelationship of science, technology, engineering, and mathematics.

STEM education emphasizes student exploration and problem solving as opposed to rote learning.

Details to be Discussed in Sept. 2019



1. How to enhance capacity building with STEM
2. How education sectors are collaborated with industries via STEM?
3. How to implement capacity building/training programs in Big Data and Digitalization relating to
 - manufacturing processes
 - safety systems
 - robotics and automation
4. Work-Integrated Learning (WIL) Philosophy

10 S-Curve Industries of Thailand



S - curve

• First S- curve

1. Next – Generation Automotive
2. Smart Electronics
3. Affluent, Medical and Wellness Tourism
4. Agriculture and Biotechnology
5. Food for the Future

• New S- curve

1. Robotics
2. Aviation and Logistics
3. Biofuels and Bio-chemicals
4. Digital
5. Medical Hub

Key Transformations to Survive under the Crisis Prevailing in Higher Education



The five areas of transformations are listed below:

- **Education Transformation:** This enforces change on conventional classroom practice at which paradigm is shifted from focusing on teaching to learning. The instruction should prepare the students to be critical thinkers and capable for serving the clients' needs.
- **Research Transformation:** The future research should be responsive the objectives of the grantors and dimensions of the country's development. Group or interdisciplinary research that gather experts from different areas are preferable.

Key Transformations to Survive under the Crisis Prevailing in Higher Education (cont.)



- **Human Resource Management (HRM) Transformation:** Payment, welfares, benefits, career advancement, and staff empowerment will be amended.
- **Academic Service Transformation:** Academic administration is changed from corporate social responsibility (CSR) to creating shared value (CSV) system while consideration on how to benefit both academic providers and receivers is reconsidered.
- **Management Transformation:** There will be a removal of obsolete regulations while power decentralization and digital system.



Thank you

