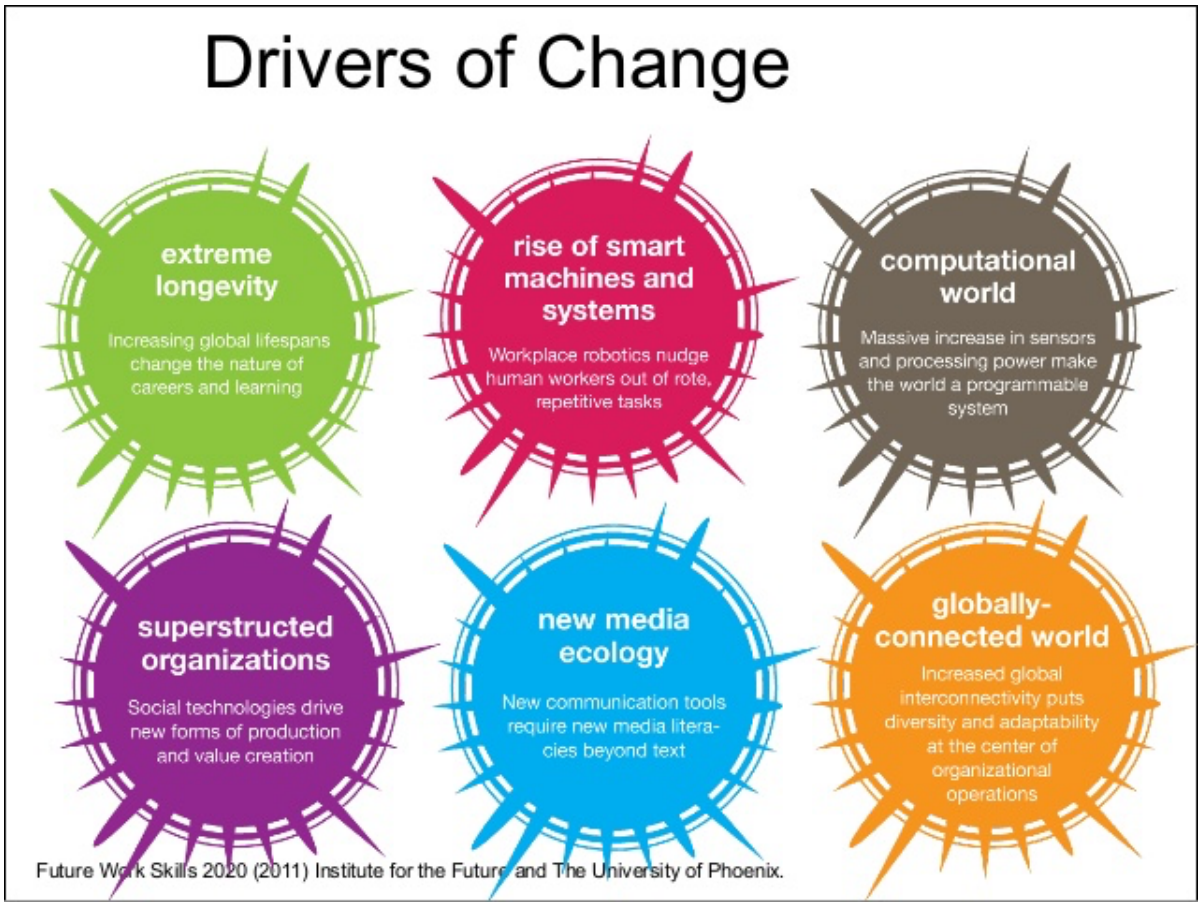
การพัฒนาหลักสูตรเพื่อตอบโจทย์การอุดมศึกษาในศตวรรษที่ 21

Compiled by:
Kamolwan Lueprasert



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many of jobs students will have don't even exist yet...

work as we know it is DEAD

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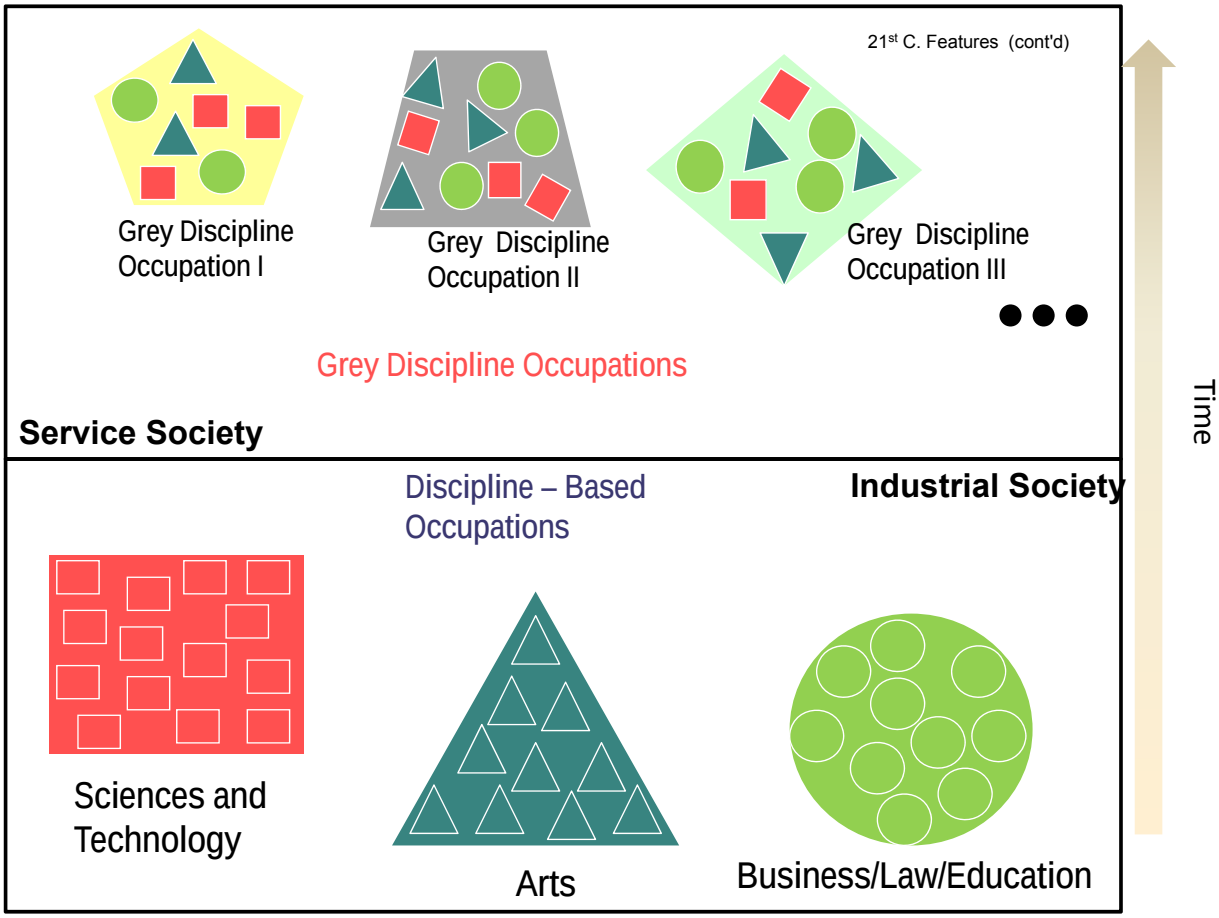

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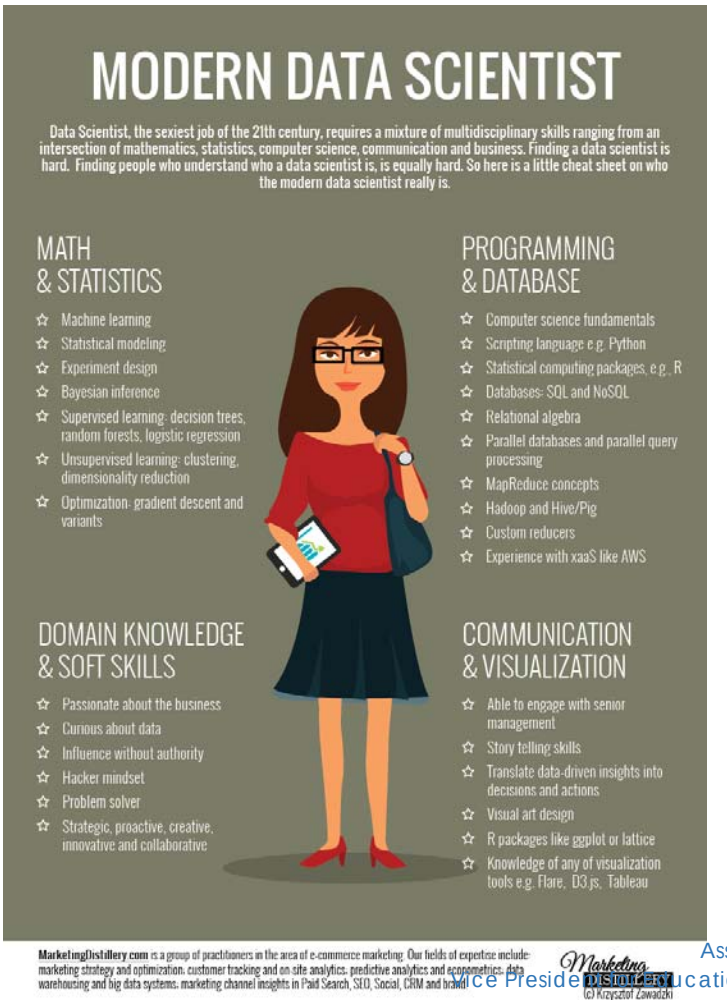

these jobs

didn't exist in 2005:

social media strategist
user experience specialist
telework manager
elder care coordinator
sustainability manager

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The Future of Work Beta v1

Connectivity
- Information availability
- Globalized access
- Mobile work

Machine capabilities
- Processing power
- Artificial Intelligence
- Spatial cognition
- Robotics

Modularization
- Unbundling
- Work fragmentation
- Specialization
- Distributed processes

Globalization
- Product
- Innovation
- Service

Remote work
- Telepresence
- Collaboration
- Virtual worlds
- Machine operation

Work marketplaces
- Participation
- Availability
- Pay pressure
- Access to expertise

Economy of individuals
- Independence
- Entrepreneurship
- Collaboration
- Reputation

Polarization of work
- Pay
- Opportunity
- Affiliation

UNDERLYING DRIVERS ▶ ECONOMIC STRUCTURE ▶ LABOR DISPLACEMENT ▶ EMERGING LANDSCAPE

Demographics
- Ageing
- Country divergence
- Migration
- Pension funding

Social expectations
- Opportunity
- Gender equity
- Flexibility
- Meaning
- Potential

Productivity
- Factor shifts
- Technology impact
- Capital efficiency
- Industry divergence

Value polarization
- Commoditization
- Expertise
- Innovation
- Relationships

Crowdsourcing
- Open innovation
- Labor pools
- Managed crowds
- Enhanced mechanisms

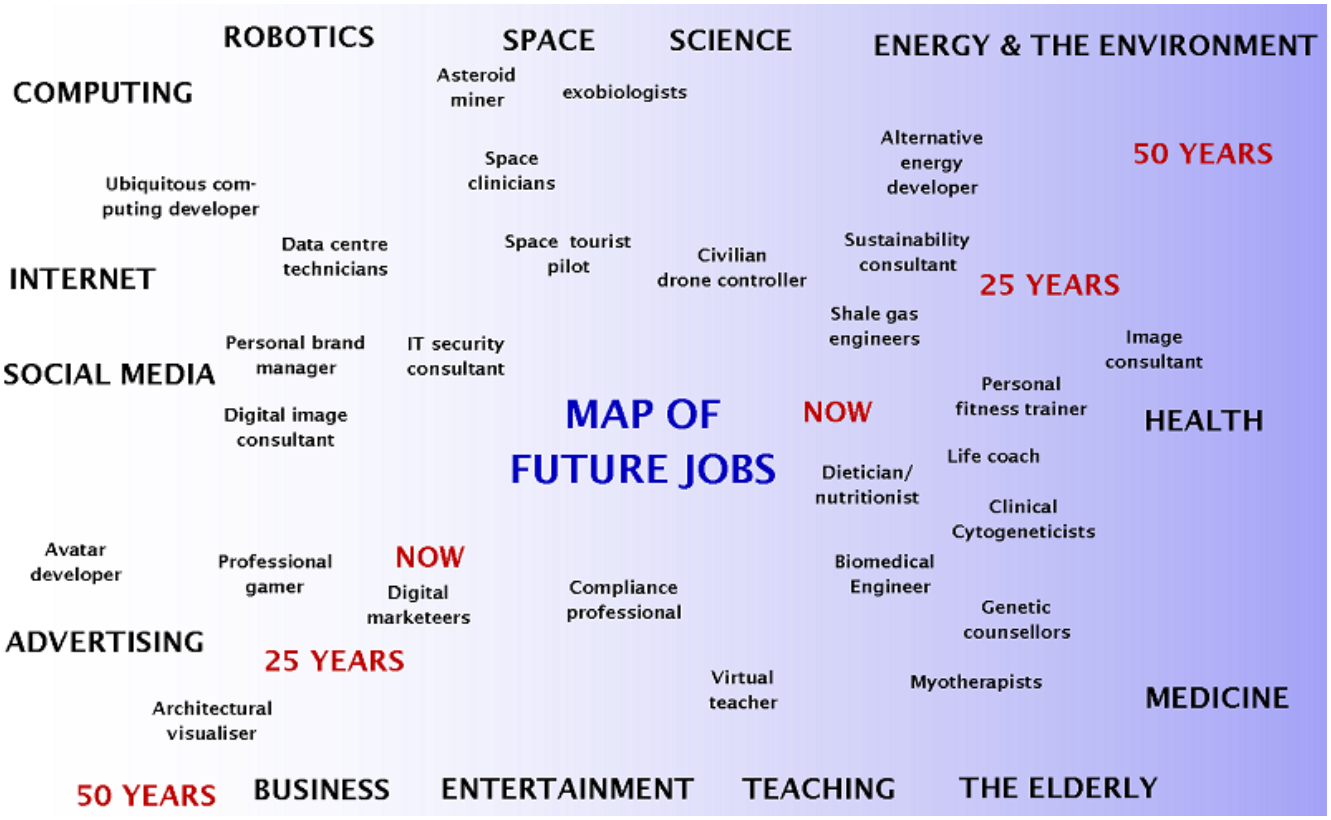
Worker replacement
- Automation
- Robots
- Service
- Judgment

High-performance organizations
- Internal markets
- Ad-hoc networks
- Social technologies
- Distributed value creation

Education
- Available
- Open
- Continuous
- Peer learning

FUTURE EXPLORATION NETWORK · Long-term strategy · Scenario planning · Thought leadership content — futureexploration.net

ROSSDAWSON · Futurist · Keynote speaker · Strategy advisor — rossdawson.com



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TEN SKILLS FOR THE FUTURE WORKFORCE

1 SENSE-MAKING

DEFINITION: *ability to determine the deeper meaning or significance of what is being expressed*

2 SOCIAL INTELLIGENCE

DEFINITION: *ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions*

3 NOVEL & ADAPTIVE THINKING

DEFINITION: *proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based*

4 CROSS-CULTURAL COMPETENCY

DEFINITION: *ability to operate in different cultural settings*

5 COMPUTATIONAL THINKING

DEFINITION: *ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning*

6 NEW-MEDIA LITERACY

DEFINITION: *ability to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication*

7 TRANSDISCIPLINARITY

DEFINITION: *literacy in and ability to understand concepts across multiple disciplines*

8 DESIGN MINDSET

DEFINITION: *ability to represent and develop tasks and work processes for desired outcomes*

9 COGNITIVE LOAD MANAGEMENT

DEFINITION: *ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques*

10 VIRTUAL COLLABORATION

DEFINITION: *ability to work productively, drive engagement, and demonstrate presence as a member of a virtual team.*

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วิกฤตอุดมศึกษาไทย

- ขณะที่ประเทศไทยมีสถาบันอุดมศึกษา ทั้งมหาวิทยาลัย วิทยาลัย สถาบันการศึกษา ทั้งของรัฐ ในกำกับรัฐและเอกชนมากถึง 170 แห่ง ตัวเลขการคัดเลือกบุคคลเข้าศึกษาต่อสถาบันอุดมศึกษาด้วยระบบกลาง หรือแอดมิชชั่น ประจำปีการศึกษา 2558 มีผู้สมัครทั้งสิ้น 1.24 แสนคน ในสถาบันอุดมศึกษาที่เปิดคัดเลือกผ่านระบบนี้รวม 87 สถาบัน เพื่อเข้าศึกษาใน 802 คณะ สาขาวิชา มีรหัสคณะ สาขาวิชาให้เลือกทั้งสิ้น 4,114 รหัส
- อย่างไรก็ดี ในปีที่ผ่านมามีผู้ผ่านการคัดเลือกมีสิทธิเข้าสอบสัมภาษณ์และตรวจร่างกายจำนวน 91,813 คน จากจำนวนที่ทุกสถาบันเปิดรับทั้งสิ้น 1.51 แสนคน ปีที่ผ่านมามีที่เรียนในสถาบันอุดมศึกษาเหลืออีกเกือบกว่า 3.3 หมื่นที่....
- อ่านต่อได้ที่ :
  http://www.posttoday.com/analysis/report/427241

นิสิต/นักศึกษา

จำนวนนิสิต/นักศึกษาใหม่ นักศึกษารวม บุคลากร ปีการศึกษา ๒๕๕๘ และผู้สำเร็จการศึกษา จำแนกตามประเภทสถาบันอุดมศึกษา และระดับการศึกษาปีการศึกษา ๒๕๕๗

ประเภทสถาบัน/รายสถาบัน	นักศึกษาใหม่	นักศึกษารวม	บุคลากร	ผู้สำเร็จการศึกษา
จำนวนรวม	๕๔๒,๙๙๕	๒,๐๒๕,๒๓๔	๑๘๙,๓๗๕	๓๑๕,๓๐๕
สถาบันอุดมศึกษาของรัฐ	๔๕๕,๒๖๙	๑,๗๓๘,๒๗๘	๑๖๕,๒๓๔	๒๕๗,๗๕๖
มหาวิทยาลัยของรัฐ	๔๙,๒๒๗	๑๙๙,๔๗๙	๔๐,๕๖๐	๖๔,๓๔๔
มหาวิทยาลัยเทคโนโลยีราชมงคล	๕๑,๓๒๐	๑๕๕,๕๗๗	๑๓,๒๙๑	๒๙,๓๒๕
มหาวิทยาลัยในกำกับของรัฐ	๑๒๖,๖๙๙	๔๖๗,๒๒๗	๗๒,๑๓๒	๕๗,๑๖๙
มหาวิทยาลัยรัฐไม่จำกัดรับ	๘๓,๗๘๒	๓๖๙,๑๘๓	๖,๖๐๙	๑๓,๘๐๖
มหาวิทยาลัยราชภัฏ	๑๓๘,๗๘๕	๕๓๔,๘๓๗	๓๑,๘๗๒	๘๘,๗๘๒
วิทยาลัยชุมชน	๕,๔๕๖	๑๑,๙๗๕	๗๗๐	๔,๓๓๙
สถาบันอุดมศึกษาเอกชน	๘๗,๗๒๖	๒๘๖,๙๕๖	๒๔,๑๔๑	๕๗,๕๔๐
มหาวิทยาลัยเอกชน	๗๓,๘๗๖	๒๔๓,๔๖๔	๒๐,๐๐๕	๔๗,๔๘๗
วิทยาลัยเอกชน	๗,๙๕๖	๒๖,๓๓๑	๒,๘๐๔	๘,๓๙๖
สถาบันเอกชน	๕,๘๙๔	๑๗,๑๖๑	๑,๓๓๒	๑,๖๕๗

สถิติอุดมศึกษา ปีการศึกษา 2558 ฉบับย่อ สำนักงานคณะกรรมการการอุดมศึกษา ข้อมูล นศ.ใหม่ ณ 11 กพ. 59

หลักสูตร

จำแนกตามประเภทสถาบันอุดมศึกษา และระดับการศึกษา ปีการศึกษา ๒๕๕๘

ประเภทสถาบัน	ระดับการศึกษา							
	ต่ำกว่า ป.ตรี	ปริญญาตรี	ป. บัณฑิต	ปริญญาโท	ป. บัณฑิตชั้นสูง	ปริญญาเอก	อื่นๆ	รวม
จำนวนหลักสูตร (รวม)	๓๗๖	๑๒,๕๗๐	๙๘	๔,๐๓๔	๑๐๙	๑,๖๓๙	๘	๑๘,๘๓๔
สถาบันอุดมศึกษาของรัฐ	๓๗๔	๑๐,๑๔๘	๖๕	๓,๔๖๐	๑๐๙	๑,๔๕๔	๖	๑๕,๖๑๖
มหาวิทยาลัยของรัฐ	๑๔๕	๑,๓๙๒	-	๖๒๐	๑	๓๒๐	๒	๒,๔๙๐
มหาวิทยาลัยเทคโนโลยีราชมงคล	๑๗๔	๑,๓๘๓	๔	๑๐๗	-	๑๑	-	๑,๖๗๙
มหาวิทยาลัยในกำกับของรัฐ	-	๒,๘๑๘	๒๓	๒,๑๖๔	๑๐๘	๙๗๒	๒	๖,๐๘๗
มหาวิทยาลัยรัฐไม่จำกัดรับ	-	๒๒๙	๔	๑๔๔	-	๔๕	-	๔๒๒

สถิติอุดมศึกษา ปีการศึกษา 2558 ฉบับย่อ สำนักงานคณะกรรมการการอุดมศึกษา

สถิติการได้งานทำ

ปีการศึกษา	ทำงานแล้ว	ทำงานแล้วและกำลังศึกษาต่อ	ยังไม่ได้ทำงานและมิได้ศึกษาต่อ	กำลังศึกษาต่อ	รวมทั้งหมด
2556	45,238 (72.49%)	2,631 (4.22%)	11,969 (19.18%)	2,565 (4.11%)	62,403
2557	69,490 (66.99%)	2,527 (2.44%)	26,047 (25.11%)	5,673 (5.47%)	103,737
2558	1,746 (66.21%)	37 (1.40%)	636 (24.12%)	218 (8.27%)	2,637

http://www.employ.mua.go.th/ on 28 April 2016

Is our higher education system effective enough to handle those situations...

?

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we need to **trans** our current system … **form**

outputs → **outcomes**

CONTENT → COMPETENCE

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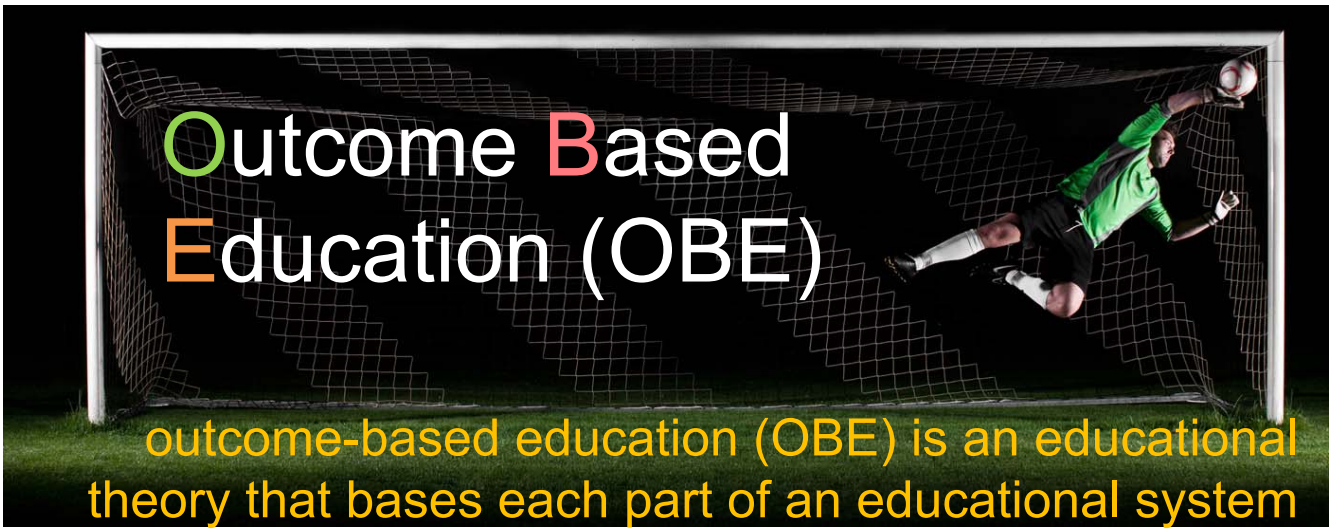

around goals (outcomes). By the end of the educational experience each student should have achieved the goal...

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clearly focusing and organizing EVERYTHING in an educational system on what is essential for all students to be able to do SUCCESSFULLY at the end of their learning experiences

Source: William G. Spady (1994) *Outcomes-based education: Critical Issues and Answers*. The American Association of School Administrators

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This means starting with a clear picture of what is important for students to be able to do, then ORGANIZING the curriculum, instruction and assessment to make sure this learning ultimately happens.

Source: William G. Spady (1994) *Outcomes-based education: Critical Issues and Answers*. The American Association of School Administrators

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OBE Education in terms of Quality

- Continuous improvement is embedded (on going assessment and support).
- Progress through mastery
- Demonstrate learning
- Focus on 'outcomes' not 'inputs'

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OBE embodies the idea that the best way to LEARN is to first determine what needs to be achieved...

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shift from ...

Teacher-centered paradigm

what the **teacher** expects students to know and be able to do (as a whole at the end of **instruction**...

Learner-centered paradigm

what **student** can actually DO at the end of **LEARNING** experiences/activities …

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shift from reflecting the

Accumulation of Course Credits

To reflect the Student Performance which is demonstrated at the end of learning process.

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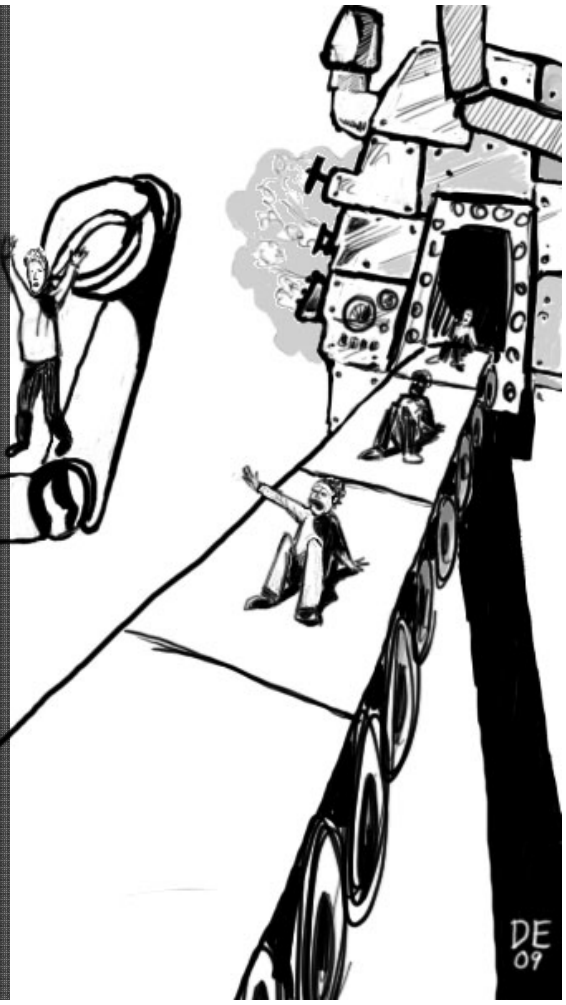
- How can we facilitate them to achieve it?
- How can we close the gap?
- How do we know whether our students have achieved it?
- How can we guarantee the quality of our students' learning ?

QUESTIONS to address:



Learning Outcome

OUTCOMES Clear learning results that learners have to demonstrate at the end of significant learning experiences: *what learners can actually do with what they know and have learned.*

OUTCOMES Actions/ performances that embody and reflect learner competence in using content, information, ideas and tools successfully.

OUTCOMES Describe the results of learning over a period of time – the results of what is learned versus what is taught.

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What do you want your students to learn? (what are the learning outcomes which you expect from the course?)

What assignments, classroom activities, and pedagogical approaches will help your students master the identified knowledge, skills, or attitude changes?

How will you determine that students have accomplished what you set out to teach them? (How will you evaluate their achievements?)

performance based

precise

achievable

specific

measurable

verifiable

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how to write learning outcomes ...

- Begin each learning outcome as an action verb, followed by object of the verb, followed by a phrase giving the context and/or how well ?
- Use only one verb per learning outcomes.
- The learning outcomes much be clear, precise, measurable, and observable.
- Ensure that learning outcomes are capable of being assessed.

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learning outcome Formula ...

(1) stem +
action verb +
content/skill/value

(2) active verb +
object +
qualifying

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stem – in future tense

+ *action verb*

+ Condition - optional

+ focus – indicating process, product or outcome of action

On the successful completion of this course, the student will be able to *present* persuasive written arguments based on research

On the successful completion of this course, the student will be able to *work with others* in the exploration of ideas and to *collectively negotiate* solutions to problems.

http://studylib.net/doc/7067937/doc-writing-course-learning-outcomes

Expected learning outcomes

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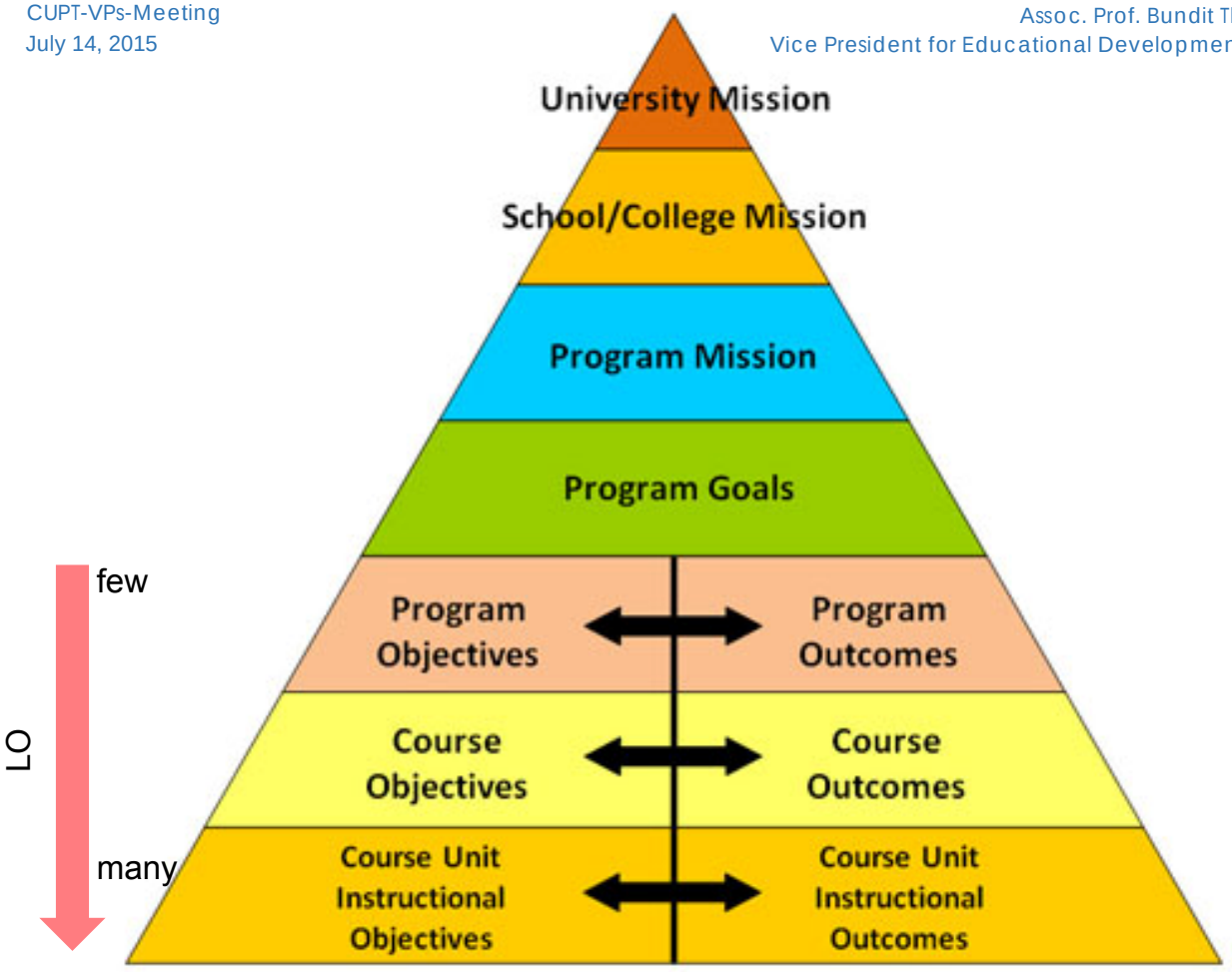

Elements of the Programme Specification

Trigger Questions:

Aims of the Programme

Process informed by:

What's the purpose of the programme?

Learning Outcomes of the Programme:
Competences (Professional and Generic)

University Level Descriptors

Professional/Statutory Bodies Requirements

Subject Benchmarks

What should students know and be able to do on completion?

Programme learning outcomes broken down by level to ensure incremental attainment over duration of course

Module Learning Outcomes

Module Assessment

Assessment Criteria

Outcome for Level Attained through:

Attainment verified by:

Grades awarded according to:

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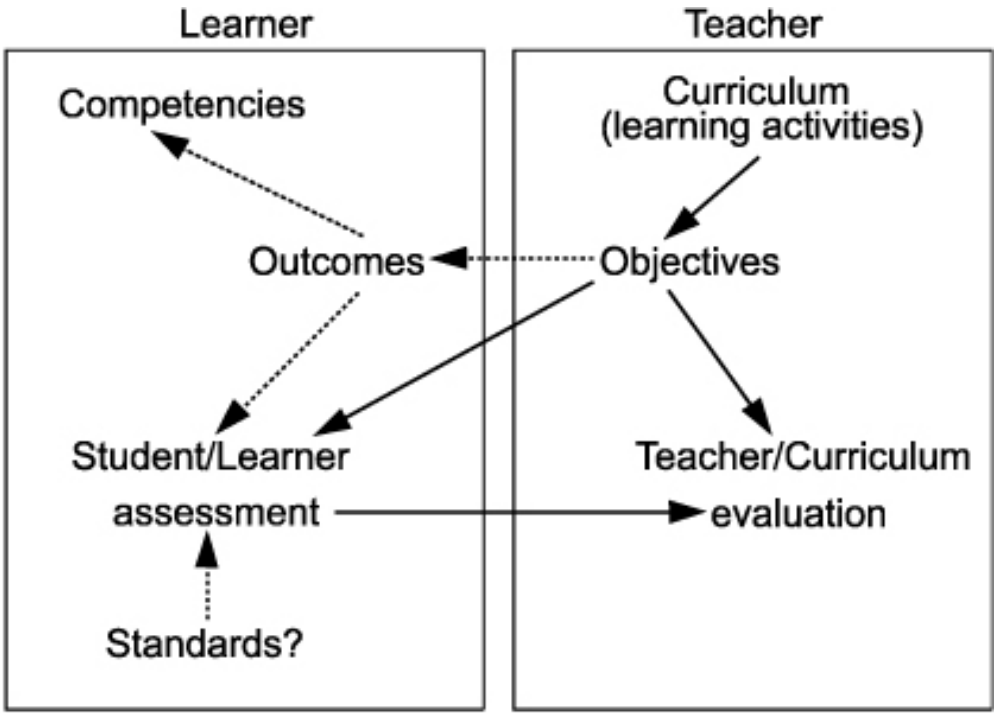

curriculum drives competencies

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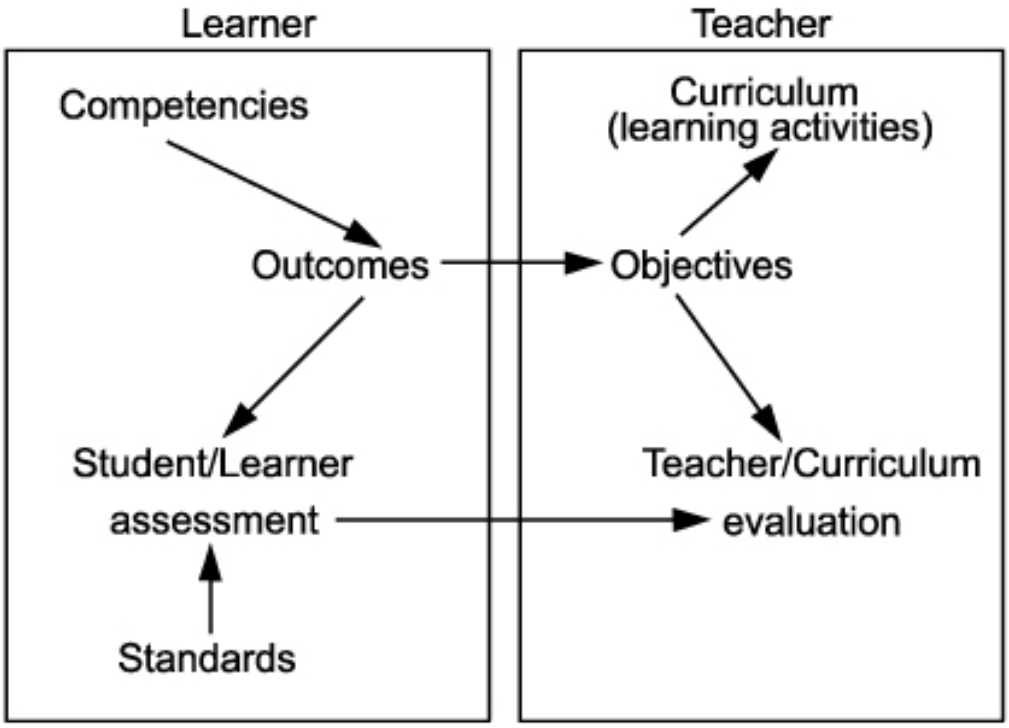

competencies drive curriculum

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Methodology for Competency-Based Curriculum Development

Phase 1: Outcomes Development		
Core Competencies		
Generic Competencies	Domain-Specific Competencies	
Phase 2: Learning Plans Development		
The "What" of Learning		
Knowledge	Skills	Attitudes
The "How" of Learning		
Learning Activities	Instructional Strategies	Materials & Resources
The "Evidence" of Learning		
Formative Assessments	Summative Assessment	

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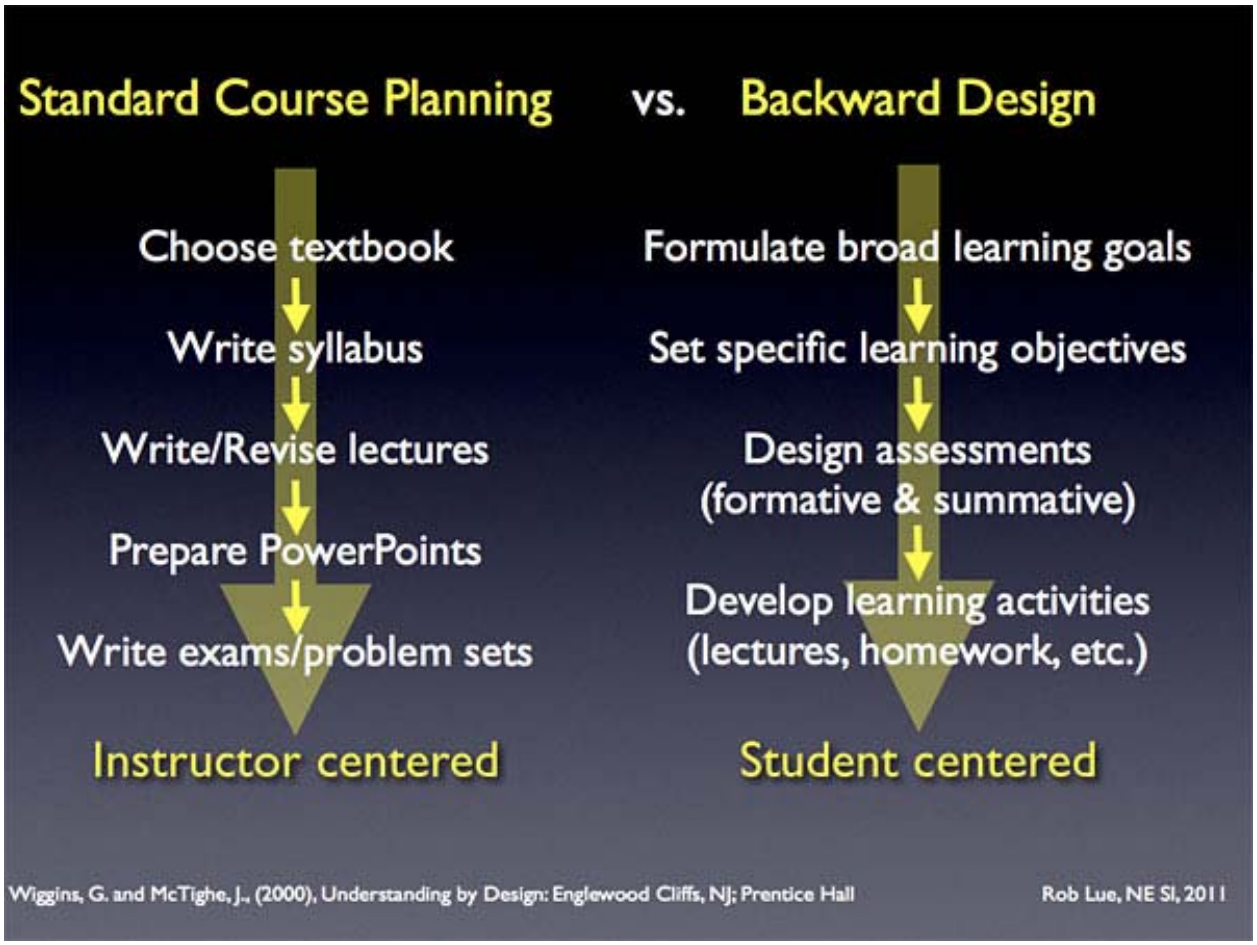

Student Learning Plan stats with expected learning outcomes

- what will students learn?
- to what degree will they learn?
- how will they acquire this learning?
- how will they demonstrate this learning?

where great teaching begins; A. R. Reeves

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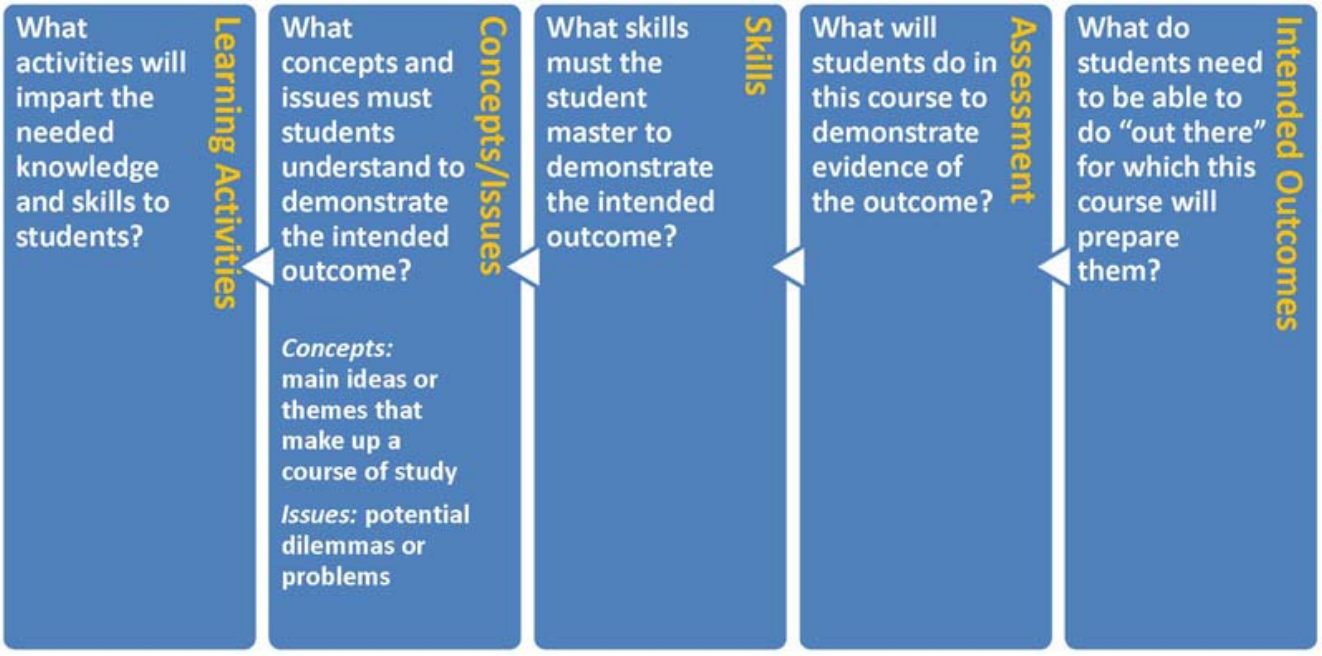
Learning outcomes should be SMART (TT)

- ☑ SPEAK TO THE LEARNER: learning outcomes should address what the learner will know or be able to do at the completion of the course
- ☑ MEASURABLE: learning outcomes must indicate how learning will be assessed
- ☑ APPLICABLE: learning outcomes should emphasize ways in which the learner is likely to use the knowledge or skills gained
- ☑ REALISTIC: all learners who complete the activity or course satisfactorily should be able to demonstrate the knowledge or skills addressed in the outcome
- ☑ TIME-BOUND: the learning outcome should set a deadline by which the knowledge or skills should be acquired;
- ☑ TRANSPARENT: should be easily understood by the learner; and
- ☑ TRANSFERABLE: should address knowledge and skills that will be used by the learner in a wide variety of contexts

The SMART(TT) method of goal setting is adapted from Blanchard, K., & Johnson, S. (1981). The one minute manager. New York: Harper Collins.



Learning Outcome Samples:

- Identify an educational theme and compare and contrast its application in American vs. European schools.
- Given a problem situation, determine whether it is a rate of change problem or a total change problem; use the Solve problems using calculus appropriate method to accurately solve the problem.

Learning Outcome Samples:

- Given two paintings - each from a different historical period - determine which period each is from, describe how imagery is used in each, and contrast how each reflects the cultural norms of the period. (Understand the power and meaning of imagery in our visual world, from current and historic sources.)

Learning Outcome Samples:

- Use the critical thinking rubric to provide three classmates with feedback on their Blackboard postings of anthropomorphic measurements of facial features.
  (Interact and learn from one another about issues related to problems facing communicatively challenged individuals.)

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ABET

Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multidisciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

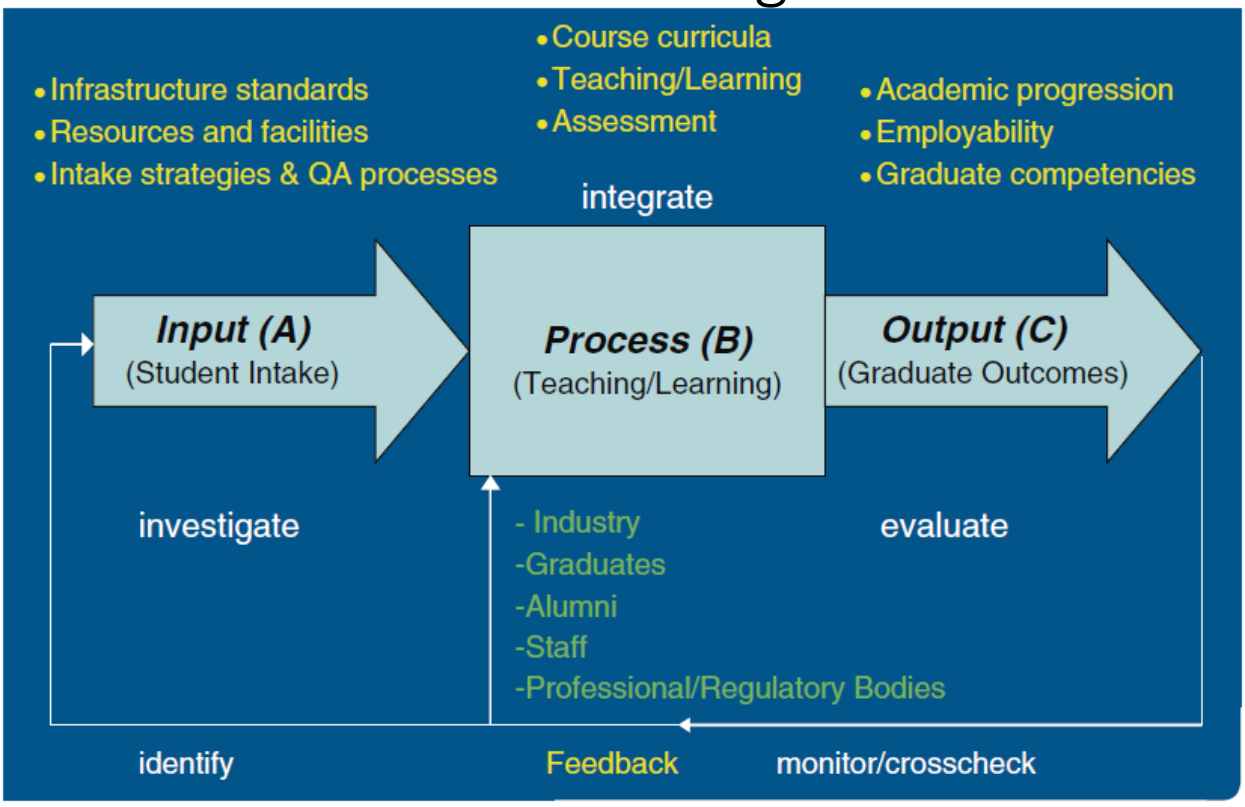
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Integrated and modular learning lesson plan…

CUPT-VPs-Meeting
July 14, 2015

Assoc. Prof. Bundit Thipakorn
Vice President for Educational Development, KMUTT

What influence learning outcomes?



Source: The Background of Quality Assurance in Higher Education and Engineering Education
by Peter J. Gray, Arun Patil, and Gary Codner

AUN-QA Models for Higher Education

Quality Assurance at Programme Level