



# **ENGINEER PROFESSION STUDY PROGRAM**

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**PII – Ins2tu2on of Indonesia Engineers**

**The 34th Conference of the ASEAN Federation of Engineering**

**Organizations (CAFE0 34)**

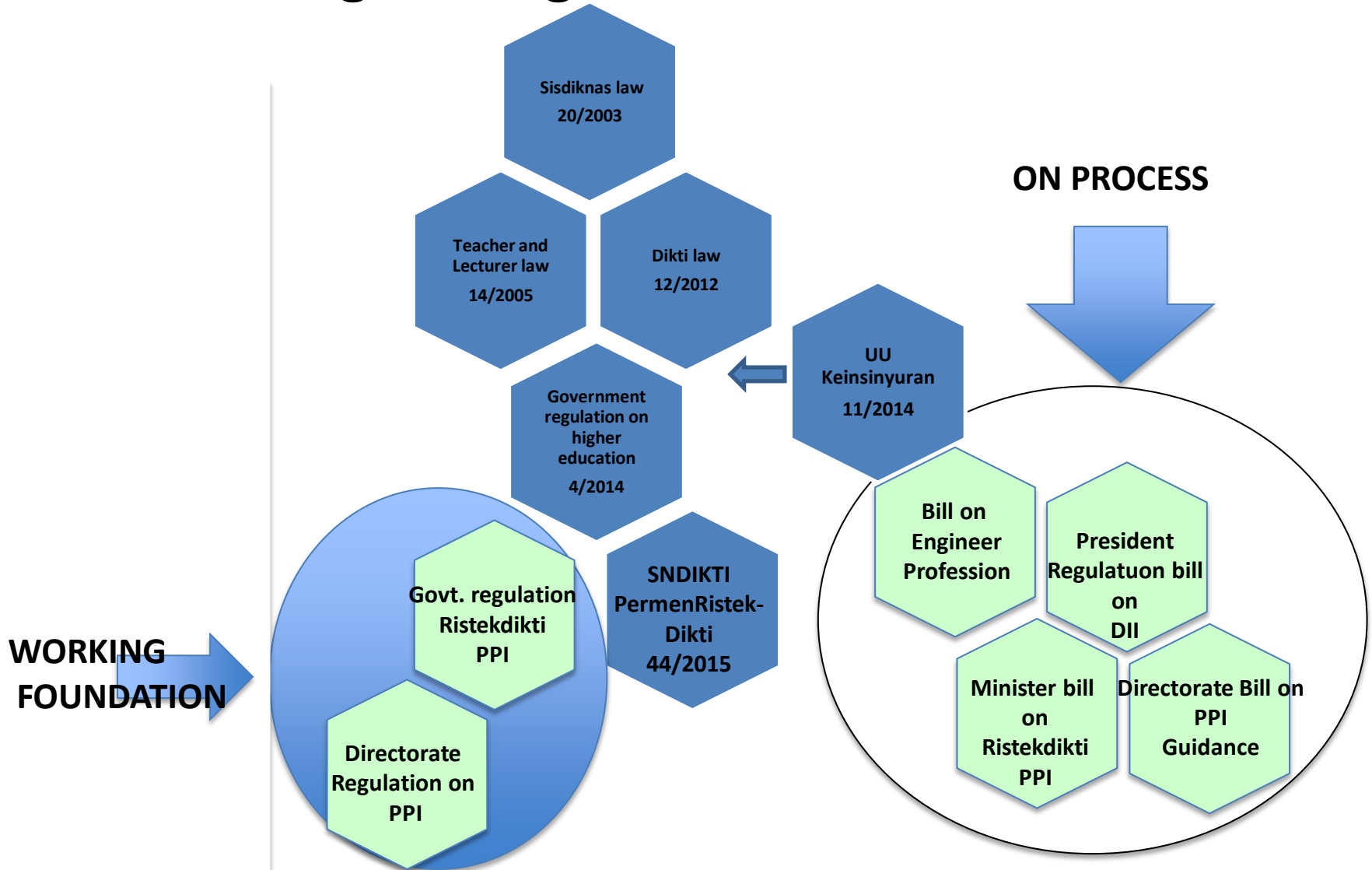
**Palawan, Philippines.**

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  - Understanding of Indonesian engineer profession study program

# **UNDERSTANDING THE INDONESIAN HIGHER EDUCATION**

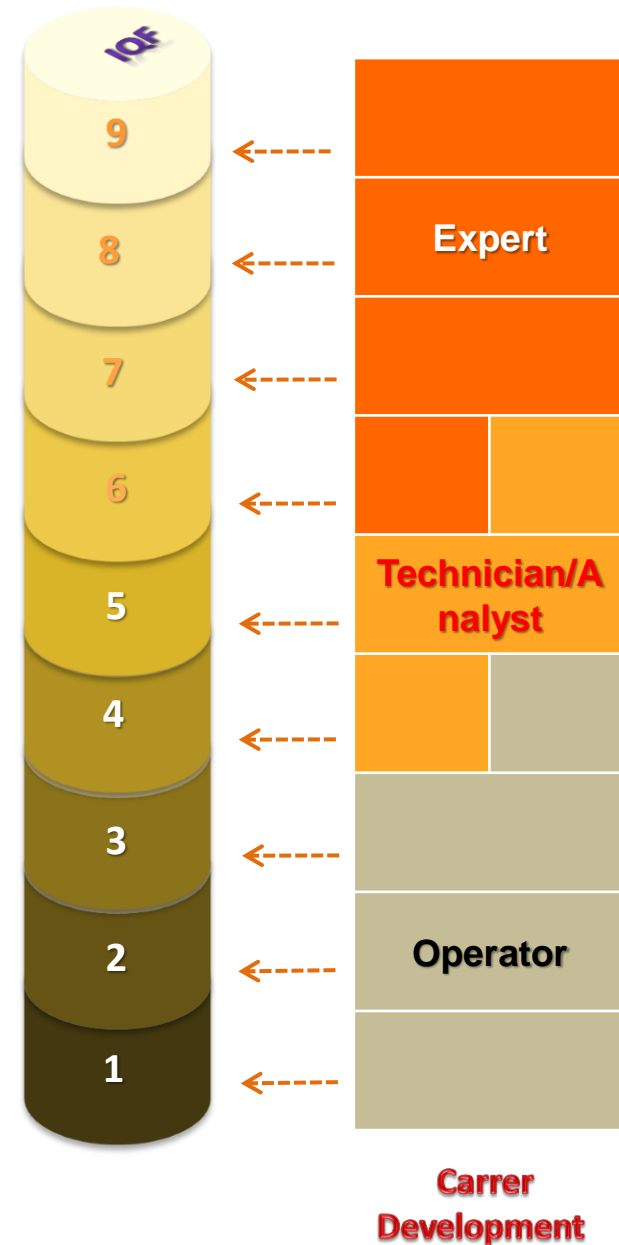
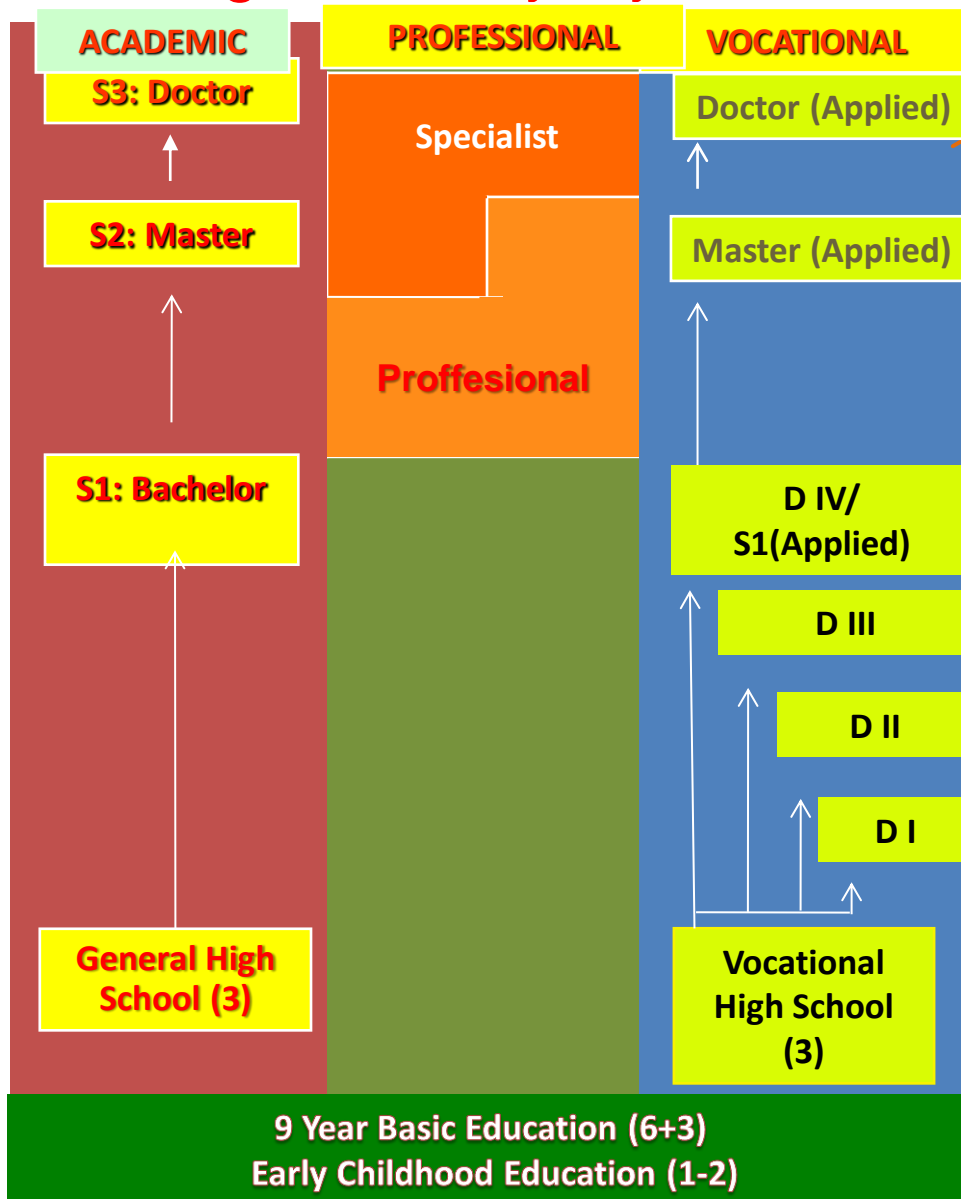
# Legal Foundation in Running Higher Education & Engineering Professional Education



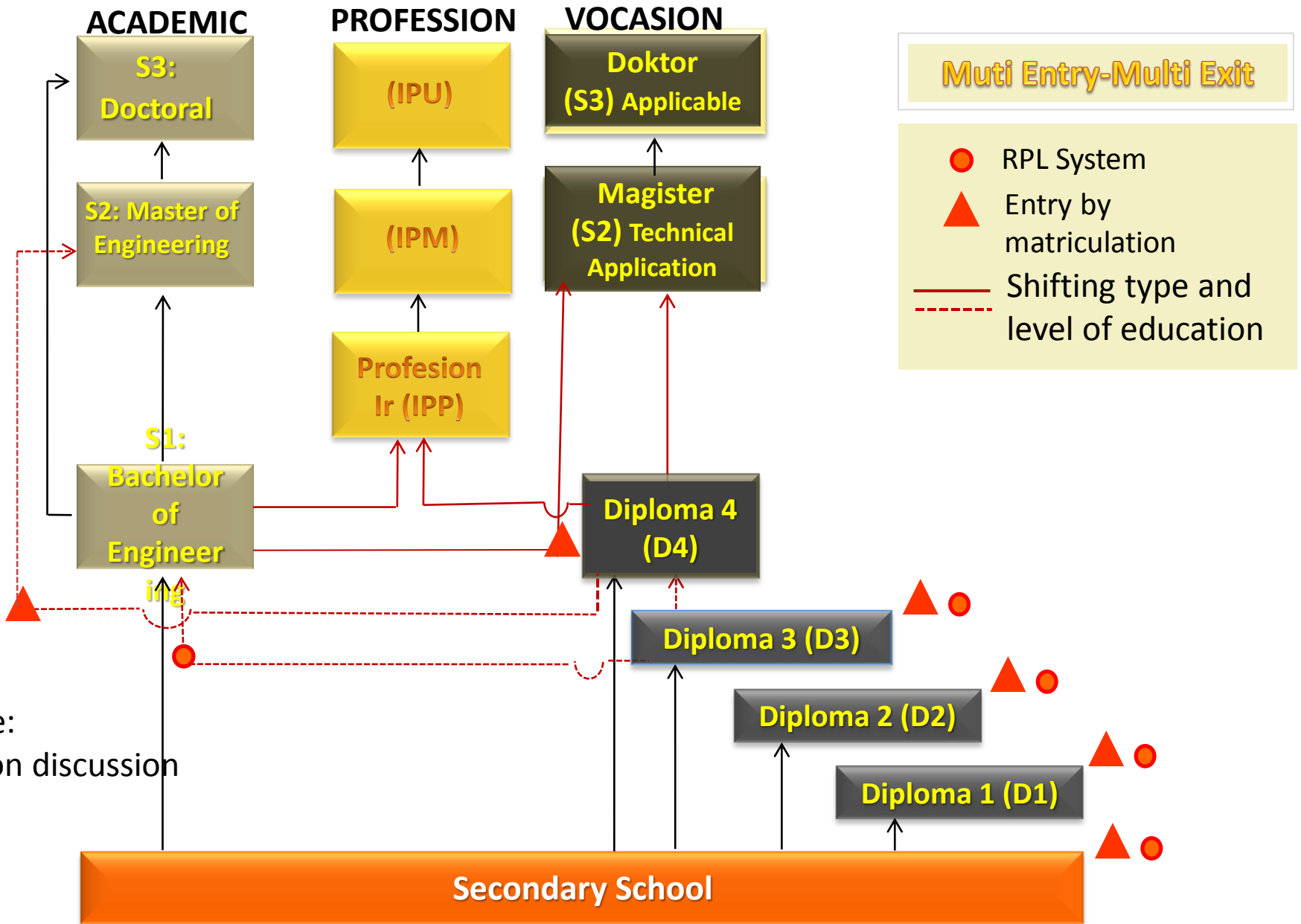
# Indonesian Qualification Framework

(PD 8/2012)

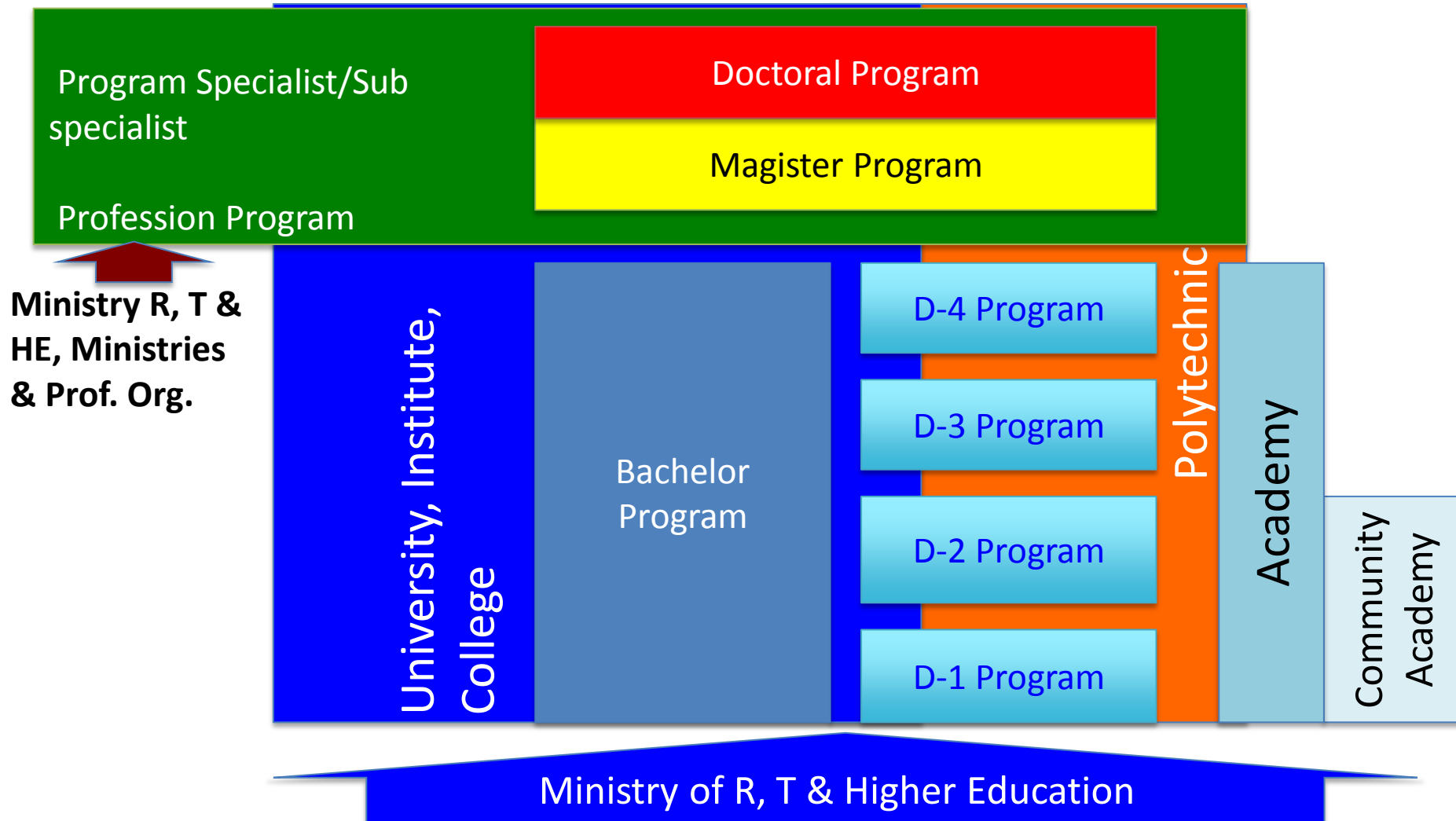
linking university – job market



# Arrangement of Professional Eng. Based on Academic and Vocational Education



# Type & Level of HE and University structure in Indonesia (EA 20/2003, art. 20 & HEA 12/2012, art. 16-32)

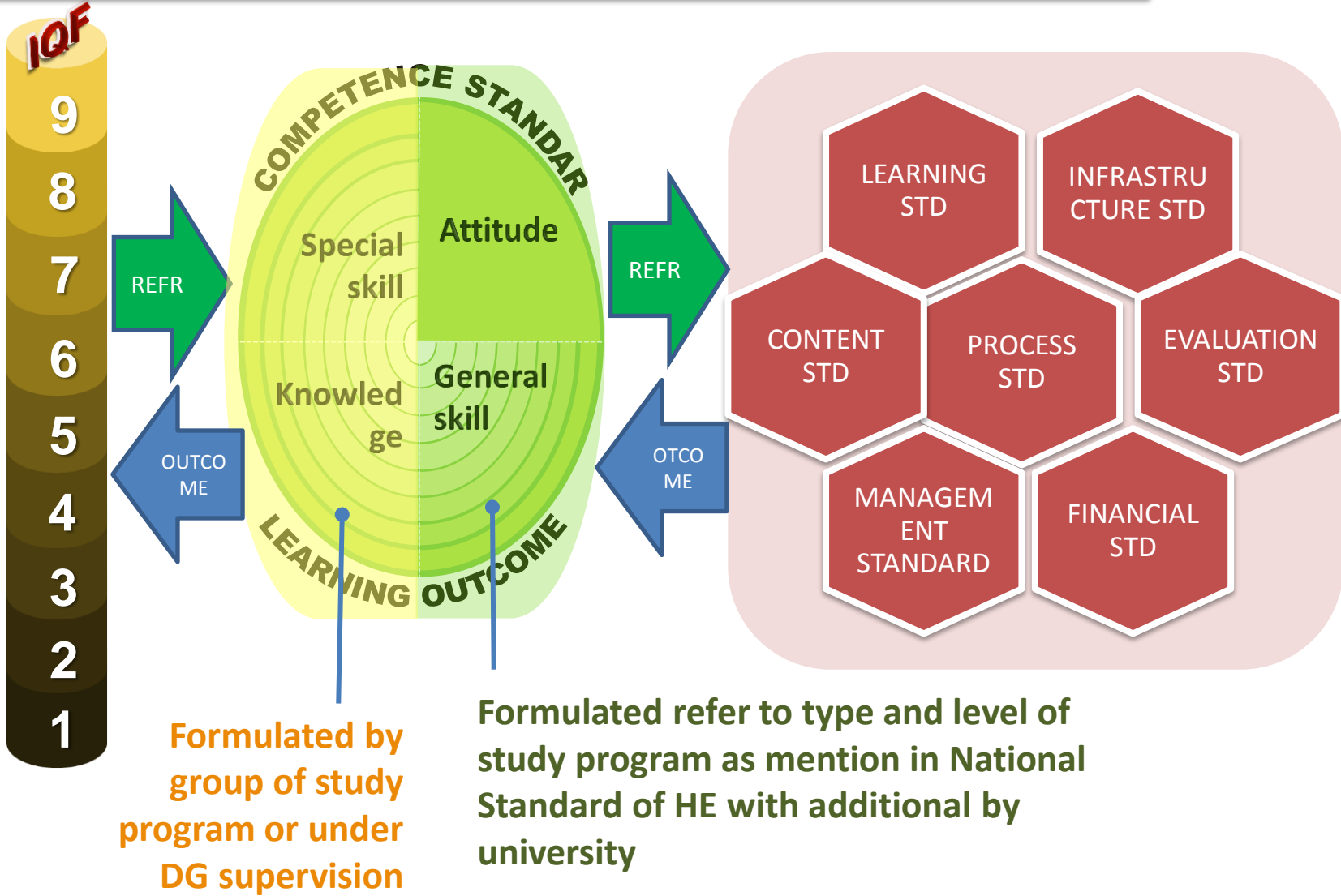


**NATIONAL STANDARD OF  
ENGINEERING UNDERGRADUATE  
EDUCATION**

# Arrangement of National Higher Education Standard (NHES)

CHAPTER I General provision	CHAPTER II Nat. Std. on Education	CHAPTER III Nat. Std. on Research	CHAPTER IV Nat. Std. on Com. Serv.	CHAPTER V Transitional provision	CHAPTER VI Closing
Definitions	Scope	Scope	Scope	Establishment of Coll. and the opening Study Program	
Components of NHES	Competency standards	Competency standards	Competency standards		
The objectives of NHES	Process standards	Process standards	Process standards	Formulation and specialized knowledge that has not been studied	
Obligation on NHES	Evaluation standards	Evaluation standards	Evaluation standards		
	Faculty and Staff standards	Faculty and Staff standards	Faculty and Staff standards	Management & organization of universities	
	Infrastructure standards	Infrastructure standards	Infrastructure standards	The past Ministerial decrees	
	Management standards	Management standards	Management standards		
	Financing and funding standards	Financing and funding standards	Financing and funding standards		

# 1. COMPETENCE STANDARD OF ENG. GRADUATE



## 2. CONTENT STANDARDS

PROGRAM	THE DEPTH & BREATH OF LEARNING MATERIALS		
D-1	Referring to learning outcomes of graduates	Utilizing the results of research and results of community service	
D-2			
D-3			
D-4 / S-1			Mastering the theoretical concepts on areas of knowledge and skills in general and special sections theoretical concepts in the field of knowledge and skills in depth on engineering.
S-2 / Sp-1			
Insinyur PROFESSION			Mastering the theory of the field of application knowledge and skills on engineering.
S-3/Sp-2			



**Outlined in the learning materials that are structured in the form of courses**

### 3. LEARNING PROCESS STANDARDS (STUDENT LEARNING LOAD)

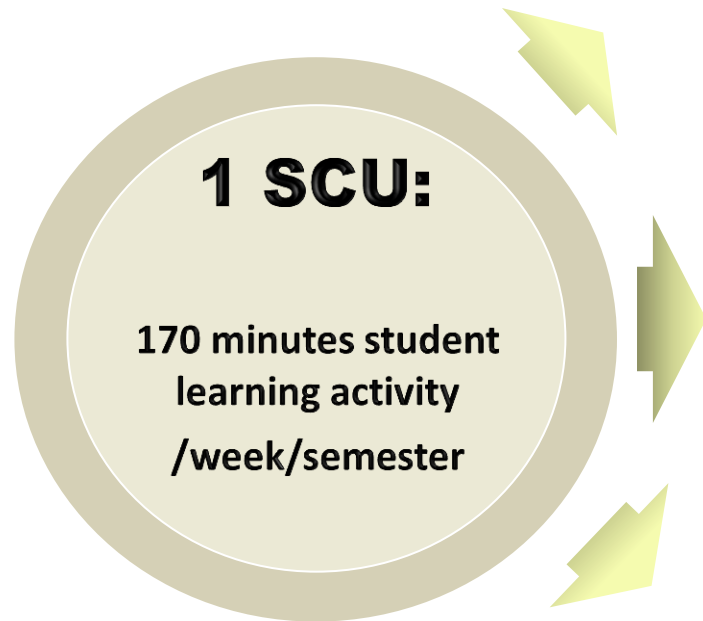
No	Program	Minimum learning load (scu)	Length of study (years)
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To fulfill the learning achievements of graduates of the program, students must take in the minimum load study and study period follows:

1	D1	36	1-2
2	D2	72	2-3
3	D3	108	3-4
4	D4/Bachelor	144	4-5
5	Ir. Profession	24	1-2 (after Bachelor of Engineering/ Bachelor of Technical Application)
6	Master, Mater of Technical Application, and Sp-1	36	1,5-4 (after Bachelor of Engineering/ Bachelor of Technical Application)
7	S-3, S-3 on Tech. application, & Sp-2	42	7

Load for student with high academic achievement after two semesters in the first year can be added up to 64 (sixty four) hours per week (equivalent to 24 (twenty four) credits per semester). Students with high academic achievement and the potential to produce highly innovative research as defined by university senate can follow doctoral program in conjunction with the completion of a master's program at least after a master program one (1) year.

# DEFINITION OF SEMESTER CREDIT UNIT (NHES-BACHELOR)



It could be designed as combination of these examples.



Contact hours  
50 minutes

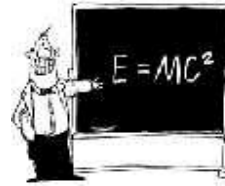


Structured activity:  
60 minutes



Independent activity:  
60 minutes

## LECTURE

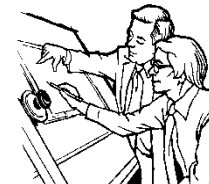


Contact hour: 100 minutes



Independent activity:  
70 minutes

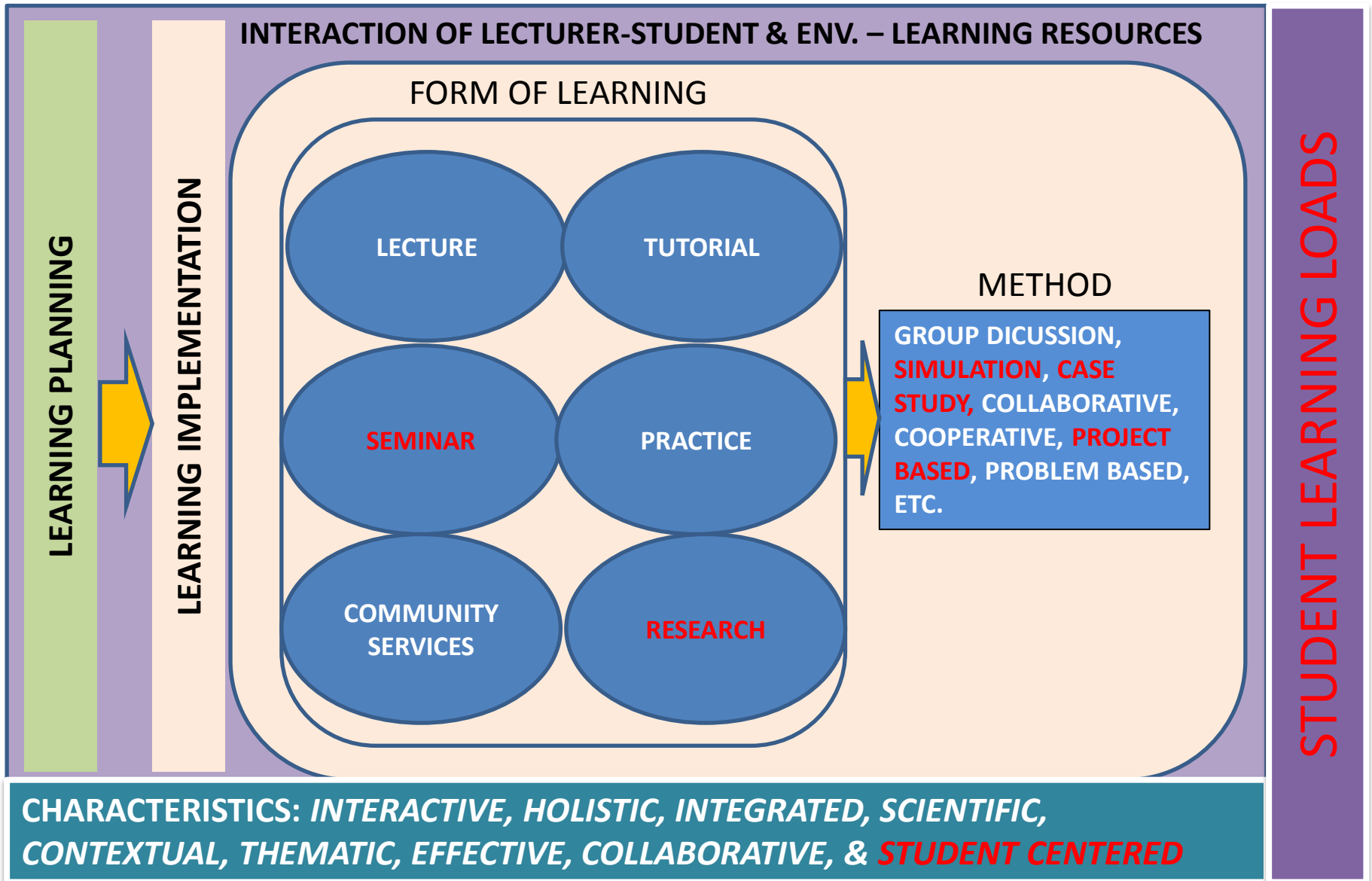
## TUTORIAL/ SEMINAR



Laboratory/studio/workshop activity: 170 minutes.

## PRACTICE/ STUDIO/ WORKSHOP

# 3. LEARNING PROCESS STANDARDS



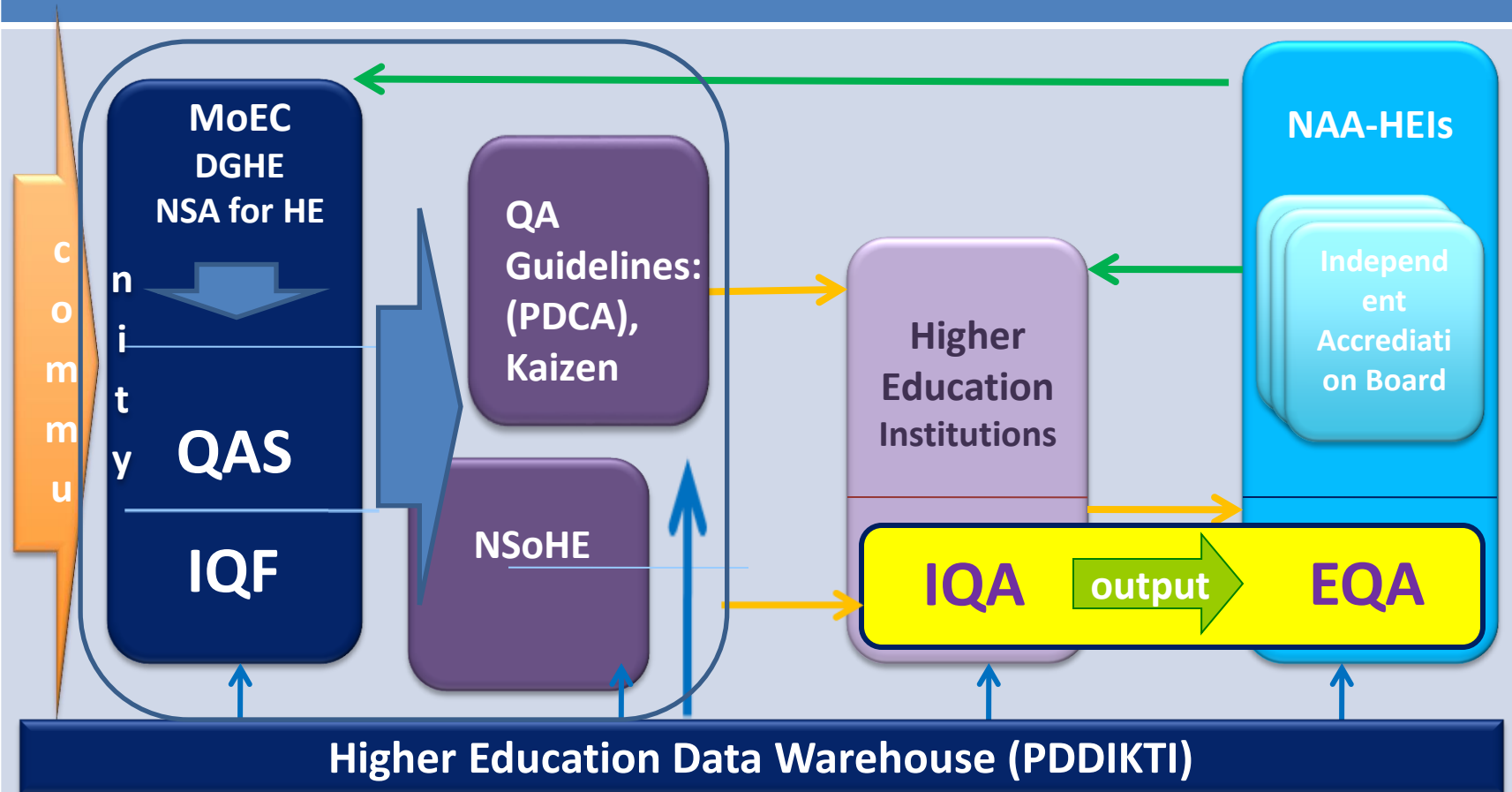
## 3 – 8 LEARNING STANDARDS

- 3. Learning process standards:** Student learning load, Planning, Interaction, Implementation and methodology.
- 4. Learning evaluation standards:** Planning, Problems and assignment, performance observation and feedback, grading and passing requirements.
- 5. Faculty and staff requirements for each level of program:** education qualification, competencies, health, ability and skill, working load, number of Faculty and Staff.
- 6. Infrastructure standards:** land, building, instrumentation, etc.
- 7. Management standards:** university, study program, etc.
- 8. Financing and funding standards:** policy, mechanism, SOP, investment, operation, accountability, etc.

# **INDONESIA THE QUALITY ASSURANCE SYSTEM**



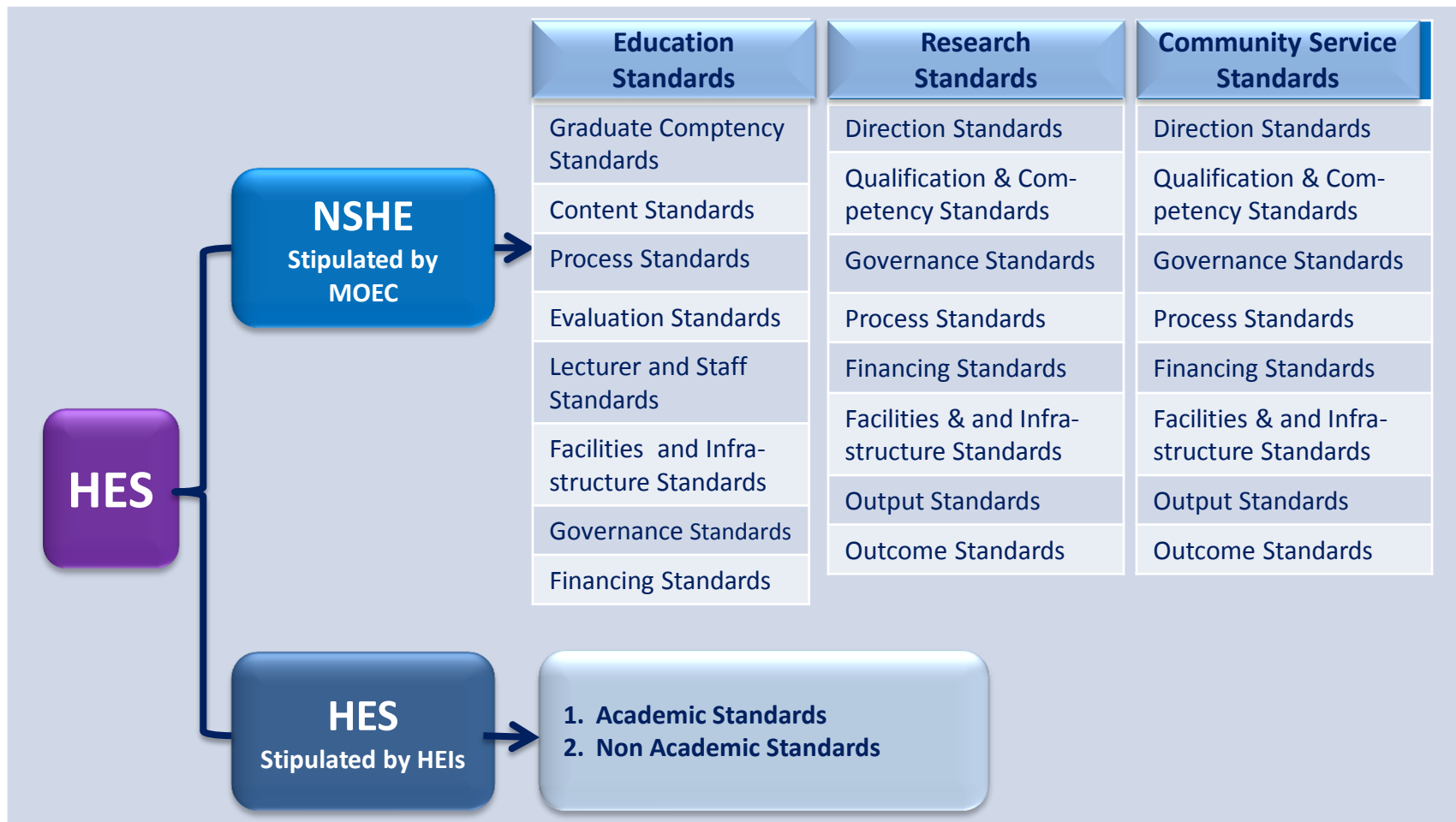
# Law no.12 – 2012 Part III regarding Quality Assurance System





# Higher Education Standards (HES)

Based on article 54 Act Nr. 12 / 2012 as to Higher Education

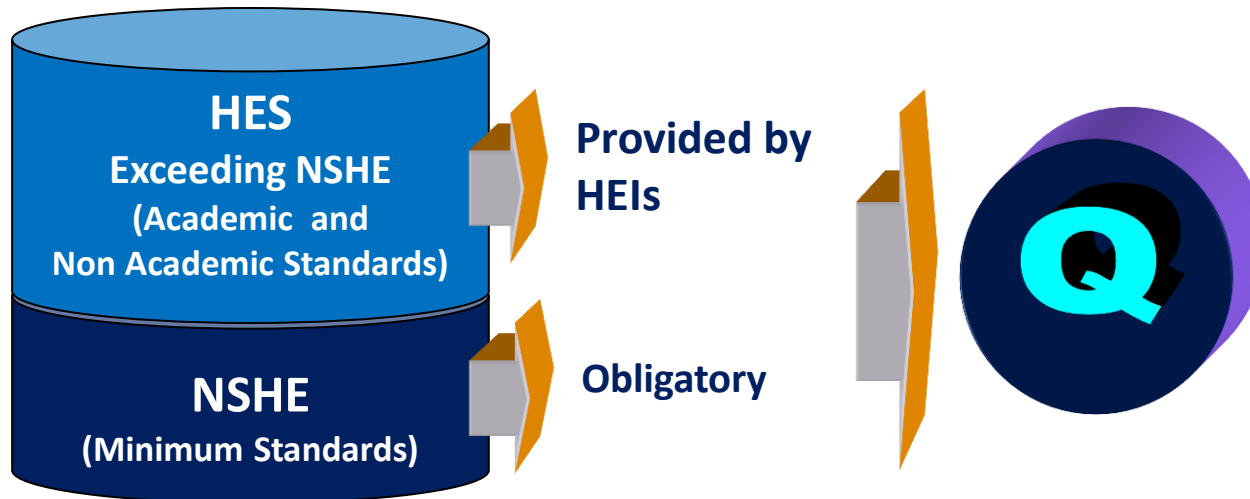




## Higher Education Standards (HES)

### Article 54 Act Nr. 12/2012 as to Higher Education

(4) The **Higher Education Standards stipulated by Higher Education Institution** consist of several standards in the **academic and non-academic** fields **exceeding** the **National Standards of Higher Education**.




















































# **ENGINEERING PROFESSION EDUCATION**

# The scope of engineering

## THE SCOPE OF ENGINEERING (Chap. III)

CAREER

Based on field (job) (Act.11/14 Ps. 5, a.2)

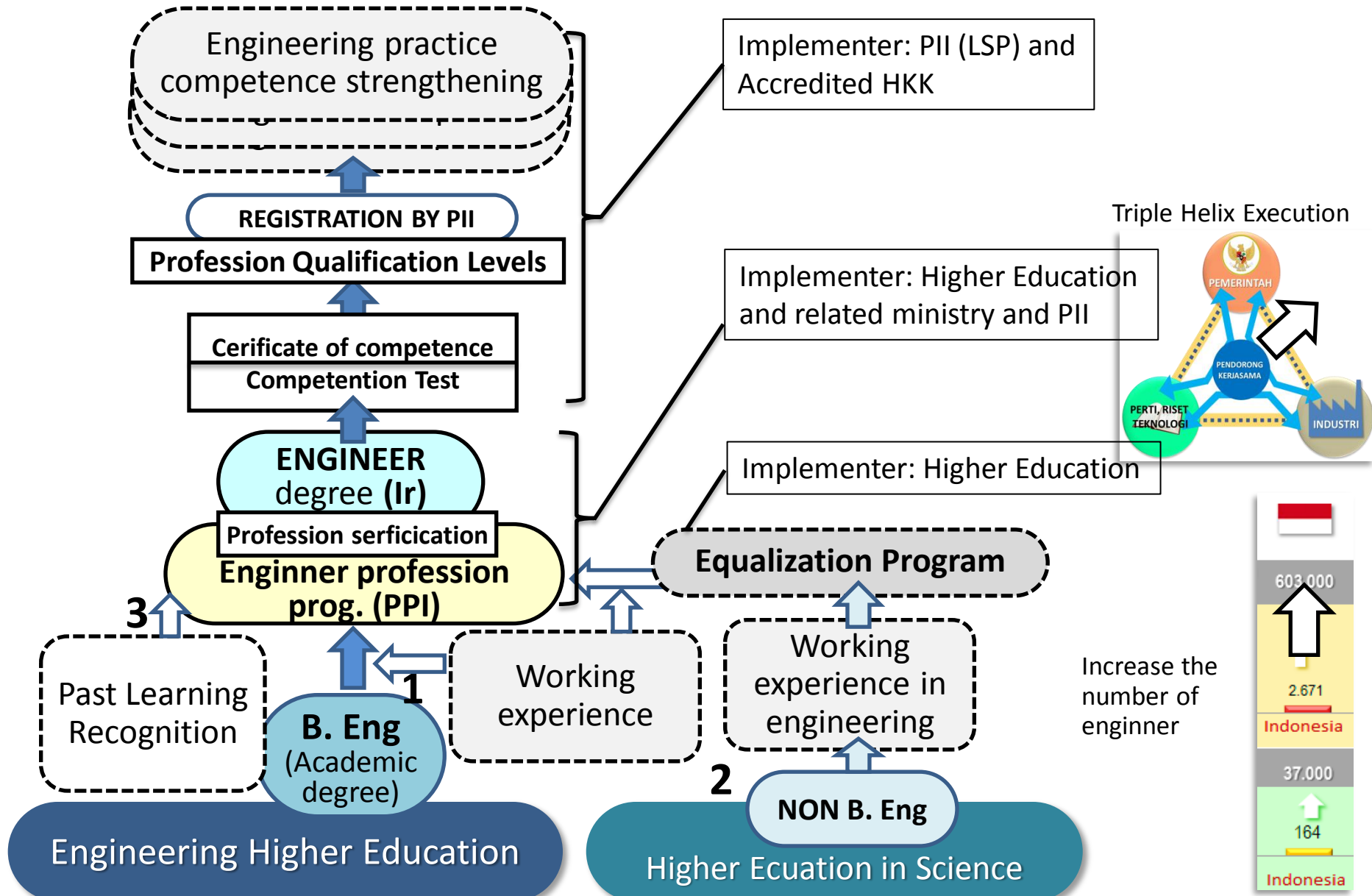
		A	B	C	D	E	F	G
		Education & Training	Research, development and commercialization	Consulting, Engineering and construction	Ind. Eng, Man., Manuf., Proc. Ind., Prod.	Resc. Explor & Explot .	Mining, Agr, Forest, Plantation	Develop, operation, asset maintenance
		Included all supporting services, and their network						
1	Earth & Energy							
2	Civil and Built Env.							
3	industry							
4	Conservation & Resc. management							
5	Agric & Agric Prod							
6	Marine techn & ship engineering							
7	Aeronautics an astronautics							

Scientific fields

Based on engineering diciplin (scientific grouping) (UU11/14 ps. 5 a.1)

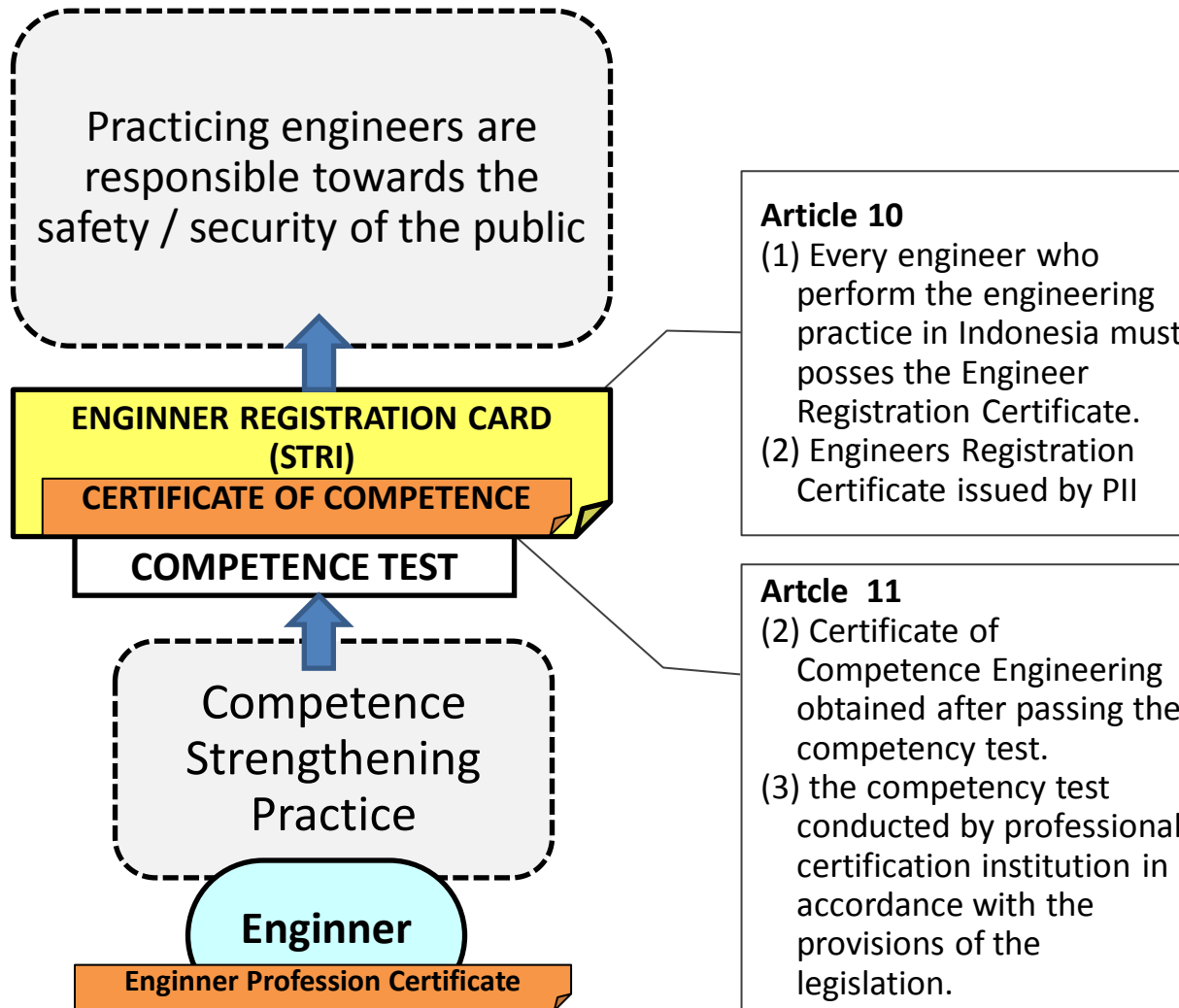
# ROAD MAP TO PROFESSIONAL ENGINEER

## ENGINEER PROFESSION PROGRAM (CHAPTER V & VI - CONSTITUTION NO 12/2012)

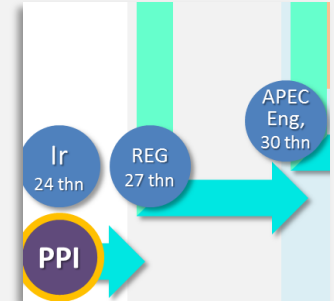


# PROFESSIONAL RESPONSIBILITY

## REGISTRATION (CHAPTER V - CONSTITUTION. 12/2012)



To facilitate of professional engineers



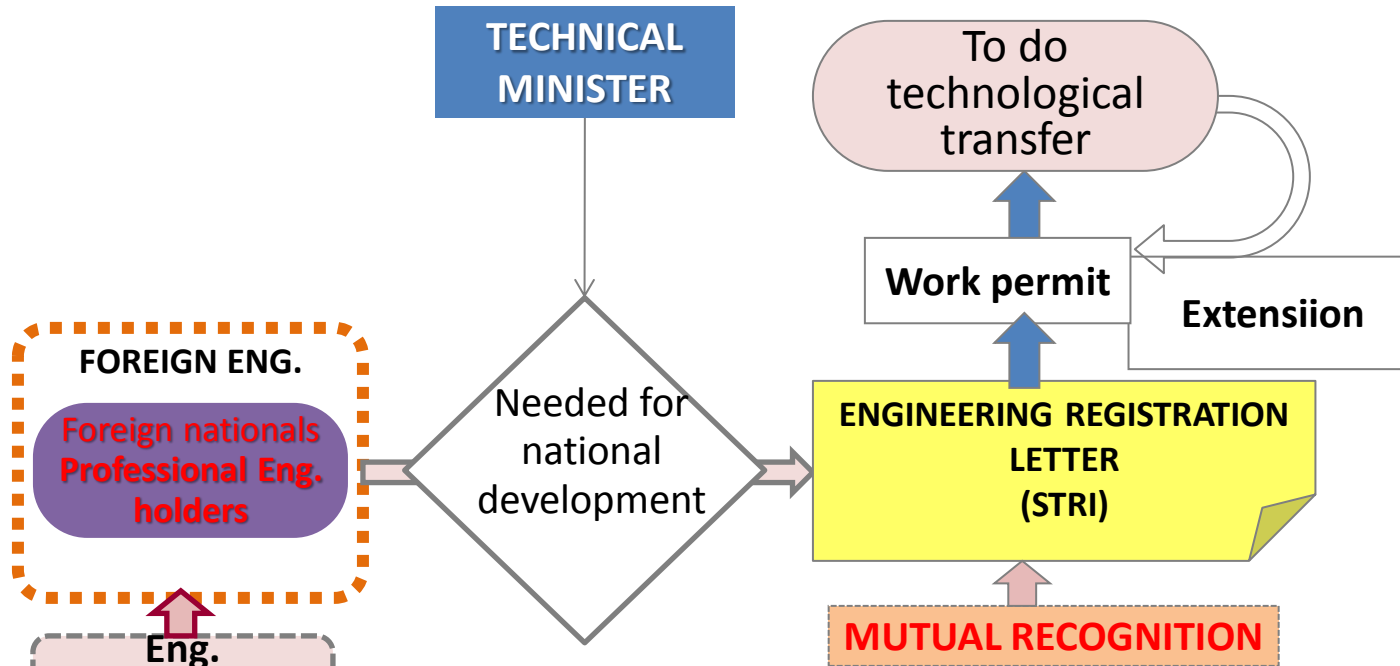
Avoid malpractice



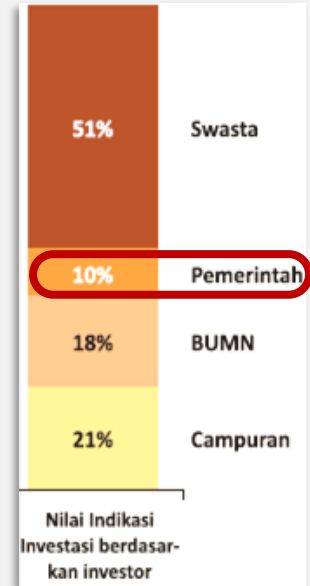
Avoid environmental pollution

# FOREIGN ENGINEER WORK PERMIT PROCESS

## FOREIGN ENGINEER (CHAPTER V – CONSTITUTION NO. 12/2012)



**ARTICLE 18**  
 (1) Foreign engineers can only perform engineering activities in Indonesia in accordance with the needs of human resources in science and technology national development set by the Government.



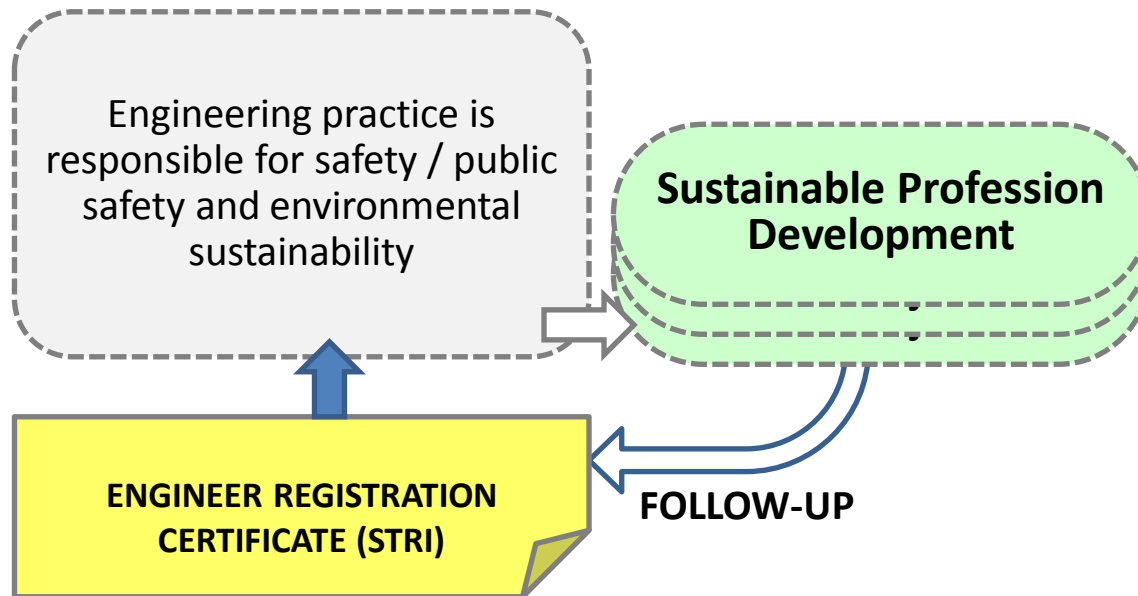
Foreign engineers to supply the shortage of engineers

# MAINTAINING THE ENGINEERING COMPETENCE

## SUSTAINABLE PROFESSION DEVELOPMENT (CHAP. V CONST NO. 12.2012)

Continuous professional development Objectives:

1. To maintain competency and professionalism and
2. To Develop a social responsibility towards the community.



# **3. PROGRAM**

# LEARNING OUTCOMES

## PROFESSIONAL ENGINEER PROGRAM

- Able to perform planning by utilizing the resources, and evaluate the process comprehensively by utilizing science and technology.
- Able to solve engineering problems through mono disciplinary or multidisciplinary approach.
- Able to perform engineering research and make decisions. In the accordance to professional ethics and standards of strategic and accountable engineering.

# PROFESSIONAL ENGINEER CURRICULUM

- Curriculum Studies Program of Professional Engineers is a learning system:
- Focuses on the implementation of the engineering profession
- The curriculum was prepared by the College by:

List of engineer obligations under Article 11/2014

1. ABET criteria on learning outcomes
2. Favor on the national interest
3. Insights in global engineering
4. Professionalism in engineering
5. Understanding of the Safety, Security, Health and Environmental Safety
6. Code of conduct and professional ethics
7. Mastery of planning and design practice
8. Understanding the resource utilization
9. Thought to conduct a comprehensive evaluation,
10. Multidisciplinary approach to problem solving
11. Posses the engineering researchers
12. Mastery in decision making process

# Credits, Learning Process and Duration

## **Semester Credit System consists of 24 credits:**

- More than 70% in the field or workplace with internship supervisor
- Maximum 30% face-to-face in the classroom with the supervisor

## **Learning process:**

- Independent tasks such as engineering case study reports
- The task group (Project / Problem Based Learning, Collaborative Based Learning, etc.)
- Writing project reports and presentations
- Proposal engineering activities
- Attended Seminar
- Duration: 1-2 semester

## **The evaluation is conducted to provide value in the form of:**

- Presence / Presence
- Exam
- Tasks
- And other forms of assessment

# Professional Engineer Materials

## Fundamentals of Program Materials Platform

- The applicability in basic science and engineering
- Ability to design and carry out research
- The ability of identify engineering components, systems or processes that takes into account in the economic, environmental, social, political, ethical, health, safety, manufacturing and sustainability.
- The ability to handle engineering problems
- The ability to collaborate between expertise
- Adherence to the code of conduct and professional ethics of engineers
- Social interaction and communication ability
- Understanding the environmental impact in regional and global scale
- Awareness and the ability to upgrade the knowledge
- Understanding in latest regional and global issues
- Engineering practice competence

# Description of Professional Engineer Materials

- Basic knowledge
- Basic competency in professionalism (ethics profession (health, safety, environment and welfare)
- Competence in practices & case studies
- Behavioral skills ("soft skills", which include: communication, teamwork, leadership, and management).

# SUBJECT MATERIALS (SUBJECTS)

- **Code of conduct and professional ethics of engineers (2 credits)**
- **Professionalism (2 credits)**
- **Safety, Health, and Safety and Environment (2 credits)**
- **Engineering practice (12 credits):**
  1. Philosophy in Industrial engineering
  2. The direction of industrial development and Status
  3. Industrial Systems (Engineering)
  4. engineering problems
  5. Tasks Resolve
  6. Writing engineering practice report
- **Case Studies (4 credits)**
- **Speakers at the Seminar, Workshop, Discussion (2 credits)**

# GRADUATION REQUIREMENT

- Have passed all of the courses in the engineering profession program

# REQUIREMENTS FOR PARTICIPANTS

## **General Terms:**

- healthy physical, spiritual, free from narcotics, psychotropic and addictive substances addiction;
- register to participate in the professional education of engineers
- Possess a degree in engineering; or a bachelor of applied engineering fields;
- or undergraduate education in engineering or science degree that has been acknowledge by minister of higher education.
- having work experience in the field of engineering for a minimum of 2 years;
- meets all other terms and conditions specified by program implementers in the college of engineering profession, among others: registration procedure, and the procedure of selection.

## **Special Terms for bachelor of engineering; or a bachelor of science:**

- have work experience in the engineering field at least three (3) years;
- who has done equalization program with a bachelor's degree in engineering or applied fields of engineering through education, training, and work experience in the field of engineering for at least 2 (two) years;
- Those who have work experience in the engineering field, proven by a written statement from each institution where the person is working or worked.

## **4. LECTURER/TEACHING STAFF**

# TEACHING STAFF

Teaching staff in the Professional Engineers Program is a person who:

- Possess at least a valid certificate of Professional Engineers (IPM) and internally recognized by the ACPE
- Posses the letter of assignment from relevant institutions, such as PII, college-related institutions, or related industries.

# **6. FUNDING AND FINANCING**

# FUNDING AND FINANCING

College/Universities must provide funds for the implementation of the PPI

Aside from the internal budget of the college/university, the PPI PS funding can also come from government source, in cooperation with other institutions (nationally or abroad), or from public funds (tuition fees) and industry.

Funding referred to in paragraph (2) is used to finance:

- PPI PS planning;
- Implementation of PPI PS;
- PPI PS control;
- Monitoring and evaluation of PPI PS;
- PPI PS management results report; and
- Funding and financing mechanisms PS PPI is governed by the provisions in the legislation.

# **7. EVALUATION**

# EVALUATION

- Internal Quality Assurance System implemented by each college.
- External Quality Assurance System implemented by authorized accreditation agency.

**THANK YOU**