

# Industry Master in a Nutshell

by *Gerrit Muller* University of South-Eastern Norway

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

## Abstract

When educating systems engineers, students need a practical reference framework that complements the theory. The Industry Master Model is using an approach that includes:

- the students work 50% at a partner company during their study
- a didactic model that ensures deep learning and student-active learning
- industry-as-laboratory master project
- the course "Reflective Practices" running over 3 years
- networks and agreements between the university, partner companies and students

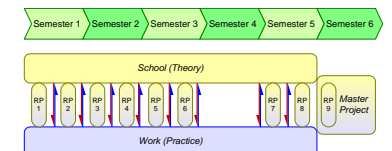
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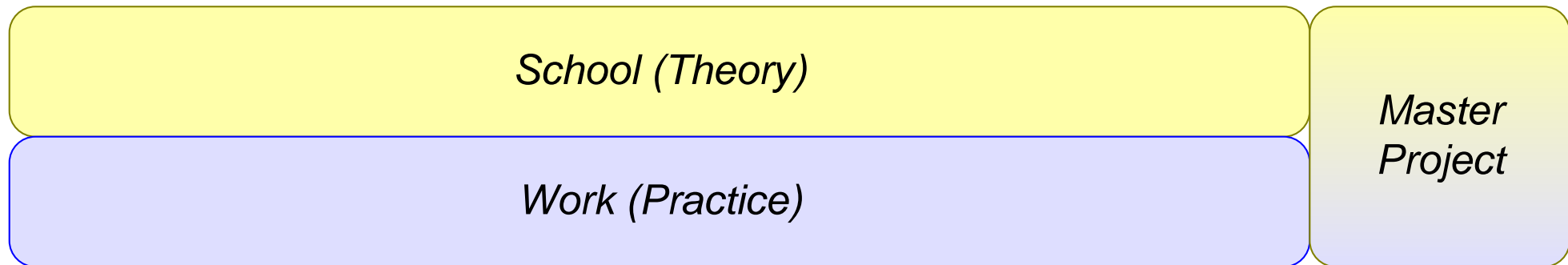
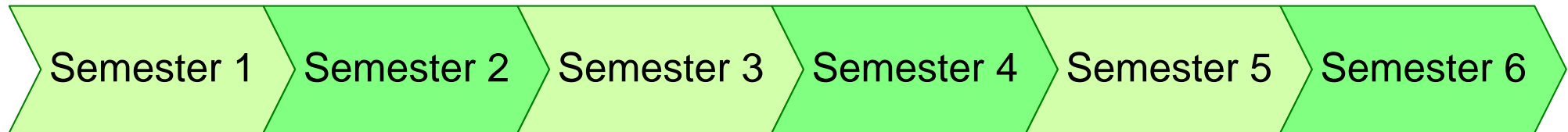


The objective of the industry master in systems engineering is to **accelerate** the **competence development** of new systems engineers, from e.g. 10..20 years in the past to 5..10 years.

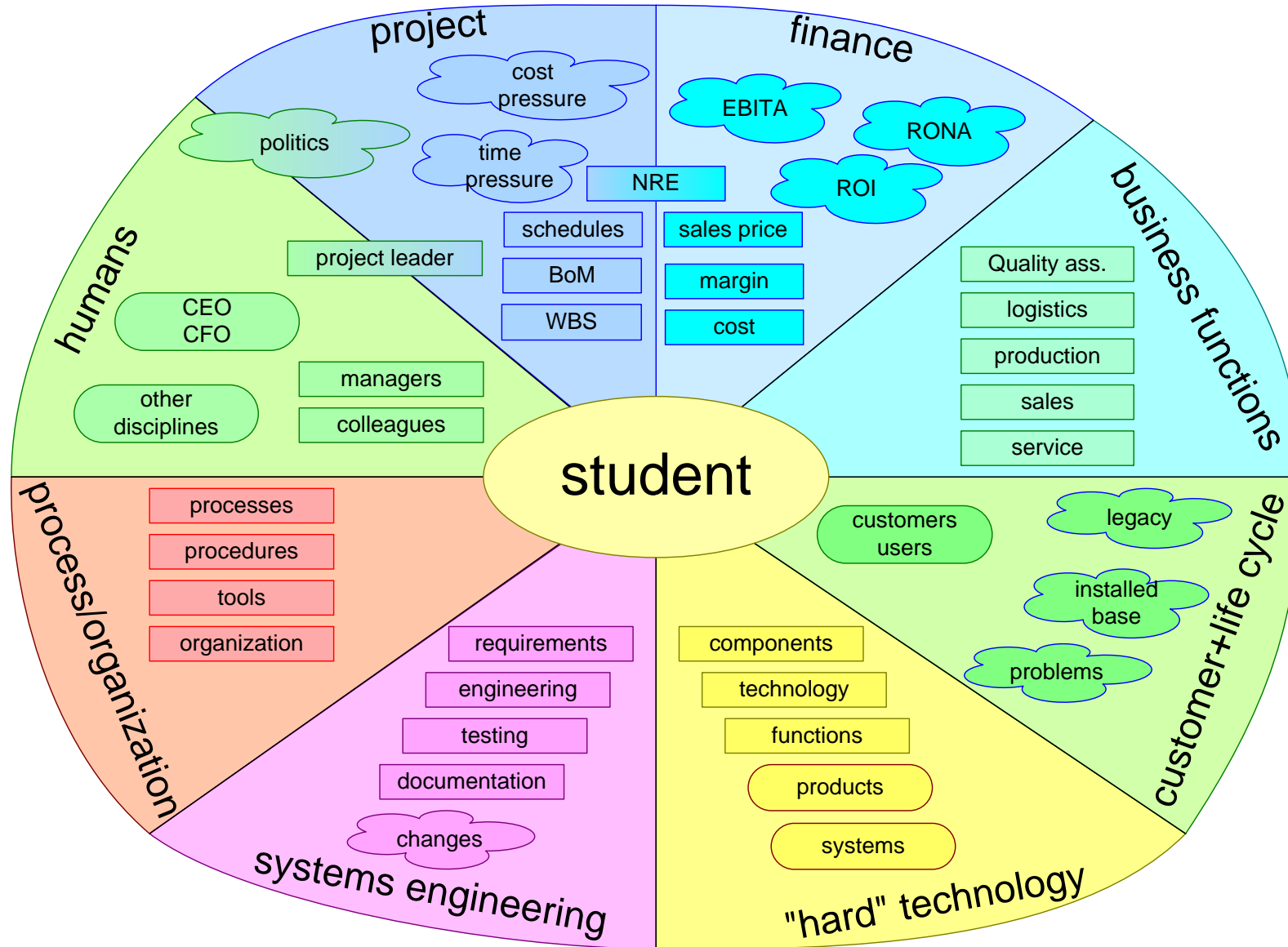
Core of the acceleration is **experiential learning**, where offering **theory** and building up **experience** happens **concurrently** and is used to **reinforce learning**.

# Work and Study Concurrently

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# Overload of Impressions for Fresh Bachelors



# What is Competence?

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Attitude (perseverance, faith, critical, constructive, etc.)

*train*

Ability (know when to use what skill and knowledge)

*apply/use often, experience*

Skills (calculate missing angle, calculate hypotenusa)

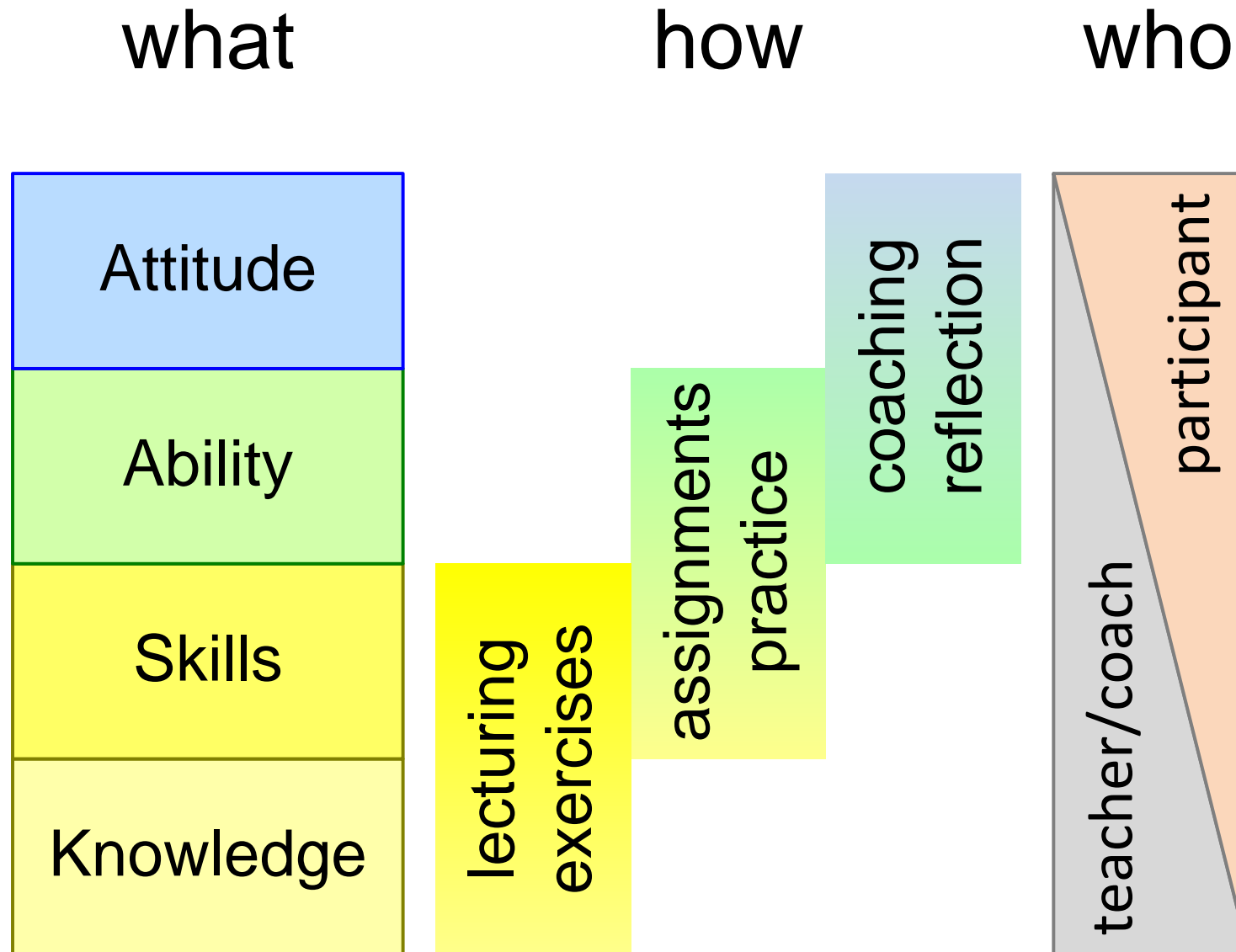
*exercise*

Knowledge (triangle has 3 corners, sum of angles is 180 degrees, Pythagoras  $c^2 = a^2 + b^2$ )

*learn*

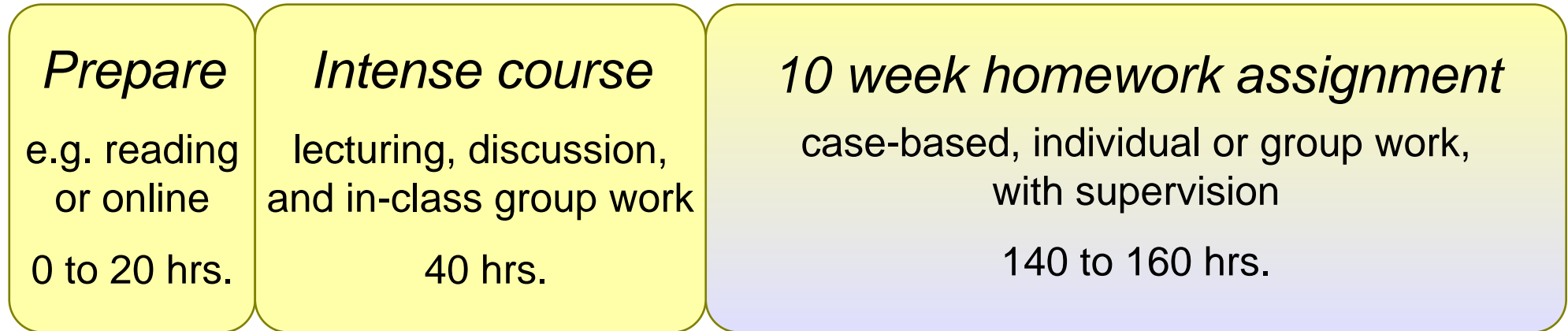
Competence = Knowledge + Skills + Ability + Attitude

# Various Ways to Develop Competence



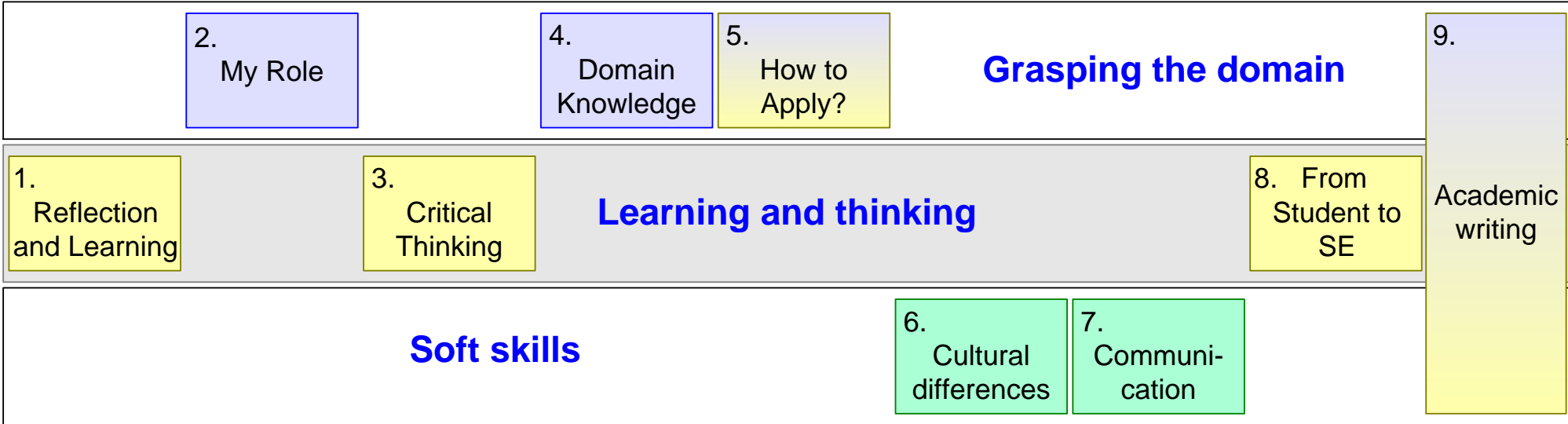
# Course Format and Pedagogic

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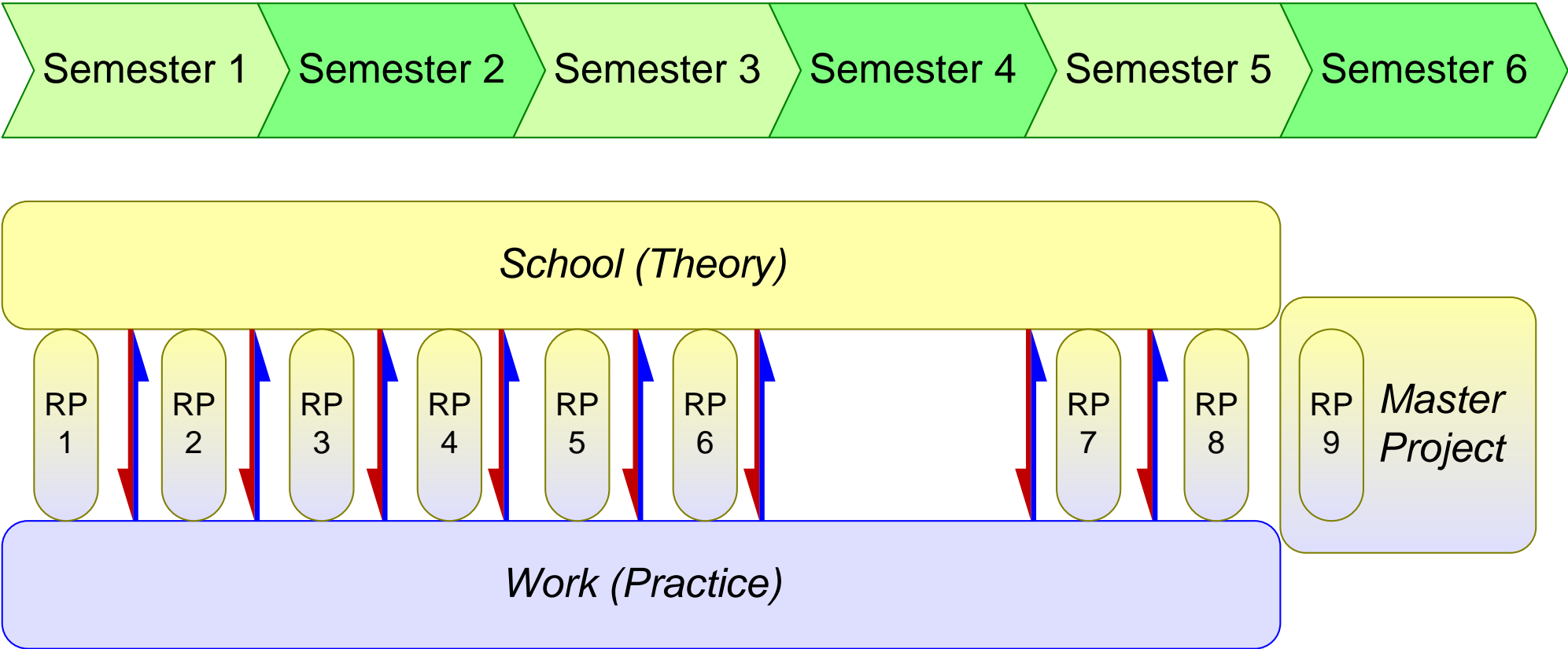


- Students travel 3 to 6 times per year
- Study and work planning is flexible
- Active learning, case-based
- Actual industry cases are possible (depends on course)

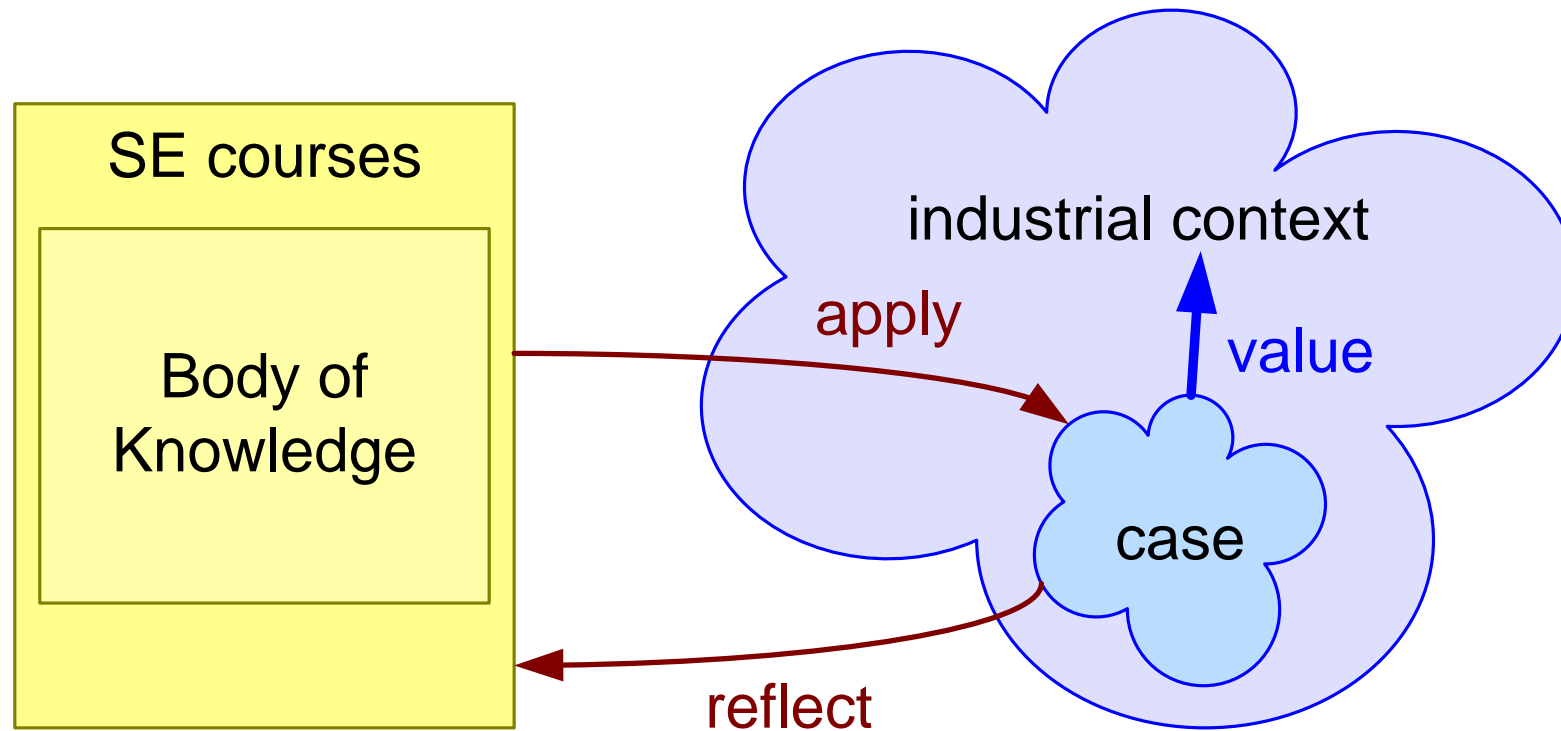
# Reflective Practice; 9 Workshops in 3 Years



# Reflective Practice Connects Study and Work

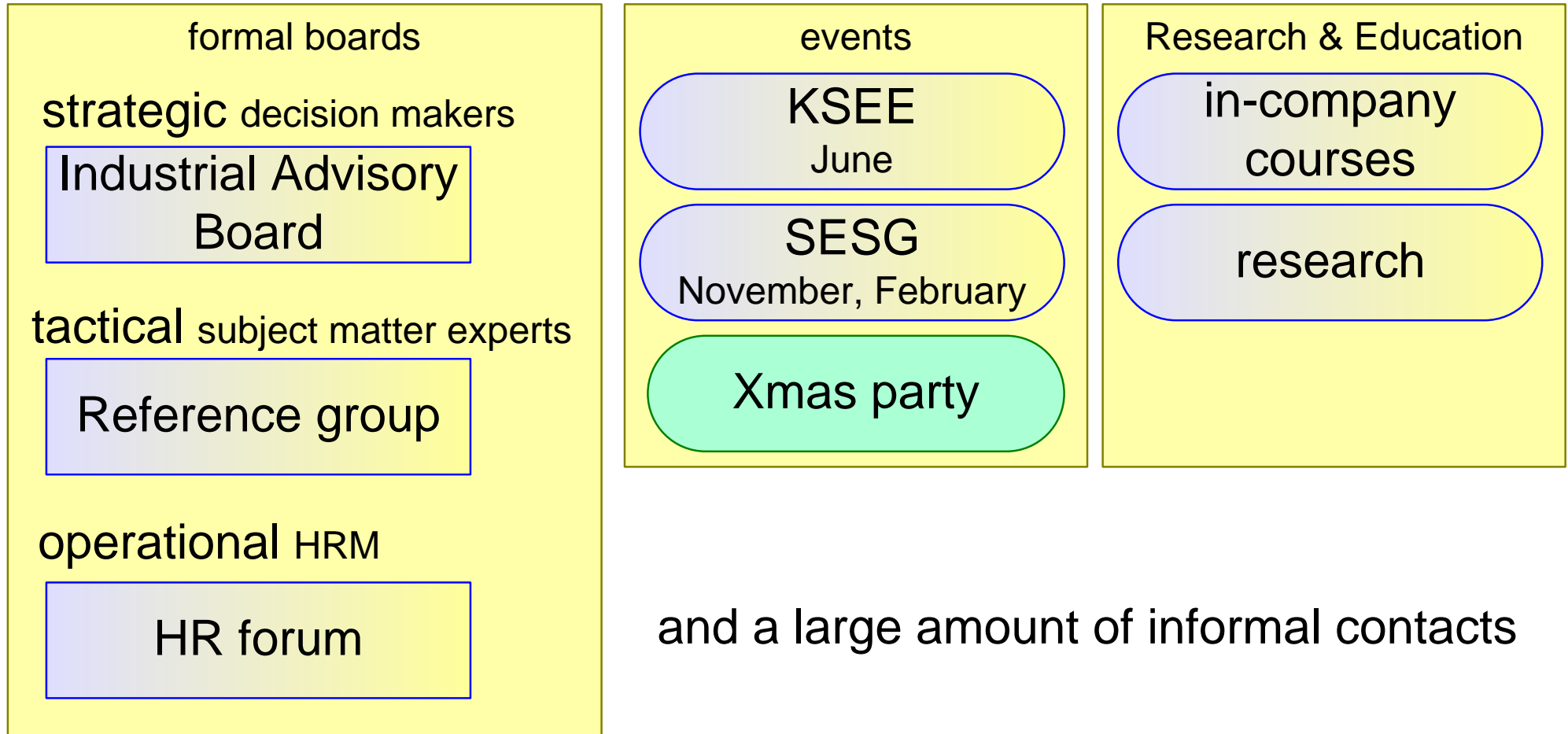


# Objectives of Master Project



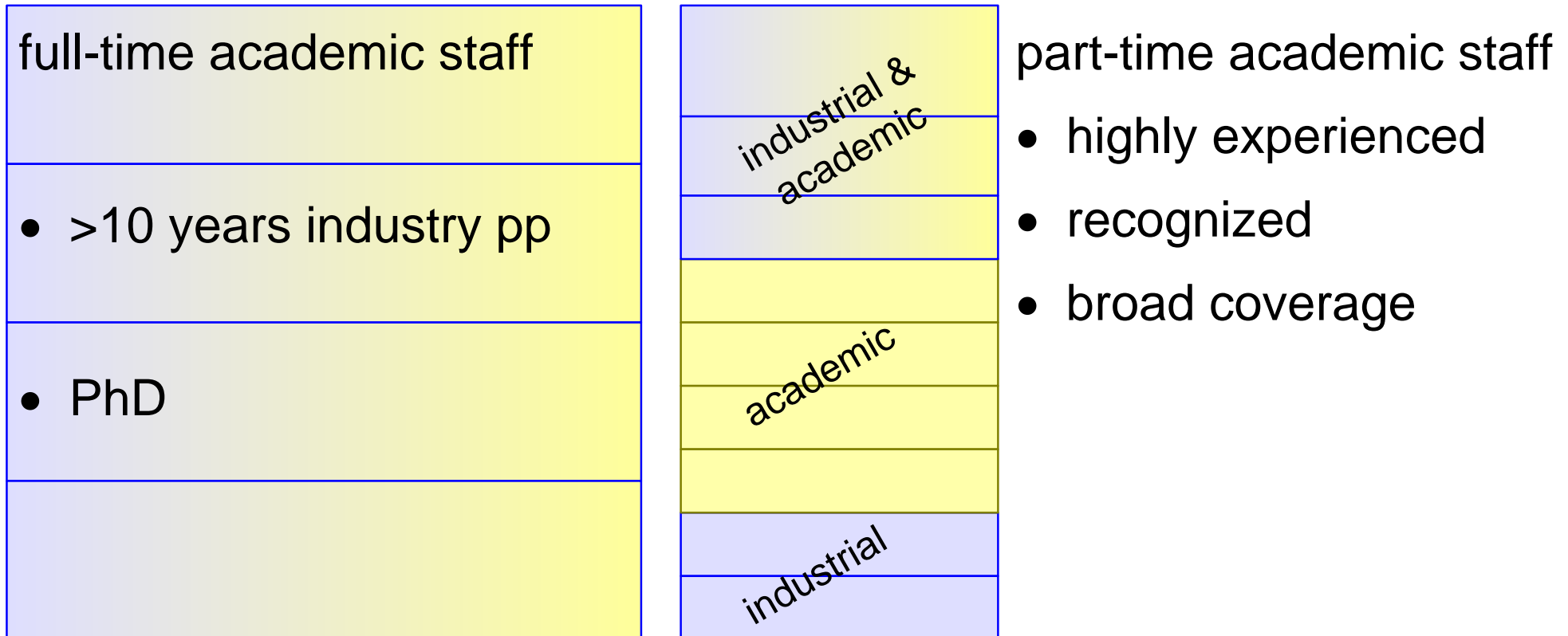
**Apply** part of the SE body of knowledge in practice and **evaluate** and **reflect** on its application, while **providing value** to the industrial sponsor

# Industrial Networking

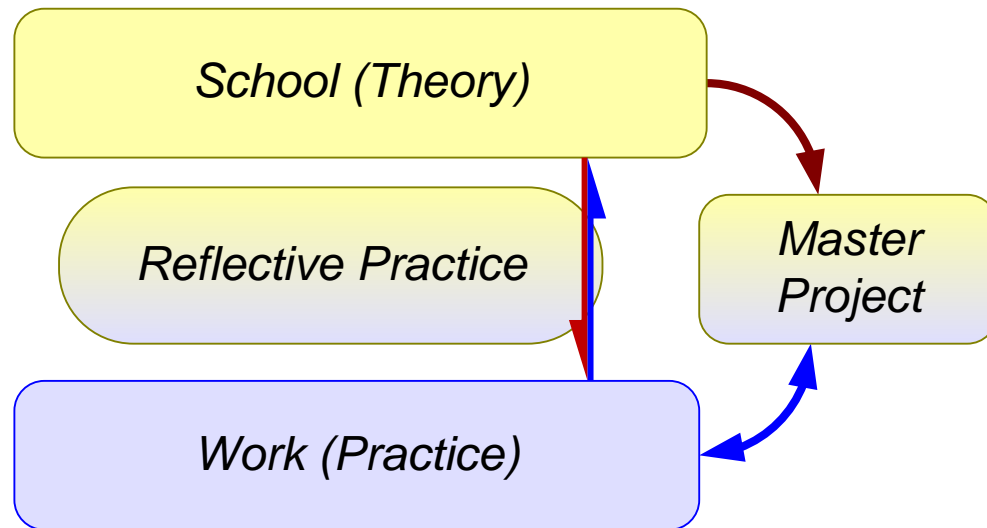


and a large amount of informal contacts

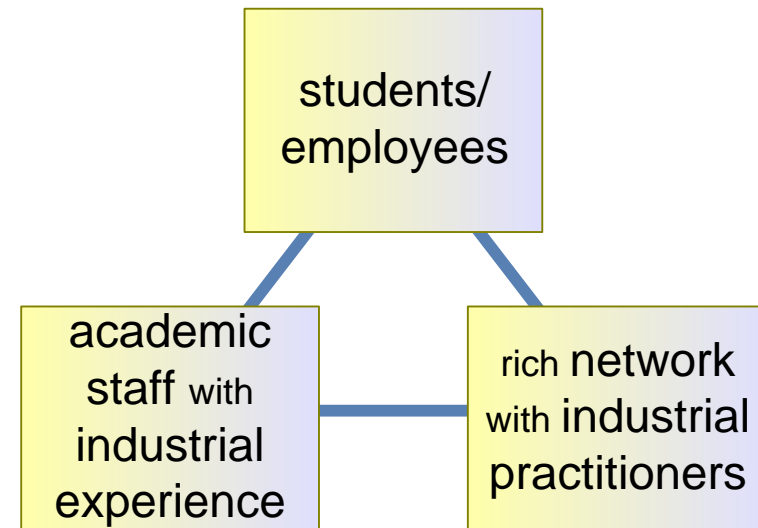
# Challenge: Recruiting Industrial and Academic Staff



# Summary



Studying and working concurrently  
Format and pedagogic of courses fits industry  
Reflective Practice connects study and work  
The master project is the closure



Continuous investment in industrial relations  
Offering an inspiring environment and network  
for practitioners, students, and staff