

# POPBL: **What?**

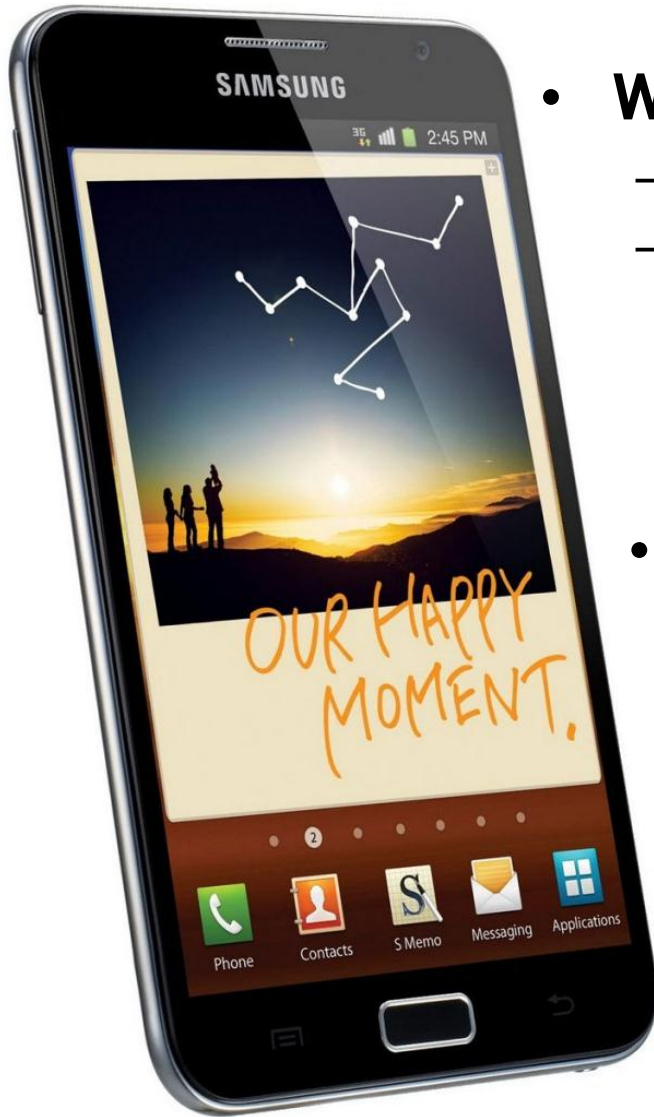
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- Case method
  - Problem-based learning
- Project-oriented problem-based learning
  - Modular approach

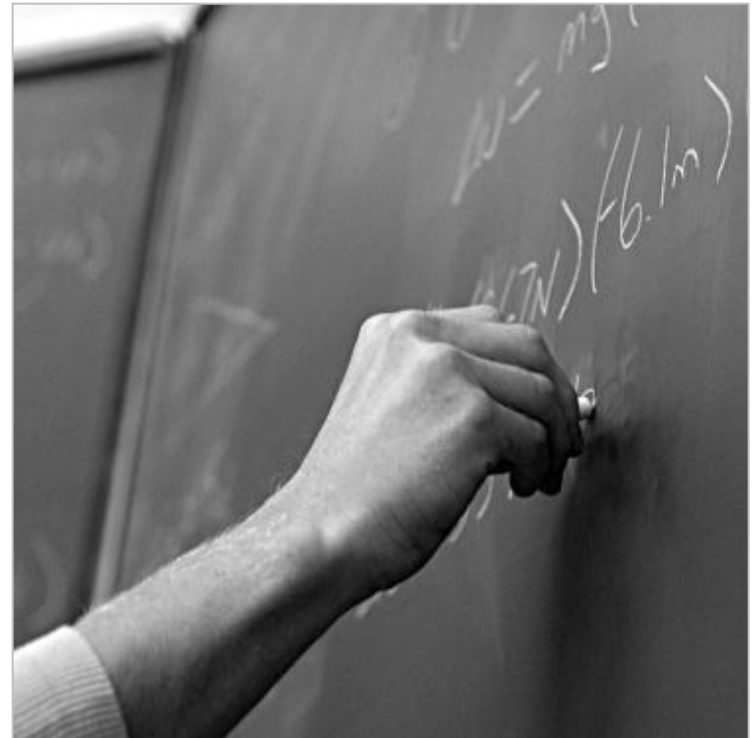


- **What is PBL?** (Yong, 2005)
  - Innovative instructional method
  - Enhance the application of knowledge, problem solving skills, higher-order thinking, and self-directed learning skills
- **Supervision and team working** (Lehmann *et al.*, 2008) (Gavin & Brian, 2010)
  - Moderate and continuous supervision
  - Seek information needed independently
  - Think analytically to solve the problem
  - Improving their research methodology skill
  - Motivation towards self directive study



- **How can we improve?**

- “Chalk & Talk” – directive and focus more on cognitive
- Relationship: Vertical, horizontal or mixed





- **Learning styles?**

- David Kolb's, Honey and Mumford's, Anthony Gregorc's , Sudbury model of democratic education, Neil Fleming's VAK/VARK model
- How can it be helpful in your interactions with others?
- How do you think this could help you in lectures?
- How do you think this could help our students?







For these questions, choose the first answer that comes to mind and click on a,b, or c. Don't

## Question 1

When you study for a test, would you rather

- ☐ a) read notes, read headings in a book, and look at diagrams and illustrations.
- ☐ b) have someone ask you questions, or repeat facts silently to yourself.
- ☐ c) write things out on index cards and make models or diagrams.

## Question 2

Which of these do you do when you listen to music?

- ☐ a) daydream (see things that go with the music)
- ☐ b) hum along
- ☐ c) move with the music, tap your foot, etc.

## Question 3

When you work at solving a problem do you

- ☐ a) make a list, organize the steps, and check them off as they are done
- ☐ b) make a few phone calls and talk to friends or experts
- ☐ c) make a model of the problem or walk through all the steps in your mind

## Question 4

When you read for fun, do you prefer

- ☐ a) a travel book with a lot of pictures in it
- ☐ b) a mystery book with a lot of conversation in it
- ☐ c) a book where you answer questions and solve problems

<http://people.usd.edu/~bwjames/tut/learning-style/stylest.html>



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VISUAL  
SEE IT



AUDITORY  
HEAR IT



KINESTHETIC  
DO IT







## Visual Learners

- take numerous detailed notes
- tend to sit in the front
- are usually neat and clean
- often close their eyes to visualize or remember something
- find something to watch if they are bored
- like to see what they are learning
- benefit from illustrations and presentations that use color
- are attracted to written or spoken language rich in imagery
- prefer stimuli to be isolated from auditory and kinesthetic distraction
- find passive surroundings ideal

<http://people.usd.edu/~bwjames/tut/learning-style/styleres.html>



## Auditory Learners

- sit where they can hear but needn't pay attention to what is happening in front
- may not coordinate colors or clothes, but can explain why they are wearing what they are wearing and why
- hum or talk to themselves or others when bored
- acquire knowledge by reading aloud
- remember by verbalizing lessons to themselves (if they don't they have difficulty reading maps or diagrams or handling conceptual assignments like mathematics).

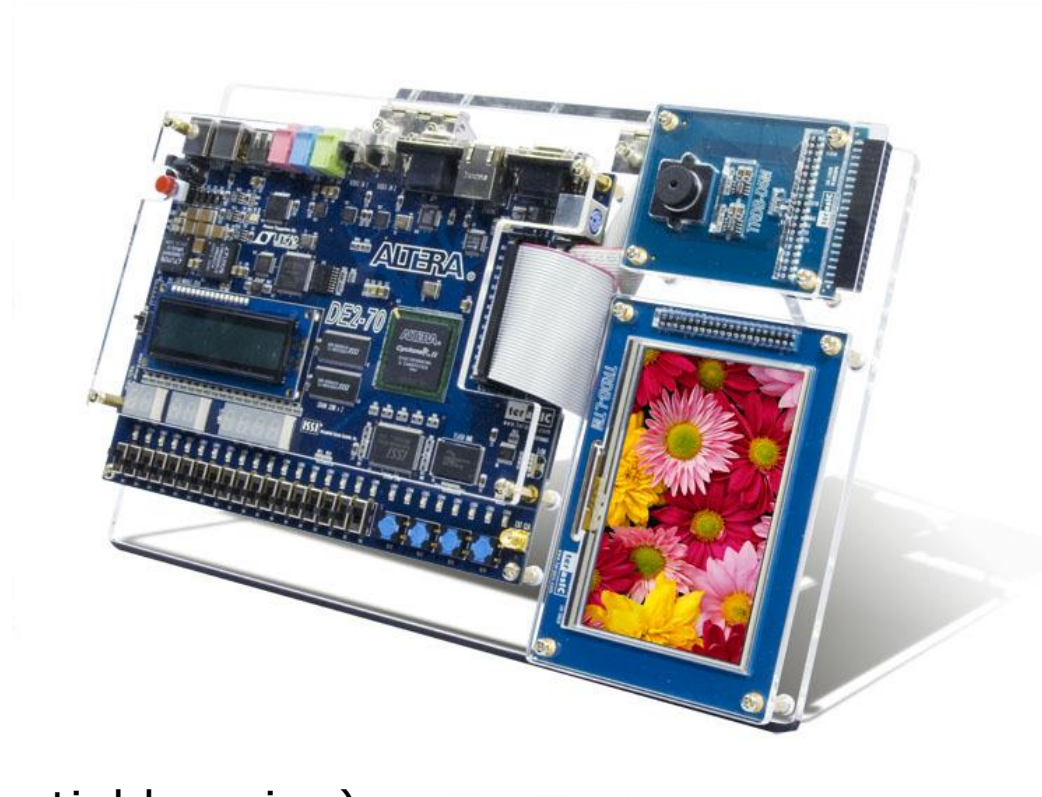
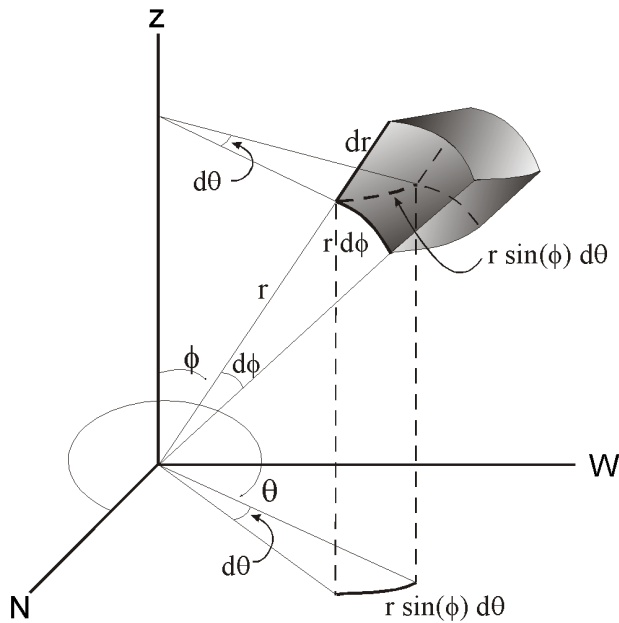
<http://people.usd.edu/~bwjames/tut/learning-style/styleres.html>



## Kinesthetic Learners

- need to be active and take frequent breaks
- speak with their hands and with gestures
- remember what was done, but have difficulty recalling what was said or seen
- find reasons to tinker or move when bored
- rely on what they can directly experience or perform
- activities such as cooking, construction, engineering and art help them perceive and learn
- enjoy field trips and tasks that involve manipulating materials
- sit near the door or someplace else where they can easily get up and move around
- are uncomfortable in classrooms where they lack opportunities for hands-on experience
- communicate by touching and appreciate physically expressed encouragement, such as a pat on the back

<http://people.usd.edu/~bwjames/tut/learning-style/styleres.html>



- **Engineering educators**
  - Hands-on (psychomotor)
  - Learning-by-doing (experiential learning)

<http://www.youtube.com/watch?v=6Ngc9ihb35g> [Part 1]

[http://www.youtube.com/watch?v=SfloUd3eO\\_M&feature=relmfu](http://www.youtube.com/watch?v=SfloUd3eO_M&feature=relmfu) [Part 2]

<http://www.youtube.com/watch?v=w6rx-GBBwVg&feature=relmfu> [Part 3]

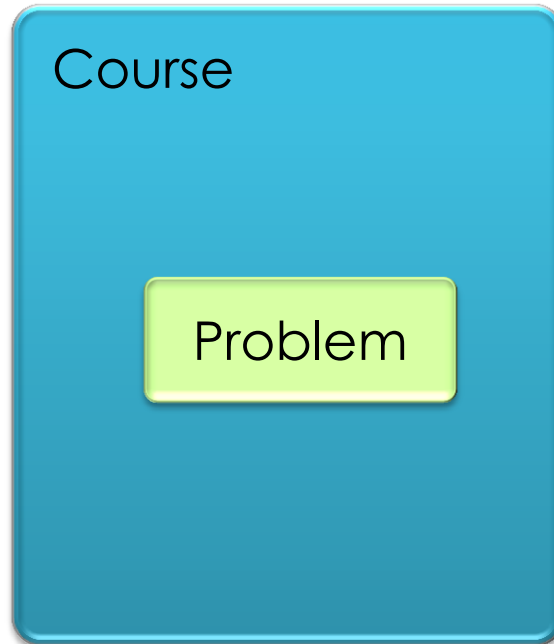
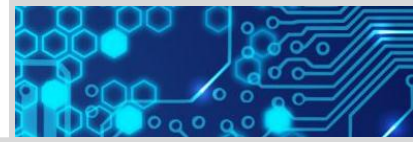




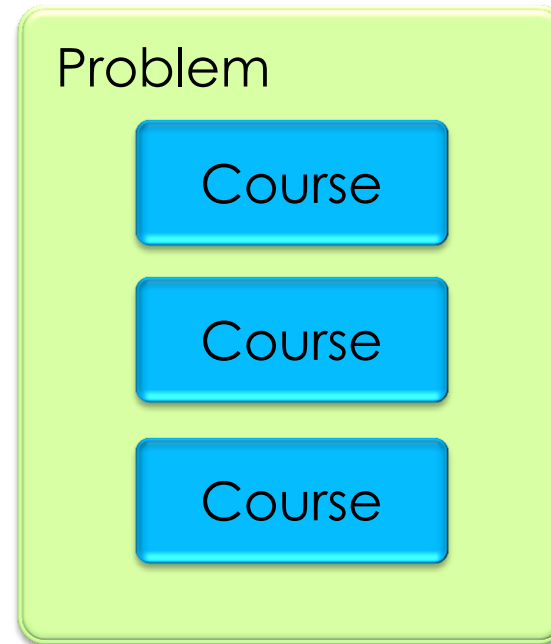
“In the University, **learning** is a **goal** and the **problem** is a **tool**. Students develop project skills. In the industry, these **skills** are the **tools**, and the **product** is the **goal**”

(Fink, 2001)





**PBL**



**POPBL**



# Comparison



Part	Lecture-based	PBL	POPBL
Students	Passive	Active	Active
Lecturers	Active	Active	Active
Bloom's	Remembering	1 – 6	1 – 6
Niche	Chalk and talk	Problem solving	Project management Problem solving
Collaborative	Individual	Both	Group



- **What is the different?**

PBL – to increase learning ability, problem solving skills

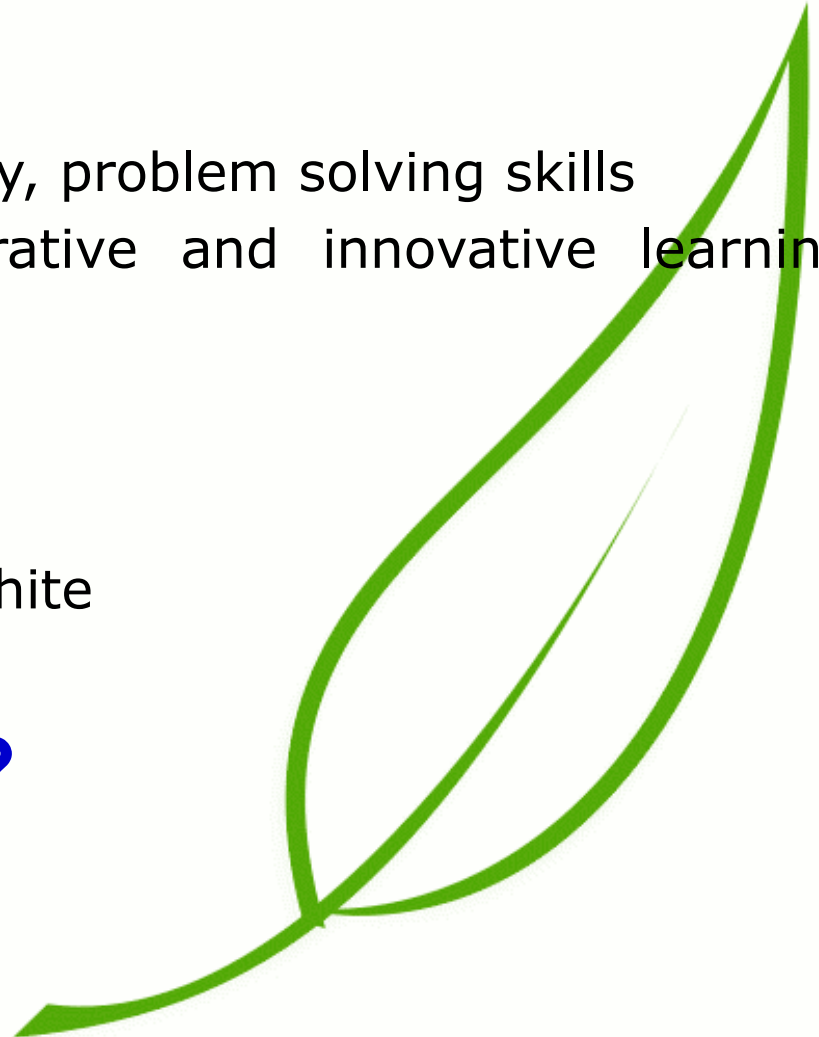
POPBL – to increase collaborative and innovative learning, project skills

- **Do we need both?**

Yes, since both are black and white

- **Is it the best method?**

Not the best, but promising!



## Educational Philosophy

The education and training in this University is a continuous effort to lead in market oriented academic programmes which are **student-focused** through **experiential learning** to produce well trained human resource and professionals who are catalysts for a sustainable development.



# Through My Window





# Through My Window



**Republic Polytechnic**  
**Daily PBL**



**Aalborg University**  
**Project Oriented**



**UTHM/FKKE**

# What is all about?



## PBL



## POPBL







- **Time allocated:**
  - Subject contents VS learning outcomes
- **PBL lesson with meetings:**
  - Structuring with specific meetings
- **Styles:**
  - Daily and FILA table



**Epistemological**  
“PBL allows students to capitalise on whatever capabilities they have as individuals”

# Structuring the PBL Lesson



Session	Activities
1 <sup>st</sup> Meeting (1 hour)	<ul style="list-style-type: none"> <li>✓ Problem presentation by facilitator</li> <li>✓ Problem analysis by students</li> <li>✓ Identifying what is known and unknown</li> <li>✓ Identifying what information is needed</li> <li>✓ Identifying what needs to be learnt (skills/knowledge)</li> <li>✓ Assignment of research duties</li> </ul>
1 <sup>st</sup> Breakout (1 hour)	<ul style="list-style-type: none"> <li>✓ Researching into issues</li> <li>✓ Gathering of information</li> </ul>



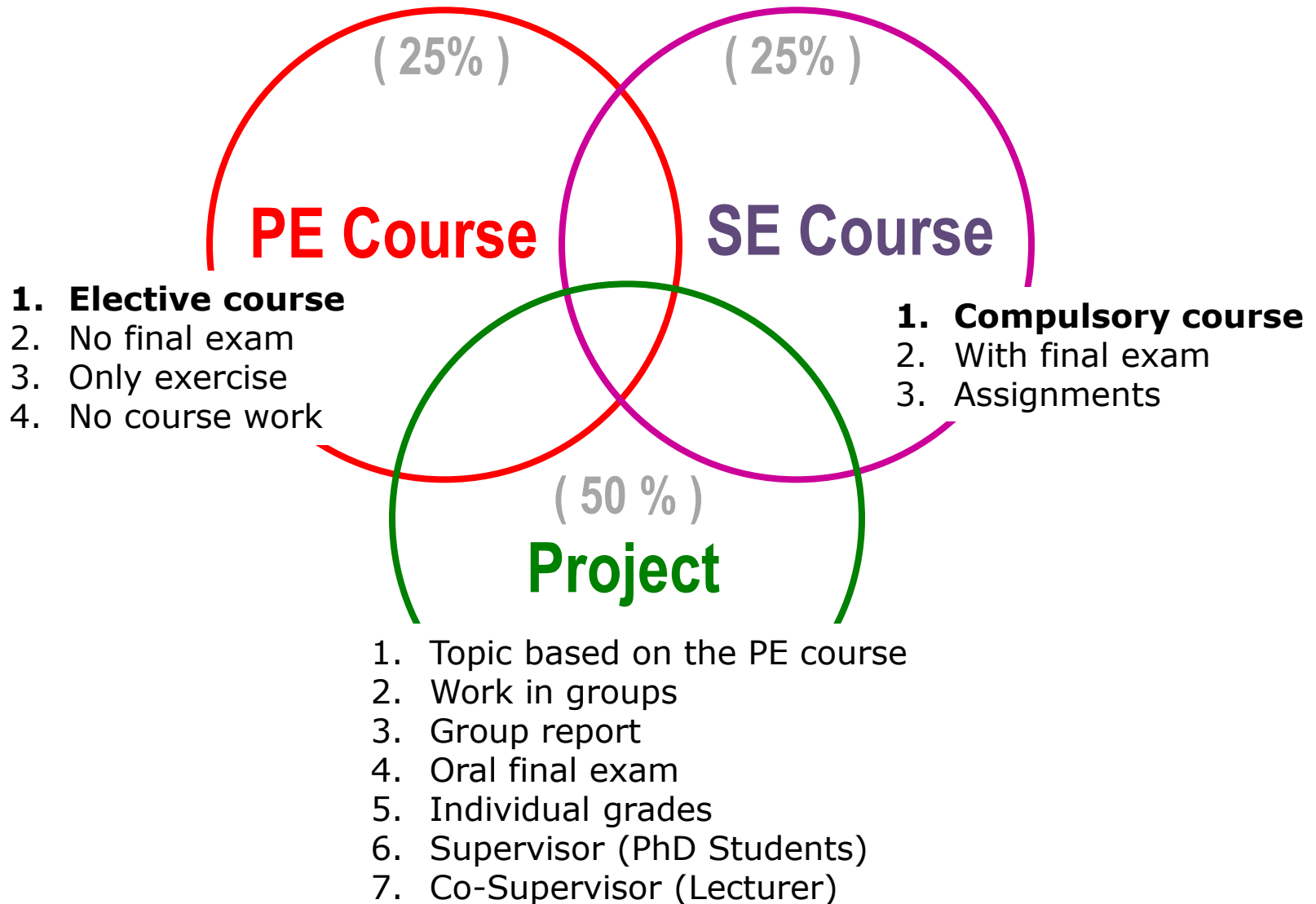
Session	Activities
2 <sup>nd</sup> Meeting (1 hour)	<ul style="list-style-type: none"> <li>✓ Focuses on difficulties students may have</li> <li>✓ Help students develop learning strategies</li> <li>✓ Solution formulation and evaluation</li> </ul>
2 <sup>nd</sup> Breakout (2 hours)	<ul style="list-style-type: none"> <li>✓ Researching into issues</li> <li>✓ Closing of gaps in required information</li> <li>✓ Preparation of presentation</li> </ul>
Final meeting of the day (1.5 hours)	<ul style="list-style-type: none"> <li>✓ Solution presentation</li> <li>✓ Peer evaluation</li> <li>✓ Self evaluation</li> <li>✓ Submission of individual reflection of the learning process</li> <li>✓ Grading by facilitators</li> </ul>

# POPBL in Aalborg University



“...the students (**NOT lecturers**) develop an ability to analyse and solve complex problems in a more independent and innovative manner than what the traditional university provides an opportunity for...”

# Curriculum Structure



# Example



Course Name	Type
Propagation, Antennas and Diversity	SE
DSP Algorithms	
Inverse Filtering, Deconvolution and Equalization	PE
Radio Communications II	
Software Tools	
FPGA Programming	
Realisation of Signal System Handling	Project
"Two channel diversity receiver for the TETRA standard"	



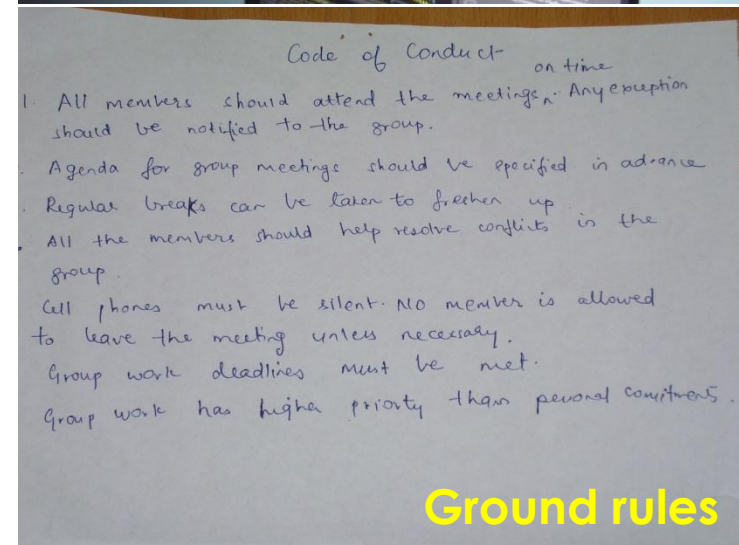
# Support Systems



Group's room

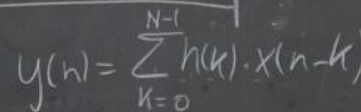


Posters



Ground rules

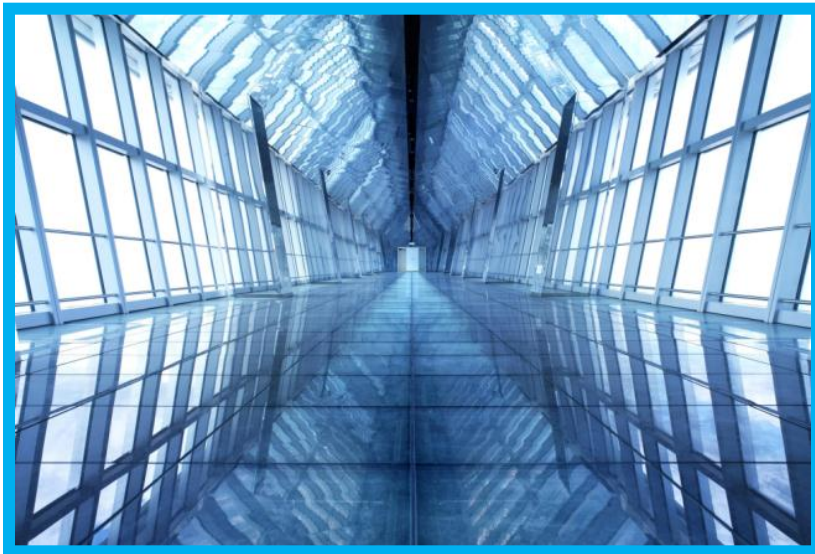




$$N \leq \frac{TS}{4ms}$$







- **explain**

the POPBL concept and structures;

- **address critically**

the significant of implementing POPBL in higher learning education; and

- **design**

a dynamic to do list for implementing POPBL in their courses.