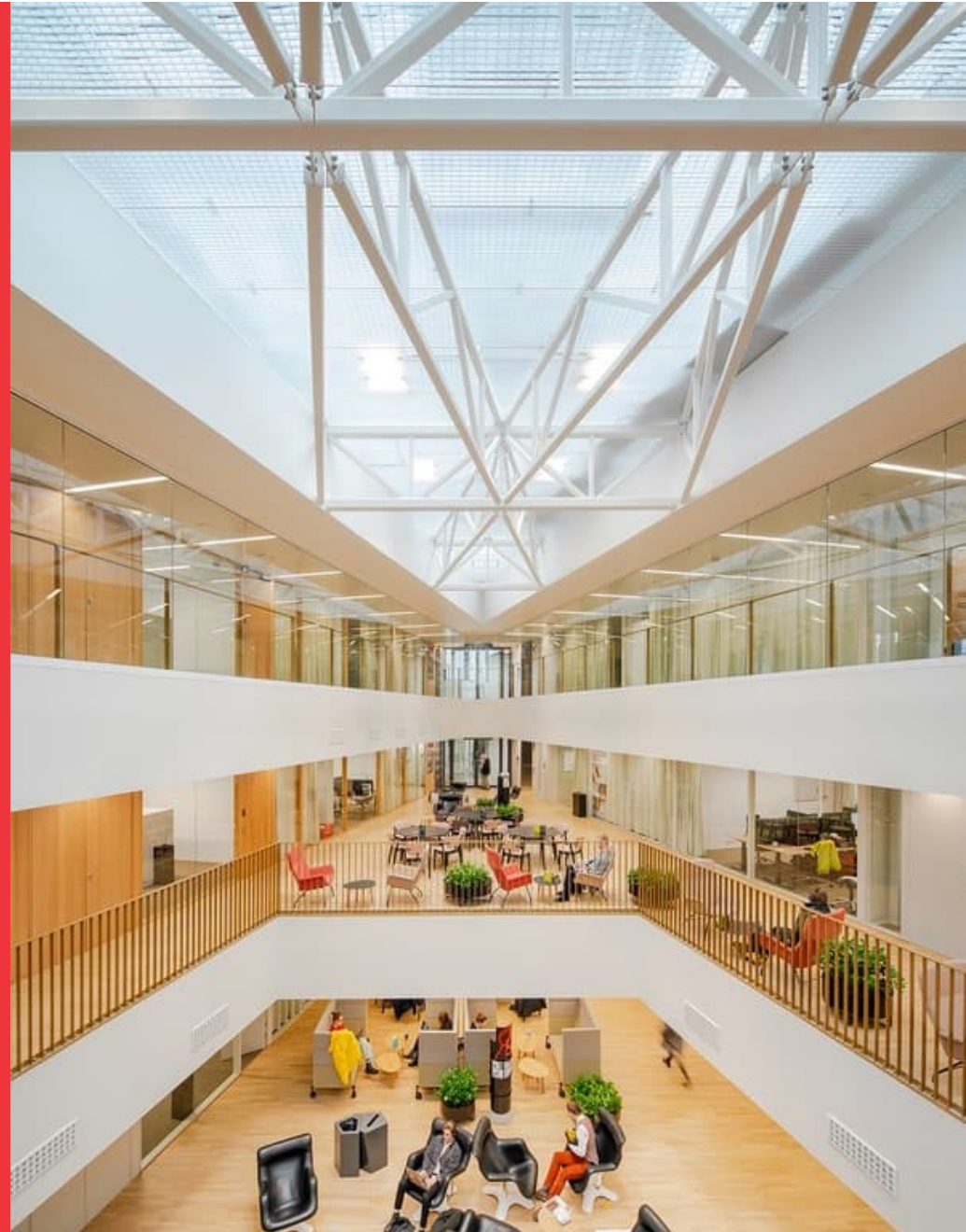


Curriculum development

SESSION 3: TOOLS FOR CURRICULUM DEVELOPMENT

Curriculum Development course spring 2023

Erika Myllyniemi, Noora Jaakkola,
Jukka Välimäki



Intended learning outcomes and content of the course



After the course, you will be able to:

1. to discuss the different approaches of the curriculum in higher education
2. to identify the curriculum development process and practices and reflect on them in relation to their degree programme/major/minor
3. reflect the principles of constructive alignment in curriculum development
4. identify and apply tools in curriculum development
5. co-develop the curriculum together with the teaching team involved in the development
6. make a plan for continuous development



Our main topics in the course:

- Curriculum in higher education, different approaches
- Constructive alignment in curriculum development
- Development process of the curriculum
- Co-development of the curriculum
- Tools for curriculum development
- Continuous development

Curriculum Development –course timeline

Session 1: Fri 14.4.2023 at 9.15-12.00: R028/R107 Väre
Introduction to curriculum development

Pre-assignment

Session 2: Fri 28.4.2023 at 9.15-12.00: U401 Otakaari 1
Curriculum development process

Assignment

Session 3: Fri 12.5.2023 at 9.15-12.00: U401 Otakaari 1
Tools for development

Decide the project topic by 5.5.23

Session 4: Fri 26.5.2023 at 9.15-12.00: Y308 Otakaari 1
Co-develop the curriculum

Prepare for coaching

Session 5: Fri 16.6.2023 at 9.15-12.00: U401 Otakaari 1
Reflection of the course and long-term development

Prepare project presentation

Submit report by 22.6.23

Work with the group development project

Today's schedule

Themes:

- Curriculum development tools
- Co-development of the curriculum

9:15-9.30 Schedule and learning outcomes for the day

9.30-10.00 Curriculum goals

BREAK 10 MIN.

10.10-11.00 Curriculum development tools (group work)

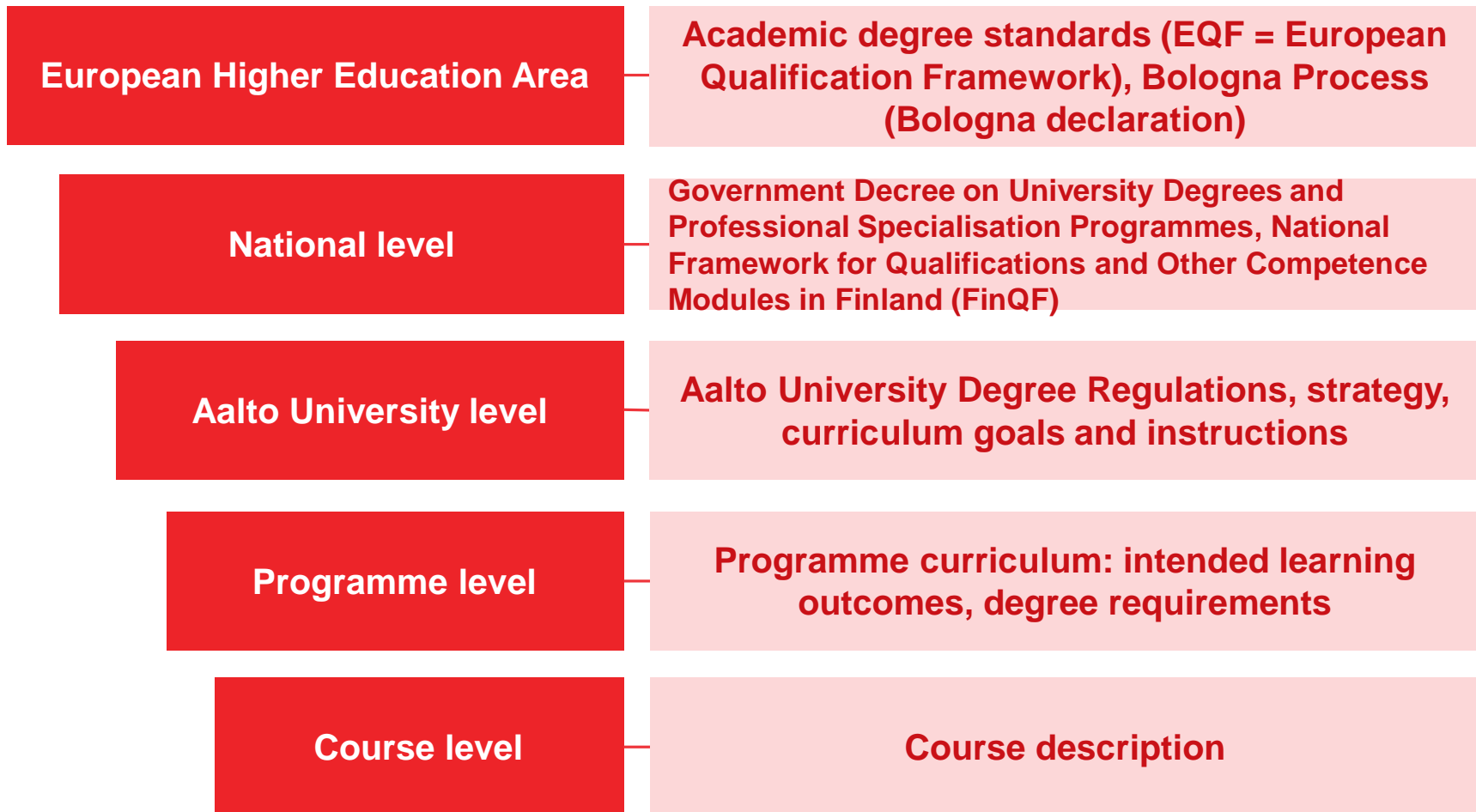
BREAK 5 MIN.

11.05-11.40 Presentation of the tools

11.40-12.00 Feedback and conclusion of the day

Curriculum goals

Curriculum guidance on different levels





Shaping a Sustainable Future.

“We take greater societal responsibility in degree education and continuous learning, in and across our key areas”

“Integrating sustainability and multidisciplinary studies into programmes”

Aims for the curriculum design:

In Aalto we aim to produce a future-oriented and learning-centric curriculum that allows the students to gain both generic skills and in-depth knowledge of their field of study.

A future-oriented and learning–centric curriculum:

- Is based on clear programme purpose and aims
- Has intended learning outcomes that support the purpose and aims
- Employs a variety of inclusive teaching and learning methods
- Is constructed in a way that allows students develop competencies in a logical progression
- Is continuously assessed and developed in collaboration with the teacher community

In the 2024–2026 academic years, our shared goals in curriculum design will be:

1. We will continue to integrate sustainability, radical creativity and an entrepreneurial mindset into our programmes.

2. We will continue strengthening education that supports lifewide learning.

3. We will implement the new language guidelines.

In the 2024–2026 academic years, our shared goals in curriculum design will be the following:

1. **We will continue to integrate sustainability, radical creativity and an entrepreneurial mindset into our programmes.** The programmes will continue the work of identifying the sustainability challenges and solutions that apply to each field and developing the intended learning outcomes to respond to them, then updating the curriculum to correspond to the revised outcomes.
2. **We will continue strengthening education that supports lifewide learning.** As part of the curriculum design work, schools and units are asked to identify such components of their education offerings that meet the needs of lifewide learning (courses or parts thereof, larger study modules or ‘microcredentials’).
3. **We will implement the new language guidelines.** Implementation of the Aalto University Language Guidelines and an assessment of the Aalto University Guidelines on the Languages of Degree and Instruction will take place in 2023. The measures to be implemented on the basis of the assessment will affect the 2024–2026 curriculum.

Curriculum design work is also influenced by different assessments:

1. **TEE evaluation:** Teaching and learning evaluation exercise
2. **Quality audits** conducted by the **Finnish Education Evaluation Centre (FINEEC)**
3. **International Student Barometer (ISB):** survey on the study experiences of international students at universities



Let's practice curriculum development: group work

Instructions for the group work

Aim:

- to practice curriculum development through a small exercise in mixed groups
- to familiarize with one aspect of the curriculum development cycle in a deeper level
- get acquainted with the material, support and tools available

Instructions:

- In all exercises first **decide the context** of the exercise (ie. which curriculum or a module of studies you wish to work with), then proceed with the instructions
- **Time** for group work **45min.**
- **Wrap-up:** short presentation of the group work, **7 min. per group**
 - **Aim of the wrap-up:** to **introduce** the method you tried to others and **analyse** when and how this way of working could be beneficial in curriculum work

Mixed group work topics

1. Data-assisted evaluation of the curriculum

- What needs to be evaluated?
- What is relevant knowledge and data?

2. Setting the development goals

- What are the internal and external demands that need to be considered when deciding about the development goals of the curriculum?
- What needs to be done concretely to achieve the goals?

3. Relationships and collaboration in curriculum development

- Who need to be involved in the development of the curriculum and how?

4. Responding to the needs of the future: integrating sustainability

- What changes in the society should we consider when developing our programme?
- What knowing, acting and being do these changes require from our graduates?

5. Designing intended learning outcomes

- What does our purpose / educational goals mean as students' learning?
- What should the graduate be able to know or do?

6. Curriculum mapping

- How are current courses supporting student in achieving the intended learning outcomes?
- How should the programme organize its courses in order to best support students learning?

Instructions for each topic (2-6)

2

Setting the development goals

Aim:

- To synchronise the programme's internal development goals and the university-level strategic goals and make a development plan

Key questions:

- How can you synchronise the different demands that need to be considered when deciding about the development goals of the curriculum?
- What needs to be done concretely to achieve the goals?



First, discuss and identify the different internal and external demands or development goals there are for curriculum development at Aalto.



When identifying the needs, you can utilize the evaluations made during the sessions 1 (curriculum contents) and 2 (co-development, process). The joint university-level needs can be found from aalto.fi.



Choose 1 internal need (programme's own need) and 1 external need (strategic goal) for your development.



Formulate development goals of the two chosen needs and plan what needs to be done in order to reach the development goals (concrete tasks, responsibilities, follow-up).

Setting the development goals

Demands for university education		Choose one of the needs for this exercise
What kind of internal needs (programme's own needs) for development you can identify?	Here you can list the identified internal needs	
What kind of university-level strategic goals you can identify?	Here you can list the identified strategic goals	

Plan for development: template for the group

Development needs	Development goals: the aim is to...	Concrete task: how to do it?	Responsible actor: who?	Target schedule: when?	Follow-up
Internal need:	1.				
	2.				
	3.				
External need:	1.				
	2.				
	3.				

Useful links

- **Aalto University Strategy:**
 - [Our strategy](#)
 - [Our plan](#)
- **Curriculum design instructions:**
 - [Goals for the curriculum design work in 2024–2026](#)

3

Relationships in curriculum development

Aim:

- To identify the critical partners in curriculum development

Key question:

- Who need to be involved in the development of the curriculum and how?

1. Recognize the different roles that are involved in the curriculum development

2. Estimate the importance of this specific role / relationship

3. Define the goal of the relationship with each role

4. Describe the practices that are needed for this relationship to be productive and reach the goals that have been set

5. Think about what kind of support would be needed in order to maintain and develop the critical relationships?

Analysis matrix of relationships

Relationship	Importance	Goal of cooperation	What are the practices needed to achieve the set goals for cooperation?	Support needed to maintain the relationships (e.g. leadership / management, process, practices etc.)
Teacher 1	10			
Teacher 2	10			
Teacher 3	9			
Head of a Major	8			
Dep. head	9			
Planning officer	8			
Student rep	10			
Industry rep	7			
Alumni rep	6			

4

Responding to the needs of the future

Aim:

- To ensure that the programme has a broadly considered view on the societal needs and opportunities of the programme

Key questions:

- What changes in the society should we consider when developing our programme?
- What knowing, acting and being do these changes require from our graduates?



What's the future we envision?

Identify, what are the key changes happening in the society. *E.g. megatrends or sustainability challenges*



What is our role in the society?

Create an understanding how these changes and challenges are connected to the field and programme? What is our responsibility as educators in higher education?



What knowing, acting and being do these challenges require?

Identify relevant knowing, acting and being related to understanding the challenges and creating solutions to them.



What are our actions?

Where can we start, what can we implement now? What should we strive for, what is needed in order to achieve our goals?

Questions and supportive material

	What's the future we envision?	What is our role in the society?	What knowing, acting and being do these challenges require?	What are our actions?
Questions	<p>How does the future look like?</p> <p>What kind of futures are desirable?</p>	<p>What kind of expectations do our stakeholders have towards us?</p> <p>What kind of goals do we set for ourselves?</p> <p>What is our responsibility as educators in higher education?</p>	<p>What is the knowing, acting and being we want to foster?</p> <p>What is most important for the students to learn?</p>	<p>What changes are needed in our curriculum?</p> <p>Where can we start, what can we implement now?</p> <p>What should we strive for, what is needed in order to achieve our goals?</p> <p>What kind of barriers are there and how do we break them?</p>
Supportive material	<p>https://www.sitra.fi/en/topics/megatrends/</p>		<p>A framework for integrating sustainability into disciplinary curriculum (Slide 49)</p>	

JN0

Tässä väärä numero, tsekataan jaettavan setin numerointi kuntoon (tai poistetaan numero?)

Jaakkola Noora, 2023-05-11T13:58:07.097

Notes

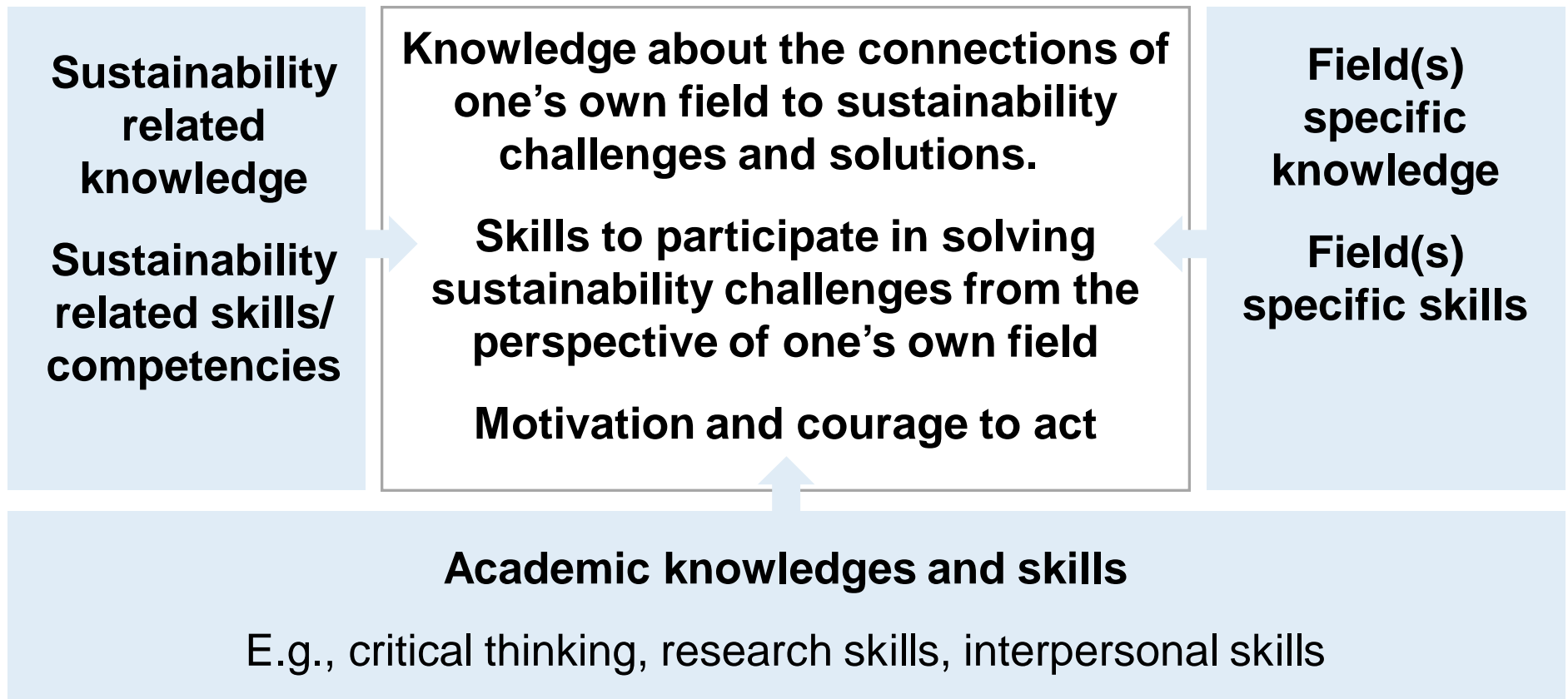
What's the future we envision?

What is our role in the society?

What knowing, acting and being do these challenges require?

What are our actions?

Goal: Graduates that are able to contribute to a more sustainable world



5 Intended learning outcomes

Aim:

- To formulate curriculum-level intended learning outcomes

Key questions:

- What does our purpose / educational goals mean as students' learning?
- What should the graduate be able to know or do?



Choose an existing curriculum or a context for which you design or revise programme-level intended learning outcomes.



Based on the existing purpose and objective of the curriculum, recognize 1-3 things in the three curricular domains (knowing, acting, being).



Then, analyse the content of the curriculum: what is core content, what is complementary and additional knowledge.



Then, connect the domains and the content in the table. Based on the table design 1-3 intended learning outcomes for the studies.

Perspectives to consider when designing intended learning outcomes



The purpose of the programme: what does our purpose and educational goals mean as students' learning?



Curricular domains: what is core knowledge of the discipline (knowing), what are the skills and actions to be acquired (acting) and how is the growth of the identity and personality of the student (being) supported?



Core content analysis: what is core content, complementary knowledge and special knowledge in the curriculum?



The level of complexity or specificity of learning: how can the student build upon prior learning to develop more complex levels of understanding.

Designing intended learning outcomes: purpose of the programme

Aim and objective of the curriculum: what and why?

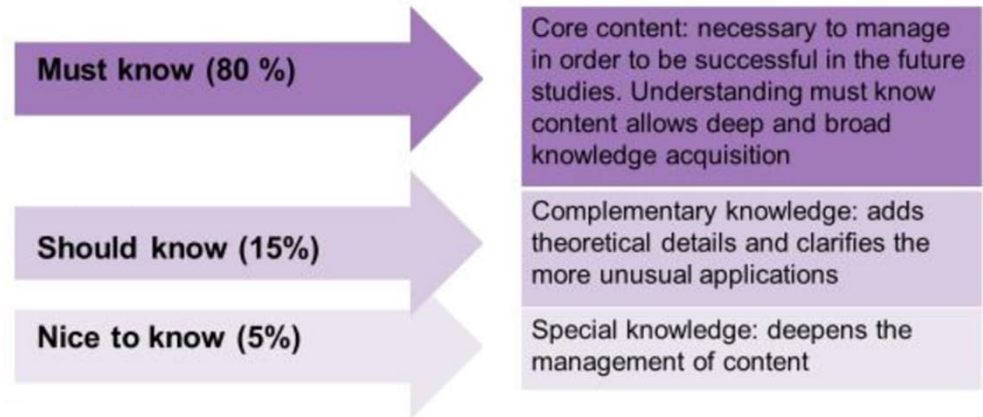
AIM / PURPOSE	GOAL / OBJECTIVE
Broad general statement of the teaching intention	Specific statement of the teaching intention: what is hoped to be achieved

Designing intended learning outcomes: curricular domains

Curricular domains		
Knowing	Acting	Being
Core knowledge of the discipline	Skills and actions to be acquired	Student's personality and identity

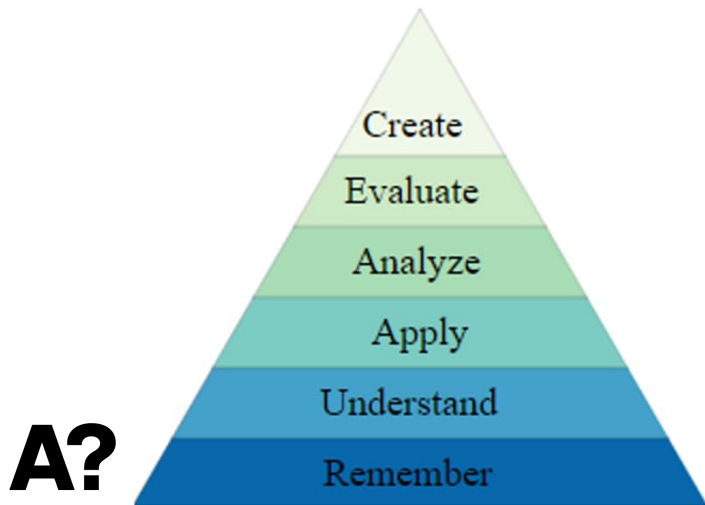
Core content analysis

For identifying the core content, complementary knowledge and special knowledge in the curriculum or a course.



Bloom's taxonomy

For classifying of learning objectives into levels of complexity and specificity.



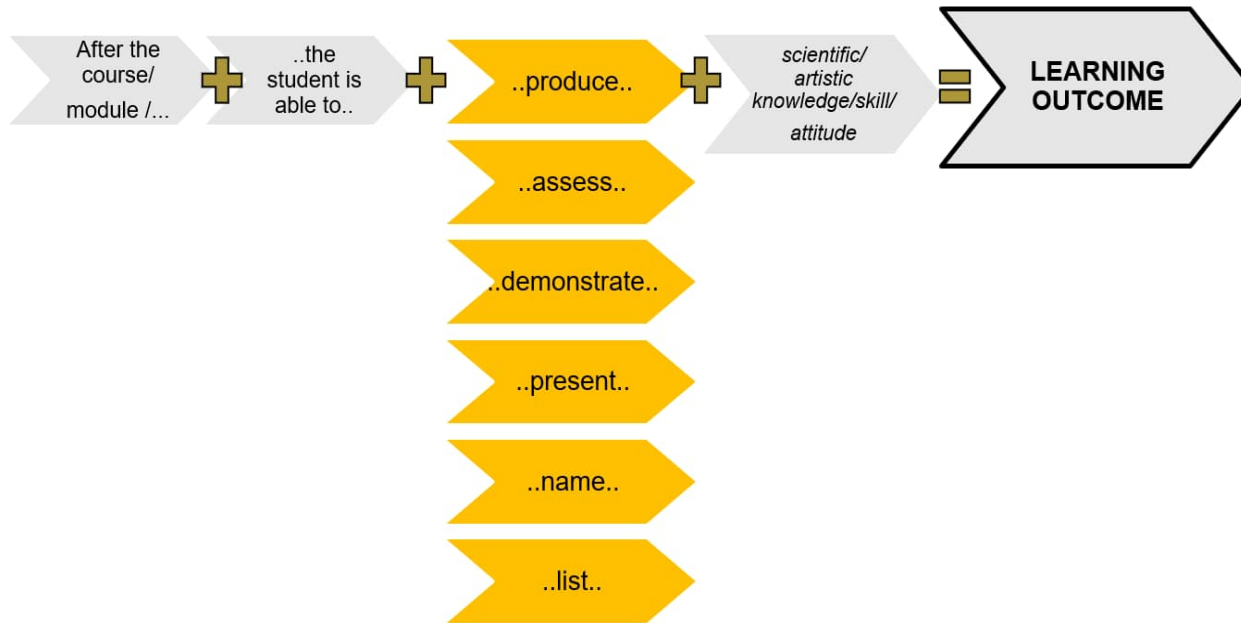
Review, interpret, justify, predict
Categorise, generalise, to lead, plan, prepare, propose
Analyse, organise, calculate, categorise, classify, compare, merge, criticise, try
Apply, select, add to, build, develop, produce, utilise
Change, classify, defend, distinguish, discuss, explain, generalise
Describe, locate, identify, list, remember, name

Picture: Wikipedia Commons

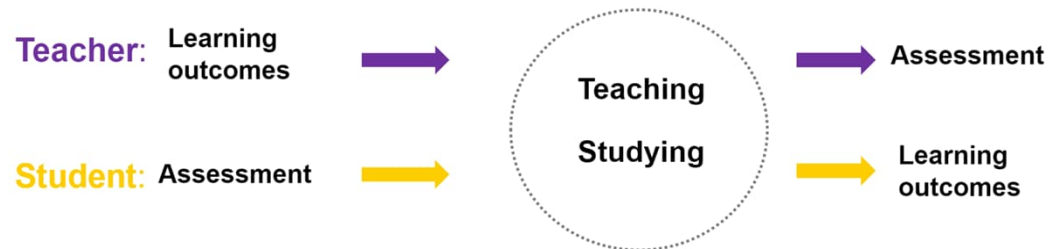
Designing intended learning outcomes: curricular domains + core content

<i>Module, block or a single course of a study</i>	MUST KNOW (80%), core content	SHOULD KNOW (15 %), complementary	NICE TO KNOW (5%), special, deepening
Knowing (Cognitive domain)	<i>E.g., "Select the most effective solution."</i>	...	
Acting (Psychomotor domain: manual or physical skills)	<i>E.g., "Knows and acts upon a sequence of steps in a manufacturing process."</i>		
Being (Affective domain: feelings, values, attitudes)	<i>E.g., "Listen to others with respect."</i>		

Creating an intended learning outcome



Assessment and intended learning outcomes



Designing intended learning outcomes

Example: Our graduate is able to identify the societal context relevant to the water and environment and comprehend the different scales and key drivers applicable to water and environmental engineering.

After completing the programme, the graduate is able to			
example	<i>identify</i>	<i>the societal context</i>	<i>relevant to the water and environment</i>
ILO 1	verb	desired learning*	context
ILO 2	verb	desired learning*	context
ILO 3	verb	desired learning*	context

*Desired learning: knowledge, skills, attitudes / knowing, acting, being / content

Designing intended learning outcomes: tools, support

- Programme Director's Handbook: Competence-based educations and intended learning outcomes
- Annala, J., Lindén, J. & Mäkinen, M. 2015. Tutkimuksen ja opetuksen yhteys yliopistossa –opetussuunnitelmatyön näkökulma.
<https://journal.fi/kasvatusjaaika/article/view/68542/29800>
- Biggs & Tang 2007: Teaching for Quality Learning at University
- Barnett, R. & Coate, K. (2005). Engaging the curriculum in higher education.
- Hyland & Kennedy 2007. Writing and using learning outcomes: a practical guide
- Levander, L. & Mikkola, M. (2009). Core Curriculum Analysis: A Tool for Educational Design, The Journal of Agricultural Education and Extension, 15:3, 275-286. DOI: 10.1080/13892240903069785.

6 Curriculum mapping

Aim:

- to assess programme alignment regarding intended learning outcomes and other selected topics and identify possibilities to improve alignment

Key questions:

- How are current courses supporting student in achieving the intended learning outcomes?
- How should the programme organize its courses in order to best support students learning?



Select the approach (which topics you wish to review) for curriculum mapping, e.g., intended learning outcomes, contents, teaching methods, or specific skills, like teamwork skills or sustainability.



Fill in the curriculum map: issues to be mapped on the rows, courses on the columns.

In the exercise you can concentrate on 1-2 issues



Identify (in a dialogue with your teaching team), how students learn the issues throughout the courses. You can evaluate the current state or ideate development possibilities.



Remember to discuss the alignment with the teaching community and update the curriculum map regularly!

What can curriculum mapping be used for?

We can map different things...

- Programme ILO's
- Programme contents
- Particular themes
e.g., sustainability
- Teaching methods
- Workload
- ...

...and from different directions

Building alignment

- *How do courses match with renewed programme ILOs?*
- *Are the courses organized so that students can build upon what they have learnt on previous courses?*
- *How can we balance the workload throughout the studies?*

Ensuring the alignment when making updates

- *When making changes, how are the programme ILOs and courses aligned?*

Tracing hidden elements

- *What kind of sustainability related topics are we currently teaching?*

Mapping the future potential

- *Which courses could contribute to sustainability related ILOs?*

Conducting a curriculum mapping exercise

When planning a curriculum mapping exercise you can utilize the instructions in Programme director's handbook: **Curriculum mapping**

The page includes **1) instructions, 2) a template for curriculum mapping and 3) a workshop template**

Template A (for developing alignment)

Instructions: Fill in the intended learning outcomes (ILO) and courses. Map each course to the ILOs

Individually: write, how does your course contribute to each of the ILOs. Collectively: Regarding each ILO, what is expected from students when they come to the course. What do they know after the course?

ILOs	Courses														
	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Course 7	Course 8	Course 9	Course 10	Course 11	Course 12	Course 13	Course 14	Course 15
ILO 1															
ILO 2															
ILO 3															
ILO 4															
ILO 5															
ILO 6															
ILO 7															
ILO 8															

Template B: (for communicating the alignment)

Instructions: Fill in the intended learning outcomes (ILO) and courses. Map each course to the ILOs 1= this ILO is a minor part of this course 2= This course supports the fulfillment of this learning outcome 3= this ILO is a central element of this course

ILOs	Courses														
	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Course 7	Course 8	Course 9	Course 10	Course 11	Course 12	Course 13	Course 14	Course 15
ILO 1															
ILO 2															
ILO 3															
ILO 4															
ILO 5															
ILO 6															
ILO 7															
ILO 8															

Group work wrap-up

Instructions for wrap-up



10 minutes / group

- 1. Briefly describe the exercise you did with your group to others:**
 - What was the aim, what did you do?
- 2. Share your reflections about the exercise:**
 - How did it go?
 - Was there something new / surprising / not working / especially useful?

Instructions concerning next session

Mentoring during 4th session

AIM of the mentoring:

- to coach the other team to move forward with their development project
- to get acquainted in a deeper level with other programme/major context
- share experiences with another team and build shared understanding of the topics and maybe brainstorm solutions as well

HOW to do it:

- **Share a link to your development project report to the mentoring team members by 19.5. in MyCourses (GROUP DEVELOPMENT PROJECT)**
- Read the other team's report before the fourth session 26.5.
- **Note!**
 - The report or the project does not have to be ready at this point; you talk about the current situation of the project with the mentoring team
 - the mentoring team will help you move forward by asking questions and discussing the topic (a list of possible questions will be provided by the teachers)

Mentoring pairs:

ARTS:

**Salla &
Jonathan**

ARTS:

**Oscar, Nuria,
Namkyu, Kuura,
Denise**

SCI:

**Fabricio &
Lasse**

ENG:

**Maaria,
Mirjam &
Matti**

CHEM:

**Anna &
Pauliina**

**Matias,
Stephan &
Augusto**

Timetable for the project

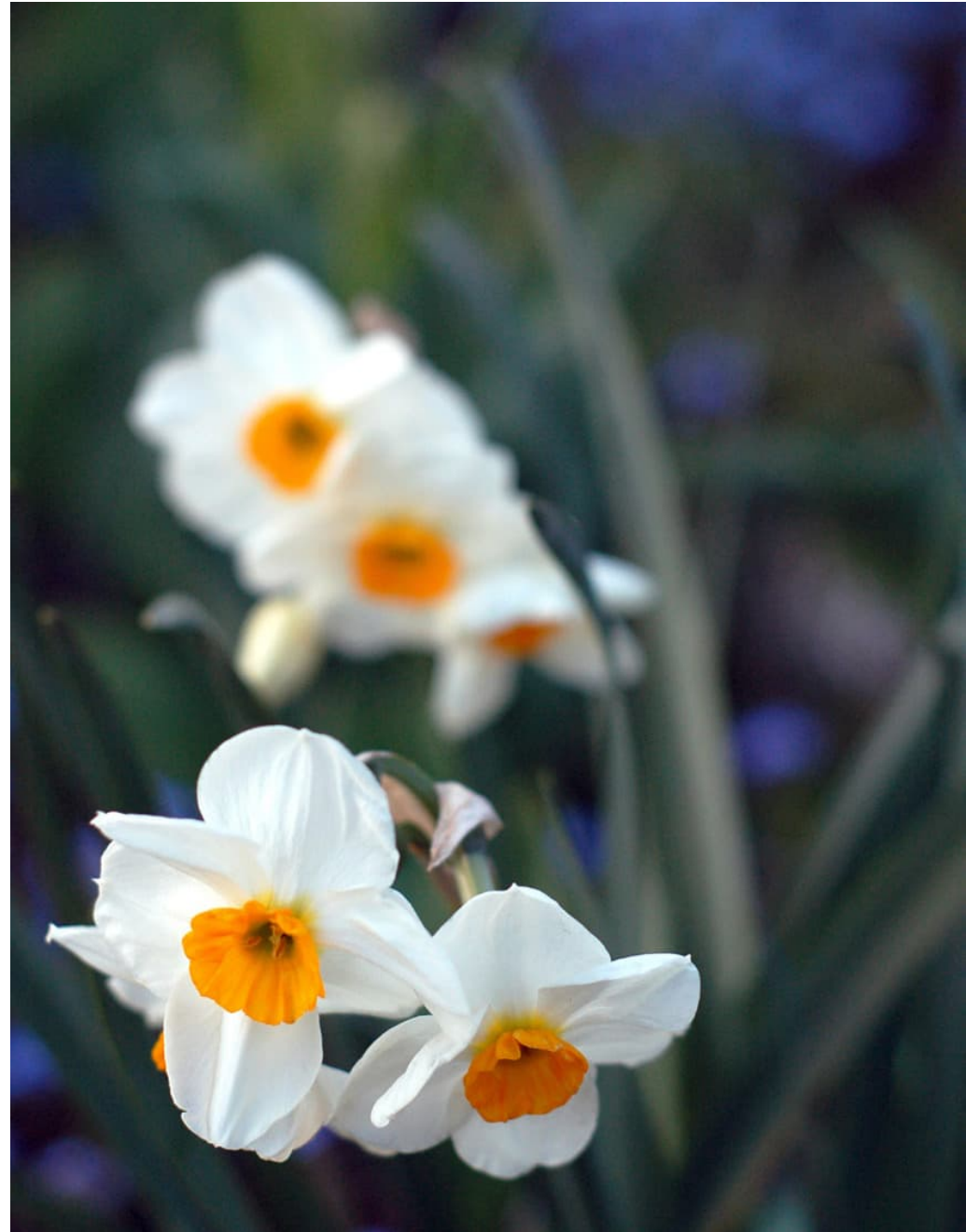
- **By 5.5.** decide the development project topic, write description and justification to the report and provide a link to the report for the teachers
- **Fri 12.5.** third session of the course, mentoring teams announced
- **By 19.5.** send the link to your report for your mentoring team (the report as it at this stage) and start preparing for mentoring (read the other groups report and make notes)
- **Fri 26.5.** fourth session of the course, team mentoring session (aim is to get support and ideas for others for the project)
- prepare presentation of your project (report does not have to be ready yet)
- **Fri 16.6.** final session of the course, project presentations (report does not have to be ready yet)
- **By 22.6.** submit your final report

Feedback and conclusion

How are we doing?

Feedback about the course:

<https://presemo.aalto.fi/cdfeedback/>

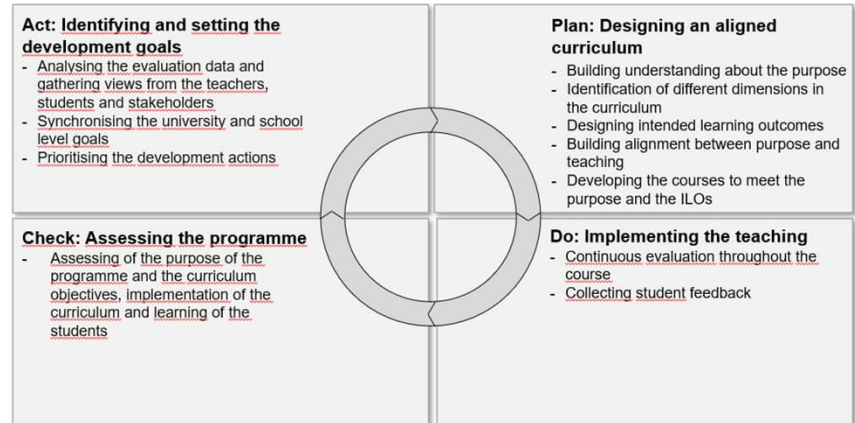


Summary of the day

After the course, you will be able to:

1. to discuss the different approaches of the curriculum in higher education
2. **to identify the curriculum development process and practices and reflect on them in relation to their degree programme/major/minor**
3. reflect the principles of constructive alignment in curriculum development
4. **identify and apply tools in curriculum development**
5. **co-develop the curriculum together with the teaching team involved in the development**
6. make a plan for continuous development

- ❖ What was the phase of development that you were dealing with today?
- ❖ Did you find any new tool or approach that could be useful for you in your development?
- ❖ What elements made the group work possible today?



Thank you!



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