IN5320 Development in Platform Ecosystems

Introduction and course practicalities

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Today's outline

1) The topic of this course

"The rise of platforms"

2) DHIS2 as a platform case

3) Course practicalities

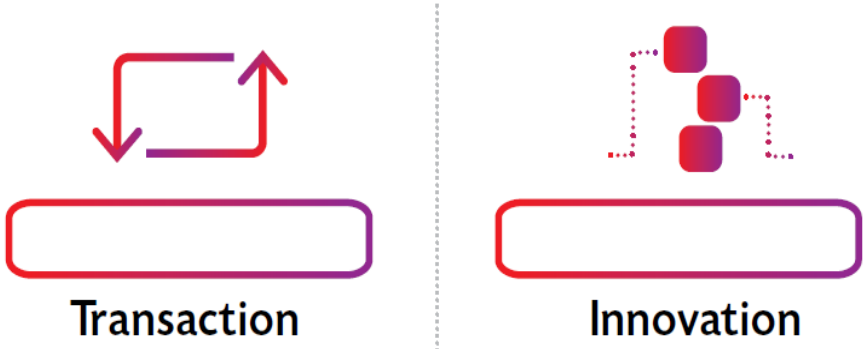
1. Course structure and timeline
2. Lectures and course readings (course curriculum)
3. Compulsory assignments & self study
4. Group work
5. Exam and grading

The rise of platforms

*"The emergence of **platform ecosystems** is relocating the locus of **innovation** from the firm to a **massive network** of outside firms"*

- Tiwana, 2013

Digital Platforms: two archetypes



Transaction platforms

Facilitate transactions between different groups (e.g. social media, marketplaces, music, gaming and sharing economy)

Innovation platforms / Software platforms

A **foundation** on top of which other actors develop **complementary** technologies, products or services (e.g. Microsoft, Oracle, Intel, SAP and Salesforce)

Economic view and technical view

Transaction

Platforms (economic view):

- Multi-sided markets
- Competition / pricing strategies
- Network effects
- Lock in

Innovation

Platforms (technical view):

- Architecture
- Modularity
- Openness
- Interfaces (e.g. APIs)

Software Platform

Consumer Platforms

Industry platforms

Enterprise Software Platform

Not that simple after all…

There are **HYBRID platforms**…

Think of *transaction-platformness*
and *innovation-platformness*

This course…

is primarily about innovation platforms where complementors contribute to the functionality and capabilities of the platform

If you are more interested in the evolutionary dynamics or competitive strategies of digital ecosystems, IN4150 – Digital Ecosystems is more relevant

IN5320 is about innovation platforms

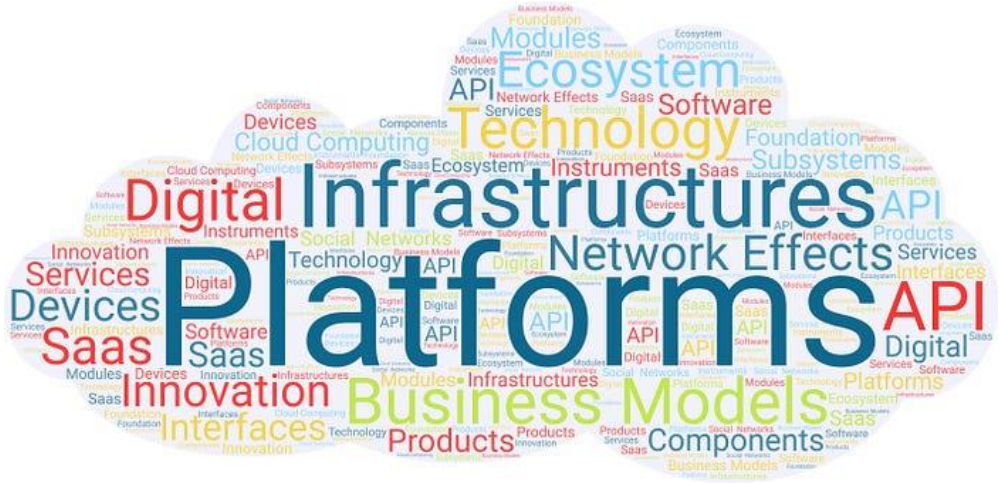
An extensible software product or service that serves as a **foundation** on which **independent outside parties** can build **complementary products or services** ("Apps") that interoperate through the platform's **interfaces** - Tiwana, 2013

Almost all successful software platforms started out as **standalone products or services**. Only after wide adoption did they add a second side—**developers**—and transform into platforms

What will you learn?

Skill: Hands on **front-end** development of **web-based app** in a platform ecosystem

Knowledge: You will develop a **perspective on development in platform ecosystems** from lectures and literature

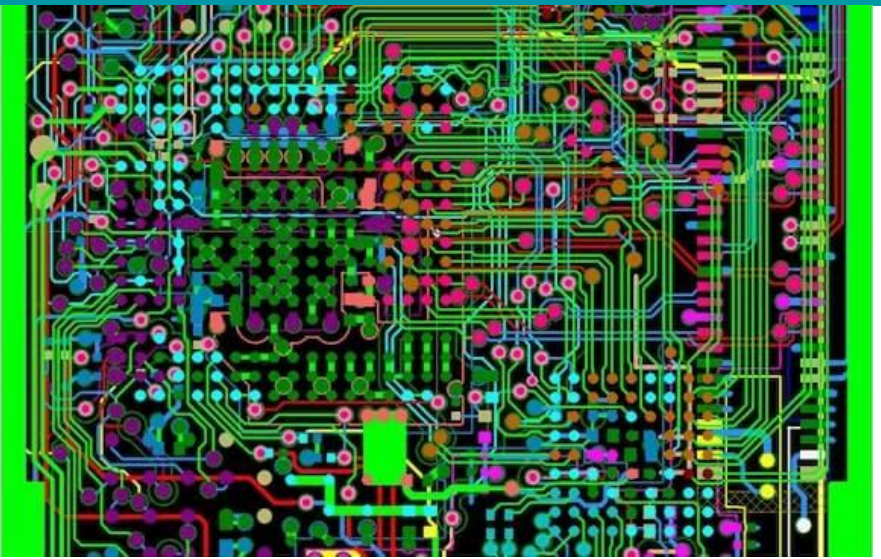


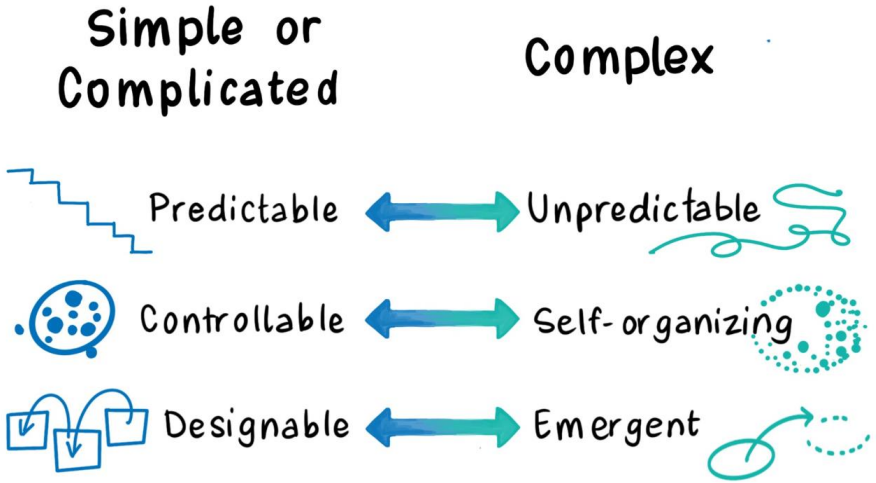
Learning outcomes (skill & understanding)

After you have completed this course you:

- will have an understanding of the socio-technical complexity related to large-scale information systems that span several use-cases and contexts.
- can reflect on how platform architectures, governance, and organisational models might enable distributed development of applications that are sensitive to local requirements within a larger system.
- can reflect critically on the organisational and social implications of digital platforms.
- can prototype and develop apps for a software platform, leveraging APIs and other platform resources.
- will have insight into the development of web-based software with JavaScript and HTML, using modern frameworks.
- will have experience with developing software in a team.

Platform ecosystems are complex systems





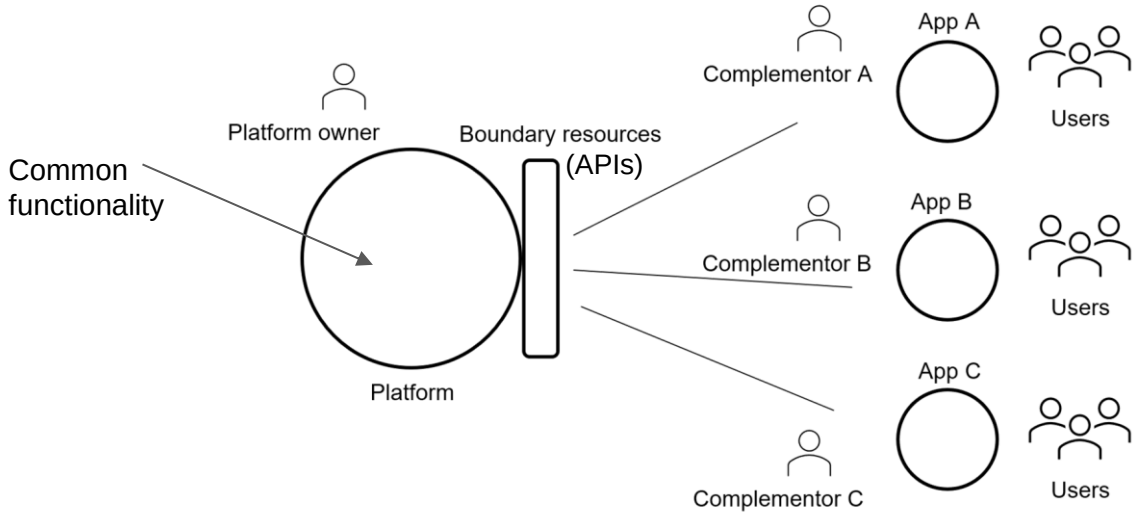
Complex systems are beyond intuitive understanding and **cannot be *fully* controlled**

Complicated => **orderly structure** is built into the minute details - if you understand the details, you will understand the system

Platforms manage complexity through architecture

Stable interfaces support development of *apps* that extend core functionality
(Lectures on **platform architecture, goverance, complementors**)

Platform architecture allows for distributed **design and innovation**
(Assignments, and group work provide **hands on experince** as App developers / complementors)



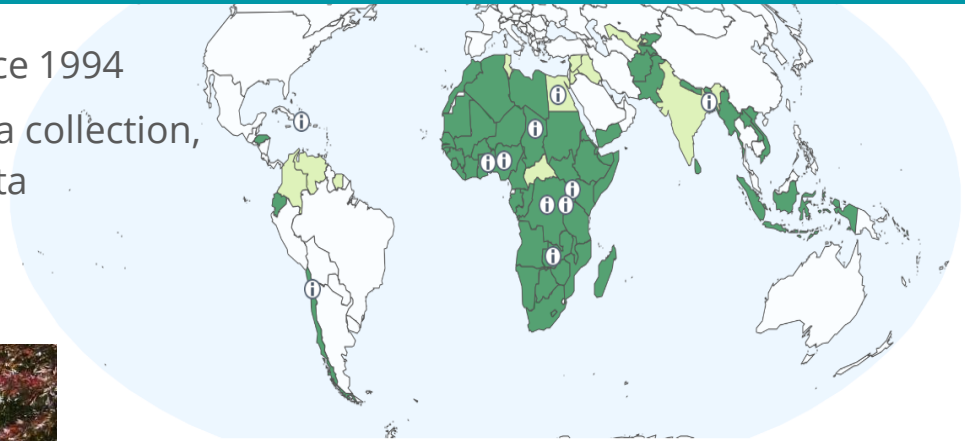
DHIS2 and HISP as a case in IN5320

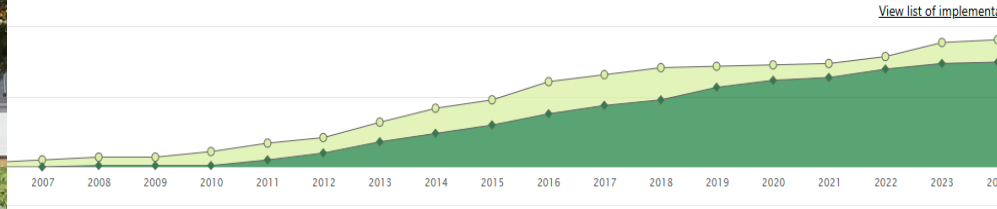
The DHIS2 platform and the HISP community

HISP is people, DHIS2 is software

HISP: implementation and research network since 1994

DHIS2: open-source web-based platform for data collection, storage, analysis, visualization and sharing of data





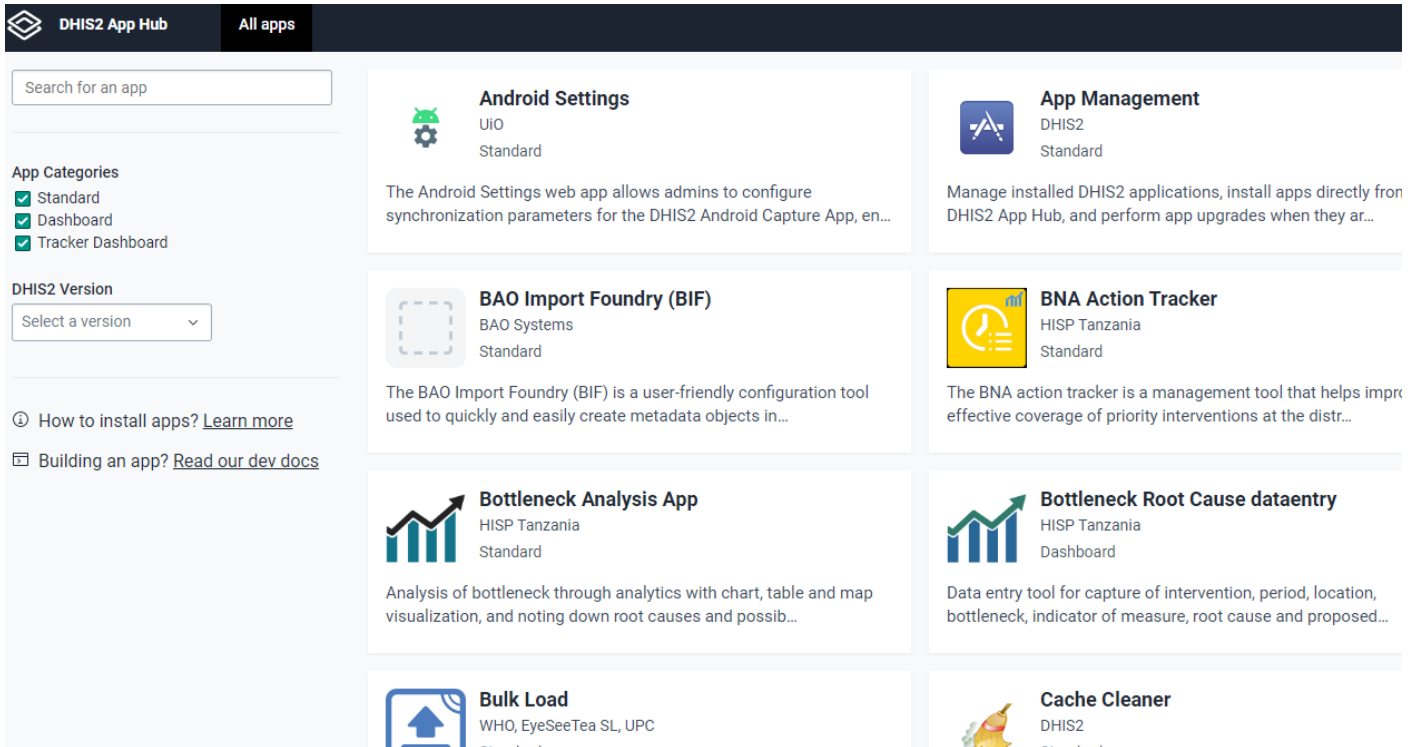
HISP Bangladesh	HISP Ghana	HISP Mali	HISP Sri Lanka	HISP Vietnam
HISP Colombia	HISP India	HISP Nigeria	HISP Tanzania	HISP WCA
HISP Côte d'Ivoire	HISP Indonesia	HISP Pakistan	HISP UNIMA (Malawi)	HISP Zimbabwe
HISP DRC	HISP Kenya	HISP Rwanda	HISP Uganda	Saudigitus (HISP
HISP Ethiopia	HISP MENA	HISP South Africa	HISP UiO	Mozambique)

DHIS2 as a software platform

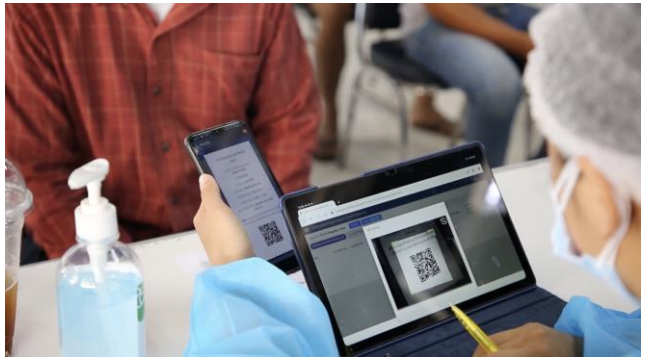
- The DHIS2 core remains stable, while providing support for local innovation
- DHIS2 Web API allows developers to **access** and shared **platform resources**

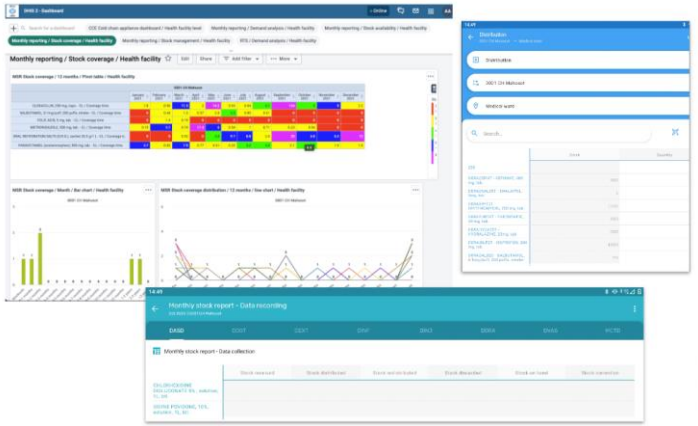
You will make a DHIS2 App

- DHIS2 core development is **coordinated** at IFI, UiO (HISP Centre)
- **Complementors** extend DHIS2 with Apps



What is DHIS2 used for?





[DHIS2: Configure, Collect, Analyze, Extend, Protect]

[About DHIS2 implementations: In Action - DHIS2]

Course structure

Link: course overview

Information is on the course web

IN5320 - Development in platform ecosystems

Semester page for IN5320 - Autumn 2025

Schedule →

Syllabus/reading list in Leganto →

Examination: Time and place →

Teachers

- → Terje Aksel Sanner
- → Alexander Moltubakk Kempton
- → Johanne Thunes
- → David Amatey Sampah

Messages

New message

No messages

Course resources

→ Course Overview 2025

Schedule

Plenary sessions

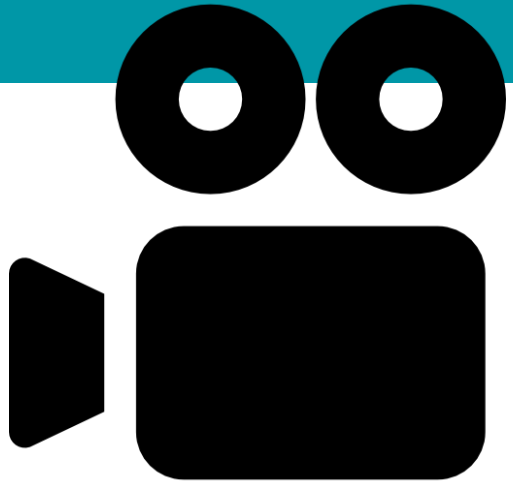
Show all activities (print version)

Lectures - Tue 14:15-16:00

Subscribe to these activities

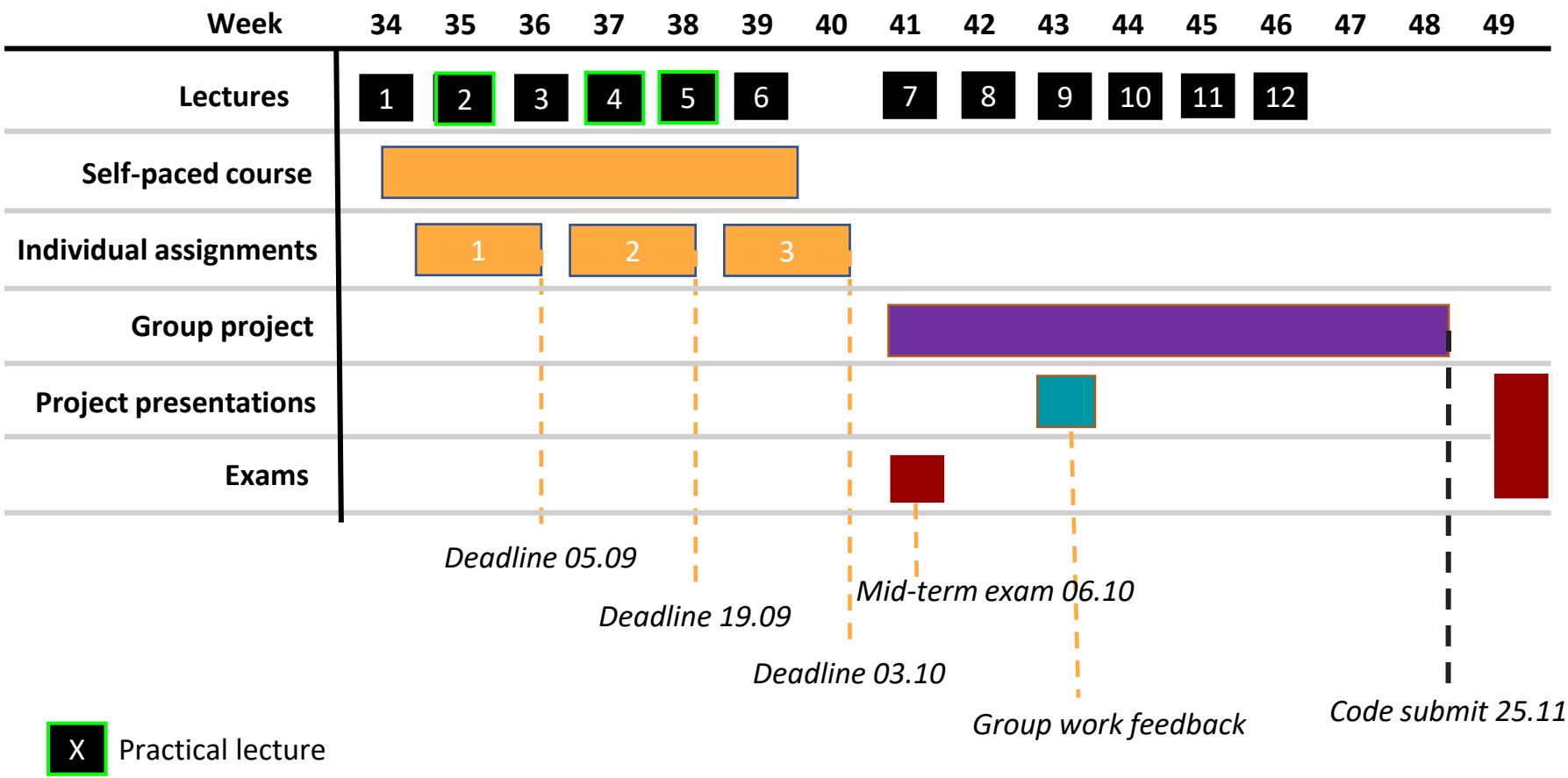
Date	Time	Activity	Place	Lecturer	Resources/curriculum
Tu. 19. Aug	14:15–16:00	The rise of platforms	KN, Store auditorium	• T.A. Sanner • J. Thunes	Read before lecture: Cusumano et al. (2020) "The Future of Platforms" Tiwana (2013) Chapter 1 and 3.
Tu. 26. Aug	14:15–16:00	Front-end development: HTML, CSS, JavaScript	KN, Store auditorium	D.A. Sampah	Self-paced Course: Web-app development
Tu. 2. Sep	14:15–16:00	Platform ecosystems	KN, Store auditorium	T.A. Sanner	Tiwana (2013) Chapter 2 and 4 Van Alstyne et al (2016). "Pipelines, platforms, and the new rules of strategy."
Tu. 9. Sep	14:15–16:00	Front-end development: React and DHIS2 API	KN, Store auditorium	• D.A. Sampah • T.A. Sanner	Self-paced Course: Web-app development
Tu. 16. Sep	14:15–16:00	Front end development frameworks and GIT	KN, Store auditorium	• T.A. Sanner • K. Vandevier	Self-paced Course: Web-app development
Tu. 23. Sep	14:15–16:00	Designing in a platform eco-system with guest talk from Oslo Municipality	KN, Store auditorium	J. Thunes	Self-paced Course: Web-app development
Tu. 30. Sep	14:15–16:00	Platform architectures	KN, Store auditorium	T.A. Sanner	Tiwana (2013) Chapter 5
Tu. 7. Oct	14:15–16:00	Platform governance	KN, Store auditorium	T.A. Sanner	Tiwana (2013) Chapter 6
Tu. 14. Oct	14:15–16:00	Boundary resources and knowledge boundaries	KN, Store auditorium	T.A. Sanner	Ghazawneh and Henfridsson (2013). "Balancing Platform Control and External Contribution" Foerderer et al (2019) "Knowledge

Recording of lectures



Lecture recordings will be **published on the course web** ***at the end of the term***

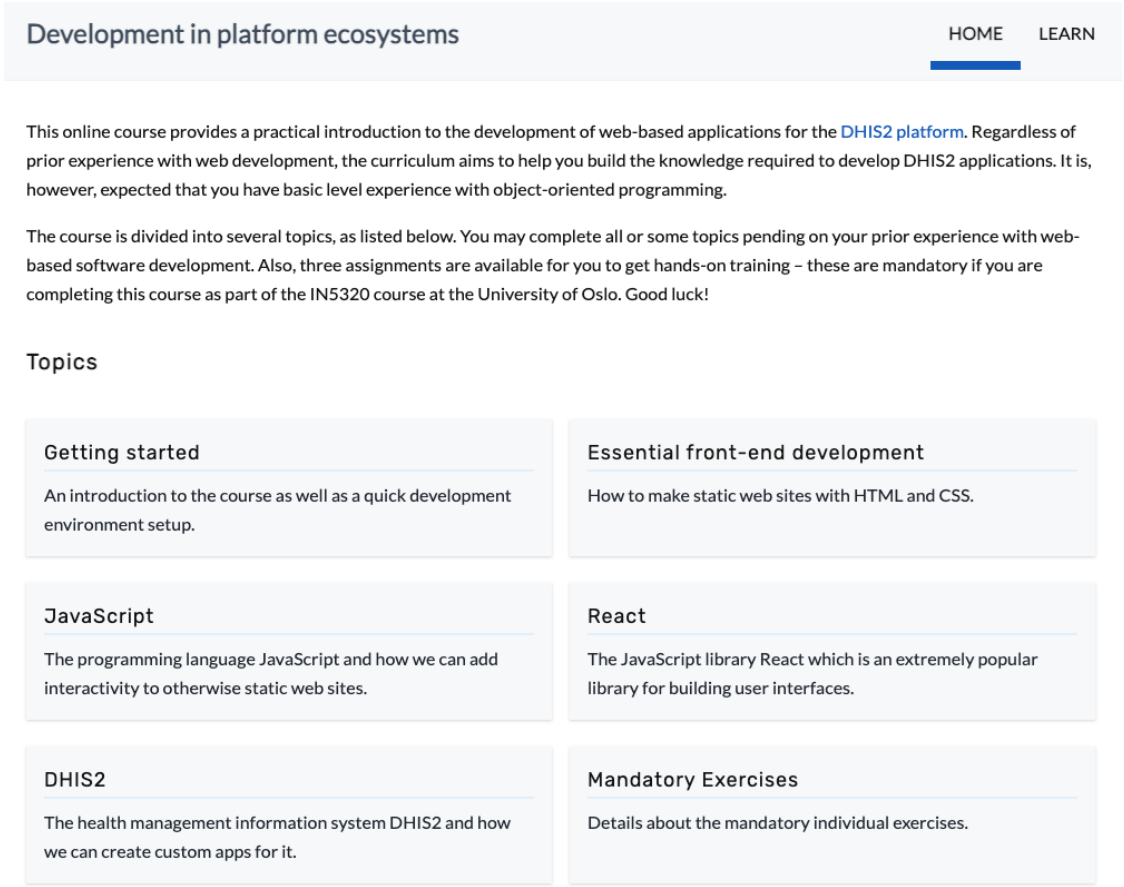
Course timeline



Self study & assignments

Self-paced training

You'll practice HTML, CSS, JavaScript, React, and DHIS2 app development using an online course



Individual assignments

- Hands-on development in a platform ecosystem
- Preparation for the group assignment.
- Focus on front-end: HTML, CSS, JavaScript, UX

Assignment 1 - HTML, CSS, JavaScript

Assignment 2 – React

Assignment 3 - DHIS2 web app development

Midterm exam

Midterm exam: multiple choice test based on self paced course and assignments: Graded A-F (**15% of course grade**)

The midterm is not a test of how great you are as a programmer

F => your IN5320 journey ends here

Group project

Group project

- Develop a web-app for the DHIS2 platform.
- Groups of 5 students.
- Whole group will work on **one** case.

- You will be provided with background information about the users, context, and a problem to be solved.
- Your group will select some requirements for your solution.

Group project – evaluation and grading

Your group will give two mandatory presentations of your work:

1. Mid-project presentation (proposed solution and some implementation)
2. Final project presentation: **Graded A-F**. **85% of course grade**.

Presentation 1 will be held in the group seminars. Fellow students, group teachers, and course lecturers will be present. Each presentation (est. 5 min), will be followed by brief feedback.

Presentation 2 (Exam) will be held with the course lecturers: present app solution, reflect on group work by drawing on course curriculum / lectures.

Please consider

Is *this course right for* ***you****?*

How to get support

Seminar groups

- Help with mandatory individual assignments.
- Help with project work.
- **Project presentation 1 (with feedback)**
- You can go to any (and as many) as you wish.

Group sessions

Gruppe 1 - Thu 14:15-16:00
Gruppe 2 - Wed 12:15-14:00
Gruppe 3 - Tue 12:15-14:00

UiO Discourse

- Course discussion forum
- Questions related to assignments and project
- Student-to-student help forum (if you invest in it!)
- Group teachers can answer some questions
- Group teachers **do not have time** to respond to emails
- **Not a 24-7 support service**

Start... and keep going!

Follow lectures **and** complete the online self paced app-development course

If you have ***technical*** questions, use Discourse UiO, or ask in **Group Sessions**

We wish you speed!