

MatRIC Centre for Research,
Innovation and Coordination
of Mathematics Teaching

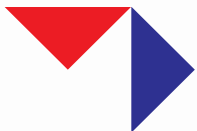


Centre of
Excellence in
Education

Establishment of a new Norwegian STACK community within MatRIC

Morten Brekke
University of Agder

International STACK user group meeting, Edinburgh April 2019



MatRIC Centre for Research,
Innovation and Coordination
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Morten Brekke

Professor

University of Agder

Department of Engineering

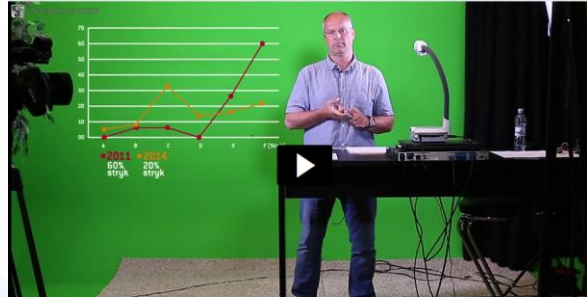
Teacher of Mathematics, Statistics
and Physics

MatRIC (40%)

Coordinator for MatRIC's

- Video network

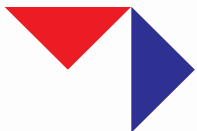
- Digital assessment network



Første meritterte underviser i
Agder



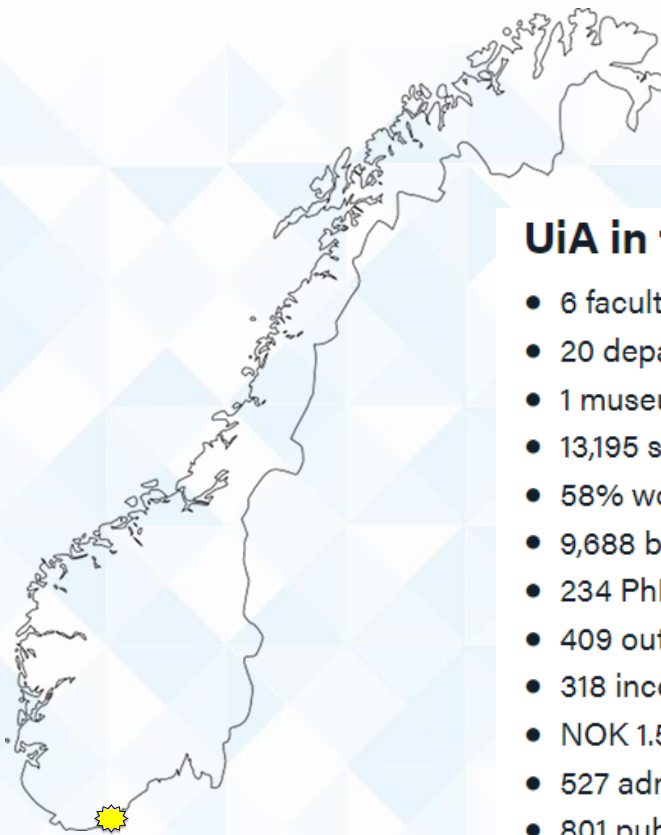
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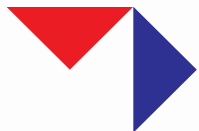
Outline

- MatRIC
- Why STACK?
- Some projects
- Where we are



UiA in figures

- 6 faculties + Teacher Education Unit
- 20 departments
- 1 museum
- 13,195 students (autumn 2018)
- 58% women / 42% men
- 9,688 bachelor / 3,138 master
- 234 PhD
- 409 outgoing exchange students
- 318 incoming exchange students
- NOK 1.5 billion in total budget
- 527 administrative staff / 777 academic staff
- 801 publication points (2017)



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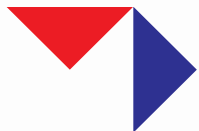


Centre of
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Education

MatRIC - www.matric.no

Centres of Excellence in Higher Education (SFU) in Norway

MatRIC's vision is of students enjoying transformed and improved learning experiences of mathematics in higher education.



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Centres of Excellence in Higher Education (SFU) in Norway

MatRIC's vision is to be a national centre for better teaching and learning of mathematics within natural sciences and professional education at university/university college level.



Sign up for the MatRIC Newsletter at

www.matric.no

HIGHER EDUCATION MATHEMATICS TEACHING COURSE

A course about teaching mathematics designed for recently appointed mathematics lecturers in
universities and...

[Learn more](#)



14-15 October 2019

MatRIC Annual Conference

This year to be held in Bergen.

Main speakers:

Professor Michael Dorff, President of the Mathematical Association of America,

Emeritus Professor John Mason Oxford University & Open University UK.



in



European Society for
Engineering Education

The 20th SEFI Mathematics Working Group Seminar

Faculty of Engineering and Science, University of Agder

15 – 17 of June in Kristiansand, Norway

atRIC

Morten Brekke ▾

MAIN MENU

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Programme

Call for papers

Important dates

Registration fees

Final registration and payment

Accommodation

Travel information

Committees

Social events and attractions
in Kristiansand

Campus map

Contact

WELCOME



UNIVERSITY OF AGDER



MatRIC Centre for Research,
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The 20th SEFI Mathematics Working Group Seminar on Mathematics in Engineering Education

15 - 17 of June 2020 in Kristiansand, Norway.

The [SEFI \(European Society for Engineering Education\) Mathematics Working Group \(MWG\)](#) was established in 1982. The aims of the Working Group include providing a forum for the exchange of views and ideas amongst those interested in engineering mathematics, and promoting a fuller understanding of the role of mathematics in the engineering curriculum, and its relevance to industrial needs. The Working Group issued the third edition of its [curriculum document](#) ("A Framework for Mathematics Curricula in Engineering Education") in September 2013.

The 20th SEFI MWG seminar will be organised by [MatRIC](#) and [University of Agder](#) in Kristiansand, Norway. The overarching theme of the seminar will be 'xxx'. This includes in particular the following issues:

NEWS


[First
Announcement
of SEFI2020](#)



Why STACK - Background

Teaching Mathematics to engineering students is a challenge.

With:

- High failure rate
 - Large student-groups
 - Large curriculum
 - “pass pressure” from stakeholders and students
- 

Why STACK - Background

Admission requirements for attending a bachelor programme in engineering can be divided into four groups:

1. From upper secondary school, **with** Mathematics and Physics.
2. One-year preliminary course for engineers.
3. From upper secondary school, **without** Mathematics and Physics.
4. Students with vocational certificates (carpentry, electronics ...)

Why STACK - Background

40% of our students comes from group 3 and 4 (no math).
(Bachelor in engineering)

- They have a 6-week pre-course in Maths before 1. semester
- About 50% of these students either do not pass or drop out
- We need to do something about this high failure rate.
- We received a grant of 20.000 euro to improve student's performance (Chris Sangwin, George Kinnear and Richard Gratwick from University of Edinburgh – working agreement with UiA)

Why STACK

We have decided to use STACK for training and testing our students.

- I have used other CAA-tool for several years
- I see STACK as “the most sophisticated” tool
- We do have collaboration with STACK (Sangwin)
- It is free of use and you can share/copy existing problems
- **Abacus/Ilias/Domain**

Projects

These projects will be open/free for other Norwegian institutions.

- Development of questions in STACK for *'Forkurset - Preparatory course for engineering'*. Ends with a national given exam.
(Development agreement with University of Edinburgh)
- MatRIC Moodle server. (Open for all Norwegian institutions)
- SALDiV - *Student Active Learning resources with Digital Assessment*
(*StudentAktive Læringsressurser med Digital Vurdering*)
(Project with University of Edinburgh and University of Stavanger)



HIGHER EDUCATION MATHEMATICS TEACHING COURSE

A course about teaching mathematics designed for recently appointed mathematics lecturers in
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MatRIC NMT

Participants

Badges

Competencies

Grades

General

Topic 1

Topic 2

Topic 3

Topic 4

Dashboard

Site home

Calendar

Private files

MatRIC NMT 2019 testcourse

[Dashboard](#) / [Courses](#) / [MatRIC NMT](#) / [Question bank](#) / [Questions](#)

Questions

Categories

Import

Export

Question bank

Select a category:

No tag filters applied

Filter by tags... ▼

Show question text in the question list

[Search options](#) ▼

Also show questions from subcategories

Also show old questions

Create a new question ...

<input type="checkbox"/>		Question	Created by	Last modified by
			First name / Surname / Date	First name / Surname / Date
<input type="checkbox"/>		2D integral 1 FI/EN	Morten Brekke	Morten Brekke
			28 March 2019, 11:31 AM	28 March 2019, 11:31 AM
<input type="checkbox"/>		2D integral 2 FI/EN	Morten Brekke	Morten Brekke
			28 March 2019, 11:31 AM	28 March 2019, 11:31 AM
<input type="checkbox"/>		2D integral 3 FI/EN	Morten Brekke	Morten Brekke
			28 March 2019, 11:31 AM	28 March 2019, 11:31 AM

SALDiV *Student Active Learning resources with Digital Assessment*

Application to DIKU with a total budget of 6.500.000 NOK.

DIKU - Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education

Development of four working packages all with use of STACK

1. *The mathematical apprentice*
2. *'Virtual Lab'* - Physics
3. Development of tests with *"Student active problems"*
4. Integrate STACK to our Digital Exam tool - *Inspira*

SALDiV *Student Active Learning resources with Digital Assessment*

Application to DIKU with a total budget of 6 500 000 NOK.

DIKU - Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education

Development of four working packages, all with use of STACK

1. *The mathematical approach*
2. 'Virtual Lab' - Physics
3. Development of tests with "Student active programs"
4. Integrate STACK to our Digital Exam tool - *Inspera*

Still Early Days

We are using resources on dissemination.

- Got a lot of positive feedback from the Norwegian STEM conference in March 2019.
- We are using our MatRIC Contact Group (teachers from all institutions in Norway teaching Mathematics).
- We are invited to the next National seminar for the *Preparatory course for engineering* in September 2019.
- 6 other institutions has shown interest in development/use of STACK material

Challenges

- Manpower/People are busy
- How do we improve authoring skills in STACK
- **Thank you for your attention!**

