Auto-graded Assessments with MATLAB Grader
Supporting Technical Education Series - Resources & Open Discussions with MathWorks

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Webinar start: 01:00 PM CET / 04:30 PM IST

- Use the Q & A functionality to ask questions to the speakers

- We'll host a **10-min Q & A at the end** & a **45-min feedback session next week** (April 28th, 01:00 PM CET / 04:30 PM IST)

- Information on accessing MATLAB and Simulink and placing request for trials will be covered in the presentation
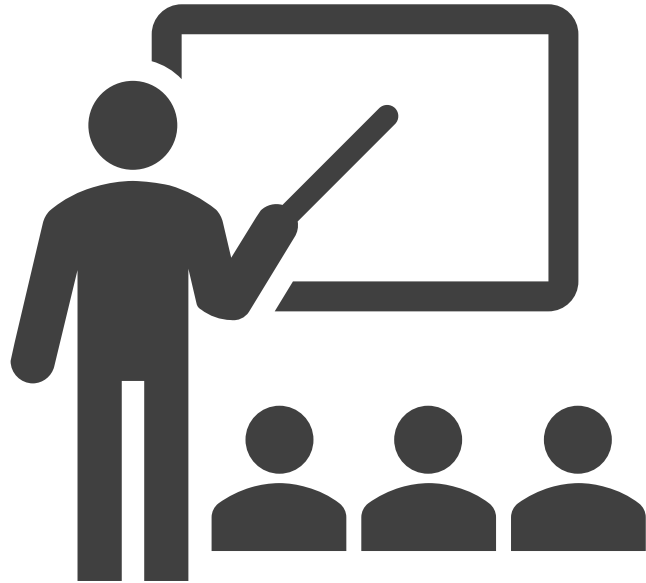
The Rise of Online Learning
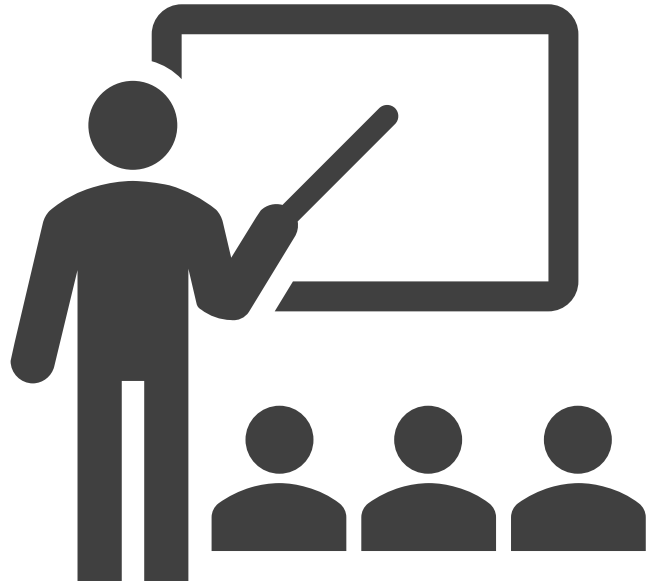
In-person classes

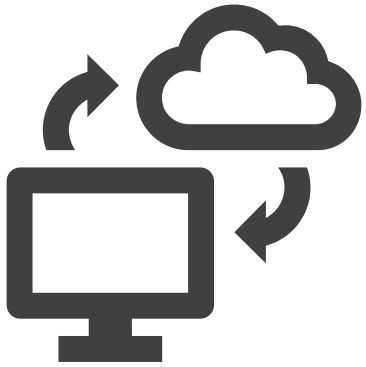Online classes

The Rise of Hybrid Learning

In-person classes

Online classes

Adapting your course

Access

Instruction

Assessment

Getting Help

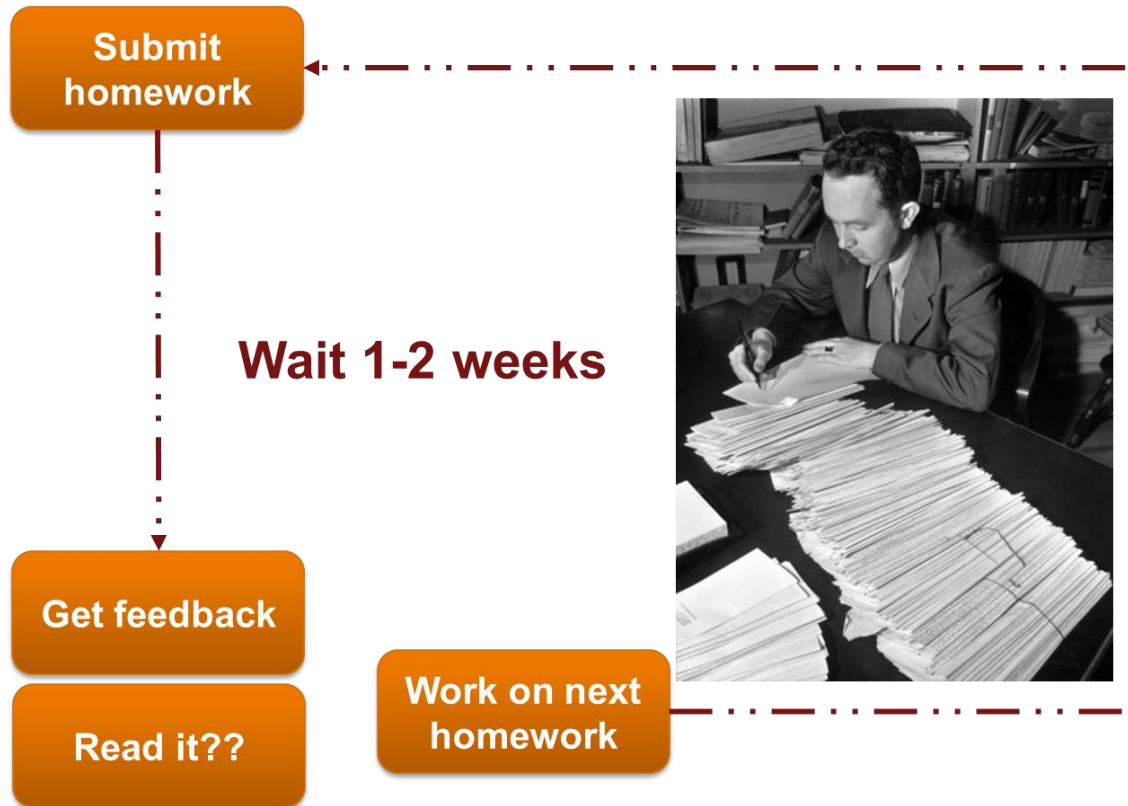# Poll: Do you give out MATLAB-based assignments in your course?
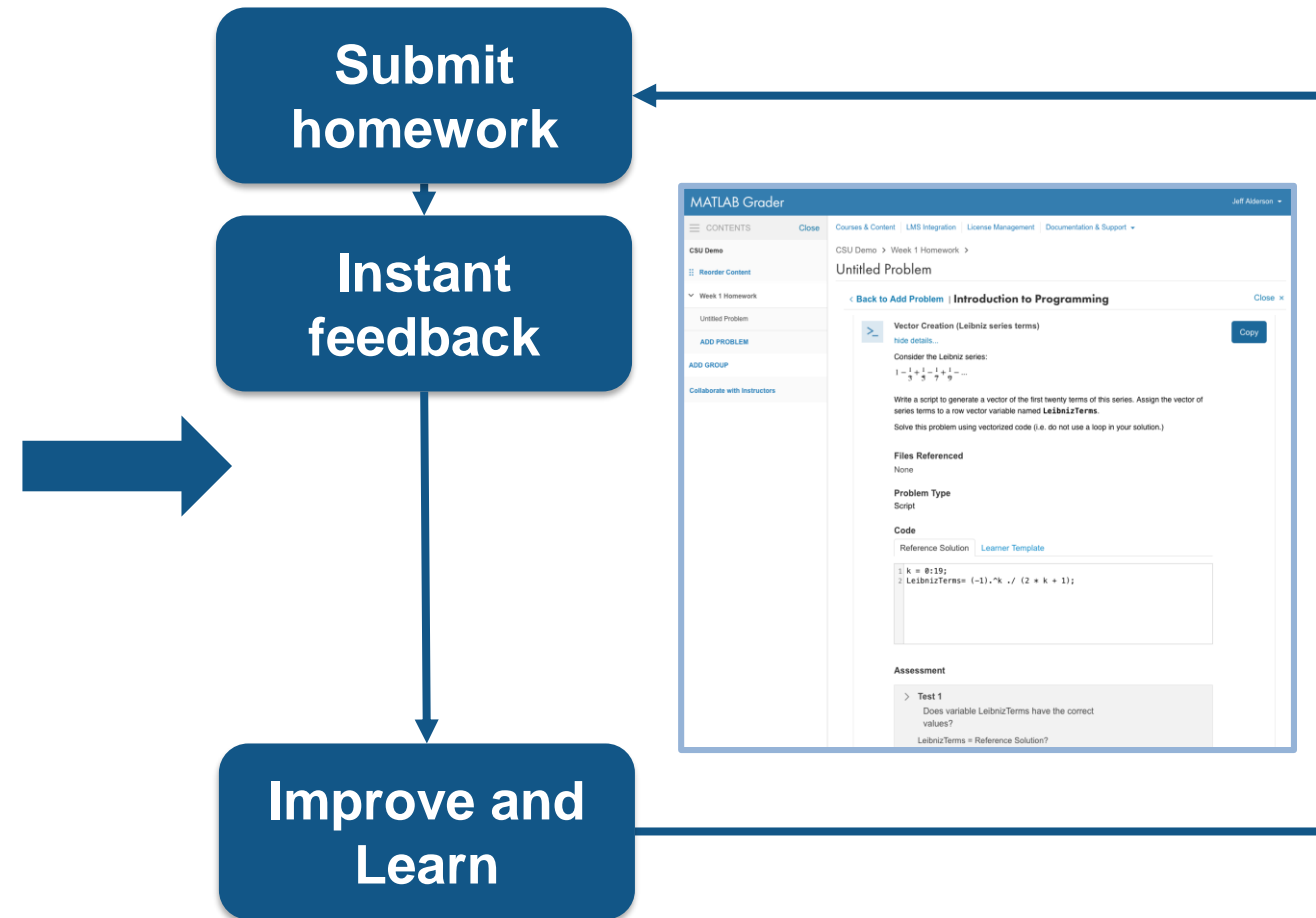
A. Yes

B. No

What is MATLAB Grader?

A tool to save time grading MATLAB code and provide immediate feedback to students

Traditional Grading

Submit homework

Wait 1-2 weeks

Get feedback

Read it??

Work on next homework

Auto-grading

Submit homework

Instant feedback

Improve and Learn

Auto-graded Assessments using MATLAB Grader

Challenges in Grading
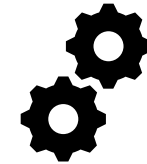
Solutions

Demo of MATLAB Grader

LMS tools and integration

Summary

Poll: What are the challenges in conducting effective assessments of MATLAB skills from an <u>instructor's</u> perspective?
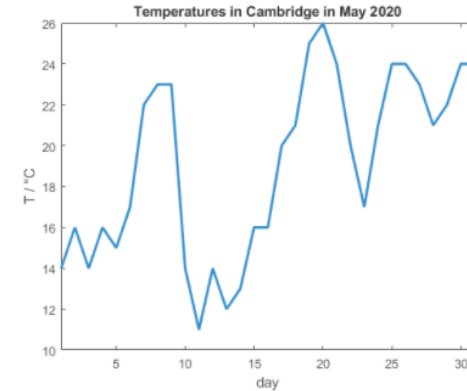
A. Large number of submissions of assignments

B. Evaluating accuracy of submitted code in a timely manner

C. Identify concepts that need to be reinforced and students who need help

D. All of the above

Poll: What are the challenges in attempting coding assignments from a <u>student's</u> perspective?

A. Difficulty in understanding the assignment

B. Time spent in assembling all components (problem, coding environment, etc.) required to complete the assignment

C. Delayed feedback hinders the learning process

D. All of the above

How MATLAB Grader addresses Challenges in Assessments?

- Generating interest in attempting assignments
  – Use pictures, links to video tutorials, and research papers

- Large number of submissions of assignments
  – Automated framework for assessment

How MATLAB Grader addresses Challenges in Assessments?

- Generating interest in attempting assignments – Use pictures, links to video tutorials, and research papers

- Large number of submissions of assignments – Automated framework for assessment

- Evaluating accuracy of submitted code and provide timely feedback – Students receive MATLAB output and instantaneous feedback

- Identify concepts that need to be reinforced and students who need help – Learner analytics

MathWorks-Hosted Version and LMS Version

MathWorks-Hosted Version

- Access via grader.mathworks.com

- Students require a MathWorks account
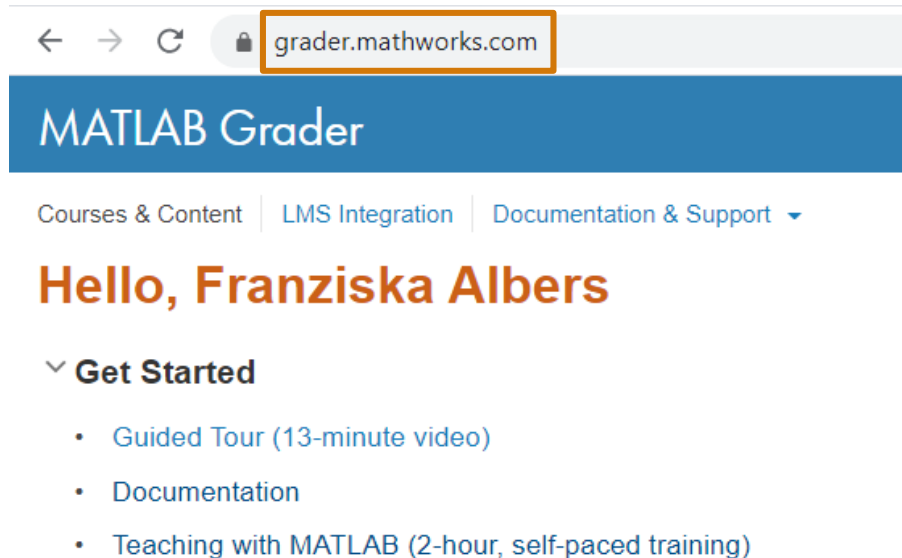
LMS Version

- Access via the learning management system (Canvas, Blackboard, Moodle, ...)

- Students do not require a MathWorks account

MATLAB Grader Demo – MathWorks-Hosted Version

Instructor Workflow

Create Content
Create a new problem
Add a problem from Examples
Create a problem from scratch

Share Content / Courses
Invite TAs/graders/instructors
Invite students / add to course syllabus

Assess Learning
Download submissions or view in LMS
Create grading rubrics

For Instructors: Create Courses and Coding Problems

Student Workflow

Develop Solutions
Write MATLAB solutions in the browser
Use MATLAB desktop to develop solutions

Test and Submit
Get instant feedback from test suites
Submit solutions for assessment

Refine Solutions
Use Solution Map to write better code
Compare solution with peer submissions

For Learners: Participate in Courses and Solve Problems
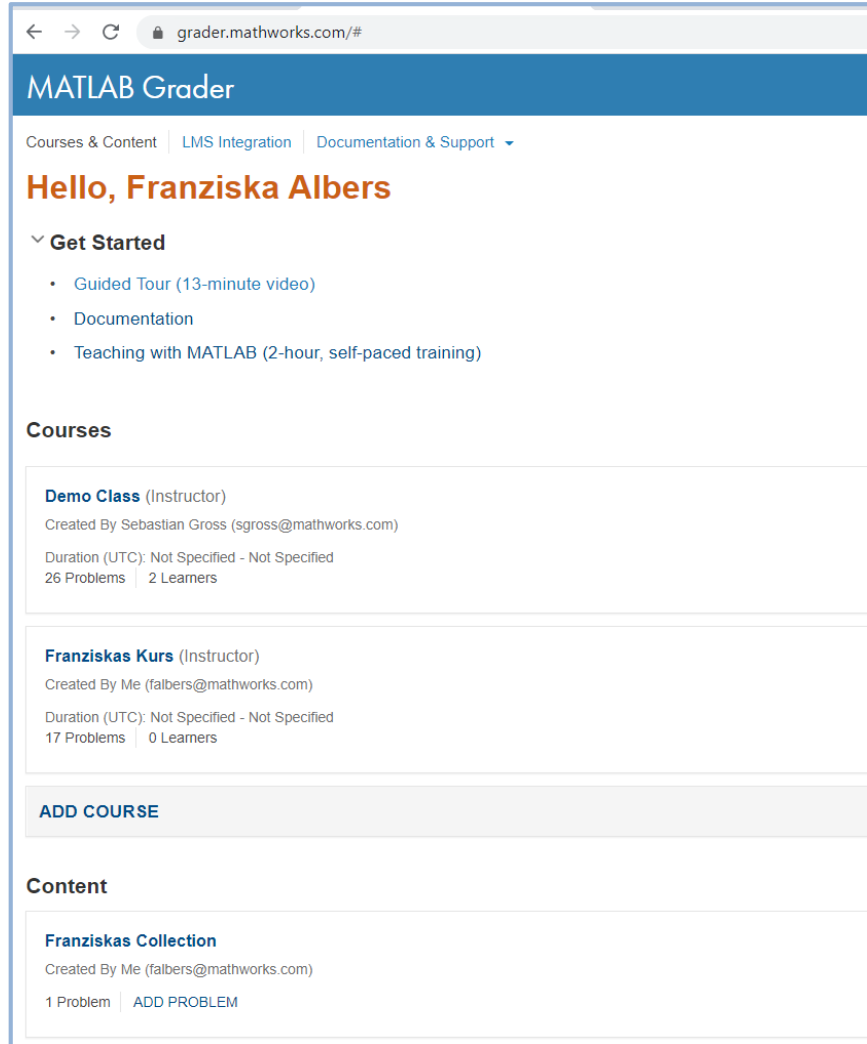
https://grader.mathworks.com

Example Exercise – Statistics of Cambridge Temperatures

- Load data from CambridgeTemperatures.dat and save in variable **T**

- Visualize the data with a histogram

- Compute the mean temperature

Temperatures in Cambridge in May 2020

MATLAB Grader Demo: MathWorks-Hosted Version

https://grader.mathworks.com

Integrate MATLAB Grader with your Learning Management System

Administrator

- One-time setup in less than 10 minutes

Educator

- Access MATLAB Grader within LMS
- Manage student cohorts and gradebooks

Student

- Access MATLAB Grader within LMS
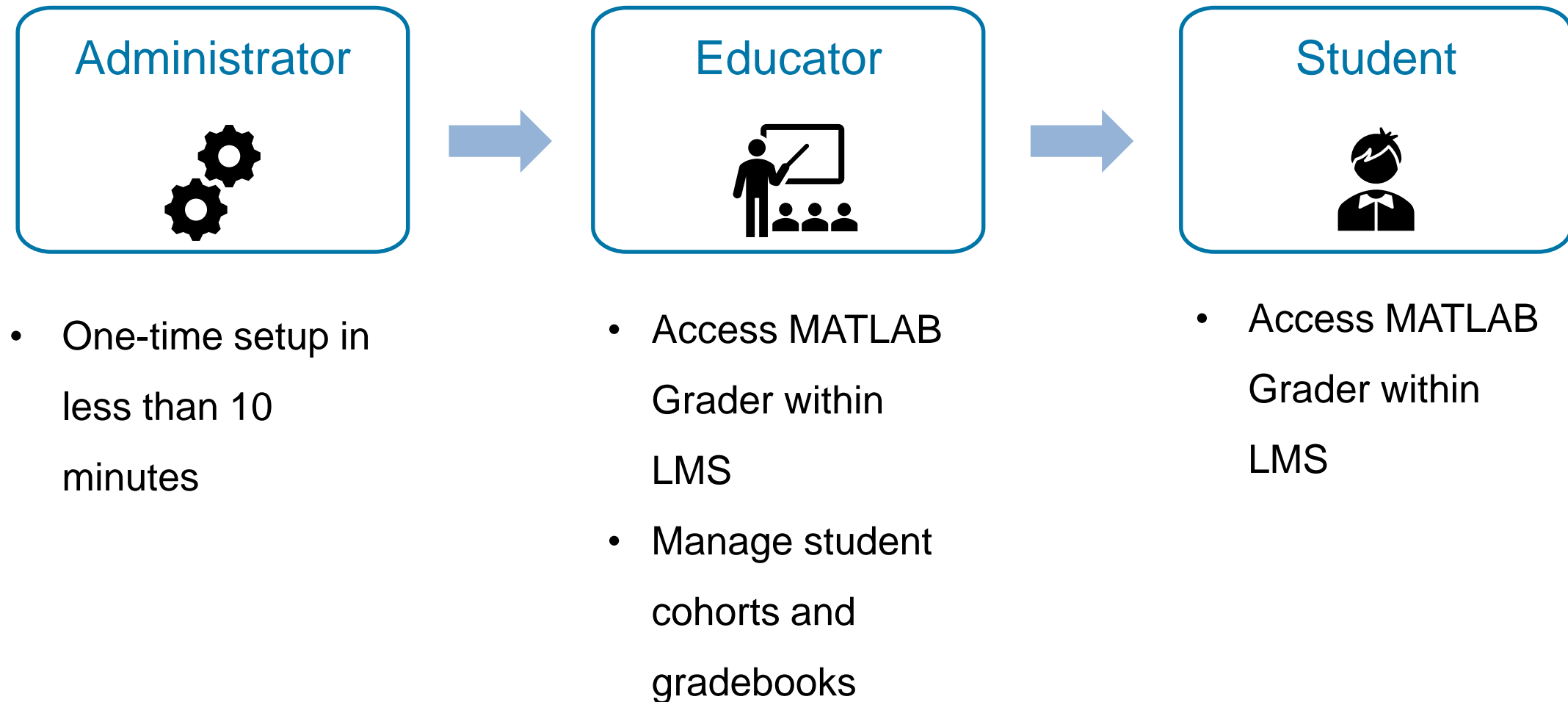
User Story: Chalmers University of Technology
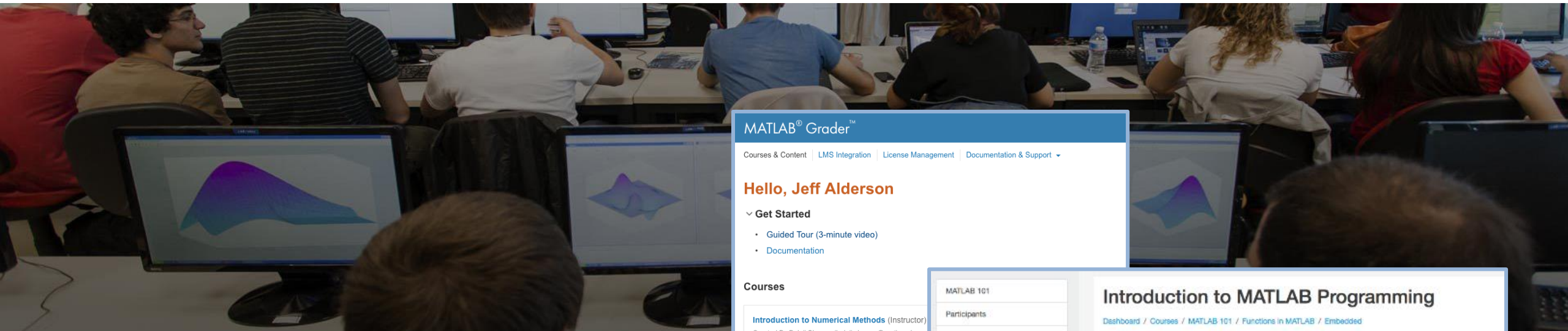
Course: **Deterministic Modeling of Nuclear Systems**
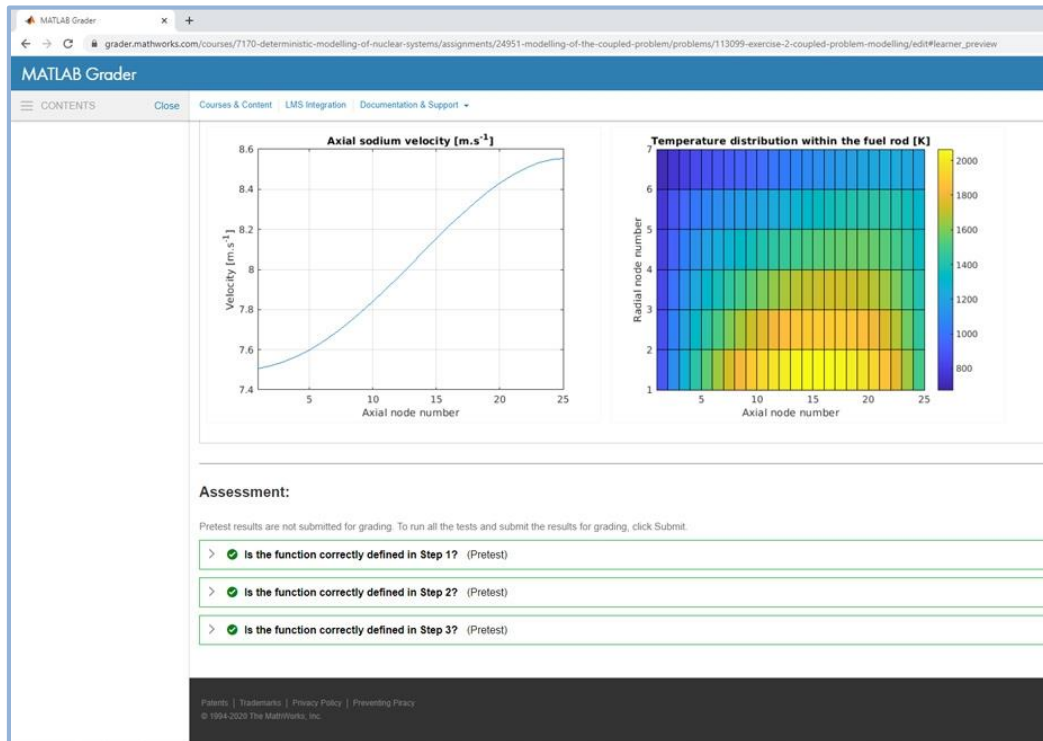
*"MATLAB Grader automatically grades the exercises and provides feedback, **leaving me and my teaching assistant free to work one-on-one with students.***

*The web-based MATLAB Grader interface also ensures that all students, whether local or remote, have **access to the same coding environment**."*

-- Prof. Christophe Demaziere, Department of physics at Chalmers University of Technology, Sweden

User Story: Nuclear Reactor Modeling Through Distance Learning

MATLAB Grader

Create interactive course assignments

Automatically grade student work and provide feedback

Run your assignments in any learning environment

Get started on MATLAB Grader for free today!

https://grader.mathworks.com/

For more information about MATLAB Grader:

https://www.mathworks.com/products/matlab-grader.html

Interested in LMS Integration?

Have your LMS Admin contact your MathWorks representative or emeaseries@mathworks.com.

Join the Office Hours on April 28th at 1 pm CEST/ 4:30 pm IST