

# Curriculum

for the Microcredentials Course

*Teaching STEM Subjects*

## § 1 General

(1) The extent of the Microcredentials course (MC course) *Teaching STEM Subjects* is 4 European Credit Transfer System credits (ECTS credits, ECTS-C).

(2) The workload for the individual coursework is specified in ECTS credits. One ECTS credit corresponds to a workload of 25 actual hours. The workload comprises the self-study component and the semester hours/contact hours, including participation in the assessment procedure. One Teaching Unit (TU) is 45 minutes.

(3) The MC course is taught in *English*.

## § 2 Goals and Target Group

### (1) Goals

*The focus of this workshop series is bringing participants up to date in research and teaching in STEM subjects (Science, Technology, Engineering and Mathematics) in connection with European priorities such as fostering sustainability, digital skills and intercultural learning. The European workshop series aims to refresh and deepen the knowledge of meaningful and relevant educational practices. Topics will include inquiry-based learning and interdisciplinarity, cultural diversity and inclusion, curriculum development and assessment in Europe, and the use and impact of technology on STEM education.*

*The sessions will be provided online and have a very interactive character with various working formats. Most sessions will consist of a general introduction followed by group work in country or mixed groups. Local teams can join together and follow the course from one room. In between sessions of a cluster, the participants will be requested to do homework and, if possible, to try out ideas with students in their classrooms. The course will be implemented in Moodle with Webex for online communication. Session video streams will also be saved and accessible in the Moodle environment.*

*The program of the workshop series is organised in four clusters. Each cluster addresses one main topic. The four clusters are:*

- 1. Trends in STEM education: inquiry-based transdisciplinary approaches, sustainability and socio-scientific issues*
- 2. Diversity and inclusion in STEM*
- 3. STEM in a digital era*
- 4. Assessment/STEM in Europe*

### (2) Target Group

*The European workshop series will offer a blend of seminars and workshops in primary and secondary education. The program will be tailored towards the diverse interests of both primary and secondary teachers and student-teachers.*

## § 3 Requirements

No specific prior knowledge is necessary.

## § 4 Completion

After successful completion of all teaching units and any other achievements, a certificate is issued by the University of Klagenfurt, which shows the name of the MC course, the TU and any other achievements, including assessment and the number of ECTS credits and their intended learning outcomes.

## § 5 Structure and Intended Learning Outcomes

<b>Teaching Cluster</b>	<b>TU</b>	<b>ECTS-C</b>
<b>Cluster 1: Trends in STEM education: inquiry-based transdisciplinary approaches, sustainability and socio-scientific issues</b>	<b>8</b>	<b>1</b>
<p><b>Intended learning outcomes</b></p> <p>After successfully completing the TU, participants will be able to understand and apply concepts, models and methods from the following subject areas, both theoretically and practically:</p> <ol style="list-style-type: none"> <li>1. Inquiry-based STEM Learning</li> <li>2. Integrated STEM</li> <li>3. Sustainability STEM Education and Socio-Scientific Issues</li> </ol>		
<b>Teaching Cluster</b>	<b>TU</b>	<b>ECTS-C</b>
<b>Cluster 2: Diversity and inclusion in STEM</b>	<b>8</b>	<b>1</b>
<p><b>Intended learning outcomes</b></p> <p>After successfully completing the TU, participants will be able to understand and apply concepts, models and methods from the following subject areas, both theoretically and practically:</p> <ol style="list-style-type: none"> <li>1. Introduction to Diversity and Inclusion in STEM Education</li> <li>2. Analysing and Designing STEM Tasks for Diversity and Inclusion</li> <li>3. Analysing Inclusive Classroom Practices (based upon try-outs)</li> </ol>		
<b>Teaching Cluster</b>	<b>TU</b>	<b>ECTS-C</b>
<b>Cluster 3: STEM in a digital era</b>	<b>8</b>	<b>1</b>
<p><b>Intended learning outcomes</b></p> <p>After successfully completing the TU, participants will be able to understand and apply concepts, models and methods from the following subject areas, both theoretically and practically:</p> <ol style="list-style-type: none"> <li>1. Digital Competencies, Skills and Technology and STEM Field</li> <li>2. Computational Thinking</li> <li>3. Escape Games in STEM Education and VR</li> </ol>		
<b>Teaching Cluster</b>	<b>TU</b>	<b>ECTS-C</b>
<b>Cluster 4: Assessment/STEM in Europe</b>	<b>8</b>	<b>1</b>
<p><b>Intended learning outcomes</b></p> <p>After successfully completing the TU, participants will be able to understand and apply concepts, models and methods from the following subject areas, both theoretically and practically:</p> <ol style="list-style-type: none"> <li>1. Innovative Assessment</li> <li>2. Preparing Participants to Adopt Innovative Assessment Practices</li> <li>3. Policy &amp; Ensuring Quality</li> </ol>		

## **§ 6 Examinations**

Examinations must be taken on the teaching units specified in § 5. The respective examination methods include oral or written forms, for example, reflective papers or oral discussions.

## **§ 7 Evaluation**

The MC course must be evaluated by obtaining feedback from the participants.