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## STEAME ACADEMY

### TEACHING FACILITATION LEARNING & CREATIVITY PLAN (L&C PLAN) - LEVEL 2

#### SERVICE TEACHERS: EMERGING TECHNOLOGIES AND THEIR FUTURE IMPACT



#### 1. Overview

Title	Emerging Technologies and Their Future Impact		
Driving Question or Topic	<ol style="list-style-type: none"> <li>1. How will emerging technologies shape our future society, and what collaborative approaches are needed to navigate this evolution?</li> <li>2. What interdisciplinary collaborations can drive innovation in addressing global challenges posed by emerging technologies?</li> <li>3. What ethical considerations arise from technological advancements, and how can we ensure responsible and sustainable progress?</li> <li>4. How can entrepreneurship intersect with technological innovation to drive transformative solutions?</li> <li>5. How can diverse perspectives and expertise contribute to the creation of impactful technological solutions for the future?</li> </ol>		
Ages, Grades, ...	16-18	10th to 12th grade	
Duration, Timeline, Activities	<i>Number of learning hours</i>	<i>Timeline/frame, calendar</i>	<i>Number of activities</i>
Curriculum Alignment	<i>Missing</i>		
Contributors, Partners	Interdisciplinary experts from fields of science, technology, engineering, entrepreneurship, and industry partners		
Abstract - Synopsis	<p>This curriculum delves into the realm of emerging technologies. Led by interdisciplinary experts, students embark on a journey to understand the profound implications of emerging technologies on future societal landscapes. Through collaborative projects and hands-on explorations, students analyze the multifaceted aspects of technological innovation. They engage in critical discussions, ethical considerations, and practical applications, aiming to comprehend the dynamic interplay between science, technology, entrepreneurship, and engineering in shaping the future.</p>		
References, Acknowledgements			

## 2. STEAME ACADEMY Framework\*

Teachers' Cooperation	<i>Teacher 1 cooperation with Teacher 2 in case of learning elements involving two different disciplines and specific cooperation of mentoring by service teachers for student teachers</i> <i>Work plan and steps with clear goals and activities between service and student teachers</i>
STEAME in Life (SiL) Organization	<i>Meeting with business representatives/Applications in real world</i> <i>Entrepreneurship – STEAME in Life (SiL) Days</i>
Action Plan Formulation	<i>Reference to the Stages and the Steps of the STEAME ACADEMY Framework for Project-based STEAME learning (Action Plan Formulation)</i>

\* Under development the final elements of the framework

## 3. Objectives and Methodologies

Learning Goals and Objectives	<ul style="list-style-type: none"> <li>● Identify and analyze the societal impact of emerging technologies.</li> <li>● Collaborate with peers from diverse disciplines to innovate solutions to global challenges.</li> <li>● Evaluate ethical considerations and promote responsible technological progress.</li> <li>● Apply entrepreneurial principles to drive transformative solutions through technological innovation.</li> <li>● Integrate diverse perspectives and expertise into the creation of impactful technological solutions.</li> </ul>
Learning Outcomes and expected Results	<p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>● Deepened understanding of the societal impact and ethical considerations associated with emerging technologies.</li> <li>● Enhanced proficiency in interdisciplinary collaboration and innovation to tackle global challenges effectively.</li> <li>● Acquisition of entrepreneurial skills to drive transformative solutions through technological innovation.</li> <li>● Cultivation of an appreciation for diverse perspectives and expertise, fostering the creation of impactful technological solutions.</li> </ul> <p><b>Expected Results:</b></p> <ul style="list-style-type: none"> <li>● Increased awareness and engagement with ethical dilemmas surrounding emerging technologies, leading to more responsible technological development.</li> <li>● Strengthened collaborative abilities across disciplines, resulting in more holistic approaches to addressing complex global issues.</li> <li>● Generation of innovative solutions to societal challenges, driven by entrepreneurial mindsets and technological advancements.</li> <li>● Creation of inclusive and sustainable technological solutions that leverage diverse perspectives and expertise for maximum societal impact.</li> </ul>
Prior Knowledge and Prerequisites	<ul style="list-style-type: none"> <li>● Basic understanding of technology concepts.</li> <li>● Interest in exploring the intersection of emerging technologies and their societal impact.</li> </ul>

Motivation, Methodology, Strategies, Scaffolds	<ul style="list-style-type: none"> <li>● Project-based learning approach with hands-on activities and collaborative projects.</li> <li>● Integration of interdisciplinary perspectives to foster innovation and creativity.</li> <li>● Differentiation of instruction to accommodate diverse learning styles and skill levels.</li> <li>● Scaffolding techniques to support students in applying critical thinking and problem-solving skills.</li> </ul>
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#### 4. Preparation and Means

Preparation, Space Setting, Troubleshooting Tips	<i>Procedures, spaces, and material preparation Setting in classroom, outdoor activity, computer lab, hybrid environment, etc.</i>
Resources, Tools, Material, Attachments, Equipment	<i>Instructional sources and digital material with the related references needed for the implementation of the learning plan</i>
Health and Safety	

#### 5. Implementation

Instructional Activities, Procedures, Reflections	<ul style="list-style-type: none"> <li>● Facilitate interdisciplinary discussions and collaborative projects on the societal impact of emerging technologies.</li> <li>● Encourage feedback and reflection on the learning process and interdisciplinary collaboration.</li> <li>● Monitor students' learning progress and evaluate their contributions to collaborative projects.</li> </ul>
Assessment - Evaluation	<ul style="list-style-type: none"> <li>● Utilize rubrics to assess interdisciplinary collaboration, critical thinking, and problem-solving skills.</li> <li>● Evaluate students' understanding of ethical considerations and responsible technological progress.</li> <li>● Assess the impact and effectiveness of entrepreneurial solutions to global challenges through technological innovation.</li> </ul>
Presentation - Reporting - Sharing	<ul style="list-style-type: none"> <li>● Showcase collaborative projects and innovative solutions through presentations and exhibitions.</li> <li>● Share student reflections, insights, and learning experiences through digital portfolios or presentations.</li> <li>● Foster a culture of sharing and collaboration by showcasing student work within the school community or at public events.</li> </ul>
Extensions - Other Information	<ul style="list-style-type: none"> <li>● Explore opportunities for further engagement with industry partners and experts in emerging technologies.</li> <li>● Provide resources and support for students interested in pursuing careers in technology fields and entrepreneurship.</li> </ul>



# Resources for the development of the STEAME ACADEMY Learning and Creativity Plan Template

## In the case of learning through project-based activity

### STEAME ACADEMY Prototype/Guide for Learning & Creativity Approach Action Plan Formulation

*Major steps in the STEAME learning approach:*

#### **STAGE I: Preparation by one or more teachers**

1. Formulating initial thoughts on the thematic sectors/areas to be covered
2. Engaging the world of the wider environment / work / business / parents / society / environment/ ethics
3. Target Age Group of Students - Associating with the Official Curriculum - Setting Goals and Objectives
4. Organization of the tasks of the parties involved - Designation of Coordinator - Workplaces etc.

#### **STAGE II: Action Plan Formulation (Steps 1-18)**

##### Preparation (by teachers)

1. Relation to the Real World – Reflection
2. Incentive – Motivation
3. Formulation of a problem (possibly in stages or phases) resulting from the above

##### Development (by students) – Guidance & Evaluation (in 9-11, by teachers)

4. Background Creation - Search / Gather Information
5. Simplify the issue - Configure the problem with a limited number of requirements
6. Case Making - Designing - identifying materials for building / development / creation
7. Construction - Workflow - Implementation of projects
8. Observation-Experimentation - Initial Conclusions
9. Documentation - Searching Thematic Areas (AI fields) related to the subject under study – Explanation based on Existing Theories and / or Empirical Results
10. Gathering of results / information based on points 7, 8, 9
11. First group presentation by students

##### Configuration & Results (by students) – Guidance & Evaluation (by teachers)

12. Configure STEAME models to describe / represent / illustrate the results
13. Studying the results in 9 and drawing conclusions, using 12
14. Applications in Everyday Life - Suggestions for Developing 9 (Entrepreneurship - SIL Days)

##### Review (by teachers)

15. Review the problem and review it under more demanding conditions

##### Project Completion (by students) – Guidance & Evaluation (by teachers)

16. Repeat steps 5 through 11 with additional or new requirements as formulated in 15
17. Investigation - Case Studies - Expansion - New Theories - Testing New Conclusions

## STAGE III: STEAME ACADEMY Actions and Cooperation in Creative Projects for school students

**Title of Project:** \_\_\_\_\_

Brief Description/Outline of Organizational Arrangements / Responsibilities for Action

<b>STAGE</b>	<b>Activities/Steps</b> Teacher 1(T1) Cooperation with T2 and student guidance	<b>Activities /Steps</b> <b>By Students</b> Age Group: ____	<b>Activities /Steps</b> Teacher 2 (T2) Cooperation with T1 and student guidance
A	Preparation of steps 1,2,3		Cooperation in step 3
B	Guidance in step 9	4,5,6,7,8,9,10	Support guidance in step 9
C	Creative Evaluation	11	Creative Evaluation
D	Guidance	12	Guidance
E	Guidance	13 (9+12)	Guidance
F	Organization (SIL) STEAME in Life	14 Meeting with Business representatives	Organization (SIL) STEAME in Life
G	Preparation of step 15		Cooperation in step 15
H	Guidance	16 (repetition 5-11)	Support Guidance
I	Guidance	17	Support Guidance
K	Creative Evaluation	18	Creative Evaluation