



## LILIE, LLC Course Information

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*\*More detailed course curriculum can be provided upon request*

### **Title of Course: STEAM Education**

#### **Course Description:**

Science, Technology, Engineering, Arts, and Mathematical elements all wrapped in one. Join us in learning more about this educational framework created for all disciplines and types of learners. It is an integrative, multi-disciplinary avenue for teaching the inter-relationships of how subjects relate in real-life. By adding the arts element educators will learn new ways to: stimulate and develop the imagination, refine cognitive and creative skills, strengthen problem solving and critical thinking skills, nurture team-building, cultural and alternative perspective values, and develop a sense of craftsmanship and goal setting skills needed in the classroom and beyond.

#### **Overall Course Objective and Expectation(s):**

- Articulate the concepts, principles and core STEAM characteristics
- Understand the reasons why 21st the transition from STEM to STEAM is important
- Encourage integration of Art + Design in K–20 education
- Develop an understanding of how to provide STEAM learning opportunities to your students
- Identify ways to incorporate innovative, creative, technology based activities into daily lessons
- Acquire knowledge of STEAM resources, techniques, strategies and ideas to improve instruction
- Explore the multi-dimensional connections between artistic, scientific, and mathematical knowledge

#### **Course Instructional Materials:**

All courses maintain a fully developed and dynamic webpage that houses all resources, reference material and various other required informational texts, videos and alike that is both active and relevant to course objectives and content. Course web pages are routinely updated to reflect most current research and available readings therefore instructional materials used to teach course objectives are subject to change.

#### **Instructor Consultation and Interaction**

The course is an asynchronous online course that is available for instructor and student participation 24/7. The four week duration of the class is broken down into four weekly sections each comprised of lecture in the form of instructor created articles and content, web links to academic and professionally reviewed articles in the discipline of general education, and instructor created discussion questions which are, in and of themselves, formative assessments to determine the extent to which the enrollees have comprehended and mastered the information and begun to

apply it to their personal teaching practices. The answers to these questions are the basis for the class interaction, as enrollees are required to respond to each other within the classroom arena.

By providing a wide variety of professional articles, peer reviewed journal pieces and researched instructor created content that addresses the needs of all K-12 educators and by encouraging interactive dialogue among the enrollees, this course will encourage and require application, discussion and peer feedback of said strategies and understanding in teaching students within a teacher's own individual classroom practices. The discussion and feedback will give us our own meta-assessment of useful, research based and practiced strategies and techniques for addressing the needs of our varied students thus giving them more opportunity to truly excel.

**Proof of Course Completion:**

LILIE, LLC is committed to assuring that enrollees fully participate in and receive the educational benefits provided by the course. Enrollees must demonstrate participation by making detailed postings designed to foster dialogue among colleagues and instructor that reflect the content, skills/ strategies learned and assessments covered in course. These enrollee postings must be made six times each week, in separate sessions, and including a minimum of 4 academic posts and at least 2 peer-peer comments of others' postings and possible shared assignments. Enrollees are required to submit a detailed reflection in combination with the archived work. Attempts to falsify record or discussion board entries will result in denial of credit and a report to the enrollee's employer.



## ***Week I & II***

### **Topic(s):**

During week 1, we will make introductions and discuss the research behind STEAM-based education. Through the readings and videos, we will review and learn about the benefits of STEAM.

### **Objectives:**

Teachers will: articulate the philosophy of a STEAM-based education, review and explain the research behind the transition from STEM to STEAM and identify the foundational beliefs of why STEAM is important.

### **Impact on Classroom Instruction:**

Participants will familiarize themselves with the history, philosophy and principles behind STEAM. They will use the conversations and resources shared throughout the course to help prepare students for “bridging the gap between business and educational goals to create a more productive and sustainable global culture based on teamwork.” (Yakman)

### **Learner Outcomes:**

Teachers will identify informative, helpful resources to transition current learning environments in to learning environments infused with STEAM-based activities through respectful engaging dialogue with others.

## ***Week II***

### **Topic(s):**

During week 2, we will explore creativity, STEAM curriculum and lesson plans. We will begin to discover the positive, transformative effect STEAM will have on our students’ learning and success. Through the readings and postings, we will learn how other educators have implemented STEAM activities into their own practice.

### **Objectives:**

Teachers will become familiar with strategies for incorporation of more creative, artistic activities into their educational setting. They will explore the use of more diversification of teaching methods and become more of a facilitator to learners. They will also explore STEAMs connection to different learning standards.

### **Impact on Classroom Instruction:**

Planning STEAM activities increases student engagement, exploration and evaluation of information, mastery of the content and creates a climate of student ownership in learning which increases student efficacy.

### **Learner Outcomes:**

Once teachers are comfortable with the practicality of STEAM and figuring out creative ways that the activities can be used to increase student engagement, learning and content/ skill mastery, they will create and implement STEAM lessons in to their own classrooms with confidence and efficacy.

**Topic(s):**

During week 3, we will investigate ways to introduce innovative lesson plan and project ideas to your students including new technology based products/techniques/apps. Through the use of these STEAM-based ideas, teachers will create a collaborative, positive, successful ways for students to synthesize new information.

**Objectives:**

Teachers will show students various technologies. They will decide which method or technology will work best with their ELL, special needs, gifted student and general education populations. These tools and technologies will allow for greater understanding, mastery and differentiation.

**Impact on Classroom Instruction:**

As teachers increase their toolbox of STEAM technology options to share with students they will understand which strategy/tech option works best to accomplish learning goals and targets.

**Learner Outcomes:**

Teachers will become better facilitators of information by teaching in a STEAM-based environment. They will be given the tools to become the “guide on the side” instead of the “sage on the stage” allowing students to problem solve, create, tinker, and explore more independently.

***Week IV*****Topic(s):**

In week 4, we will discuss how good, effective, interactive, STEAM education can help our students, and ourselves, successfully create college and career ready students.

**Objectives:**

Teachers will: review STEAM strategies, techniques and resources that relate to engagement, creativity, innovation, problem solving, collaboration and student success; analyze the learning experience in this course by reflecting on professional practices since the beginning of this course and reflect on previous goals set.

**Impact on Classroom Instruction:**

The more emphasis focused on a well-rounded, relevant, connected science, technology, engineering, ARTS, math based education the better students will be able to synthesize information and prepare for their college and/or career pathways. When students are presented with information in a cohesive, all subject inclusive plan they become more actively involved, engaged, independent problem solvers and successful students.

**Learner Outcomes:**

Teachers will become better facilitators of information by incorporating the arts as well as science, technology, engineering and math into their teaching. STEAM-based education is invaluable to synthesis of information and helping students become college and career ready. Learners will benefit greatly from a STEAM-based educational environment where creativity, innovation and connection are the driving factors.