Module – Copyright in Environmental Engineering

Lesson Plan

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IPin STEAM

DATE

ARC
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REVISION HISTORY

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REFERENCED DOCUMENTS

ID	Reference		Title
1	2020-1-UK01-KA201-078934		IPinSTEAM Proposal
2			

APPLICABLE DOCUMENTS

ID	Reference		Title
1			
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Contents

1. Copyright in Environmental Engineering

1.1 General Information

Design ideas or concepts are not protected by copyright, but the expression of those ideas or concepts may be protected. The engineer who expresses the idea or concept in the form of plans or drawings may obtain copyright protection. When a work is completed, it is automatically protected by common law copyright.
That is why teaching more about copyright can help students understand how to protect their intellectual property.

1.1.1 Brief Description

The following lesson plan called “Copyright in field of Environmental Engineering” is an exercise aimed at improving the general knowledge of students on copyright, raising awareness on topic.
Engineers should view their plans and drawings to protect this intellectual property and should establish intraoffice procedures to defend the firm against allegations of copyright infringement from other engineers. Copyright can protect the engineer’s work, but the proper procedures should be followed to retain ownership and ensure compliance with the Copyright Law.

1.1.2 Learning Objectives – Intellectual Property in STEAM topics

Students will:

- Understand what copyright law is in field of Environmental Engineering
- Learn the importance of copyright law in Environmental Engineering
  .

1.1.3 Links to curriculum

The following lesson plan is linked to the STEAM subject “Environmental Engineering”, and more specifically related to the importance of Copyright in Environmental Engineering.

1.1.4 Duration

1 hour for a classroom of 25-30 students.

1.1.5 Extra materials required

For the following lesson plan, the following material is required:

- Youtube video video ***Careers in Environmental Engineering,*** https://www.youtube.com/watch?v=FzWkp3op-2g***, What are Environmental Ethics and Our Moral Responsibilities*** *https://www.youtube.com/watch?v=afNRimFNWyw****, What do Environmental Engineers do***, (https://www.youtube.com/watch?v=MUT8zya53Vg
- Computer with Internet connection

1.2 Step-by-step instructions

Activity 1

- **Execution**: in a class with access at internet, proposing a video ***What do Environmental Engineers do***, (https://www.youtube.com/watch?v=MUT8zya53Vg) to be debated the impact of careers in Environmental Engineering. Environmental engineering spans many disciplines, but is generally broken into a few subfields: math, physics, chemistry, along with understanding of environmental sciences such as biology, water chemistry, hydrology and atmospheric science.
  Teacher will give the definition and he will invite students to get information and Students find practical examples of the types of problems that environmental engineers solve.

Activity 2

- **Engage interest.** Show the case study about Engineering Ethics, reading the case on Copyright Concerns. Teachers give 10 minutes time to the students to read the material. Through this activity, participants will follow the case presentation, students will raise arguments pros and cons., finding advantages and disadvantages of Engineering Ethics.

  Discuss: What factors contribute to the confusion? Dialogue and drawing up of conclusions. It is argued that training in environmental ethics should be considered as a fundamental skill taught in all engineering programmes.
  .
- **Critical thinking.** The teacher's role in this phase is to encourage students to express ideas about the idea: *Engineering ethics has largely been concerned with professionalism and responsibility for technical competence rather than wider social and environmental issues*

1.2.1 Introduction or orientation

In this phase the topic to be studied or investigated is presented to the students by their teacher. In this case, the topic is Copyright. The teacher's role in this phase is to encourage students to express ideas, prior knowledge and questions about the topic, while promoting interaction and communication between them.

1.2.2 Preparation or conceptualization

In this phase the teacher can answer potential questions or clarify any doubts, presenting the theoretical material about the topic which includes concept definitions, theoretical knowledge and other prerequisite background information. Students can ask questions and get any clarification from their teacher before starting the exercise. They will debate videos presented from youtube, for eg at link https://www.youtube.com/watch?v=MUT8zya53Vg, analysing the impact of careers in Environmental Engineering

1.2.3 Investigation

In this investigation stage the material students will debate the case on Engineering Ethics, about Copyright Concerns.
A follow-up case study is proposed to be as follow:

SC PRO IT is a large company that sells computers, computer components, and software. Dan is hired as an entry-level software engineer at SC PRO IT. His first project was to assist in writing the code for SC PRO IT's new hard disc controller. He had previously worked on a similar system interning at a start-up and had written a code which greatly enhanced the performance of their product. Dan quietly re-uses this same code in the SC PRO IT product, and does not think to tell anyone that he has used the code from his last job. His manager is thrilled with the speed improvements this code brings to the product.
Before the product is released, it has to undergo a four-month long quality assurance process review. During the review of the product, it was found the code which Dan developed had been copyrighted by the startup he had previously worked for. Even though Dan had developed the code, his previous company still owned the intellectual property rights to it.
When his manager informed Dan of the problem, Dan admits he did not realize he had made a mistake because he was not familiar with copyright laws. Dan then goes on to explain that the start-up he used to work for is now out of business and is unsure if SC PRO IT would be able to get in contact with the owner of the copyright. If SC PRO IT can't use Ralph's code, then it will have to rewrite the entire code of the product, delaying its release by many months. What should they do?
(Source: Copyright Concerns - Markkula Center for Applied Ethics (scu.edu)*)*

Students have dialogue and drawing up of conclusions.

1.2.4 Conclusion

In the conclusion phase, main points, answers, results and steps are summarized. In this phase you may have discussion, communication and reflection to wrap-up key topics addressed in the lesson plan.

1.3 Key questions for knowledge testing

A short quiz of about 7 key questions that can be used to check the learners' knowledge acquisition. Correct answers can be marked in bold.

Quiz: Please mark the correct answer with bold when required. Include 10 questions for your module. Increase gradually the level of difficulty.

Question 1: Copyright policy as a medium to protect the rights of the authors in sharing, disseminating and maximizing the influence of their research works. **[True**] [False]

Question 2: The Copyright Law provides procedures that not allow the copyright owner to enhance the protection. [True] **[False]**

Question 3: The application of science and engineering knowledge and concepts care and restore our natural environment and to solve environmental problems. **[True]** [False]

Question 4
Environmental engineers find solutions to the world's largest problems. **[True]** [False]

Question 5: Environmental ethics applies moral thinking to the natural world and the relationship between humans and the earth. **[True]** [False]

Question 6: Climate, weather, and natural resources that affect human survival and economic activity.
[True] [False]

Question 7: Copyright can protect the engineer's work. **[True]** [False]

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