Module 1: Design

Design in Environmental Engineering

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IPin STEAM

DATE

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REVISION HISTORY

Version	Date	Author	Description	Action	Pages
1.0	20/01/2021	HESO	Creation	C	TBS

(*) Action: C = Creation, I = Insert, U = Update, R = Replace, D = Delete

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. Engineering Design Through Environmental Projects

1.1 Learning Outcomes

This module and accompanying lesson plan are Engineering Design Through Environmental Projects. The term intellectual property (IP) refers to a variety of different types of legal rights.
This Module will define what is a design in Environmental Engineering topic, designing an object using exclusive right, Intellectual Property. Students will learn to take action against someone who violates their design even if not copied. After completing this module, students will be able to:

- Learn about relationship between Engineering Design and Intellectual Property
- Learn the importance of Engineering Design Through Environmental Projects

Estimated seat time: 1 hour

1.2 Main Content

1.2.1 Terms and Definitions

This module will explore the topic of design rights in Environmental Engineering field. There is a link between engineering design and intellectual property (IP). However, the boundary between them is not always well defined, especially on when and how IP infringement checks should be conducted during the engineering design process.
Design rights also protect the appearance of a product, and includes its: shape, colors, texture, materials, and ornamentation. The generation of design solutions based on existing Intellectual Property (IP) documents may not be appropriate for all design situations. When designing a product, the engineer has to consider a list of properties (strength, density, working temperature, etc.) to choose the material that best suits the intended purpose and the respective production technology.
The concept of eco-design, also known as design for environment.

1.2.2 Theory behind the IP implementation

Design gives the holder an exclusive right to create the design., that the person who creates the design will own the copyright and design rights.
Design registration must have:

- Novelty - the design must be new
- Individual character: the design must have individual character
- Functionality: technical function

The lesson plan will be linked to Engineering Design Through Environmental Projects, motivating student achievement in STEM disciplines, computer science, and other fields of study such as innovation and entrepreneurship.

1.2.3 Practical examples

Teacher will invite students are to create their new designs and to present their product Zero-Energy Housing to be registered. A design needs to be registered in order to get full protection. Designs may be registered at country level through national IP offices.
Products will be evaluated on the originality of the design, on the quality of their presentation and on the accuracy of the information on how to register these design rights.

1.2.4 Case studies

Activities in class- Create a design protection strategy for an ECO HOUSE – ECO FRIENDLY BUILDING
Students have to imagine that they have to create a new design, to commercialise and distribute their product in the European Union (EU) market. They will be afraid that others will reap the benefits of their newly drafted design. They have to learn to protect it.
Teacher will invite students are to debate all aspects of design protection:

- *Putting a product on the market incorporating the protected design (or to which the design is applied) without the consent of its proprietor would be considered illegal.*
- *Offering a product for sale incorporating a protected design without the consent of its proprietor would be considered illegal.*
- *Marketing a product incorporating the protected design without the consent of its proprietor would be considered illegal.*

The teacher's role will be to invite students to create designs and ecological houses, to encourage students to express ideas, prior knowledge and questions about the topic, while promoting interaction and communication between them.

1.3 Knowledge Assessment

A short quiz of about 4 key questions that can be used to check the learners' knowledge acquisition. Correct answers can be marked in bold.

Question 1: Protection is conferred by way of registration upon the right holder for those design features of a product with are shown visibly in an application and made available to the public by way of publication

True/ False

Question 2: Does not correspond to the definition of design: not a product, e.g. living organisms – representations of them in their natural state, not resulting from an industrial or manual processing
True/ False

Question 3: The design shall not, however, be deemed to have been made available to the public for the sole reason that it has been disclosed to a third person under explicit or implicit conditions of confidentiality.
True/ False

Question 4: Scope of protection of community designs not includes any design which does not produce on the informed user a different overall impression.
True**/ False**

1.4 Skills Assessment

One of the most important skills to improve when it comes to Intellectual Property concepts is analytical skills, which can help individuals to draw conclusions and solve complex problems from the analysis of all data available.

2. References

https://www.youtube.com/watch?v=iV-_aTj-bow
Zero-Energy Housing - Activity - TeachEngineering
Environment Lessons, Worksheets and Activities (teacherplanet.com)
A Violation of Privacy - Markkula Center for Applied Ethics (scu.edu)
https://internationalipcooperation.eu/sites/default/files/arise-docs/2020/carIPI_jan2020_27-4-2020-RCD-Overview-BARBADOS.pdf
cub_housing_lesson05_activity1_designchallengehandout_draft2_tedl_dwc.pdf (teachengineering.org)