STEAM 3D ACADEMY

2021-1-PL01-KA220-VET-000029792

OPEN BUDGET GUIDE

Co-funded by
the European Union

Contents

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

1. Introduction - Aims and activities of IO2

The IO complies fully with the 'Osnabrück Declaration' 2020 that underpins the role of VET as an enabler of recovery and transitions to digital and green economies. It also remains in compliance with European Skills Agenda 2020 which thoroughly specifies main skills for jobs, for life, skills to support the green and digital transitions, increasing STEAM graduates, fostering entrepreneurial and transversal skills.

The aim of the project is to open up the career orientation/ vocational pathways for young people at local, national and European level. Through this IO we will equip young learners with the specific knowledge in the field of design, engineering and dedicated graphic design software platforms, boost their transversal skills.

The specific aims of this I.O. are:

- The Design Course "The Art of Green Districts" is aimed at

1. Teaching engineering students from secondary vocational school how to design Green Districts of the Future maintaining all engineering, scientific, technical and environmental standards.
2. Regarding all environmental issues and standards students will make use of IO1 – Green Best Practice Guide.

The activities for IO2 are:

A1- Development of the framework of the learning concepts and a didactic grid

A2- Development of guidelines on constr., engin. and other parameters used in site planning

A3- Development of teaching materials

A4- Development of complimentary lesson plans

A5- Piloting and review process

A6- MOODLE platform

A7-Guidelines on Online Badge System (develop guidelines on how to generate Online Badge after the completion of the course on Moodle platform, underpinning non-formal education)

A8- Translation

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

2. Open Badges

Open Badges are a digital representation of skills, learning outcomes, achievements or experience such as:

- Hard skills: knowledge, competences, etc.
- Soft skills: collaboration, communication, etc.
- Participation and community involvement
- Official certification
- Authorization

Open Badge is an innovative system used in the USA and many EU countries for the validation and recognition of learning using the OB technology offered as an open educational resource. It is a technology which promotes open access and participation of all stakeholders involved in the badges process while allowing the creation of synergies between the learners-earners (i.e. young people, students), the issuers (i.e. VET Schools, stakeholders, enterprises, and NGOs including the VET trainers/ Volunteers as facilitators) and the badge consumers (i.e. employers, formal education, public authorities, official body). This will lead to the endorsement process leading to a transparent, transferable, valid and credible validation of a body of skills and knowledge related to a set of competencies, such as coding skills for VET students and teachers.

Open Badges is a very inclusive solution: it enables anyone to get actively involved in designing, testing, implementing and promoting the learning outcomes and achievements. This is what major European documents on Recognition are calling for, as well as Erasmus+ in emphasizing the "transparency and recognition of skills and qualifications to facilitate learning, employability and labour mobility: priority will be given to actions promoting permeability across education, training and youth fields as well as the simplification and rationalisation of tools for transparency, validation and recognition of learning outcomes. This includes promoting innovative solutions for the recognition and validation of competences acquired through informal, non-formal, digital and open learning" (Horizontal Priorities).

Open Badge is visually verified evidence of achievement. It has a visual part (image) and meta-data, which is encoded in the image. Each digital badge must comply with the required standard data fields, such as issuer, date of issue, description of the badge, link to assessment criteria, link to evidence of what badge owner is claiming, link to specific competence framework and tags, which puts an Open Badge in relation to a specific context.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

3. Benefits of Open Badges

The following are some of the benefits of Open Badges:

- Badges can demonstrate a wider range of skills and achievements of a learner acquired through formal, non-formal and informal learning methods and activities.
- Badges are portable and verifiable digital objects. All this information may be packaged within a badge image file that can be displayed via online CVs and social networks.
- Each Badge includes a description of the achievement: i.e., it describes the particular path a learner undertook for his or her achievement, accompanied by the evidence to support the badge award.
- Each Badge includes information about the earner's identity, a link to information about the issuer and a link to a description of what a badge represents.
- Badges can be used to unlock learning and career pathways. They can be used to support individuals to achieve learning goals, to provide routes into employment; and to nurture and progress talent within organizations.
- Badges can represent personal attributes that matter to employers (such as soft skills).
- Badges can be used in a professional context. Thousands of organizations, including non-profit organizations, major employers or educational institutions, issue badges in accordance with the Open Badges Specification.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

4. Key elements

4.1. Issuer

The issuer defines a competence that could be acquired by a user designs the learning material for it and assesses the users with regard to the acquisition of the competence. The issuer then creates a relevant badge and makes it available for earning by any user. For each badge, the issuer should make available details of the criteria that an earner must meet in order to be awarded the specific badge. The reviewer of an assessment compares the evidence provided by the earner against the specific badge criteria.

Any individual or organization can create an Issuer profile and begin defining and issuing Open Badges. This is being done by a diverse range of organizations and communities, including:

- Schools and universities
- Employers
- Community and non-profit organizations
- Government agencies (including NASA)
- Libraries and museums
- Event organizers and science fairs (Including Intel)
- Companies and groups focused on professional development (such as the STEAM3D Academy consortium)

An entity that can be described with a name, a description, a URL, an image, and an e-mail address is a possible candidate to become an issuer. Furthermore, it needs a technology platform that supports the Open Badges Specification in order to issue Open Badges.

4.2. Badge Issuing Platforms

Many companies have badge issuing platforms compliant with the Open Badges Specification. They provide a wide range of services which allow non-technical users to issue Open Badges credentials. The platforms used for issuing Open Badges offer a variety of custom services including online badge designers, badge discovery, issuing, assessment workflow, display, user profiles, social sharing and tools to integrate with existing learning systems. All Open Badges issuing platforms allow recipients to export their badges to other online options. This allows users to stack and share their badges earned on different platforms and to choose their own spaces to establish their identity on the web.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

4.3. Earner

Open Badges help to recognize skills gained through a variety of experiences, regardless of the age or background of the learner. They allow earners to get awards for following their interests and passions, and to unlock opportunities in life and work by standing out from the crowd. Earners have to register on the organization's platform and can claim a badge when the pre-defined criteria have been met during the evaluation phase.

4.4. Evaluation

There are different options for the assessment process:

- Asynchronous assessment: learners seek out the assessment when it is convenient for them instead of being required to take an exam at a predetermined time.
- Stealth assessment: assessment and awarding of badges can happen automatically and provide immediate feedback.
- Portfolio assessment: work samples, projects and other artefacts the learner has produced can be used as evidence for claiming a badge.

4.5. Displayer

Open Badges are designed to be shared. By sharing them, individuals exhibit their achievements to others and turn them into a valuable currency to unlock new opportunities. Displayers can utilize the Displayer API for retrieving earner badges from the Mozilla-hosted Backpack. Mozilla set up the first Backpack in 2011. Most issuing platforms provide users with the ability to connect and store their badges to this Backpack. When retrieving badges from the earner's Mozilla Backpack (using the email address account), the advertiser will only be able to access those badges that the earner has chosen to be public.

Badges can also be shared:

- On blogs, websites, e-Portfolios, and professional networks.
- In job applications
- On social media sites - Twitter, Google+, Facebook, LinkedIn
- In an email signature

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

5. Technical Aspects

An earnable badge is defined as a badge class, using a variety of data items including descriptions, criteria and information about the issuing organization. When an issuer decides to award that badge to a specific earner, he or she creates a badge assertion. A badge assertion describes the data for an awarded badge. It includes the earner's identity and a link to the generic badge class, which in turn is linked to information about the badge issuer. All the data for the badge is defined using JSON structures. To award a badge to an earner the issuer creates a badge assertion in JSON.

The image for a badge should be a square PNG (or SVG). The file size should be a maximum of 256 KB and should not be smaller than 90 px square.

Things you can verify and explore in a badge:

- Details about the organization issuing the badge
- What the individual has done to earn the badge
- The criteria that the badge has been assessed against
- That the badge was issued to the expected recipient
- The badge earner's unique evidence (optionally included)
- When the badge was issued and whether it expires

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

6. Institutional Endorsement

Badges are like commercial products that have to be endorsed by a certain celebrity or institution in order to be promoted in a wider sphere and to gain the support of the consumer. In this section, institutions from public and private sectors, which are endorsing open badges as a recognition tool and the importance of endorsing a badge within the ecosystem will be highlighted.

6.1. Governmental Institutions

The Council of the European Union is one of the intergovernmental institutions which have expressed their support to the open badges as one of the nonconventional approaches to recognize someone's work. In a conclusion made by the Council and Representatives of the Government of the Member States released in November 23, 2016, it was stated that "To appeal to young people and to ensure greater impact on their lives, new settings where young people spend their time, such as modern city infrastructure and virtual space, as well as new approaches using innovative online and offline tools (such as gamification, GPS based activities, learning badges or design thinking), should be reflected upon and taken into account in the further development of education and training of youth workers." (Council of the European Union, 2016). This statement affirms that learning badges such as open badges are one of today's trends in recognizing learners' skills and knowledge acquired by training.

Within the EU, the Lithuanian National Commission for UNESCO together with the Lithuanian Association of Non-Formal Education recommend the use of open badges to other UNESCO-affiliated schools in the country (Lithuanian National Commission for UNESCO, 2016).

Aside from these EU bodies, in 2013 the U.S. Department of Education's Office of Vocational and Adult Education (OVAE), funded a study which "explores the feasibility of developing and implementing a system of digital badges for adult learners and the implications for policy, practice, and the adult education delivery system" (Finkelstein, Knight, & Manning, 2013). In the US, the following institutions have a long tradition of implementing the open badges system as a recognition tool:

- EDUCAUSE- a leading association in the field of information technology focusing on higher education.
- The Society for Science and the Public administers the Intel International Science and Engineering Fair (Intel ISEF), - the largest pre-college science competition in the world.
- The American Association for State and Local History.
- The Yale Center for Emotional Intelligence.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

These institutional endorsements from various governmental bodies show that open badges are a legitimate tool to be considered and one of the trends in the 21st century which should be further explored in the field of formal and non-formal education.

6.2. Private Sector's Endorsement

Aside from the Mozilla Foundation which started with the idea of open badges, various entities in the private sector have been using open badges. For instance, the American company Microsoft "developed a badge system for the Partners in Learning Network (PiLN) of educators and school leaders to promote technological competencies and relevant skills in today's digital age." (Chow, 2014). On its official website, the company explains why they are offering badges: "Your digital badge allows you to easily share the details of your skills in a way that is trusted and verifiable" (Microsoft, 2016). One of the well-known institutions which is using open badges is the National Aeronautics and Space Administration (NASA). In 2012, NASA together with Project Whitecard and the Wheeling Jesuit University collaborated to convince the California Academy of Science to implement Mozilla's open badges system in "recognizing life's achievements" (NASA, 2016). Aside from companies, formal education institutions have been also using open badges as a recognition tool. In Europe, some of these institutions include Beuth University of Applied Sciences in Berlin, Germany, Newcastle University in the United Kingdom and Universitat de les Illes Balears in Spain (Mozilla Foundation, 2016c).

7. Open Badges for STEAM3D Academy

Open Badges provide portable and verifiable information about digital skills and achievements. Students can unlock opportunities by sharing collections of badges representing desired skill sets in a dynamic, evidence-based way. Open Badges represent legitimate, authenticated achievements described within the badge and linked to the STEAM3D Academy project.

Main characteristics of the STEAM3D Academy Open Badges ecosystem:

- The STEAM3D Academy consortium has designed the framework, syllabus and teaching-learning material for the following modules (which are presented in IO2) namely:
    - Theory of Sustainable Design
    - Design Thinking
    - 3D Design: Basic & 3D Design: Advanced (The objective is to obtain the 3D Design badge)

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

- Sustainable Design: Basic & Sustainable Design: Advanced (The objective is to obtain the Sustainable Design badge)

- The STEAM3D Academy consortium has created the corresponding badges (see Figure 1). There are 6 badges for each of the modules (1 per topic), 4 badges for the competences (1 per section as proposed in the STEAM3D Academy framework) and 1 overall Badge (STEAM3D Academy) for the Completion of all Modules. In order for the student to acquire the STEAM3D Academy Badge, they first need to complete all topics of the specific modules. These badges are made available for earning via the e-tool, which has been designed specifically for the learning and assessment purposes of the STEAM3D Academy project.
- Students are invited to register on the platform and take the course(s) of the STEAM3D Academy project.
- The e-platform specifies to students the criteria for earning each of the badges shown below. These criteria will be elaborated in the following section.
- Students have to provide evidence to meet the badge criteria in order to claim a specific badge. This process is automatized on the e-tool.
- The badges will be awarded automatically through the e-platform based on certain criteria, which are presented in the next section.
- The issuer (STEAM3D Academy Consortium) will provide the user with the opportunity (through the e-tool) to create an account in the Badge Backpack in order to display the earned badges there as well.

The STEAM3D Academy consortium plays a critical role in developing the ecosystem. Open Badges can support learners to achieve new collaborations, jobs, internships and richer connections between lifelong learners.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

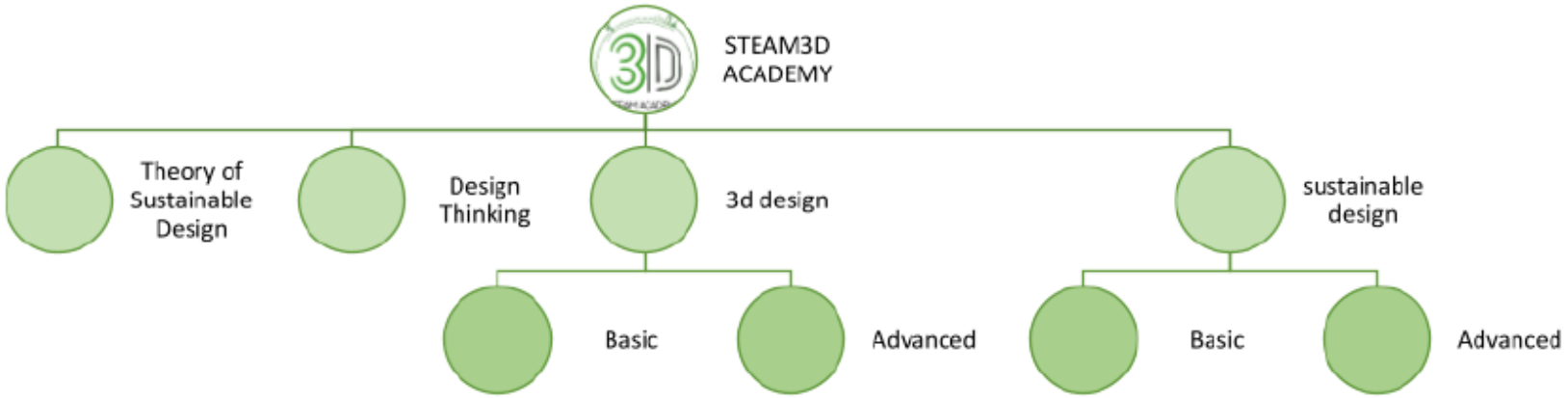


Figure 1: Tree structure of the Open Badges

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

The STEAM3D Academy consortium has decided to divide the 6 modules into four (4) topics according to the STEAM3D Academy framework. Students can therefore achieve a maximum of two (2) Open Badges for one module (e.g.: 3D Design). An additional Open Badge (the Overall Module Completion) will be awarded to students once they have completed all topics. Completing all of the offered modules, rewards the student automatically with the STEAM3D Academy Badge. Thus, in total 9 Open Badges will be developed and awarded.

Each Open Badge is described by the following aspects:

1. Name of the Open Badge: The name of the Open Badge comprises the name of the Module and the level of difficulty description (e.g.: Basic and Advanced).
2. Design of Open Badge: The Visualization (image) of the Open Badge for Module (see Figures 2 and 3).
3. Main Objective: A description of the Open Badge related to the main objectives of each Level.
4. Learning Outcomes: A list of the learning outcomes to be acquired. In the document IO2 "STEAM3D Academy Competence Reference Framework" the learning outcomes are presented per level. The theoretical learning outcomes are related to the Component 2 of the Framework and will be examined with exercises. The practical learning outcomes are related to the Component 3 of the Framework and they will be examined using practical-based assessment statements.
5. Assessment Criteria: The criteria to be used to assess whether the learning outcomes of all levels have been achieved and whether the set of skills and competences of all levels have been acquired by the students. The criteria and the assessment methods that have to be followed in order to receive a badge are described in the following sections.
6. Evidence: The proof and the evidence of the acquired skills i.e. quiz grades, etc. This process is fully automatized on the e-tool where the assessment tests are automatically graded.
7. Issued by: In this section the issuer of the Open Badge is specified, which in this case is the STEAM3D Academy Consortium.

8. Badges Awarding Criteria

The STEAM3D Academy e-tool offers 9 badges in total. The criteria for earning the badges for the modules differ from the criteria for the awarding of the last STEAM3D Academy Badge.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

8.1. Award Criteria for the Badges

- ✔ To obtain the Theory of Sustainable Design badge, the student needs to acquire at least 70% overall mark.
- ✔ To obtain the Design Thinking badge, the student needs to acquire at least 70% overall mark.
- ✔ To obtain the 3D Design badge, the student needs to acquire the 3D Design: Basic and 3D Design: Advanced badges, with at least 70% overall mark.
- ✔ To obtain the Sustainable Design badge, the student needs to acquire the Sustainable Design: basic and Sustainable Design: Advanced badges, with at least 70% overall mark.

8.2. Award Criteria for Overall Course Completion Badge

Finally, the criteria for the awarding of the final STEAM3D Academy badge will be the successful completion of all topics of the course. Successful completion of a module means earning the corresponding module badge, which can be achieved with an overall mark 70% or over. Therefore, once users receive all module badges, the e-platform will automatically award them the final Overall Course Completion Badge (STEAM3D Academy Badge) (Figures 2 & 3).

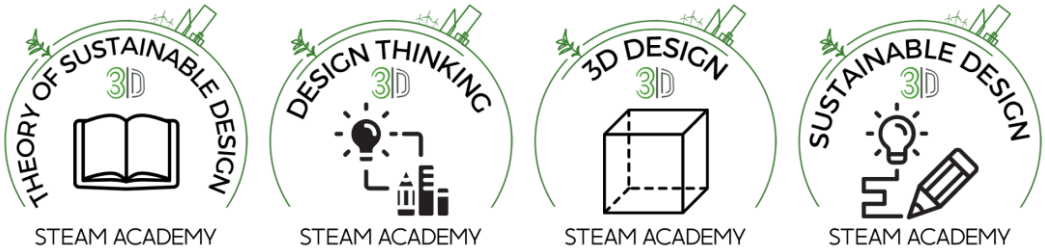


Figure 2: Criteria to obtain the STEAM3D Academy badge

Figure 3: Overall STEAM3D Academy badge

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

9. Open Badges for all Modules and Topics

The following section presents the details of the open badges developed based on the modules (IO2).

Name of the OB	Design of the OB	Learning outcomes	Assessment Criteria	Evidence	Issued by
Theory of Sustainable Design		- Knowledge and understanding 1. Develop knowledge, skills, values and motivations for action. 2. Allowing students to maintain their own wellbeing – and that of their community and the planet – in an increasingly interconnected world. 3. Develop and achieve sustainability targets. - Skills 1. It gives students real-world skills they can use to improve the planet. 2. Critical thinking. 3. Environmental awareness. - Values and Attitudes 1. Give students the tools to prevent further damage. 2. Equips students to navigate a changing environment with the proper knowledge of self-sufficiency, science and conservation.	70% of Marks should be achieved for the student to earn the "Theory of Sustainable Design" Badge. This breaks down as 7 out of the 10 questions related to the topic. *For more details, please refer to the Badges Award Criteria Section above	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	STEAM3D Academy Consortium

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

Name of the OB	Design of the OB	Learning outcomes	Assessment Criteria	Evidence	Issued by
Design Thinking		- Knowledge and understanding 1. Learn and understand the different stages of design thinking. 2. Agile, lean and design thinking, pro's and con's of design thinking, making design thinking happen in an organization (costs, goals, stakeholder buy-In, encouraging creativity), tracking the success. 3. Critically think and evaluate the practices and methodologies of the case study. 4. Participants apply the principles of design thinking in their own way, tailored to a problem of their choice. - Skills 1. Be able to explain each stage of the design thinking methodology. 2. 2. Be able to explain the benefits and bottlenecks in design thinking and how it fits in agile and non-agile organizations. 3. Understand the reasoning behind certain choices made in the design thinking methodology within the case study. 4. Design a process using the design thinking methodology to solve a problem or improve a process in their surroundings - Values and Attitudes 1. Shifting the learner's perspective, becoming aware of the benefits design thinking has for a team. 2. Know the significant difference this methodology can make in a business. 3. Thinking creatively and becoming aware that there is no one solution to a problem, different teams can come up with different design thinking process outcomes. 4. Implementing design thinking	70% of Marks should be achieved for the student to earn the "Design Thinking" Badge. This breaks down as 7 out of the 10 questions related to the topic. *For more details, please refer to the Badges Award Criteria Section above	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	STEAM3D Academy Consortium

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

Name of the OB	Design of the OB	Learning outcomes	Assessment Criteria	Evidence	Issued by
3D Design: Basic		- Knowledge and understanding 1. Understanding the notion of 3D design. 2. List and examine the design tools at our disposal. 3. Getting to know methods on how to use TinkerCad website with ease. - Skills 1. Know how to explain what 3D design is. 2. Be able to differentiate between the variety of 3D design tools. 3. Develop practical skills on how to create basic designs using TinkerCad. - Values and Attitudes 1. To learn about the concept and existence of 3D design. 2. Become aware of 3D design tools; 3. Gain interest in 3D design by getting to know the TinkerCard programme, which could be further enhanced by participating in the advanced module (Module 3b).	70% of Marks should be achieved for the student to earn the "3D Design: Basic" Badge. This breaks down as 7 out of the 10 questions related to the topic. *For more details, please refer to the Badges Award Criteria Section above	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	STEAM3D Academy Consortium

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

Name of the OB	Design of the OB	Learning outcomes	Assessment Criteria	Evidence	Issued by
3D Design: Advanced		- Knowledge and understanding 1. Understanding of the OnShape software and its features. 2. Exploring the OnShape environment and using basic commands. 3. Knowing how to create OnShape models. 4. Using different features for the models like mirroring, pattern creation and surface modelling. 5. Converting the OnShape model in the appropriate format and using CURA software for the printing phase. - Skills 1. Develop knowledge about OnShape software and its features. 2. Explore the OnShape environment and use basic commands. 3. Able to create OnShape models. 4. Use different features for the models like mirroring, pattern creation and surface modelling. 5. Convert the OnShape model into the appropriate format for CURA software to edit and create a printable model. - Values and Attitudes 1. Knowing the features of the OnShape software. 2. Awareness of the OnShape environment and the basic commands. 3. Knowing how to create OnShape models. 4. Knowing some basic features of the OnShape software like mirroring, pattern creation and surface modelling. 5. Awareness of the printing phase.	70% of Marks should be achieved for the student to earn the "3D Design: Advanced" Badge. This breaks down as 7 out of the 10 questions related to the topic. *For more details, please refer to the Badges Award Criteria Section above	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	STEAM3D Academy Consortium

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

Name of the OB	Design of the OB	Learning outcomes	Assessment Criteria	Evidence	Issued by
Sustainable Design: Basic		- Knowledge and understanding 1. To describe what sustainable development means. 2. To analyze the skills young people will need for the green jobs of the future. 3. To link the benefits from the green economy with the labor market. Recognition and applicability of the 3 pillars of sustainable development: social, economic and environmental. - Skills 1. Green skills development for students. 2. Specific targeting of the VET curriculum. 3. Environmental justice skills. 4. Green engineering and tech skills. 5. Architectural and planning skills - Values and Attitudes 1. Environmental awareness 2. Collaboration and teamwork	70% of Marks should be achieved for the student to earn the "Sustainable Design: Basic" Badge. This breaks down as 7 out of the 10 questions related to the topic. *For more details, please refer to the Badges Award Criteria Section above	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	STEAM3D Academy Consortium

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

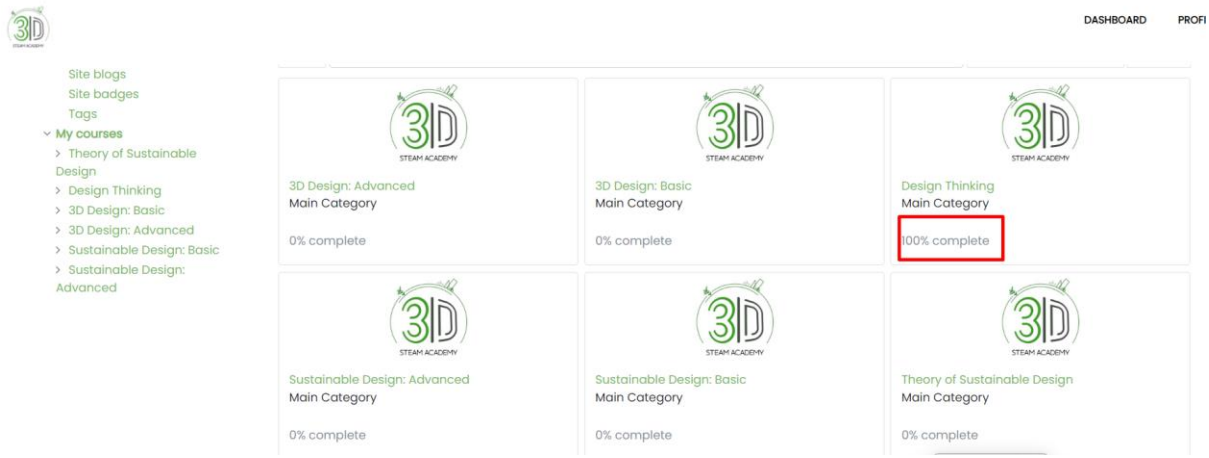
Name of the OB	Design of the OB	Learning outcomes	Assessment Criteria	Evidence	Issued by
Sustainable Design: Advanced		- Knowledge and understanding 1. Recognition of what a renewable energy system means; the ecological perspective. 2. Identification and description of the key parts of a solar and photovoltaic system. 3. Comparison of solar energy and photovoltaic systems. 4. To use the 3d printing technology to make their ideas and knowledge into a real product. 5. Familiarization of basic thermodynamic topics with their application in sustainable designed systems. - Skills 1. Green skills development for the students. 2. Specific targeting of the VET curriculum. 3. Real life approach of engineering. 4. A multidimensional approach to solving a problem. - Values and Attitudes 1. Environmental awareness. 2. Collaboration and teamwork.	70% of Marks should be achieved for the student to earn the "Sustainable Design: Advanced" Badge. This breaks down as 7 out of the 10 questions related to the topic. *For more details, please refer to the Badges Award Criteria Section above	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	STEAM3D Academy Consortium

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

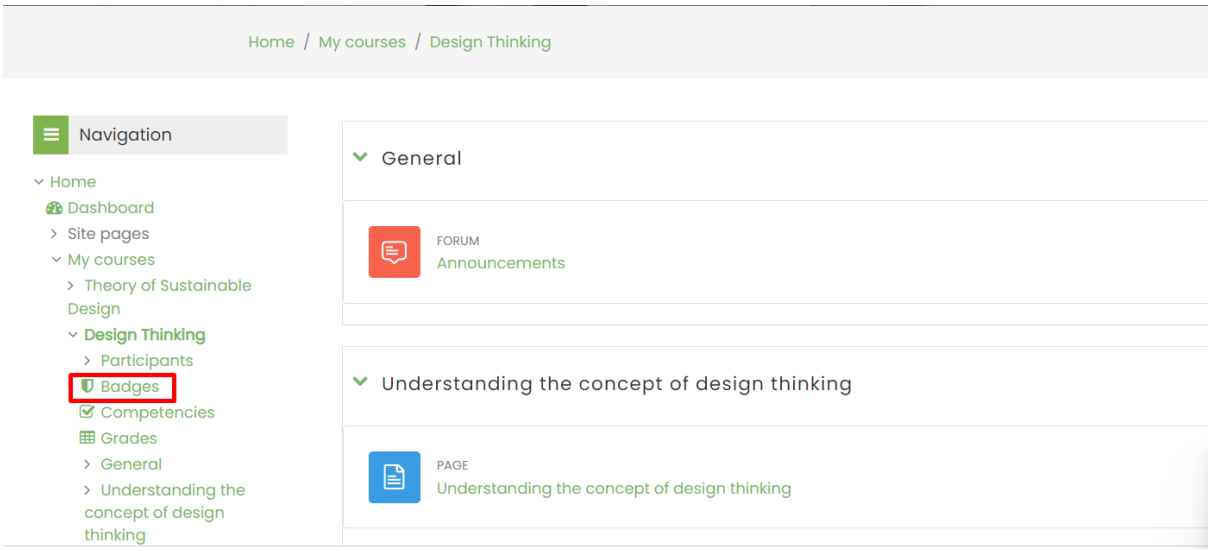
10. Practical Guidelines for Issuing Open Badges

In this section you can find practical guidelines on how to issue Open Badges through our interactive learning platform:

Step 1: After you have completed your course and assessment, you will see the course is 100% completed.

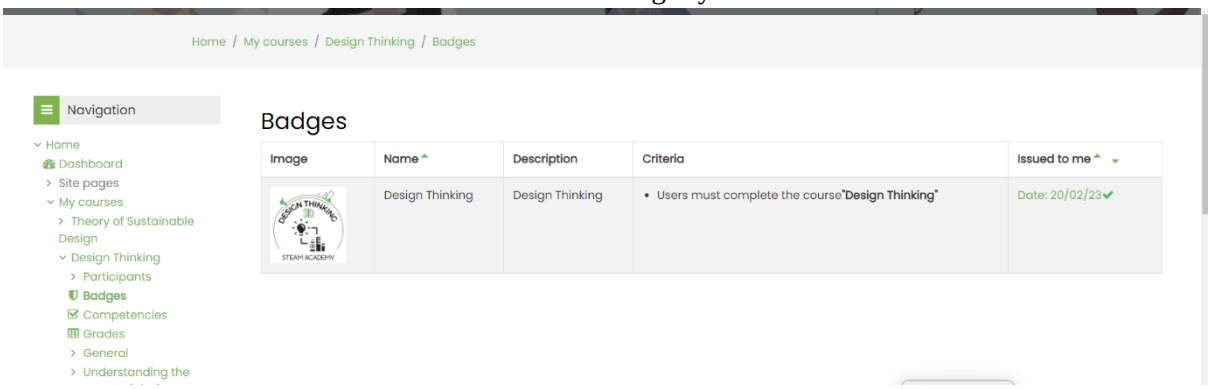


Step 2: Click the symbol ‘Badges’ on your left-hand side.



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792

You will be able to view all of the badges you have obtained



References

1. Proposal for STEAM3D Academy – Project Number: 2021-1-PL01-KA220-VET-000029792
2. https://www.openbadges.org/

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project number: 2021-1-PL01-KA220-VET-000029792