Innovation challenge organization manual for MOOC material for teachers

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Module content creators and authors

This manual contains the teachers' instructions and suggestions on how to integrate and use the learning content. The following content creators prepared the content for each module and provided instructions for teachers on how to use it. All content creators are affiliated with GEA College's Faculty of Entrepreneurship in Slovenia.

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The following authors prepared the introductory and conclusion chapters for this document:

Chapter	Author
Introduction	Laura Fink
Organization of a Challenge	Laura Fink
Conclusion	Mitja Jeraj

The following chapters, which describe the educational program, are part of the initial curriculum, which is published as a separate document. The following chapters are excerpted from that document for a better understanding of the instructions that are based on the educational program.

Chapters that are part of the educational program	Author
Learning objectives and key competencies	Mitja Jeraj
Modular structure of the educational program	Mitja Jeraj
Tailoring the program for vocational courses	Laura Fink, Mitja Jeraj
Teaching methods	Mitja Jeraj
Providing feedback and assessment	Laura Fink

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Introduction

This instruction manual is aimed at teachers who wish to effectively use the educational program for entrepreneurial skills development in vocational secondary education, which was developed within the GTECH project. The educational program represents a significant step towards addressing the current gaps in entrepreneurship education and focuses on environmental sustainability and green technology.

Besides encouraging entrepreneurship, in the context of environmental sustainability and green technology, the GTECH project advocates for effective learning methods such as challenge-based and active-based learning that include the active involvement of students in learning activities.

The focus of this instruction manual for teachers is on providing directions for teachers who wish to use the content of the educational program in their teaching activities. Therefore, this instruction manual largely follows the structure of the educational program. However, the description of the organization and implementation of the challenge-based learning process follows the introduction. It is presented at the very beginning. In this section, teachers can learn more about challenge-based learning, one of the methods of active teaching, and reflect on how to consider not only the characteristics of the whole cohort of students but also the talents, needs, and characteristics of each student. This is not only in encouraging students to solve problems and cooperate with other students and the local environment, but also in involving students and co-designing tasks, issues, and problems together with students in a way that considers the interests, knowledge, and characteristics of the individual.

This instruction manual aims to provide information and advice on how teachers can use the video tutorials and other learning materials, which were created by GEA College, Faculty of Entrepreneurship, Slovenia, within the GTECH project, as well as other external resources provided as part of the modular educational program. It provides suggestions to teachers on how best to use these in the classroom and what they should pay attention to achieve better learning outcomes. It also provides ideas on what kinds of activities teachers can use in relation to learning content and how they can involve students.

By incorporating various activities and appropriate approaches, teachers can increase the students' motivation for entrepreneurial, sustainable, and green technology topics. They can also influence students to remember the material faster and retain the acquired knowledge for longer.

We want to derive from this when providing learning content, developing students' entrepreneurial skills, and empowering them to thrive in the dynamic and rapidly evolving green technology sector.

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Organization of a challenge

Challenge-based learning is one of many active learning methods that encourage students to collaborate and work with others. They give students greater autonomy and allow them to take an active role in learning. They allow students to develop problem-solving skills, critical thinking skills, communication skills, emotional intelligence, teamwork, and creativity by solving real-world problems. It is somewhat different from some other similar active-based methods, such as project-based learning and problem-based learning.

Challenge-based learning focuses more on collaboration, creative thinking, and innovation than project-based learning, which places more emphasis on actually producing a tangible product or outcome and learning by achieving the project's goals. Although it tackles problems that are complex and can have open-ended solutions, it is different from problem-based learning, where the focus is more on problem-solving processes and collaboration. The differences are measured in nuances. Generally, problem-based learning deals with a specific real-world problem with more than one solution, while challenge-based learning, as mentioned previously, addresses complex problems that have open-ended solutions.

In challenge-based learning, teams strive to take advantage of each person's capabilities and allow space for each team member to explore the challenge from their own perspective. Besides, it includes collaboration between students and teachers who work together to solve real-world challenges.

Picture: Challenge based learning process; Source: The challenge institute (2018)

There are several frameworks for challenge-based learning that suggest the process and the steps to be followed to effectively solve the problem at hand. One of the most widely used

frameworks for effective problem-solving suggests dealing with challenges in three phases: engage, investigate, and act. Each of the three phases includes three steps.

During the Engage Phase, according to the challenge-based learning framework, “you move from an abstract big idea to a concrete and actionable challenge using the Essential Questioning process.” (The Challenge Institute, 2018). For example, broad themes such as sustainability, green technology, and entrepreneurship provide the context and possibilities for exploring a big idea. An example of a big idea within this context could include, for example, a contribution to a more sustainable school and local environment.

Based on the broad themes, the process of designing a challenge continues with the formation of essential questions in the next step. Examples of essential questions include questions such as Why is sustainable entrepreneurship important? How does sustainable entrepreneurship manifest itself in the real world, the local environment, and the classroom? And where can we observe the intersection of sustainability, entrepreneurship, and green technology in the real world?

The development of a challenge is not necessarily just up to teachers or external business partners. If students get involved early on, they have the opportunity to contribute to the process of identifying the essential question and other elements that shape the challenge. The teams that tackle the challenges should consider the capabilities of each individual team member and develop a unique solution.

At the end of the process of identifying essential questions, the teams identify one essential question that enables them to address the big idea within a specific context. An example of a chosen essential question could include: How can we contribute to a sustainable school or a sustainable local environment?

The final step of the engage phase includes the formulation of a challenge that calls for action, is compelling, exciting, and enables in-depth learning about the subject. An example of a chosen challenge could include: design and implement a sustainable solution (garden or a product) that reduces waste, conserves resources, and provides educational opportunities.

After a challenge is determined, the teams continue with the second phase. The second phase is the »investigate« phase, during which the teams contextualize learning experiences by conducting in-depth research. The »investigate« phase starts with generating guiding questions.

The guiding questions can include questions such as how you can reduce the use of specific resources, how to use the solution you will build for educational purposes, how the sustainable solution will contribute to or involve the community or school, how you can differently design specific sustainable solutions, and what are the key principles of the sustainable solution you are developing. What resources are necessary for the long-term maintenance of the sustainable solution you are building?

Once the teams generate leading questions, they may categorize and prioritize them to create an outline to follow in the development of informed solutions. In the next step, the teams determine the guiding resources and activities. Then the teams continue to identify resources and complete the necessary activities to answer the guiding questions. The goal they always have in mind is to build and produce "innovative, insightful, and realistic solutions" (The Challenge Institute, 2018). According to the rule, there are open-ended solutions to the challenge at hand. The teams need to investigate how they can utilize the unique skills of each team member to develop a unique solution.

The teams could conduct research about similar previous solutions, products, methods, or techniques. They could consult experts. The teams could investigate other resources, such as online content, online courses, databases, textbooks, social networks, or others. They could conduct a pilot workshop to get hands-on experience and organize field trips to visit existing local sustainable solutions related to the challenge to gather insights and ideas. They will also need to plan the budget and resources necessary to implement the solution you design. They could also perform other activities such as simulations, experiments, projects, problem sets, or games.

In the next step, the teams perform the analysis. Based on the examination of resources and activities, the teams prepare possible answers to guiding questions, identify insights, analyze the data, and conclude with a synthesis of lessons learned. The analysis usually includes the collection of data, a SWOT analysis, and a feasibility study. Data collection needs to be focused and goal oriented. The teams should collect the data needed to reach the goal. Therefore, ensure that the teams gather the necessary data during the analysis and data collection process.

Following the analysis, the teams prepare reports, presentations, and demonstrations and draw clear conclusions. They can propose and design various options in the feasibility study, evaluating them based on factors such as budget, space, and others. The thorough determination of guiding questions, guiding activities and resources, and analysis that teams perform during the second phase builds the grounds for developing and implementing applicable and lasting solutions in the third, final phase.

The goal of the third, final »act« phase is to conceptualize, develop, implement, and evaluate solutions. The teams start by developing concepts and designing proposals for solutions. Subsequently, they present these ideas to relevant stakeholders to gather feedback. Then they continue with developing prototypes, experiments, and tests for the approved solutions. They may return to the investigation phase at any time and repeat part of the cycle to improve their solutions, or they can continue with the next step, in which they implement the solution in the real context.

During the implementation, the teams prepare all the things necessary to demonstrate the solution in a real-world context. They can plan various activities and events to engage the school or local community. By doing so, they also make an effort to secure the long-term maintenance of the solution and the continuation of previous efforts from relevant

stakeholders. During the last step of the entire process, when the solution development is already complete, the teams perform the evaluation, which includes monitoring the progress and further development after the solution's implementation.

The teams conduct reflections “on what worked and what didn't" (The Challenge Institute, 2018). They measure outcomes and create a report that includes documentation of the entire experience, including the process, outcomes, and lessons learned. They may also create a future plan to maintain, continue to develop, and possibly extend the long-term, sustainable solution you have prepared. Finally, they can present the final report, reflect on the learning experience, and possibly continue to refine the solutions.

I hope I have provided you with some ideas and insights on how you can approach the challenge you are facing and what you need to do to develop not only a unique solution but a solution that will function in a real-world environment even after the challenge-based process is completed.

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Educational program

The educational program developed within the GTECH project is based on an analysis of needs, learning objectives, and key competencies.

Based on the educational program, content creators were assigned the task of preparing videos and other learning materials and resources, along with the teachers' instructions for each individual module.

Learning objectives and key competencies

Based on the identified desired competencies and learning objectives, we structured the learning content of the educational program into six modules: introduction, operations, finance, green market, innovation, and market entry. Each of these modules addresses important issues for green technology entrepreneurs. The ***introduction*** module covers idea generation and market opportunity and requirement identification. The ***operations*** module covers managerial and team topics, as well as challenge-based learning and other active learning methods. The ***green market*** module covers sustainability, development, and market analysis. The ***innovation*** module provides suggestions on how to increase creativity and innovativeness, which are essential skills for every green technology entrepreneur. Finally, the ***market entry*** module covers the development of an appropriate business model and pitching business ideas.

Before delving deeper into the educational program, key learning objectives and key target competencies are outlined below. They represented the for the modular educational program. In the conclusion of this chapter, considerations in tailoring the program for the vocational school setting are suggested. Effective teaching methods, in particular providing efficient feedback and assessment, are also discussed.

Learning objectives:

- ***Promoting sustainability***: to educate students and other participants about green technologies and sustainable development.
- ***Fostering innovativeness:*** to encourage students and other participants to develop innovative green solutions to environmental challenges by utilizing green technologies and entrepreneurial approaches.
- ***Promotion of entrepreneurship and entrepreneurial mindset:*** to equip students and other participants with the knowledge and skills necessary to identify opportunities in the green economy, launch sustainable ventures, and navigate the green business landscape.
- ***Encourage critical thinking***: to stimulate critical thinking and problem-solving skills through the analysis of real-world case studies from BiH, debates on environmental

issues, and hands-on projects.

Envisaged Competencies of students:

- ***Entrepreneurial mindset:*** development and improvement of entrepreneurial mindset characterized by creativity, innovation, risk-taking, and resilience, essential for identifying and capitalizing on opportunities in the green economy.
- ***Green technical competencies:*** acquisition of knowledge in green technologies, renewable energy systems, sustainable materials, and other environmental principles.
- ***Sustainability context***: comprehension of the principles of sustainability, such as the ecological framework, social equity, and green-economic co-existence.
- ***Critical thinking***: analysis and evaluation of environmental issues based on challenge-based learning, green technological solutions, and business strategies from multiple perspectives, including scientific and BiH business perspectives, considering their implications for green technologies and societal well-being.
- ***Collaboration and communication***: work in interdisciplinary teams to achieve common goals based on challenge-based issues, ideas communication, and collaboration with diverse partners.
- ***Problem-solving skills***: identification of environmental challenges, formulation of creative solutions, and implementation of green business models.

Modular structure of educational program

We identified important topics that participants must master in order to achieve the desired competencies and learning objectives. The educational program is designed modularly. The learning content is arranged into six modules, each of which covers important issues for green technology entrepreneurs.

INTRODUCTION	IDEA OPPORTUNITY
OPERATIONS	MANAGEMENT & TEAM CHALLENGE-BASED LEARNING
FINANCE	FINANCE PLAN COST ESTIMATION
GREEN MARKET	SUSTAINABILITY AND DEVELOPMENT MARKET ANALYSIS
INNOVATION	CREATIVITY INNOVATIVENESS
MARKET ENTRY	BUSINESS MODEL PITCH

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We detailed the content of the aforementioned topics in order to provide videos, handouts, and other learning materials, learning resources, and corresponding assignments for a total of 20 hours of learning.

INTRODUCTION	**IDEA** ● How to get an idea for green tech challenge-based learning case? ● Techniques of idea generation for every phase of the challenge given by the company. ● Environmental sustainability and green tech ideas. ● Circular economy and ideas.
	OPPORTUNITY ● Definitions of green tech opportunities. ● From green tech ideas to opportunity. ● Evaluation of the green tech ideas. ● Green Tech opportunities and needs. ● Green tech in energy production and transportation. ● Understanding niche markets for challenge-based learning cases.
OPERATIONS	**MANAGEMENT** ● Management and leadership. ● Planning. ● Decision-making. ● Project management.
	TEAM ● Teamwork. ● Emotional intelligence. ● Communication. ● Motivation.
	CHALLENGE-BASED LEARNING ● Active learning methods. ● Challenge-based learning.
FINANCE	**FINANCE PLAN** ● The relevance of establishing a financial plan. ● How to establish an efficient financial plan? ● How to prepare a budget for the start-up period? ● Investment versus operational costs.
	COST ESTIMATION ● Why is cost estimation important? ● What kind of costs need to be estimated? ● Potential costs during the start-up process. ● Bootstrapping: How to reduce cost?

GREEN MARKET	**SUSTAINABILITY AND DEVELOPMENT** ● Ideas in the context of environmental sustainability and green tech practice. ● Integration. ● Green agenda. ● Green transition.
	MARKET ANALYSIS ● Trend analysis. ● Industry analysis. ● Customer analysis. ● Competitor analysis.
INNOVATION	**CREATIVITY** ● Origin. ● Usage. ● Techniques. ● Examples of good practice.
	INNOVATIVENESS ● Individual level. ● Company level. ● Why and how about innovativeness? ● Trends.
MARKET ENTRY	**BUSINESS MODEL** ● Building blocks of the green tech canvas. ● Manufacturing and green tech activities. ● Pivot of the green tech canvas. ● How to build a sustainable business model?
	PITCH ● What is a pitch? ● Structure and Techniques of a pitch. ● Examples of a pitch.

A comprehensive platform developed within GTECH project enables students to develop a holistic understanding of green technologies, sustainable practices, and entrepreneurial skills. In the Green Tech Entrepreneurship Challenge Hub for challenge-based learning, students complete and defend green projects based on the real-life case studies of successful organizations in BiH.

The GTECH project encourages students to integrate and apply the knowledge and skills acquired in their course work in order to:

- Evaluate the green practices in a specific organization (challenge-based learning),
- Undertake a green research project in support of an organizational goal (case studies),
- Investigate current innovations in the green tech sector (literature research),
- Understand and prepare green entrepreneurship business models (green business modelling),
- Promote the green agenda and pitch their own projects (active implementation of the GTECH project),

In the collaborative framework of the GTECH project, students form teams to work on their specific initiatives. The online platform provides them logical and understandable guidelines to follow. In addition to that, the online platform includes videos of lectures and presentations of good practice cases. The educational program GTECH is divided into different modules.

Students' final project presentations include pitching their project outcomes to a distinguished audience consisting of their fellow peers, GTECH advisors, reviewers, and representatives from the companies associated with the selected case study.

Overall, the final project presentation represents the culmination of students' collaborative efforts, academic insights, and practical applications. It fosters a dynamic exchange of green ideas, promotes interdisciplinary learning with challenge-based cases, and underscores the significance of entrepreneurship in driving sustainable innovation.

Tailoring the program for vocational courses

When customizing and applying the curriculum in the vocational secondary setting, specific vocations should be considered.

We recommend that teachers tailor the information to specific vocational skills. For instance, the development of sustainable products in gardening will address distinct aspects not covered in the context of auto shop maintenance.

It motivates and piques students' attention when key entrepreneurship and green technology principles, as well as cooperation and problem-solving abilities, are introduced and developed inside a vocational field to which they can connect. Teachers who identify links between basic concepts and vocational areas may pique students' attention and offer practical projects.

Students in secondary vocational schools, if they have not previously done so, should eventually assume responsibility for steering their own learning path and accepting accountability for their learning. Teachers should use incremental scaffolding approaches to urge students to take responsibility for their own learning.

When tailoring the modules to the particular context, teachers can determine the learning and teaching methods, general purpose, specific learning objectives, detailed description of the content, information on mentoring, providing feedback, conducting assessments, and learning materials. Attachment (A) contains a template of a syllabus that teachers can use. Additionally, teachers might want to gather examples of good practices to use in class. For example, attachment (B) contains a description of a good practice activity.

Teaching methods

Teachers can apply:

- Online learning modules in an online platform environment: online learning modules on topics such as “how to get an idea for a green tech challenge-based learning case," “understanding niche markets for a challenge-based learning case," “ideas in the context of environmental sustainability and green tech practice,” and others.
- Workshops on green technologies: students learn about the development from green tech ideas to opportunity, about the evaluation of green tech ideas, about green tech opportunities and needs, etc.
- Challenge-based learning: The curriculum's structure revolves around challenge-based learning, in which students work in teams to tackle real-world challenges related to green technology and entrepreneurship.
- Case study analysis: innovative workshops include analysis of real-life case studies of successful green businesses or sustainable projects. Students use group discussions and presentations to extract lessons learned, identify key success factors, and apply relevant ideas and green business models to their own solutions.
- Guest lectures by experts: guests from the green technology sector, sustainable businesses, entrepreneurship, or environmental organizations deliver lectures and share their experiences. Thus, they offer practical advice and provide insights into industry trends and challenges.
- Entrepreneurship workshops: workshops focused on entrepreneurial skills such as green business model canvas development, market research in green tech, financial planning, and pitching. Students participate in challenge-based learning exercises provided by companies.
- Reflection and feedback: Experts, mentors, teachers, and others provide feedback to the participants, allowing them to assess their progress, reflect on their learning experiences, and provide feedback to their peers.

Proving feedback and assessment

Feedback and assessment are essential to the learning process. We recommend informing the students why a particular activity, content, or assignment is important. It is also essential to describe the assessment criteria in advance.

Provide examples that students can use as guidance. Focus your feedback more on what students should do compared to what they should not do. Feedback should enable students to improve and further develop their skills.

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1 Module Idea and opportunity

Green technology represents a rapidly growing field with enormous business potential, fueled by the global trend towards sustainability and carbon neutrality.

Green ideas and business opportunities not only promote sustainability and environmental responsibility, but also offer opportunities for entrepreneurial development and job creation. In this way, students contribute not only to a better environment but also to economic growth and innovation.

1.1 Idea

Module **idea** is designed to equip students with various techniques for generating innovative green tech ideas. It covers the process from initial brainstorming to the validation of ideas, the distinguished elements between idea and idea in green tech.

It covers the following topics:

- How to get an idea for green tech challenge-based learning case;
- Techniques of idea generation for every phase of the challenge given from the company;
- Environmental sustainability and green tech ideas; circular economy and ideas.

Teachers should introduce students to different idea generation techniques and provide hands-on activities that allow students to practice these methods. The goal is to foster creativity and critical thinking, enabling students to develop viable green tech solutions.

Suggestions for effective use of the learning material

1. Diverse Techniques Introduction:
   - Mind Mapping: Start by explaining mind mapping as a technique to visually organize ideas. Use examples related to green tech to illustrate how central themes can branch into sub-themes and specific ideas.
   - Six Thinking Hats (de Bono, 1985): Explain Edward de Bono's Six Thinking Hats technique, which encourages looking at problems from different perspectives (logical, emotional, creative, etc.).

2. Interactive Practice Sessions:

   - Mind Mapping Exercise: Provide students with a central theme related to green tech, such as renewable energy or waste management. Have them create mind maps in groups, encouraging them to explore and expand on related ideas.
   - Six Thinking Hats Activity: Present a green tech problem, like plastic pollution. Divide students into six groups, each wearing a different "hat" (e.g., white hat for facts, red hat for emotions). Have each group analyze the problem from their perspective and then come together to share their insights.

3. Reflection and Feedback:

   - Post-Activity Reflection: After each activity, have a reflection session where students discuss which techniques they found most useful and why. This helps them understand the practical applications of each method.
   - Peer Feedback: Encourage students to present their ideas to the class and receive constructive feedback. This can be done through formal presentations or informal group discussions.

Activities that can be applied to the learning content

1. Mind Mapping Exercise:
   - Objective: Generate a wide range of ideas related to a specific green tech theme.
   - Materials: Large sheets of paper, colored markers, sticky notes.
   - Procedure: Students work in groups to create a mind map. Each group starts with a central theme and adds branches for related ideas, sub-ideas, and specific projects.

2. Six Thinking Hats Activity:
   - Objective: Analyze a green tech problem from multiple perspectives.
   - Materials: Description of a green tech problem, hats or markers to represent each thinking hat.
   - Procedure: Divide students into six groups, each representing a different thinking hat. Each group analyzes the problem from their hat's perspective and then shares their insights with the class. This activity encourages comprehensive problem-solving and teamwork.

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Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	An intro to idea – what is it (Slides 1-20)	GTECH platform
YouTube	How to Generate NEW Business Ideas: Simon Sinek	https://www.youtube.com/watch?v=mN21YwEZHCo
Video GEA	Techniques of Idea Generation	GTECH platform
YouTube	How to Find a Business Ideas to Start Your Own Business in 2024: Young Entrepreneurs Forum: https://www.youtube.com/watch?v=g6_VX2tZ-gg	https://www.youtube.com/watch?v=g6_VX2tZ-gg
Article	Ecopreneurs' creation of user business models for green tech: an exploratory study in e-mobility	https://www.inderscienceonline.com/doi/pdf/10.1504/IJEV.2018.090978
Video GEA	Bringing It All Together	GTECH platform
YouTube	What If: green tech and Ideas For Earth Day.	https://www.youtube.com/watch?v=Mw5o9e4e_cY
YouTube	Green project ideas | Environmental protection and awareness models | Save Earth, science projects: Diya's Fun play.	https://www.youtube.com/watch?v=EU1CYv6iS08
YouTube	15 Innovative SUSTAINABLE & ECO-FRIENDLY business IDEAS to start with $5000: ECO Snooki.	https://www.youtube.com/watch?v=qQT49QNilZo

To effectively utilize these materials, teachers should create an engaging and supportive environment where students feel encouraged to think creatively and share their ideas. By practicing these techniques, students will develop the skills necessary to generate innovative solutions to green tech challenges.

Encourage students to document their ideas and processes, as this not only aids in retention but also provides a portfolio of their work that they can refer to in future projects. Additionally, fostering an open dialogue about the effectiveness of different techniques helps students critically evaluate their own creative processes and improve over time.

Questions to evaluate the students' knowledge

1. **Can you earn money on the market with your business idea?**

   a) Yes, because ideas make money

b) <u>No, unless you invest your time and money to prepare business opportunity</u>
c) It is impossible to answer this question

2. If you want to develop Self Driving Drones you need to have a good idea and motivation to finish the project.

a) Yes, motivation from entrepreneurs in this business is the most important factor for success of this business
b) You need motivation and good friends, who will help you to develop it.
c) <u>No.</u>

3. SWOT is a matrix which is composed of

a) Sword, Work, Option, Troubles
b) Sweat, Week, Ocean, Tear
c) <u>Strengths, Weaknesses, Opportunities, Threads</u>
d) Nothing of above

4. Green tech idea is deferent from business idea as a whole concept

a) Green tech idea primarily aims at profit maximization and market growth
b) Green tech idea may use technology for efficiency but not necessarily for environmental benefits.
c) <u>Green tech idea seeks to reduce carbon footprint and promote eco-friendly practices.</u>

5. **What is a part of the green tech agenda?**

a. <u>Sustainability</u>
b. <u>Collaboration</u>
c. Intense farming

6. What is it the optimal way to gather ideas based on your vision?

a) To find problems
b) To search for market gaps
c) <u>To imagine world that you would like to live in</u>

7. What are benefits of the green idea of salt-water pool?

a) <u>No worrying about chlorine level</u>
b) <u>Better for health</u>
c) **<u>Saves money in longer term</u>**

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1.2 Opportunity

This module covers:

- Definitions of green tech opportunities.
- From green tech ideas to opportunity.
- Evaluation of the green tech ideas.
- Green Tech opportunities and needs.
- Green tech in energy production and transportation.
- Understanding niche markets for challenge-based learning cases.

Teachers can effectively use teaching materials, videos, and other learning resources on the topic of business opportunity to increase student engagement and comprehension. They can begin by using multimedia content, such as instructional videos and real-world case studies, to demonstrate essential principles and effective instances of recognizing and exploiting business opportunities. Interactive simulations and role-playing games can be used to help students practice recognizing possible opportunities in different market circumstances.

Teachers can also use digital platforms and online courses to give students current information and tools for market research and business development. Discussion forums and group projects can promote collaborative learning by allowing students to share ideas and develop entrepreneurial skills together.

Furthermore, guest lectures from industry executives can provide practical insights and mentorship options. Teachers may build a dynamic learning environment by mixing these varied resources and methodologies, which not only impart theoretical knowledge but also cultivate practical skills and critical thinking that are required for seeing and following business possibilities.

Suggestions for effective use of the learning material

Teachers can increase the impact of learning materials and videos on opportunity detection in green technology by implementing the following strategies:

- Contextual Relevance: Select videos and resources that reflect current trends in green technology. This teaches students about real-world applications and the value of sustainability.
- Facilitate interactive discussions following video presentations to promote critical thinking. Instruct students to identify the significant opportunities, obstacles, and potential solutions offered in the text.

- Case Studies: Provide specific examples of successful green technology startups or projects. This gives students specific examples and encourages them by demonstrating practical implementations and outcomes.
- Project-Based Learning: Assign projects where students can research and propose their green technology solutions. This hands-on approach reinforces learning and stimulates creativity and problem-solving skills.
- Expert Insights: Invite industry experts for guest lectures or Q&A sessions to provide professional insights and answer student questions, making the learning experience more comprehensive.

Activities that can be applied to the learning content

Teachers can increase the impact of learning materials and videos on opportunity detection in green technology by implementing the following strategies:

- Contextual Relevance: Select videos and resources that reflect current trends and advances in green technology. This teaches students about real-world applications and the value of sustainability.
- Facilitate interactive discussions following video presentations to promote critical thinking. Instruct students to identify the significant opportunities, obstacles, and potential solutions offered in the text.
- Case Studies: Provide specific examples of successful green technology startups or projects. This gives students specific examples and encourages them by demonstrating practical implementations and outcomes.
- Field Trips and Virtual Tours: Arrange visits to local green businesses or virtual tours of sustainable projects. Experiencing real-world applications can inspire students.
- Innovation Workshops: Encourage students to brainstorm and prototype green technology solutions. This hands-on approach promotes creativity and problem-solving.
- Invite guest speakers from the green technology business to share their expertise. This gives students valuable insights and networking chances.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	From ideas to opportunity	GTECH platform
YouTube	How business ideas are born | Aya Jaff	https://www.youtube.com/watch?v=5byUDpuEjq4
Video GEA	Evaluation of the ideas	GTECH platform
YouTube	Evaluate Startup Ideas in 5 Minutes	https://www.youtube.com/watch?v=NwyW46josFM
Video GEA	Green tech opportunity and needs	GTECH platform

YouTube	Top 10 green technologies Revolutionizing Our Future	https://www.youtube.com/watch?v=fGRgr4EyLHQ
YouTube	This green tech is Bringing Life Back to the Sea	https://www.youtube.com/watch?v=YGJ5EBrh8IQ
Video GEA	Understanding niche markets for challenge-based learning case	GTECH platform

Questions to evaluate the students' knowledge

1. What is the first step in turning an idea into a green tech business opportunity?

A. Developing a business plan

B. Identifying a market need

C. Securing funding

2. Which of the following is a primary characteristic of a green technology?

A. It reduces environmental impact

B. It focuses on digital innovation

C. It enhances traditional manufacturing processes

3. When evaluating the potential of a green tech idea, which factor is crucial?

A. Market size and demand

B. The uniqueness of the technology

C. The branding strategy

4. Which type of funding is most commonly sought after for green tech startups?

A. Venture capital

B. Personal savings

C. Government grants

5. What is an essential component of a green tech business plan?

A. Social media strategy

B. Competitive analysis

C. Office location

A1. Why is it important to conduct a feasibility study for a green tech idea?

A. To determine the legal requirements

B. To assess the technical and market viability

C. To hire the right team

A2. What role do partnerships play in the development of green tech businesses?

A. They help reduce production costs

B. They provide expertise and resources

C. They focus on marketing and sales

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2 Module Operations

Once we get an idea that we would like to realize or recognize the opportunity in the business environment that we want to capitalize on, we need managerial and team skills that facilitate a smooth realization and completion of the intended entrepreneurial project.

The educational module on operations focuses on developing managerial and team competencies and skills in order to effectively realize the idea, enter the market, shorten the time to market cycle, and increase the satisfaction of all stakeholders.

Besides topics on management and teamwork, this module also covers active-learning methods, in particular challenge-based learning. Specifically, these methods focus on people and how to engage and actively involve them to the greatest extent possible.

2.1 Management

Even well-developed technical skills are not enough to realize an entrepreneurial idea; for that, you also need soft skills with which you can facilitate cooperation, foster bonding among team members, and inspire other people to strive to achieve the team's common goal. Yet first, you have to be clear on what you want to achieve, determine the short- and long-term goals, and develop planning and decision-making skills. Then, inspire by being inspired yourself, make others believe by believing yourself, and organize your team's plans by organizing well yourself.

It is advised that you use the time in the in-person class for activities that engage students, encourage their collaboration, and consider their backgrounds and characteristics. The activities should be based on the belief that the students can and will improve. Applying active learning methods would allow students to remember information faster and retain it for longer periods of time.

This module facilitates the development of soft skills by covering the following topics:

- Management and leading
- Planning
- Decision making
- Project management

When you want to teach management and leadership skills in your class, you could start with a discussion on the differences between leadership and managerial skills. When discussing this and other topics, it's important to involve students as much as possible, facilitate an open discussion, encourage the exchange of opinions, tailor the course to the students in attendance, consider their current competence level and context, and allow them to co-create the lesson.

To introduce flipped learning, ask students to watch the video tutorials before the lesson. This way, the students would already be familiar with the topic beforehand, which would enable more in-depth discussions, as well as allow you to use the time when students are present for specific learning activities in which they can actively participate. You could, for example, prepare activities in which students collaborate with one another.

Students could, for example, exchange opinions about a competent manager compared to a competent leader in groups or in pairs. They can discuss their own experiences and role models and prepare a plan for developing their leadership and managerial skills. Groups can then present the results of their discussion, highlighting some of their personal experiences. That way, you allow them to co-create the lesson with their own personal experiences and characteristics. You might recognize their strengths and weaknesses and advise them individually or as a group on how to further develop their managerial and leadership skills.

To develop planning skills, you could start the lesson with a discussion about the importance of planning. You can discuss this topic with the entire class or organize the discussion in groups or pairs. To encourage more in-depth class discussion during the lesson and allow you to spend more time on learning activities, consider implementing flipped learning. In this case, instruct students to watch the video tutorial before the lesson. During the lesson, you can then devote time to practical exercises in which the students either prepare examples of SMART goals, set priorities based on the Eisenhower matrix, prepare examples of operational, tactical, and strategic planning, find examples of vision and mission statements, create a SWOT matrix, or present and explain the SWOT matrix of existing companies.

Also, when developing decision-making skills, prioritize the active involvement of students. Introduce flipped learning, and instruct students to watch the video tutorial before the lesson. During the lesson, encourage students to discover their own decision-making styles. Let students discover, discuss, and present examples of decision-making styles. Provide students with real-life scenarios that require them to analyze the situation and make business decisions. You might want to present a hypothetical situation and ask students to find pros and cons. Alternatively, you could present a hypothetical situation to the group of students and ask them to defend a particular decision.

Finally, think about how you can actively facilitate the development of project management skills. Encourage students to watch the video tutorial before the lesson so you can focus on their active participation during the lesson. You might want to divide students into groups and encourage them to think of their own simple group project. Students should identify the project's goals, stakeholders, budget, and life cycle, create a basic Gantt chart, and outline the initial steps. Alternatively, you could prepare a simple description of a project process, based on which the students would be able to solve these tasks.

Suggested order of the recorded videos and external supplementary learning material

The following topics are covered in separate short video tutorials:

- Management and leading
- Planning
- Decision making
- Project management

The video tutorials can be watched in any order. One option is to start with the differences between management and leadership and then continue with planning, decision-making, and project management. You can create your own unique sequence, as there is no predetermined order.

You might want to use some short (for example, 1 minute) clips from the video tutorials to illustrate some examples during the in-person class, but it is not recommended that you either just play the full video for the students or deliver the lecture without inviting students to participate. You could suggest that the students watch the video before class as part of the flipped activity.

Questions to evaluate the students' knowledge

What is more typical of a leader than a manager?
(There are four correct answers in total. There is one correct answer in each row.)

a) **Do the right things.** Or
a) Ask how and when. Or
a) **Inspire trust.** Or
a) Focus on systems and structure. Or

b) Do things right.
b) **Ask what and why.**
b) Rely on control.
b) **Focus on relationships.**

What questions would you ask to discover the weaknesses of a company?
(Three questions refer to weaknesses. Other questions refer to threats in a SWOT matrix.)

a) What can harm us?
b) **What do we need to improve?**
c) **What do we do worse than others?**
d) What is our competition doing?
e) **What are others warning us about?**
f) What dangers can our weaknesses expose us to?

Which statements would you assign to a mission (rather than a vision)?
(Three answers refer to a mission. Other answers refer to a vision.)

a) **Describes why the company exists.**
b) Describes what the organization wants to become.

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c) Describes the purpose and reason for the existence of the organization.
d) Describes where the organization wants to be in the future.
e) Describes the future of the organization.
f) Describes the meaning of the existence and functioning of the organization.

What is typical of an avoidant decision-making style?
(Three answers refer to avoidant style. Other answers refer to other decision-making styles.)

a) A person postpones decisions, especially important ones.
b) A person makes quick decisions.
c) A person makes decisions at the last minute.
d) A person waits to make a decision until there is pressure to make one.
e) A person often needs the assistance and support of other people.
f) A person makes a decision when it feels right.

What is known as a triple constraint?
(There is one correct answer.)

a) Uniqueness of a project.
b) A system of interdependent tasks.
c) Product, service, or result.
d) Budget, time, and quality constraints.
e) Knowledge, skills, and tools.

2.2 Team

Without collaboration with others, it is difficult to achieve significant goals. This module aims to enhance the soft skills of students and is based on the belief that it is possible to develop these skills and that the students possess the necessary abilities to do so. Therefore, this module facilitates the development of soft skills by covering the following topics:

- Teamwork
- Emotional intelligence
- Communication
- Motivation

When presenting these topics in in-person lessons, it's crucial to include students and encourage their collaboration. It is recommended that you make the most of the in-person class period by planning activities that include students. It is important to consider the student's competence level and characteristics, and whenever possible, let them co-create the lesson. By asking students to watch the video tutorials prior to the in-person lesson, you would enable you to use the time students are present for specialized learning activities in which they can actively participate.

In the remainder of this chapter, let me suggest some activities you can include in the in-person learning activities.

To foster teamwork, you could initially encourage students to identify their primary team roles based on the Belbin team roles model. After individual consideration, you can divide students into groups or pairs to discuss their own unique experiences with collaboration in teams. Groups or pairs could then present their findings and experiences in front of others. You could also establish a small group task and encourage the team to work together to achieve the established goal.

To develop emotional intelligence, encourage students to address and discuss different people's ability to receive emotional information. Divide students into groups and pairs to discuss important elements of emotional intelligence such as empathy, self-awareness, and self-regulation. Then, encourage students to either individually or in pairs answer the questions that facilitate self-awareness about their own emotions, the questions that facilitate self-management of their own emotions, the questions that facilitate social awareness and understanding of other people's emotions, and finally the questions that facilitate management of other people's emotions.

To develop communication skills, you could prepare different scenarios in which efficient communication is especially important, such as presenting oneself, agreeing with a statement, or disagreeing with a statement. Students can practice responding to situations that can occur in business, such as selling a product, dealing with customer complaints, or practicing active

listening skills. Further, you could encourage students to look at certain situations from different angles and present the situation from the perspective of another person. You could encourage discussion about whether assertive communication can improve the quality of relationships between people and raise efficiency and self-esteem.

To encourage motivation, you could ask students to prepare the motivational speech, following Monroe's persuasive technique. Further, the students could prepare a personalized infographic of their key motivators and drivers. You could ask students to share their personal experiences or observations of how motivation, particularly intrinsic motivation, has increased in others. You can discuss real or hypothetical examples of hygiene factors and motivating factors based on Herzberg's two-factor theory of motivation. You could conclude the lesson by encouraging and motivating students yourself, openly expressing your belief in their ability to cope with any challenging situation. By creating a sense of achievement, meaningfulness, and faith that goals are reachable.

Suggested order of the recorded videos and external supplementary learning material

The following topics are covered in separate short video tutorials:

- Teamwork
- Emotional intelligence
- Communication
- Motivation

The video tutorials can be watched in any order.

During the in-person lessons, you could use a few short (one-minute) excerpts from the video tutorials. However, playing the entire video tutorial during the lesson without enabling students' participation is not advised. You can include watching video tutorials before the class as a flipped learning activity.

Questions to evaluate the students' knowledge

Which are the thinking roles, according to Belbin?
(There are three correct answers.)

a) Shaper
b) Completer finisher
c) Coordinator
d) Monitor evaluator
e) Team worker
f) Plant
g) Specialist
h) Implementer
i) Resource investigator

Assertive communication is based on
(There are two correct answers.)

a) I am okay.
b) I am not okay.
c) You are okay.
d) You are not okay.

What questions would you ask to develop self-awareness?
(Three questions refer to self-awareness. Other questions refer to self-management.)

a) How can you balance your emotions in a more efficient way?
b) What triggers your emotions?
c) What happens, and how does emotion affect your behavior?
d) What happens in the best-case scenario, and what happens in the worst-case scenario?
e) What can you do to stay positive?
f) What can you do to be more in control?
g) How can you motivate yourself?

Which are the hygiene factors according to Herzberg's two factor theory of motivation?
(Four answers refer to hygiene factors. Other answers refer to motivating factors.)

a) Growth
b) Salary and benefits
c) Working conditions
d) Recognition
e) Job security
f) Personal life
g) Job challenge

2.3 Challenge-based learning

Activity-based methods emphasize that students are actively involved and engaged. Active involvement enables students to remember faster and retain knowledge for a longer time. In-person lessons should take advantage of the opportunity to establish collaboration through different learning activities. It is particularly desired that instructors not only adapt the lessons to the characteristics of students, but also enable the students to co-create and co-design the learning activities. Learning activities should be designed in such a way that students can utilize and develop their talents and express and deepen their interests through them.

Challenge-based learning is one of the active learning methods that enables just that and much more.

Suggested order of the recorded videos and external supplementary learning material

Two video tutorials within this module cover the following two topics:

- Active learning methods
- Challenge-based learning

You could watch the video tutorials independently from one another. In the event that you address both topics, you would start by presenting the active learning methods and then continue with the challenge-based learning. It is also recommended that you read more about the process of challenge-based learning, which is thoroughly described in the initial chapters of this instruction manual.

Questions to evaluate the students' knowledge

What is typical of the last phase of the challenge-based learning, the evaluation:
(Three answers are correct.)

- Ensure the long-term maintenance of the solution and the continuation of previous efforts by relevant stakeholders.
- **Monitor the progress and further development after the solution's implementation.**
- **Prepare a future plan to maintain, continue to develop the solution.**
- Present the ideas to relevant stakeholders in order to gain feedback.
- **Prepare the final report, reflect on the learning experience, and possibly continue to refine the solutions.**
- Demonstrate the solution in a real-world context.

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3 Module Finance

This module includes educational content on finance plans and cost estimation. Financial planning and cost estimation are interrelated and deserve special attention because only financially successful organizations can be sustainable in the long term.

3.1 Finance plan

The following topics are covered within the “Finance plan” module:

- The relevance of establishing a financial plan.
- How to establish an efficient financial plan?
- How to prepare a budget for the start-up period?
- Investment versus operational costs.

Teachers can improve their business finance curriculum by including a variety of instructional tools and multimedia resources. Begin with structured textbooks that cover fundamental knowledge and essential ideas. Complement them with videos from instructional platforms such as YouTube that demonstrate real-world applications of financial ideas. These videos use visual storytelling and practical examples to clarify complex topics like budgeting, investing, and financial planning.

Interactive simulations and games, such as those found on websites like Investopedia or BizKids, keep students engaged by allowing them to manage virtual portfolios or run fake businesses. This hands-on approach reinforces their knowledge through experiential learning.

Furthermore, including current events and case studies from trustworthy financial news sources can help make lectures more relevant and approachable. Encourage group projects in which students analyze financial statements or create company strategies to promote collaboration and critical thinking.

Finally, guest speakers from the finance industry or virtual field excursions to financial institutions can help students gain insight and inspiration by connecting classroom learning to real-world professions in business.

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Suggestions for effective use of the learning material

To effectively employ learning resources and videos when teaching business finance, teachers should focus on the following strategies:

- Align materials with the curriculum and learning objectives. Begin with fundamental topics and gradually introduce more complicated ones.
- Interactive Lessons: Use videos to introduce and reinforce subjects. Follow up with conversations, Q&A sessions, or quizzes to ensure understanding.
- Apply lessons to current events or scenarios to enhance engagement and relevance. Utilize case studies and examples from recent financial news.
- Hands-on Activities: Use simulations, games, and projects to help students apply concepts practically. For instance, budgeting exercises and virtual stock market games.
- Invite finance professionals or organize virtual tours of financial institutions to offer practical insights and job opportunities.
- Regularly assess understanding using examinations, quizzes, and group projects. Provide timely comments to help influence future improvements.
- Use diverse materials, including textbooks, internet articles, and multimedia, to accommodate different learning styles.

Activities that can be applied to the learning content

Teachers can involve students in learning about financing green technology businesses through a range of interactive activities.

- Business strategy Development: Group students to develop a business strategy for a g-tech enterprise. This comprises market research, financial forecasting, and environmental impact studies.
- Shark Tank Simulations: Hold a "Shark Tank"-style competition where students sell their g-tech company ideas to a panel of judges (either teachers or local entrepreneurs) who evaluate practicality and inventiveness.
- Case studies: Examine real-world green technology startups. Talk about their funding techniques, challenges, and triumphs. This may be followed by group discussions or presentations.
- Arrange virtual field trips to g-tech incubators or enterprises to learn about startup operations and funding.
- Invite guest speakers from the green technology industry to discuss their experiences and views on financing green companies.
- Financial Simulations: Use online simulation tools to help students operate a virtual g-tech firm, including finance, investments, and budgeting.

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Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	The relevance of establishing a financial plan	GTECH platform
YouTube	The One Page Financial Plan	https://www.youtube.com/watch?v=55Ak3L-6V3I
Article	The Art & Science of Tech Startup Fundraising by Paige Benett	https://www.hubspot.com/startups/tech-startup-fundraising

Questions to evaluate the students' knowledge

1. What is the primary goal of a financial plan in a green tech startup?

A. To outline the marketing strategy

B. To predict financial performance and manage resources

C. To determine the office location

2. Which financial document projects future revenues, expenses, and profits?

A. Balance sheet

B. Income statement

C. Cash flow forecast

3. What is a common initial source of funding for green tech startups?

A. Initial Public Offering (IPO)

B. Bootstrapping and personal savings

C. Corporate sponsorships

4. Which of the following is a benefit of seeking venture capital for a green tech startup?

A. Guaranteed long-term funding

B. Access to industry expertise and networks

C. Lower interest rates than bank loans

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5. Why is it important to have a diverse fundraising strategy in green tech?

A. To reduce dependency on a single funding source

B. To simplify financial management

C. To accelerate product development

A1. What is an essential element to include in a fundraising pitch for a green tech venture?

A. Detailed description of office layout

B. Clear value proposition and market potential

C. Social media follower count

A2. Which type of funding typically involves offering equity in exchange for capital?

A. Crowdfunding

B. Government grants

C. Angel investment

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3.2 Cost estimation

The following topics are covered within the “Cost estimation” module:

- Why is cost estimation important?
- What kind of costs need to be estimated?
- Potential costs during the start-up process.
- Bootstrapping: How to reduce cost?

Suggestions for effective use of the learning material

Teachers can effectively explain business costs via instructional materials and videos that incorporate visual and interactive content. Begin with a quick presentation using slides to explain fixed, variable, and total expenses. Supplement this with videos of real-world instances, such as a manufacturing process, that demonstrate where different expenses originate. Use interactive simulations or online tools to allow students to experiment with cost variables and understand how changes affect overall expenses. Case studies and role-playing activities can help students understand topics better and apply what they've learned in real-world situations. Provide practice worksheets and quizzes to check understanding. Encouraging group discussions about these resources can also lead to improved comprehension and engagement.

To reduce company costs based on the learning materials and videos provided with this module, teachers should introduce the concepts:

a) Clearly: To lay the groundwork, start with a simple explanation of fixed, variable, and total costs, shown with slides or a whiteboard.
b) Use engaging videos: Choose brief videos that use real-world examples. Pause the video at critical points to discuss and reinforce ideas.
c) Interactive tools: Integrate simulations and cost-calculating tools to enable hands-on learning. These can help students understand how changes in variables affect overall costs.
d) Practical examples: Case studies and role-playing activities can help to understand the theory. This allows students to better comprehend how cost ideas are applied in real-world businesses.
e) Check for understanding: Regularly ask questions and encourage discussions to ensure that students understand the topic. Use quizzes and worksheets to assess.
f) Relate to interests: To keep students engaged, tailor examples to their particular interests, such as the expenses of technology, sports, or the fashion industry.

Activities that can be applied to the learning content

Teachers can employ several engaging activities to teach business costs:

a) Cost Analysis Projects: Have students create a mini-business plan, detailing fixed and variable costs for a hypothetical business.
b) Role-Playing: Organize a role-playing activity where students act as business owners making cost-related decisions.
c) Simulations: Use online business simulations that allow students to manage costs and see the financial impact of their decisions.
d) Case Studies: Analyze real-world business case studies in groups, focusing on cost management strategies.
e) Budget Challenges: Provide a budget and a list of expenses; students must decide how to allocate funds to maintain profitability.
f) Guest Speakers: Invite local business owners to discuss their experiences managing costs, providing practical insights.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	Why cost estimation is important?	GTECH platform
YouTube	How to Estimate Project Time and Cost	https://www.youtube.com/watch?v=A8rAAYT5A5k
Article	Project Cost Estimation: How to Estimate Project Cost by Brenna Schwartz	https://www.projectmanager.com/blog/cost-estimation-for-projects
Video GEA	What kind of costs need to be estimated?	GTECH platform
YouTube	How to Estimate Project Costs: A Method for Cost Estimation	https://www.youtube.com/watch?v=YQ2Wi3Jh3X0
Video GEA	Cost estimation for new green tech business endeavors	GTECH platform
YouTube	Construction Cost Estimating - The Estimating Process	https://www.youtube.com/watch?v=-kjOmRzKz3I

Questions to evaluate the students' knowledge

1. What are fixed costs?

A. Costs that change with the level of production

B. Costs that remain constant regardless of production levels

C. Costs incurred only during the initial setup of a business

2. Which of the following is an example of a variable cost?

A. Rent for office space

B. Salaries of permanent employees

C. Raw materials used in production

3. What is the primary difference between fixed and variable costs?

A. Fixed costs fluctuate with production levels, while variable costs do not

B. Fixed costs remain the same regardless of production levels, while variable costs change with production levels

C. Fixed costs are incurred only once, while variable costs are ongoing

4. If a company's total cost is the sum of its fixed and variable costs, which formula represents this relationship?

A. Total Cost = Fixed Cost + Variable Cost

B. Total Cost = Fixed Cost × Variable Cost

C. Total Cost = Fixed Cost - Variable Cost

5. Which of the following best describes marginal cost?

A. The cost of producing one additional unit of a product

B. The total cost divided by the number of units produced

C. The fixed cost per unit of production

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4 Module Green market

To strive in the long run, entrepreneurs need to be able to accurately access their market position and recognize the potential for sustainable growth and development. Growth cannot be achieved without the resources of the environment. Knowing the environment and market in which the business operates is critical for long-term growth.

4.1 Sustainability and development

The **sustainability and development module** covers:

- Definition and importance of sustainability
- Three pillars of sustainability
- Sustainability development goals
- Green transition

The teaching materials prepared for high school teachers on the topic of sustainability and development include a comprehensive overview of sustainability concepts, sustainable development goals (SDGs), and practical questions for assessment and discussion.

We start with an exploration of the concept of sustainability, providing a foundational understanding through definitions and historical perspectives that underscore its importance. We discuss the Sustainable Development Goals (SDGs) established by the United Nations, offering a global framework that aims to address major world challenges such as poverty, inequality, climate change, environmental degradation, peace, and justice. The teaching materials also emphasize the three pillars of sustainability - economy, society, and environment - illustrating how these areas are interlinked and how a balanced approach is necessary for achieving sustainable outcomes.

Throughout the presentation, various interactive questions prompt students to engage critically with the material, encouraging them to reflect on the meaning of sustainable development and its practical implications. The incorporation of educational videos enriches the learning experience, providing dynamic visual content to complement the discussions.

Suggestions for effective use of the learning material

Here are guidelines how teachers can use this material effectively in the classroom.

1. **Introduction to key concepts**: Start the lesson by introducing students to the concept of sustainability and sustainable development. Use the slides to discuss the three pillars of sustainability: economy, society, and environment.
2. **Engaging with videos**: Incorporate the provided videos to make the learning experience more dynamic. These videos will help visualize complex concepts and historical progress related to sustainability.
3. **Discussion and interaction**: Utilize the questions provided in the slides to spark class discussions and encourage students to think critically about each aspect of sustainability.

We suggest that teachers encourage interactive sessions where students can ask questions and express their thoughts as they view the slides, rather than a straightforward lecture. You can also break students into groups and assign them different SDGs to research and present their findings. This will encourage deeper engagement with the material and collaborative learning. Note also that sustainability can be a complex and often misunderstood area, thus, pay attention to and correct any misconceptions students might have about sustainability practices.

Activities that can be applied to the learning content

- Organize debates or role-playing activities where students take on roles of various stakeholders (e.g., government officials, business leaders, activists) to discuss or argue on sustainability topics such as climate change policies, economic sustainability, or social equity.
- Assign projects where students can choose a local sustainability issue and develop potential solutions or action plans. For example, they could design a sustainable garden for the school or create a plan to reduce waste in their community.
- Use the provided questions to test students' knowledge and understanding at the end of the unit. This can also be a good way to review and ensure students grasp the core concepts.

By incorporating these strategies, teachers can create a dynamic and engaging learning environment that not only informs but also empowers students to think critically about sustainability and their role in fostering a sustainable future.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	Definition and importance of sustainability	GTECH platform
YouTube	History of Anthropocene	https://www.youtube.com/watch?v=fvgG-pxlobk
Video GEA	Sustainable Development Goals	GTECH platform
TED video	Let the environment guide our development	https://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development
Video GEA	Green transition	GTECH platform
YouTube	Learning about the GREEN Transition	https://www.youtube.com/watch?v=imtAcbsTgtc
YouTube	8 Sustainability ideas that will change the world	https://www.youtube.com/watch?v=sMqtwbKc8EA
YouTube	Leaving No One Behind in a Green Transition	https://www.youtube.com/watch?v=OBm92hkDYSs

Questions to evaluate the students' knowledge

Environmental Domain

1. What is the most common cause of pollution of streams and rivers?
   a) <u>Surface water running off yards, city streets, paved lots, and farm fields.</u>
   a) Dumping of garbage by cities.
   b) Litter near streams and rivers.
   c) Waste dumped by factories.
   d) Don't know.

2. Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us from?
   b) <u>Harmful UV rays</u>
   a) Acid rain
   b) Climate change
   c) Sudden temperature changes
   d) Don't know

3. Which of the following is an example of sustainable forest management?
   c) <u>Never harvesting more than what the forest produces in new growth.</u>
   a) Setting aside forests to be off-limits to the public.

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b) Producing lumber for nearby communities to build affordable housing.
c) Putting the local communities in charge of forest resources.
d) Don't know.

4. Of the following, which would be considered living in the most environmentally sustainable way?
   d) <u>Reducing consumption of all products.</u>
   a) Recycling all recyclable packaging.
   b) Buying products labelled "eco" or "green".
   c) Buying the newest products available.
   d) Don't know.

Social Domain

5. Which of the following is the most commonly used definition of sustainable development?
   e) <u>Meeting the needs of the present without compromising the ability of future generations to meet their own needs.</u>
   a) Creating a government welfare system that ensures universal access to education, health care, and social services.
   b) Setting aside resources for preservation, never to be used.
   c) Building a neighborhood that is both socio-demographically and economically diverse.
   d) Don't know.

6. Over the past three decades, what has happened to the difference between the wealth of the richest and poorest Europeans?
   f) <u>The difference has increased.</u>
   g) The difference has stayed about the same.
   h) The difference has decreased.
   i) Don't know.

7. Which of the following populations has the highest rate of growth?
   a) <u>Africa</u>
   a) North America
   b) Europe
   c) China
   j) Don't know

Economic Domain

8. Which of the following is the most commonly used definition of economic sustainability?
   b) <u>Long-term profitability.</u>
   a) Maximizing the share price of a company's stock.
   b) When costs equal revenue.
   c) Continually expanding market share.
   d) Don't know.

9. Which of the following countries is the largest emitter of the greenhouse gas carbon dioxide?
   c) <u>China</u>
   d) U.S.
   e) Brazil
   f) Japan
   g) Don't know

10. Which of the following is a leading cause of the depletion of fish stocks in the Atlantic Ocean?
    a) <u>Fishermen seeking to maximize their catch.</u>
    b) Reduced fish fertility due to genetic hybridization.
    c) Ocean pollution.
    d) Global climate change.
    e) Don't know.

11. Which of the following is the best example of environmental justice?
    a) <u>All stakeholders from an indigenous community are involved in setting a quota for the amount of wood they can take from a protected forest next to their village.</u>
    b) Urban citizens win a bill to have toxic wastes taken to rural communities.
    c) The government dams a river, flooding nature protection areas to create hydro-power for large cities.
    d) Multi-national corporations build factories in developing countries where environmental laws are less strict.
    e) Don't know.

12. Put the following list in order of the activities with the largest environmental impact to those with the smallest environmental impact:
    A. Keeping a cell phone charger plugged into an electrical outlet for 12 hours.
    B. Producing one McDonald's quarter-pound hamburger.

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C. Producing one McDonald's chicken sandwich.
D. Flying in a commercial airplane from Washington D.C. to China.

a) <u>D, B, C, A</u>
b) A, C, B, D
c) D, A, B, C
d) D, C, B, A
e) Don't know.

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4.2 Market analysis

The **Market analysis** module consists of 4 topics:

- trend analysis,
- industry analysis,
- customer analysis and
- competitive analysis.

The purpose of the module is to learn the basic methods of market analysis from all four aspects. By analyzing trends, we estimate what will happen in the industry and beyond in the next 5-10 years. On the one hand, we are faced with mega trends, and on the other, with specific, niche trends. From our point of view, trends in the field of entrepreneurship, education and sustainable development are especially important. With a good knowledge of trends, we can prepare for various surprises and take advantage of certain opportunities. Within the scope of the SWOT analysis, we can already identify the opportunities that we want to take advantage of and the dangers that we want to avoid. It is also important to distinguish between forecasting and scenario planning. While in forecasting we explicitly predict a specific outcome, in scenarios we talk about possible outcomes or a combination of these outcomes.

With the help of industry analysis, we gain insight into the state of the industry we are entering. Porter's model of 5 competitive forces explains the competitiveness and attractiveness of the industry, the power of substitutes and the bargaining power of buyers and suppliers. If the industry turns out to be attractive, then we can expect a lot of new competitors in the future. If the barriers to entry are high, then the entry of new firms into the industry will be limited. At the same time, the model points out that it is dangerous to depend on only one customer, and we must therefore strive for alternatives. It is also dangerous to depend on just one supplier and not have real alternatives.

It is also very important to analyze the customers, namely their needs and wishes, i.e. the problems that we have to solve, and the solution to be placed in the product or service. We learn about wishes and needs through research such as in-depth interviews and focus groups (qualitative methods) and surveys (quantitative method). With qualitative methods, we go deeper, we investigate the psychological profiles of customers, the deeper reasons for their satisfaction or dissatisfaction. One of the important added values of qualitative methods is that we can get ideas for new products. The advantage of quantitative methods, such as a survey, is that we check the assumptions on a wider sample of potential customers and thus get a broader picture regarding the possible preferences of customers for our product / service. We can classify customers into different segments and prepare a customized marketing mix for them (4 P: product, price, place, promotion). It is not enough to adapt only the product to them, but it is necessary to adapt the entire marketing network to them. The video presents an example of LOHAS customers.

The last topic is the competition analysis. Here, it is important to look for differences from competitors, and to be able to communicate this to customers. In order to discover the difference, it is first necessary to analyze the competition through various attributes, such as price, quality, innovation, flexibility, global orientation, sustainability orientation, etc. The goal is to identify one or more competitive advantages on which we can build our position in the market. A good example of sustainable positioning is the company Patagonia, which is presented in the video as a good practice.

All four analyzes are important and represent a completed whole of the market analysis. It is important to carry out market analysis continuously, not just periodically, as trends, customer preferences and competitors' strategies change.

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Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	Trend analysis	GTECH platform
YouTube	Trend analysis	https://www.youtube.com/watch?v=eGMmFfgNn9Q
Video GEA	Industry analysis	GTECH platform
Video GEA	Customer analysis	GTECH platform
YouTube	How To Do Market Research! (5 FAST & EASY Strategies For 2024)	https://www.youtube.com/watch?v=mUlYuYooV5Y
YouTube	How to conduct market research for a startup	https://online.hbs.edu/blog/post/how-to-do-market-research-for-a-startup
YouTube	How do focus groups work? - Hector Lanz	https://www.youtube.com/watch?v=3TwgVQIZPsw
YouTube	How to Create a Survey in Minutes	https://www.youtube.com/watch?v=YhznYPWzU1Y
YouTube	Philip Kotler: Marketing Strategy	https://www.youtube.com/watch?v=bilOOPuAvTY&t=8s
Video GEA	Competitor analysis	GTECH platform
YouTube	Steve Jobs Think different Crazy ones speech	https://www.youtube.com/watch?v=4fcb8eu20SQ

Questions to evaluate the students' knowledge

Trend analysis:

Forecasting is a better technique than scenario planning because it predicts more possible scenarios.
Yes
No

Industry analysis

Porter's 5 competitive forces model is a model for:
a. Trend analysis
b. Industry analysis
c. Cost analysis

Customer analysis

Qualitative research covers:

a. Interviews and focus groups
b. Surveys

Competitor analysis

Market differentiation strategy means:
a. Difference, uniqueness
b. Copying existing competitors

Patagonia, through its "Don't buy this jacker" advertising campaign:
a. Increased sales
b. Decreased its sales as customers followed the instruction

Mentimeter is a tool to perform:
a. Focus groups
b. Surveys

The following number of participants usually participate in a focus groups:
a. 7-12 participants
b. 1-3 participants

5 Module Innovation

One can hardly imagine any important development without creativity and innovation. Creativity and innovation have to constantly accompany entrepreneurs who strive to achieve more in different ways that are not thinkable at this very moment.

5.1 Creativity

The module creativity consists of the following topics:

- Origin
- Usage
- Techniques
- Cases of good practice

Suggestions for effective use of the learning material

No creativity – no development

Creativity is the mother of development, and it needs to be nurtured all the time. It can be used everywhere, in all situations and for all purposes. It can be used by everyone, not just the initiated. Nowadays, we still associate innovation with technological progress, but this is only one of the possible areas where creativity enables innovation. There are opportunities in all spheres of entrepreneurship: personnel policy, transport, logistics, storage, organizational chart, company management, sales, marketing, procurement, raw materials, suppliers... It is also important to remind the listeners that all levels and dimensions of innovation are important and that everyone can create big shifts - both small and large innovations are important.

Creativity is personal and company wealth

It is necessary to explain to students that their creativity is their wealth, which they can transform into a good business. In this way, they can innovate and create solutions that are interesting for the market and bring new solutions to existing problems and create new needs, with the help of which they make people's lives easier, while at the same time reducing production, transport, storage, personnel, marketing and sales costs for companies. Thus, they create better conditions for work and development and increase profits, which are then invested in further development.

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Activities that can be applied to the learning content

We have prepared some tips on how to strengthen creativity on a daily basis. 30 circles on a blank sheet are a great way to strengthen our creativity, not to mention reading stories and writing and sketching thoughts and ideas.

Creativity and problem-solving techniques

In the lecture, we presented four techniques. For two of them, we have prepared a quick content and logo overview and provided hints for two workshops that you can conduct with the participants in class. We have only mentioned the remaining two techniques and since they have been proven countless times to be very useful in practice, we suggest that you google them and get to know them in more detail and then practice them in class.

Important trends

We recommend that students be taught about modern environmental trends and encouraged to create innovations that work in this direction. Thinking about reuse, different use, recycling, renovation and similar environmental approaches is an excellent source of inspiration for good business ideas. However, trends also exist elsewhere, basically everywhere where people move and where with each progress, they create new needs and desires. These generate trends that need to be regularly monitored and acted upon. everywhere. We should also mention the trend of cooperation and co-creation, which is fostered with the help of outsourcing ideas and creative intelligence. It is also important to realize that technology enables the replacement of routine tasks, because it relieves human thought and enables innovation in even higher spheres. Apps, AI and AR are good examples of this. One of the trends is called the "creativity renaissance", which means that in human resource management there is an increasing demand for a new category of literacy called creativity.

Every new idea is a step forward

The practical examples we have given do not come from the digital world, and we have done this on purpose, because digitization only helps everything that is in the real world. Well, by this we do not mean that innovation is necessary only in the real world, we just want to emphasize that regardless of all the progress, we still live on our Mother Earth and that it will remain so for quite some time.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	Origin of creativity - what is it / ingredients of creativity	GTECH platform
YouTube	Cédric Villani on the 7 Ingredients of Creativity	https://www.youtube.com/watch?v=SA2bjD3tn5c&t=6s
Video GEA	Usage of creativity - how to enhance creativity / sources of creativity	GTECH platform
Article	Use your imagination	https://creativityworkshop.com/articles/use-your-imagination
Video GEA	Techniques - creativity trends / creative thinking and problem-solving techniques	GTECH platform
YouTube	Creative thinking - how to get out of the box and generate ideas	https://www.youtube.com/watch?v=bEusrD8g-dM
Video GEA	Practical steps to foster innovation	GTECH platform
Article	Build your creative confidence: 30 circles exercise	https://www.ideo.com/journal/build-your-creative-confidence-30-circles-exercise
Video GEA	Cases of good practice - reuse / recycle / new use / alternative use	GTECH platform
Article	Henry Ford - Case study of an innovator	https://www.thehenryford.org/explore/blog/henry-ford-case-study-of-an-innovator
YouTube	5 Creative Ways to Reuse and Recycle Old Things	https://www.youtube.com/watch?v=dRShMM1AcO0&t=220s

Questions to evaluate the students' knowledge

1. Creativity encompasses several important phenomena. In the following list find 2 of them that do not belong to creativity:
   - curiosity
   - passion
   - **carefreeness**
   - imagination
   - **logic**
   - observation
   - inspiration
   - improvement

2. Human life is full of different trends that announce particular changes in the future. We know technical trends, fashion trends, behavior trends and many others. Are we also talking about creativity and innovation trends?
   - sometimes
   - no
   - **yes**
   - don't know

3. We can enhance creativity by taking a new root. Which root is not correct?
   - repair and reuse product
   - change component parts

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- **throw away damaged product**
- recycle component parts
- repack
- change participants in creative teams

4. What is The Circles Challenge?
   - fast circling around the circle
   - cycling challenge
   - ring toss game
   - **a sheet with multiple empty circles**
   - Throwing Ring Game
   - Four circles in a row

5. What is SCAMPER?
   - a camper with letter S
   - excavator
   - car model
   - camping app
   - **creative thinking technique**
   - amusement park
   - student challenge
   - new Hollywood video

6. What Shelley Berc emphasizes in her article Use Your Imagination (multiple answers)?
   - without exercising creativity our spirit will get sick
   - creativity is practiced in all schools and companies around the world
   - **creativity enhances and builds our self-image and self-esteem**
   - **creative work in playful work**
   - comfort zone is the basis for future development

7. Henry Ford is one of the most famous pioneers of innovative thinking. What innovations did he implement in his entrepreneurship (several answers)?
   - **horseless carriage**
   - **flexible suspension system**
   - brake servo
   - **assembly line for automobiles**
   - **lightweight, inexpensive V-8 engine**
   - car air conditioning
   - light truck
   - **affordable car price**

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5.2 Innovativeness

The innovation module covers:

- What is the relevance of innovation for our day-to-day life?
- What is innovation (types, levels, examples of green tech innovation)
- The explanation of importance of innovation in entrepreneurship
- Practical steps to foster innovation
- Sources of innovation.

Suggestions for effective use of the learning material

The module has been developed with GTECH objectives in mind. Therefore, the most effective use of the materials is to use them in the order indicated under the sub-heading “Suggested order of the videos”. However, it is possible to use the video “An intro to innovation - why does it matter?” as a stand-alone 10-minute talk on importance of innovation in everyday life. “Understanding innovation” is another video that can be used on its own.

Other videos, recorded by GEA, are designed as a supplementary source and require the knowledge and understanding of the previous two videos.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	An intro to innovation - why does it matter?	GTECH platform
YouTube	How life will look in 2050?	https://www.youtube.com/watch?v=6_q_LHq85Cs&t=24s
Video GEA	Understanding innovation	GTECH platform
YouTube	What is innovation? Video	https://www.youtube.com/watch?v=l_O-yJHrFx8&t=326s
Article	Exploring green technologies: Innovations, opportunities, and real-world challenges	https://instituteofsustainabilitystudies.com/insights/lexicon/green-technologies-innovations-opportunities-challenges/
Video GEA	Innovation importance in entrepreneurship	GTECH platform
Video GEA	Practical steps to foster innovation	GTECH platform
YouTube	Discomfort is key to innovation	https://www.youtube.com/watch?v=fB9vy9ElJ1g
YouTube	Sources of innovation	https://www.youtube.com/watch?v=-xbjAK3AGdc
Video GEA	Trends in innovation	GTECH platform

Article	Green innovation trends	https://insights.raconteur.net/green-innovation-trends-and-investments#key-areas-of-green-tech-innovation-to-watch

Questions to evaluate the students' knowledge

1. **Innovation is a term that applies only to something that is totally new for the whole world.**
   a) True
   b) <u>False</u>
   c) Don't know.

2. **Even though something is NOT accepted by the market, it is still innovation.**
   a) True
   b) <u>False</u>
   c) Don't know.

3. **If something is significantly changed, it is also an innovation.**
   a) <u>Yes</u>
   b) No
   c) Don't know.

4. **Are inventions and innovations the same thing?**
   a) Yes
   b) <u>No</u>
   c) Don't know.

5. **Innovation is usually a group effort.**
   a) <u>Yes</u>
   b) No
   c) Don't know.

6. **Will all the predictions in the video "How life will look in 2050?" come true?**
   a) Yes
   b) <u>No</u>
   c) Don't know.

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7. **Everyone can be an innovator.**
   a) **Yes**
   b) No
   c) Don't know.

6 Module Market Entry

Market entry is crucial for green business models, as it allows companies to establish a competitive edge, influence market trends, and access early regulatory advantages. Green businesses and effective pitching of these models are essential to attract environmentally conscious customers, secure investments, and drive industry-wide adoption of sustainable practices. This not only addresses critical environmental issues but also positions the business as a leader in sustainability and green business.

6.1 Business model

The goal of the **business model module** is to ensure that students gain a comprehensive understanding of green tech business models and their importance in sustainable development. The materials include lecture slides, videos, and additional assignments. It consists of the following topics:

- Building blocks of green tech canvas
- Manufacturing and green tech activities
- Pivot of the green tech canvas
- How to build a sustainable business model

Suggestions for effective use of the learning material

1. Lecture Slides:

   - Introduction: Begin with an introduction to green tech and the importance of sustainable business models. Use the slides to provide definitions and context.
   - Interactive discussion: Engage students with questions about their understanding of green tech. Ask them to provide examples of green tech innovations they are aware of.
   - Key concepts: Use slides to explain key components of a green tech business model. Highlight differences between traditional and green business models.
   - Case studies: Present case studies from the slides to illustrate real-world applications. Discuss how companies have successfully implemented green tech strategies.

2. Videos:

   - The Green tech video Green Business Models by GEA College
   - The Business Model Canvas - 9 Steps to Creating a Successful Business Model - Startup Tips: The Business Channel: https://www.youtube.com/watch?v=IP0cUBWTgpY
   - Erin Meezan: What nature can teach us about sustainable business: In The Green: TED: https://www.youtube.com/watch?v=TxwGZppT2WA

- RBC Growing Green Business Model Canvas Presentation: Andrew Walls: https://www.youtube.com/watch?v=c4BFNTtqQvo

- Pre-Viewing Discussion: Before showing the video, ask students what they expect to learn. This primes their attention and sets expectations.
- Focused Viewing: Encourage students to take notes during the video, focusing on key points such as manufacturing practices, key resources, and value propositions.
- Post-Viewing Discussion: After the video, hold a discussion to reinforce learning. Ask students to summarize the main points and relate them to the lecture content.

3. Supplementary Materials:

- Reading Materials: Provide articles or papers on green tech business models. Assign readings as homework or in-class group activities.
  - A SHORT GUIDE TO DEVELOPING GREEN BUSINESS MODELS. 2018. Imola Antal, Brindusa Burrows, The Ground_Up Centre: https://www.greenpolicyplatform.org/sites/default/files/learning-resources/action/GBM%20Development%20Guide%20for%20dissemination%2020180730.pdf
- Quizzes and Tests: Use quizzes to assess understanding of key concepts. These can be multiple-choice or short-answer questions based on the lecture and video content. Prepare quizzes and tests according to your challenge based learning case.
- Group Projects: Assign group projects where students create their own green tech business models. Encourage them to present their models to the class for feedback according to challenge-based case.

Activities that can be applied to the learning content

1. Case Study Analysis:

- Divide students into groups and assign each group a different green tech company case study. Ask them to analyze the business model and present their findings.
- Focus on key aspects such as value proposition, customer segments, and key partners.
- Encourage students to identify strengths and weaknesses in the business model and suggest improvements.

2. Debates:

- Organize debates on topics such as the feasibility of green tech in various industries, the challenges of implementing green practices, or the impact of green tech on the economy.
- Assign students to opposing sides and provide them with research time to prepare their arguments.

- Facilitate the debate, ensuring all students have the opportunity to participate and express their views.

3. Role-Playing:

- Create scenarios where students take on the roles of stakeholders in a green tech company (e.g., CEO, environmental manager, customer).
- Ask them to discuss and make decisions on various business model components, such as entering new markets or adopting new technologies.
- This helps students understand the perspectives and interests of different stakeholders in a green tech business.

4. Brainstorming Sessions:

- Conduct brainstorming sessions on innovative green tech solutions and business models. Encourage creative thinking and collaboration.
- Use techniques like mind mapping to visualize ideas and connections.
- Discuss the feasibility and potential impact of these ideas.
- Field Trips and Guest Speakers:
- Organize field trips to local green tech companies or invite guest speakers from the industry. This provides students with real-world insights and the opportunity to ask questions.
- Prepare students beforehand by discussing what they will see and learn during the visit.

Recommendations for Teachers

- Engagement: Actively engage students in discussions and activities. Encourage them to ask questions and share their thoughts.
- Relevance: Relate the content to current events and trends in green tech. This makes the material more relevant and interesting.
- Assessment: Use a variety of assessment methods to gauge understanding, including quizzes, projects, and class participation.
- Feedback: Provide constructive feedback on assignments and projects. Highlight strengths and suggest areas for improvement.
- Support: Offer additional support to students who may struggle with the material. Provide extra resources or one-on-one assistance as needed.

By following these guidelines, teachers can create an interactive and effective learning environment that enhances students' understanding of green tech business models and their role in sustainable development.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material
Video GEA	Overview of Business Models	GTECH platform
YouTube	The Business Model Canvas - 9 Steps to Creating a Successful Business Model - Startup Tips: The Business Channel:	https://www.youtube.com/watch?v=IP0cUBWTgpY
Video GEA	Business model in green tech	GTECH platform
YouTube	Erin Meezan: What nature can teach us about sustainable business: In The Green: TED:	https://www.youtube.com/watch?v=g6_VX2tZ-gg
Article	A SHORT GUIDE TO DEVELOPING GREEN BUSINESS MODELS. 2018. Imola Antal, Brindusa Burrows, The Ground_Up Centre:	https://www.greenpolicyplatform.org/sites/default/files/learning-resources/action/GBM%20Development%20Guide%20for%20dissemination%2020180730.pdf
Video GEA	Bringing It All Together	GTECH platform
YouTube	RBC Growing Green Business Model Canvas Presentation: Andrew Walls:	https://www.youtube.com/watch?v=c4BFNTtqQvo

Questions to evaluate the students' knowledge

1. Business model focuses on 4 major aspects of the business.

a) SWOT
b) Customers, offer, infrastructure, financial feasibility.
c) Country, business, technology, people.

2. How can we describe value proposition in business model?

a) A promise of value to be delivered, communicated, and acknowledged.
b) A realistic plan for execution our strategy.
c) A belief from the customer about how value (benefit) will be delivered, experienced and acquired.

3. What can be customer relationships in Green tech business model?

a) Building and maintaining customer relationships.
b) Role of customer education and engagement.
c) Strategies for fostering profit.

4. What can be key activities in green tech business model?

a) <u>Renewable energy integration.</u>
b) Having a famous brand.
c) Presenting your lifestyle on social media.

5. There are many differences between plain business model and green tech business model.

a) Yes, since green tech business model is prepared for countries, which would like to behave green (e.g. Slovakia and 10-year plan for greenification).
b) No, since all of the elements are the same.
c) <u>Yes, because green tech focuses on sustainability.</u>

6. How much do customers care about the technology of a company?

a) Technology of certain company is the most important thing for customers.
b) <u>Customers do not care about the technology; they are trying to solve their problems and needs.</u>
c) Companies without technology cannot offer the right supply for the offer on the market.

7. Can we make a business model and a factory that has a positive impact on the nature?

a) No, that is not possible.
b) <u>Yes, if we follow green tech principles.</u>
c) Yes, if we have a lot of money.

6.2 Pitch

The **pitch** module consists of 3 topics:

- What is a Pitch?
- Structure and Technics of a Pitch
- Examples (Name: *Pitching Examples*)

Suggestions for effective use of the learning material

Use the open-source material below. First by showing your students the ***Introduction videos****,* which explain the basics and techniques of pitching. You watch the videos in order:

- ***The Secret to Successfully Pitching an idea****:* wrap-up about what Pitching is and what are its ingredients.
- ***3-minute pitch***: explanation how you build a winning 3-minute startup pitch.
- ***8 bullet points when making presentation***: 8 key points to pay attention to when you are doing a Pitch.
- **How to create a climate pitch deck:** the essential elements of a compelling pitch deck for a topic sustainability or climate.
- ***How pitching investors is different than pitching customers:*** video explains the difference between investors and customers Pitch.

Activities that can be applied to the learning content

In ***Examples of pitches,*** you'll find successful Pitch Decks from CleanTech Startups which can be good examples for students who need to do a Pitch on a green tech topic. You can choose one Pitch or few of them to represent the Pitch session to students, as a good example that they can imagine how in reality pitch look like.

Then use the ***Learning material***. Students can use this material as a tool to make their own presentation. They can use a *Pitch Canvas* to make a storyboard for a presentation. A *Business Idea Pitch Presentation Example* is a template of a Pitch, where are all the main topics someone should cover when he/she represents the business idea to some audience. This template can save you a time and energy when you are preparing your Pitch.

At the end you have the most famous and interesting pitches, which you can watch for a student's motivation and where they can get some great ideas how to make a Pitch even better.

You can also watch the videos below as a standalone units.

Suggested order of the recorded videos and external supplementary learning material

Type	Title	Links to learning material	
Video GEA	Introduction videos	GTECH platform	
YouTube	How to successfully pitch and idea	https://www.youtube.com/watch?v=l0hVIH3EnlQ	The Secret to Successfully Pitching an Idea:
YouTube	3-minute pitch	https://www.youtube.com/watch?v=q6bewrSolcY	
YouTube	8 bullet points when making presentation	https://www.youtube.com/watch?v=jYWF64Um7pw	
Web resource	How to create a climate pitch deck	https://vip.graphics/how-to-create-a-climate-tech-pitch-deck/	
YouTube	How pitching investors is different than pitching customers	https://www.ycombinator.com/library/7u-how-pitching-investors-is-different-than-pitching-customers	
Web resource	Examples of Pitch Decks on a topic green tech	https://www.failory.com/pitch-deck/cleantech	Green Tech Pitches (You can choose one or few of them to represent them to students, as a good example)
Web resource	15+ pitch decks for sustainability startups	https://vip.graphics/sustainability-pitch-deck-examples	
YouTube	One of the Greatest Speeches Ever - Steve Jobs:	https://www.youtube.com/watch?v=3NYleDiQUzY	Best Pitch Cases (just for your fun and creativity)
YouTube	One of the Greatest Speeches Ever - Steve Jobs:	https://www.youtube.com/watch?v=Tuw8hxrFBH8	
YouTube	Berlin as a Startup City:	https://www.youtube.com/watch?v=e22vY4CWpEI&t=28s	
YouTube	Elon Musk gives elevator pitch	https://www.youtube.com/watch?v=cJ9Xep22oEY	
YouTube	Elon Musk gives elevator pitch	https://www.youtube.com/watch?v=Q4VGQPk2DI8	

Questions to evaluate the students' knowledge

8. **What is the golden rule of Pitching?**
   a) **Have an Elevator Pitch that is less than 10 seconds.**
   b) Enjoy and relax when you Pitch
   c) **Practice, practice, practice**

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9. What is an Elevator Pitch?

d) A long story about your life
e) <u>A short (30 seconds to max 1 minute) pitch</u>
f) A story about my problem

10. Which tool can help you to do a Pitch?

a) <u>The Pitch Canvas</u>
b) Recipe for a good Pitch
c) <u>Storyboard</u>
d)

11. Good Pitch must be…

a) <u>Clear, simple and no information overkill</u>
b) Very structured and with a lot of information about your idea
c) Supported with many videos as evidence and you don't need to talk a lot

12. Which VAKOG type is the majority of a population?

a) <u>Visual</u>
b) Listening
c) Touch/Feel
d) Olfaction
e) Taste

13. Is there a difference between pitching to investors than pitching to customers?

a) <u>YES</u>
b) NO

14. What is the difference between a customer pitch and an investor pitch?

a) There is not a big difference between Investor pitch and Customer pitch
b) In Investor pitch is important to tell you would like to get as much money as they can give you; In Customer pitch you should tell that you like your product/service which solve your problem.
c) <u>In Investor pitch is important to tell that you can build a big business; in Customer pitch you should tell that your product/service solve their specific problem.</u>

7 MOOC learning material

This chapter provides an overview of the MOOC learning materials for each individual learning module. The links to video tutorials recorded by experts from the GEA College, Faculty of Entrepreneurship are available on the GTECH platform. In addition, we provide links to supplementary, publicly available external learning materials such as YouTube videos, articles, or web pages. We have listed the recorded video tutorials, external videos, and other learning material in the suggested order of viewing.

7.1 Idea and opportunity

7.1.1 Idea

Type	Title	Links to learning material
Video GEA	An intro to idea – what is it	GTECH platform
YouTube	How to Generate NEW Business Ideas: Simon Sinek	https://www.youtube.com/watch?v=mN21YwEZHCo
Video GEA	Techniques of Idea Generation	GTECH platform
YouTube	How to Find a Business Ideas to Start Your Own Business in 2024: Young Entrepreneurs Forum	https://www.youtube.com/watch?v=g6_VX2tZ-gg
article	Ecopreneurs' creation of user business models for green tech: an exploratory study in e-mobility	https://www.inderscienceonline.com/doi/pdf/10.1504/IJEV.2018.090978
Video GEA	Bringing It All Together	GTECH platform
YouTube	What If: green tech and Ideas For Earth Day	https://www.youtube.com/watch?v=Mw5o9e4e_cY
YouTube	Green project ideas | Environmental protection and awareness models | Save Earth, science projects: Diya's Fun play	https://www.youtube.com/watch?v=EU1CYv6iS08
YouTube	15 Innovative SUSTAINABLE & ECO-FRIENDLY business IDEAS to start with $5000: ECO Snooki	https://www.youtube.com/watch?v=qQT49QNilZo

7.1.2 Opportunity

Type	Title	Links to learning material
Video GEA	From ideas to opportunity	GTECH platform

YouTube	How business ideas are born | Aya Jaff	https://www.youtube.com/watch?v=5byUDpuEjq4
Video GEA	Evaluation of the ideas	GTECH platform
YouTube	Evaluate Startup Ideas in 5 Minutes	https://www.youtube.com/watch?v=NwyW46josFM
Video GEA	Green tech opportunity and needs	GTECH platform
YouTube	Top 10 green technologies Revolutionizing Our Future	https://www.youtube.com/watch?v=fGRgr4EyLHQ
YouTube	This green tech is Bringing Life Back to the Sea	https://www.youtube.com/watch?v=YGJ5EBrh8IQ
Video GEA	Understanding niche markets for challenge-based learning case	GTECH platform

7.2 Operations

Each video tutorial provided within the operations module is a stand-alone learning material.

7.2.1 Management

The following topics are covered in separate short video tutorials:

Type	Title	Links to learning material
Video GEA	Management and leading	GTECH platform
Video GEA	Planning	GTECH platform
Video GEA	Decision making	GTECH platform
Video GEA	Project management	GTECH platform

The video tutorials can be watched in any order. One option is to start with the differences between management and leadership and then continue with planning, decision-making, and project management. You can create your own unique sequence, as there is no predetermined order.

7.2.2 Team

The following topics are covered in separate short video tutorials:

Type	Title	Links to learning material
Video GEA	Teamwork	GTECH platform
Video GEA	Emotional intelligence	GTECH platform
Video GEA	Communication	GTECH platform
Video GEA	Motivation	GTECH platform

7.2.3 Challenge-based learning

Two video tutorials within this module cover the following two topics:

Type	Title	Links to learning material
Video GEA	Active learning methods	GTECH platform
Video GEA	Challenge-based learning	GTECH platform

You could watch the video tutorials independently from one another. In the event that you address both topics, you would start by presenting the active learning methods and then continue with the challenge-based learning. It is also recommended that you read more about the process of challenge-based learning, which is thoroughly described in the initial chapters of this instruction manual.

7.3 Finance

7.3.1 Finance plan

Type	Title	Links to learning material
Video GEA	The relevance of establishing a financial plan	GTECH platform
YouTube	The One Page Financial Plan	https://www.youtube.com/watch?v=55Ak3L-6V3I
article	The Art & Science of Tech Startup Fundraising by Paige Benett	https://www.hubspot.com/startups/tech-startup-fundraising

7.3.2 Cost estimation

Type	Title	Links to learning material
Video GEA	Why cost estimation is important?	GTECH platform
YouTube	How to Estimate Project Time and Cost	https://www.youtube.com/watch?v=A8rAAYT5A5k
article	Project Cost Estimation: How to Estimate Project Cost by Brenna Schwartz	https://www.projectmanager.com/blog/cost-estimation-for-projects
Video GEA	What kind of costs need to be estimated?	GTECH platform
YouTube	How to Estimate Project Costs: A Method for Cost Estimation	https://www.youtube.com/watch?v=YQ2Wi3Jh3X0
Video GEA	Cost estimation for new Green tech business endeavors	GTECH platform
YouTube	Construction Cost Estimating - The Estimating Process	https://www.youtube.com/watch?v=-kjOmRzKz3I

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7.4 Green market

7.4.1 Sustainability and development

Type	Title	Links to learning material
Video GEA	Definition and importance of sustainability	GTECH platform
YouTube	History of Anthropocene	https://www.youtube.com/watch?v=fvgG-pxlobk
Video GEA	Sustainable Development Goals	GTECH platform
TED video	Let the environment guide our development	https://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development
Video GEA	Green transition	GTECH platform
YouTube	Learning about the GREEN Transition	https://www.youtube.com/watch?v=imtAcbsTgtc
YouTube	8 Sustainability ideas that will change the world	https://www.youtube.com/watch?v=sMqtwbKc8EA
YouTube	Leaving No One Behind in a Green Transition	https://www.youtube.com/watch?v=OBm92hkDYSs

7.4.2 Market analysis

Type	Title	Links to learning material
Video GEA	Trend analysis	GTECH platform
YouTube	Trend analysis	https://www.youtube.com/watch?v=eGMmFfgNn9Q
Video GEA	Industry analysis	GTECH platform
Video GEA	Customer analysis	GTECH platform
YouTube	How To Do Market Research! (5 FAST & EASY Strategies For 2024)	https://www.youtube.com/watch?v=mUlYuYooV5Y
YouTube	How to conduct market research for a startup	https://online.hbs.edu/blog/post/how-to-do-market-research-for-a-startup
YouTube	How do focus groups work? - Hector Lanz	https://www.youtube.com/watch?v=3TwgVQIZPsw
YouTube	How to Create a Survey in Minutes	https://www.youtube.com/watch?v=YhznYPWzU1Y
YouTube	Philip Kotler: Marketing Strategy	https://www.youtube.com/watch?v=bilOOPuAvTY&t=8s
Video GEA	Competitor analysis	GTECH platform
YouTube	Steve Jobs Think different Crazy ones speech	https://www.youtube.com/watch?v=4fcb8eu20SQ

7.5 Innovation

7.5.1 Creativity

Type	Title	Links to learning material
Video GEA	Origin of creativity - what is it / ingredients of creativity	GTECH platform
YouTube	Cédric Villani on the 7 Ingredients of Creativity	https://www.youtube.com/watch?v=SA2bjD3tn5c&t=6s
Video GEA	Usage of creativity - how to enhance creativity / sources of creativity	GTECH platform
Article	Use your imagination	https://creativityworkshop.com/articles/use-your-imagination
Video GEA	Techniques - creativity trends / creative thinking and problem-solving techniques	GTECH platform
YouTube	Creative thinking - how to get out of the box and generate ideas	https://www.youtube.com/watch?v=bEusrD8g-dM
Video GEA	Practical steps to foster innovation	GTECH platform
Article	Build your creative confidence: 30 circles exercise	https://www.ideo.com/journal/build-your-creative-confidence-30-circles-exercise
Video GEA	Cases of good practice - reuse / recycle / new use / alternative use	GTECH platform
Article	Henry Ford - Case study of an innovator	https://www.thehenryford.org/explore/blog/henry-ford-case-study-of-an-innovator
YouTube	5 Creative Ways to Reuse and Recycle Old Things	https://www.youtube.com/watch?v=dRShMM1AcO0&t=220s

7.5.2 Innovation

Type	Title	Links to learning material
Video GEA	An intro to innovation - why does it matter?	GTECH platform
YouTube	How life will look in 2050?	https://www.youtube.com/watch?v=6_q_LHq85Cs&t=24s
Video GEA	Understanding innovation	GTECH platform
YouTube	What is innovation? Video	https://www.youtube.com/watch?v=l_O-yJHrFx8&t=326s
Article	Exploring green technologies: Innovations, opportunities, and real-world challenges	https://instituteofsustainabilitystudies.com/insights/lexicon/green-technologies-innovations-opportunities-challenges/
Video GEA	Innovation importance in entrepreneurship	GTECH platform
Video GEA	Practical steps to foster innovation	GTECH platform
YouTube	Discomfort is key to innovation	https://www.youtube.com/watch?v=fB9vy9ElJ1g
YouTube	Sources of innovation	https://www.youtube.com/watch?v=-xbjAK3AGdc
Video GEA	Trends in innovation	GTECH platform
Article	green innovation trends	https://insights.raconteur.net/green-innovation-trends-and-investments#key-areas-of-green-tech-innovation-to-watch

7.5.3 Market entry

7.5.4 Business model

Type	Title	Links to learning material
Video GEA	Overview of Business Models	GTECH platform
YouTube	The Business Model Canvas - 9 Steps to Creating a Successful Business Model - Startup Tips: The Business Channel:	https://www.youtube.com/watch?v=IP0cUBWTgpY
Video GEA	Business model in green tech	GTECH platform
YouTube	Erin Meezan: What nature can teach us about sustainable business: In The Green: TED:	https://www.youtube.com/watch?v=g6_VX2tZ-gg
Article	A SHORT GUIDE TO DEVELOPING GREEN BUSINESS MODELS. 2018. Imola Antal, Brindusa Burrows, The Ground Up Centre:	https://www.greenpolicyplatform.org/sites/default/files/learning-resources/action/GBM%20Development%20Guide%20for%20dissemination%2020180730.pdf
Video GEA	Bringing It All Together	GTECH platform
YouTube	RBC Growing Green Business Model Canvas Presentation: Andrew Walls:	https://www.youtube.com/watch?v=c4BFNTtqQvo

7.5.5 Pitch

Type	Title	Links to learning material	
Video GEA	Introduction videos	GTECH platform	
YouTube	How to successfully pitch and idea	https://www.youtube.com/watch?v=l0hVIH3EnlQ	The Secret to Successfully Pitching an Idea:
YouTube	3-minute pitch	https://www.youtube.com/watch?v=q6bewrSolcY	
YouTube	8 bullet points when making presentation	https://www.youtube.com/watch?v=jYWF64Um7pw	
Web resource	How to create a climate pitch deck	https://vip.graphics/how-to-create-a-climate-tech-pitch-deck/	
YouTube	How pitching investors is different than pitching customers	https://www.ycombinator.com/library/7u-how-pitching-investors-is-different-than-pitching-customers	
Web resource	Examples of Pitch Decks on a topic green tech	https://www.failory.com/pitch-deck/cleantech	Green Tech Pitches (You can choose one or few of them to represent them to students, as a good example)
Web resource	15+ pitch decks for sustainability startups	https://vip.graphics/sustainability-pitch-deck-examples	
YouTube	One of the Greatest Speeches Ever - Steve Jobs:	https://www.youtube.com/watch?v=3NYleDiQUzY	Best Pitch Cases (just for your fun and creativity)
YouTube	One of the Greatest Speeches Ever - Steve Jobs:	https://www.youtube.com/watch?v=Tuw8hxrFBH8	
YouTube	Berlin as a Startup City:	https://www.youtube.com/watch?v=e22vY4CWpEI&t=28s	
YouTube	Elon Musk gives elevator pitch	https://www.youtube.com/watch?v=cJ9Xep22oEY	
YouTube	Elon Musk gives elevator pitch	https://www.youtube.com/watch?v=Q4VGQPk2DI8	

8 Conclusion

This instruction manual is aimed at teachers who wish to effectively use the educational program for entrepreneurial skills development in vocational secondary education. It aims to provide information and advice on how teachers can use the videos and other learning materials, which were created by the GEA College Faculty of Entrepreneurship within the GTECH project as part of the modular educational program and curriculum. It provides suggestions to teachers on how best to use these in the classroom and what they should pay attention to achieve better learning outcomes. It also provides ideas on what kind of activities the teachers can apply relating to the learning content and how they can involve students.

Each of the authors of individual modules (chapters in this report) has prepared additional instructions for the teachers on how to use this material. The educational program as a whole can represent a significant step towards addressing the current gaps in entrepreneurship education and focusing on environmental sustainability and green technology, but it needs to be implemented in practice.

The material has been prepared with the GTECH Challenge Hub platform in mind and serves primarily as a knowledge resource that students that will be participating in the challenge can use. It is particularly important to remember that besides encouraging entrepreneurship, in the context of environmental sustainability and green technology, the GTECH project advocates for effective learning methods such as challenge-based and active-based learning that include the active involvement of students in learning activities. This is why a separate chapter on this method has been included under the “Operations” segment.

Overall, the focus of this instruction manual for teachers is on providing directions for teachers who wish to use the content of the educational program in their teaching activities. By incorporating various activities and appropriate approaches, teachers can increase the students’ motivation for entrepreneurial, sustainable, and green technology topics. They can also influence students to remember the material faster and retain the acquired knowledge for longer.

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9 REFERENCES

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The challenge institute (2018). *The challenge-based learning framework.* https://www.challengebasedlearning.org/framework/

10 ATTACHMENTS

Attachment A: Template teachers can use to create a syllabus for a module, course, or workshop for students

Title of the module

- **Level:** Choose from the educational levels offered by your school. You can also select a level from beginner, improver, intermediate, above-intermediate, or advanced, or state that it includes all levels from beginner, improver, intermediate, above-intermediate, to advanced, if this is the case.
- **The time required to finish the assignments within this module:** Specify the time required for participants to finish the module, including the duration of the video and supplementary educational assignments:
    - Lectures
    - Exercises/tutorials
    - Seminar
    - Individual work:
        - reading
        - videos
        - practical exercises
        - Individual and group research, project work, and project assignment.
        - Quizzes
        - Other supplementary educational assignments
- **Prerequisites:** Define the conditions to be elegible to attend the module.
    - E.g. There are no restrictions on attending this module.
    - E.g. The module (name of the module) should have already been completed.

Learning and teaching methods

Examples:

- Lectures with active students' involvement (explanation, discussion, questions and answers, case studies).
- Video materials with learning content.
- Individual and group research, project work, and project assignments.
- Individual and group consultations (discussion, additional explanation, handling specific questions).
- Remote collaboration by using modern ICT tools.

- Supplementary educational assignments and work in the online classroom: reading, practical exercises, quizzes

The general purpose of the module

The activity aims at developing the skills/competencies of … (one sentence)

General and specific competencies (optional)

Example:

The students develop general competencies:
- Developing the ability to apply knowledge in practice: preparation of a project assignment.
- Developing decision-making skills: when choosing and defining a problem.
- Developing self-initiative, creativity, and precision.
- Developing presentation skills.
- Developing writing skills.

The students develop course-specific competencies:
- Developing understanding and knowledge of the techniques of…..

Learning Outcomes of the Module

Indicate around 3-5 specific learning outcomes.

Students will be able to:

- …….

Content

Topic 1

- Part 1 of topic 1
- Part 2 of topic 1
- Part 3 of topic 1

Topic 2

- Part 1 of topic 2
- Part 2 of topic 2

- Part 3 of topic 2

Assessment

For example:

- project assignment (30%),
- presentation (20%),
- oral exam (20%),
- written exam (30%).

Learning materials and sources

Provide information on desirable and necessary learning materials and sources for students to complete the work and on learning materials and sources that teachers can use.

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Attachment B: Example of good practice

Example: Reflect on and communicate essential themes, impressions, and opinions from practical demonstrations, presentations, or visits to companies or organizations.

- **Type of activity:** written or spoken communication of key points, impressions, and opinions.
- **Group or independent:** can be organized as an independent or group assignment.
- **Anticipated class size and composition:** No restrictions on the number of students.
- **Level:** Can include all levels from beginner, improver, intermediate, above-intermediate, to advanced.
- **The time required for students to finish the assignments:** from 15 to 45 minutes, depending on the specific instructions.

The general purpose of the assignment

- The activity aims at developing communication skills and the ability to summarize key points and takeaways.

Specific learning objectives for the assignment

- Developing writing skills, oral skills, presentation skills, and other communication skills.
- Developing the ability to technically prepare a document, audio, or video recording (optional).
- Developing writing skills, oral skills, presentation skills, and other communication skills.
- Developing the ability to establish a red thread.
- Developing the ability to reflect on certain content.
-

Description of the assignment

Students prepare a reflection of the practical demonstration, a presentation of practical experience by quests from practice, or a visit to a company or organization.

The reflection can include a comprehensible summary and description of key points, impressions, and opinions, either in written, audio, or video format.

Suggested steps that students should take to complete the work

- Students search the internet for information about the guest or the company (optional).
- Students carefully listen, observe the demonstration, and make their own notes.
- Students prepare and submit a reflection.
- Students improve their reflections based on feedback.

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Mentoring, proving feedback, and conducting assessments

Suggested steps that a teacher can follow:

- Teachers inform students about the specific instructions in advance.
- Teachers provide information about the assessment of an assignment and how this assignment contributes to the final grade.
- Teachers prepare questions or highlight important topics for students to focus on.
- Teachers provide examples of excellent summaries, examples of describing key points, impressions, and opinions either in written, audio, or video format (optional).
- Teachers provide feedback and suggestions for improvements, either to individual students or to the group of students in class.
- Teachers grade students' work (optional).
- Open an in-class discussion on how the class could improve their work.

Suggestions for a teacher about how to provide feedback, guide, and mentor students:

- Inform the students why this assignment is important.
- Inform the students that the assignment is mandatory.
- Provide examples of excellent summaries and examples of describing key points, impressions, and opinions either in written, audio, or video format.
- Focus your feedback more on what students should do compared to what they should not do.

Assessment:

- Grading of submitted assignments is optional, but teachers need to provide information about assessment in advance.
- Teachers can include questions about the topic in the final exam.

Learning materials

A desirable set of learning materials:

- Information on the internet about the guest or the company.
- Teachers can prepare questions or highlight important topics for students to focus on.
- Teachers can present examples of good summaries, as well as descriptions of key points, impressions, and opinions, in written, audio, or video format.
- Students prepare their own notes or reference points during the practical demonstration.