



EMERGE

*Empowering Female
Entrepreneurs in Engineering*

Course Curriculum Trainers Guide

Developed by MMS, Ireland



Co-funded by the
Erasmus+ Programme
of the European Union

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**FREE ONLINE
COURSE
KNOWLEDGE
PLATFORM
INNOVATIVE
PLACEMENTS**

Emerge
empowering female entrepreneurs in engineering

EMERGE will assist **female engineers to grow and develop their own Engineering Enterprise** by providing tailored training and support during the start-up phase.

The project will also help cultivate a more enabling environment by establishing three sustainable, cross-sector partnerships between stakeholders working in Engineering and Entrepreneurship.

#femaleengineering
#engineeringplacements

EMERGE resources include:

- 1 A free online 'Female Start-up in Engineering' Course
- 2 An open online collaborative knowledge exchange platform
- 3 Innovative female start-up engineer learning placements
- 4 EMERGE Roadmap - to create cross-sector partnerships between stakeholders working in Engineering and Entrepreneurship

Specifically, we will:

- Develop a framework to support entrepreneurial female engineers
- Assist female engineers to overcome barriers in setting up a business
- Identify female engineering entrepreneurial opportunities
- Build female engineering specific business skills
- Formulate and facilitate regional European partnerships

www.emergeengineers.eu



*The objective of the **EMERGE ‘Female Start-up in Engineering Skills’ Trainers Guide** is to equip VET and HE teachers and trainers to adopt a course for classroom delivery, know how to best use and make accessible the EMERGE Course resources, pedagogic strategies, sources of information (e.g. case studies, articles, further reading) for young female engineers who want to become an entrepreneur.*

1 EMERGE AND COURSE INTRODUCTION

EMERGE is an EU Erasmus+ project bringing together project partners and experts from Poland, Denmark, Norway, Turkey, and Ireland. This project aims to increase the number of female entrepreneurs in engineering by transforming their access to and the quality of the training they receive from Entrepreneurship, VET & HEI institutions.

Increasing the number of female entrepreneurs is a key priority in the EU for reasons linked to economic and social development. The lack of female entrepreneurs is particularly evident in the field of Engineering. Despite high profile role models, overall female innovativeness and participation in the engineering sector have decreased, and ‘an unconscious bias’ still prevails.

Poland, Norway, Denmark, Ireland, and Turkey are among the countries that have introduced measures to improve the institutional framework for female enterprise, but more needs to be done to overcome individual barriers, making sure that the small but growing number of **females studying/working in Engineering are helped to identify entrepreneurial opportunities and build their business skills**. The problem is that our VET and HEI institutions are ill-equipped to do so: most are unspecialized in the specific strategies that are shown to work best with female entrepreneurs; their **staff is trained in generic/traditional business models (not Engineering specific)** and they are not connected to universities/HE institutions to recruit graduate females emerging from Engineering subjects.

The EMERGE online community, learning resources, and training events connect users to expert knowledge and advice. The first step is to join the EMERGE online social media community of engineers, lecturers, business advisors, and education providers.

1.1 EMERGE Project Aims

EMERGE has a clear goal: increase the number of female entrepreneurs in engineering by transforming their access to and the quality of the training they receive from Entrepreneurship, VET & HEI institutions.

To achieve this, we incorporate several measures into the project:

1. **Establish 3 sustainable, cross-sector partnerships** between stakeholders working in Engineering and Entrepreneurship – creating a Roadmap for other regions to follow our example and facilitate the replication of Regional Partnerships across Europe. [EMERGE Roadmap to Partnerships \(Action Plans\)](#)
2. **Develop, implement, and publish a suite of multilingual educational resources** entitled Female Start-up in Engineering for Teachers and Trainers working in entrepreneurship to update their knowledge and skills
EMERGE Course [English, Polish, Turkish](#)
3. **Design and implement innovative learning placements for 40 young Female Engineers** with start-up potential in high growth Engineering enterprises (preferably female-led). **EMERGE Placement Framework** [Polish, Turkish, English.](#)

1.2 EMERGE Target Groups

The project methodology is highly participative at all stages, involving our three main target groups (training providers such as enterprise centers, colleges, and incubators, HEIs; female entrepreneurs, and wider stakeholders) in the following ways:

- **High-level representatives of organizations from VET, HEI**, entrepreneurship education, and wider economic development will take part in 3 Regional Partnerships.
- **Professional entrepreneurship teachers and trainers** will be trained using the “Female Start-up in Engineering” open educational resources, benefiting approximately 600 female students.
- **Representatives of stakeholder organizations** will participate in multiplier events.
- **EMERGE primary target audience young female engineers** who will engage with the interactive online platform with OER.

1.3 EMERGE Expected Impacts

Thanks to improved exposure/availability and improved quality of entrepreneurship education opportunities to HEI students. EMERGE generates an increase in the overall number of potential and existing female entrepreneurs engaged in continuing VET and it is more likely that early-stage female engineering entrepreneurs grow their ideas into successful engineering enterprises in the short term.

Engineering is a particularly important area of focus across Europe, not only because of the scale of the gender gap but because of its ability to **generate high growth businesses that drive innovation and economic development** forward in Europe. For this reason, we believe EMERGE not only generates **significant impact at the local level through the Regional Partnerships** but captures the attention of policymakers and actors further up the ladder nationally and across Europe. Also, the project has been designed to respond to a genuine need experienced by partner organizations and their counterparts in the vocational & Higher education, entrepreneurship support, and economic development, all of whom have a vested interest in using the outputs and sustaining the impacts in the long term.

As a result of the EMERGE Regional Partnerships and “**Female Startup in Engineering**” educational resources, **managers, teachers, and trainers in VET & HEI institutions** will overcome existing bias, update their skills and modify service provision in their institutions to be more inclusive and better support high growth engineering enterprises. At a regional level, the project creates a more enabling environment for female entrepreneurs and generate the knowledge sharing and feedback loops which will contribute to ongoing improvement and the development of further initiatives.

1.4 Who is the EMERGE IO2 Course Curriculum Designed For?

The EMERGE suite of Open Educational Resources (OERs) are designed specifically with a female engineering entrepreneurial focus.

The EMERGE Course OERs are developed with an inherent regional adaptation capacity to facilitate innovative teaching to female engineers in any VET or HEI setting in the EU. The EMERGE Course OERs are a first of its kind 'Female Start-Up in Engineering' Skills Curriculum consisting of 9 tailored Modules.

Developed with the input of EMERGE Partnerships (staged in Poland, Turkey, and Ireland), they **respond to the local skills gaps and sectoral needs** in each of the respective partner countries. The EMERGE Partnerships provided a dynamic forum where OERs could be benchmarked against VET providers, HEI providers, and existing best practice business models. As a result, these **partnerships shedded specialist light on the gaps in entrepreneurship skills for women-specific to engineering which we have addressed through concrete innovative high-quality educational content**. The EMERGE content can be delivered through a multitude of ways, examples, and learning topics with relevant tips, goals, examples of pedagogic strategies, teaching materials, and case studies.

1.5 The EMERGE Course Is Developed by;

The course is developed by experts from organisations who are passionate about educating young women in all things engineering, enterprise, and particularly in assisting them in succeeding in engineering start-ups and placements.

EMERGE is designed to create a new and effective curriculum that contributes to educating young females in engineering start-ups. By creating a new curriculum and delivering it across Europe we have already started to integrate and create dedicated educational EMERGE programs, this demonstrates that responsive education strategies can make a significant difference.

The partners who provided input in the development of the EMERGE course.

<p>NOT Poland</p>	<p>NOT bring the expertise of their Centre for Technology Enhanced Learning which focuses on theoretical and practical challenges related to educational uses of technologies for teaching and learning in formal and informal educational settings.</p>
<p>Momentum Ireland</p>	<p>Momentum is one of Ireland's leading entrepreneurship specialists. Although competent in all aspects of training, they especially employ a rigorous approach to curriculum development, authoring tools, and creative content generation.</p>



ZUT <i>Szczecin, Poland</i>	ZUT fosters one of the most progressive learning environments in Poland in terms of technology and innovation. They have a unique ethos that harnesses academic excellence with career-focused practical experience. It is an approach that positions their students for future success in line with their aspirations. Their engagement and partnerships with indigenous and international business leaders strengthen their student's prospects in tandem with the prosperity of their region's economy.
ECWT <i>European Centre for Women and Technology</i> <i>Norway</i>	The European Centre for Women and Technology (ECWT) is a European multi-stakeholder partnership of more than 130 organizations and a rapidly growing member of individuals representing high-level expertise in women and technology development from government, business, academia, and non-profit sectors working together to measurably and significantly increase the number of girls and women in technology and ICT in specific.
EUEI <i>European E-learning Institute</i> <i>Denmark</i>	European E-learning Institute (EUEI) specialises in the creation of powerful online platforms, immersive educational environments and provision of resources and tools to create truly valuable learning experiences. As an organisation, EUEI places tremendous worth on the informal and flexible nature of continuing education and crafting flexible, online learning courses for those wishing to improve themselves and stay ahead in their careers and in business.
EGE University <i>Turkey</i>	EGE University is a public university in Izmir, Turkey. It specialises in a multitude of faculties including science, engineering and business. Ege University commonly ranks close to the top among research universities in Turkey. With a strong focus on carrying out an engineering education in a global sense with a constantly developing and innovative approach. Maintaining research activities effectively. Keeping and enriching its relations with industry. Providing opportunities and support for innovation initiatives and providing social, environmental and intellectual responsibilities to its students through a multi-faceted



	information.
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1.6 Overall Learning Objectives

As this is the first of its kind ‘Female Start-up Engineering Entrepreneurship’ Curriculum each learner will benefit from the learning goals, examples of pedagogic strategies, case studies, and teaching materials.

- The objective of the course and the learnings are **to improve the capacity of VET schools and HEIs** and other educators to deliver transformational entrepreneurship course content leaving a long-term legacy.
- Learners will **learn tailored information responding to local skills gaps** that have become evident from our stakeholder engagements. As a result, learners will become competent in entrepreneurship skills for women in Engineering.
- The course will **meet the learning needs both by sector and regionally** by providing best practice and locally configured flexible learning pathways.
- Concrete **examples provide an innovative high-quality edge** to the course benchmarked against VET and HEI provider and business delivery modules which will demonstrate what works and how it works.
- For all the stakeholders involved in delivering the course (including VET and HEI providers, policymakers) the course will **improve awareness, access, and understanding to quality supportive information from the entrepreneurship education ecosystem** for women in engineering
- For learners, the impact will be immense as they now have **access to highly relevant and pioneering entrepreneurship skills in engineering** that will transform the way their business model is developed.
- Both **VET trainers and HEI lecturers and teachers will be better able to use entrepreneurship teaching techniques** to more effectively promote their specialist offer to women in engineering and better reflect the levels of innovation in their region as well as having greater capacity and understanding to take that new knowledge to new cohorts of potential entrepreneurs.
- The concrete **examples in the course are innovative, successful, and high-quality** learnings provided through robust delivery modules making the course responsive to individual and regional needs.



1.7 Who Can Deliver the EMERGE Course?

The course is designed to be delivered by HEI educators and VET trainers using an innovative teaching approach so that they can easily adapt the EMERGE Training Modules, materials, resources to deliver high-quality high participation content which has been developed, tested, and reviews in Poland, Norway, Turkey, Denmark, and Ireland. The other intended users of the course are enterprise centners, incubators, female entrepreneurs, and wider stakeholders. An innovative approach is also the process of making lives better while Innovative Teaching is the process of making teaching and learning experiences better. There are many reasons why Innovative Teaching is required today – some of these are:

- Our society today needs people who are flexible, creative, and proactive – people who can solve problems, make decisions, think critically, communicate ideas effectively and work efficiently within teams and groups
- Technological and pedagogical advances are changing the way we learn and consume knowledge

In the context of the project, there are a few key areas of Innovative Teaching that particularly interesting:

- The trend for a course to incorporate **more social learning, more active learning**, and more real-world assessments
- The **collaboration angle** on all fronts from faculty members working with colleagues and instructional designers to develop courses collaboratively to learners utilising the power of peer connections
- The shift towards **optimized class time** – which is seeing an increasing percentage of formal instruction now taking place online with a view to web-enhanced and blended classes soon expected to become the norm.

EMERGE provides all the necessary resources and materials to successfully deliver the course in several settings and formats, see Section 3 for course delivery options.



2 GENERAL INSTRUCTIONS FOR EDUCATORS

2.1 Methodological Approach

The EMERGE Curriculum and corresponding Course Materials provide educators with practical knowledge, skills, and resources to help them ensure their students are educated in starting an engineering business. The Curriculum recognises that educators and young female engineering students lack clarity and understanding in **how to apply business start-up to engineering**. With regard to this task, EMERGE offers a clear, concise methodical approach of empowering engineering educators and female engineering students to become educated and able to start a business in engineering.

2.2 General Instructions

Please read this guide thoroughly before conducting the training. For classroom, flipped or blended delivery please:

- Download, review and revise course resources for the training as necessary
- Allow adequate training time for sessions
- Localise training content with case studies and information on local supports for entrepreneurial students
- Ensure that each participant utilises the EMERGE downloads from and completes exercises embedded in each Module– these provide valuable learning
- Spend time for review during the training course

2.3 Instructional Approach

The EMERGE Curriculum and Course Materials have been designed to accommodate a range of teaching styles and cultures. As a common thread, each module is presented with the following design:

- a) Topics are introduced in a simple, concise way
- b) Information and current best practice on the topics are presented, moving from general definitions to more detailed applications, enabling the scope of the topic to be understood.
- c) Knowledge is reinforced, and skills are developed as students participate in practical exercises or study questions.

3 COURSE DELIVERY OPTIONS

3.1 Traditional Classroom Training

Classroom training remains one of the most popular training techniques for building skills capacity. In Section 4, we take you through the EMERGE classroom training content module by module. Typically, it is instructor-centered face-to-face training that takes place in a fixed time and place. EMERGE resources and the online course suggests using the additional resources provided and use in the following ways.

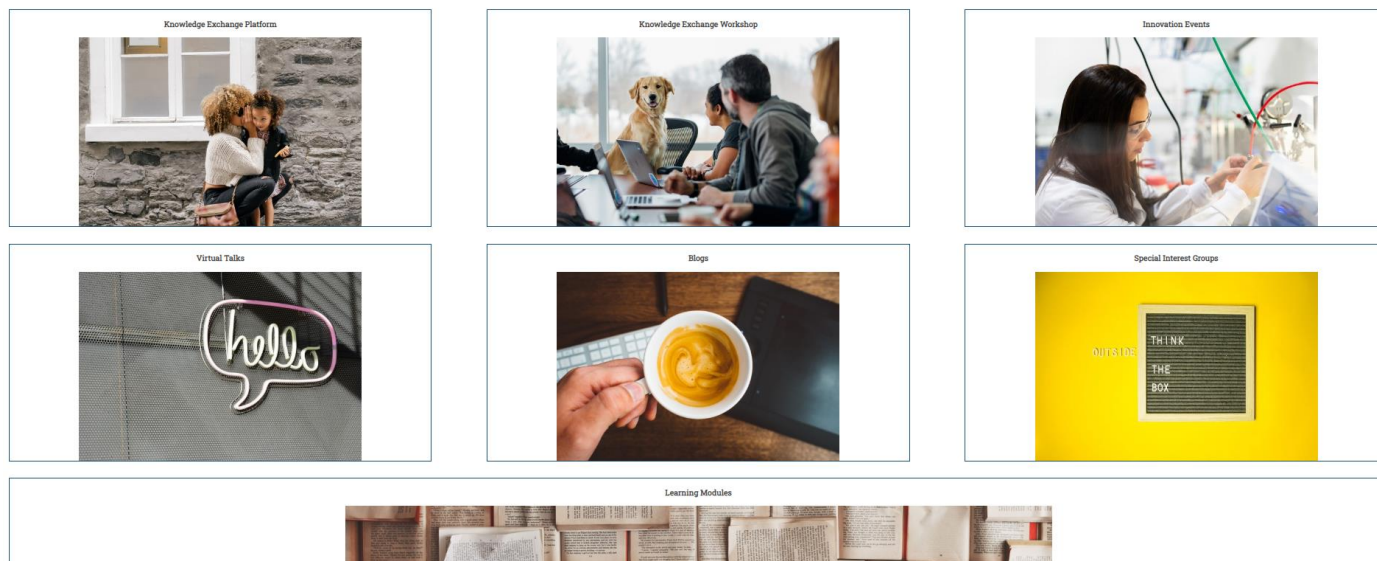
<i>Classroom Tool</i>	<i>Suggested Use in the Classroom</i>	<i>Additional Resources Required</i>
PowerPoint@ presentation	Training materials are developed in PowerPoint. We suggest that these will be displayed on a large screen for classroom delivery.	Laptop/Computer Projector Large Screen
Videos	Videos are used to explain certain sections of the training content and to present case studies for discussion.	Audio/sound system
Whiteboard	Invite learners to write on the board or ask for feedback that you write on the board	Pens and so on

Suggested delivery mechanisms:

- **Small group discussions.** Break the students down into small groups and give them case studies or engineering entrepreneurial situations to discuss or solve. This is allowing for knowledge transfer between learners.
- **Q & A sessions.** Informal question-and-answer sessions are most effective with small groups and for learning something new and updating existing knowledge.
- **Multimedia.** Multimedia training materials tend to be more provocative and challenging and, therefore, more stimulating to the student's mind. Educators should ensure that these are used to their full potential.
- **Interactive tools.** The engagement of students can be easily achieved by using interactive tools. An example of a free tool is Kahoot! which is a game-based learning and trivia platform used in classrooms, offices, and social settings. You can compile a quiz, which can be answered by the learners on their

phones/tablets/computers. It is possible to get immediate feedback and results.

3.2 Online Learning



This delivery method uses Internet technologies embedded in the EMERGE learning platform www.emergeengineers.eu to deliver a broad array of solutions to enable learning. The EMERGE course is provided as an online learning programme in three languages

English <http://www.emergeengineers.eu/open-online-platform-en/>

Polish <http://www.emergeengineers.eu/open-online-platform-pl/>

Turkish <http://www.emergeengineers.eu/open-online-platform-tk/>

The online learning platform provides direct access by all stakeholders including HEI and VET educators and trainers and others interested in acquiring new skills to either 1) support those who do not currently have and need resources in entrepreneurship and engineering or 2) would like to enhance and update an existing educational program in the same field that is already in place.

The online learning facility incorporates best practices in online learning so that while the learning objective remains the same (or similar) the user interface and experience can be radically different as befits the medium. The first step is to join our online social media community and knowledge exchange platform of educators, teachers, trainers, and female engineering entrepreneurs advocates.



3.3 Other teaching methodologies

- *Flipped Classroom*

In a Flipped Classroom learners study module content before class with a focus on exercises and assignments in class. The classroom transfer of knowledge makes way for online instruction outside the classroom. This creates more room for practicing in class, for an extra explanation when needed, and offers the possibility to dive deeper into the materials during school hours.

- *Blended Learning*

Blended Learning combines online digital media with traditional classroom methods. It requires the physical presence of both teacher and student, with some element of student control over time, place, path, or pace. Learners still attend a classroom setting with a teacher present, face-to-face classroom practices are combined with computer-mediated activities regarding content and delivery. Blended learning is most used in professional development and training settings.

- *Collaborative/Peer to Peer Learning*

Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together. Examples of boosting collaborative and peer-to-peer learning are:

- *Peer review*

Peers in the classroom are brought together to jointly evaluate the work by one or more people of similar competence to the producers of the work. Peers not only assess the performance of each other but also share their experience and know-how.

- *Google Docs*

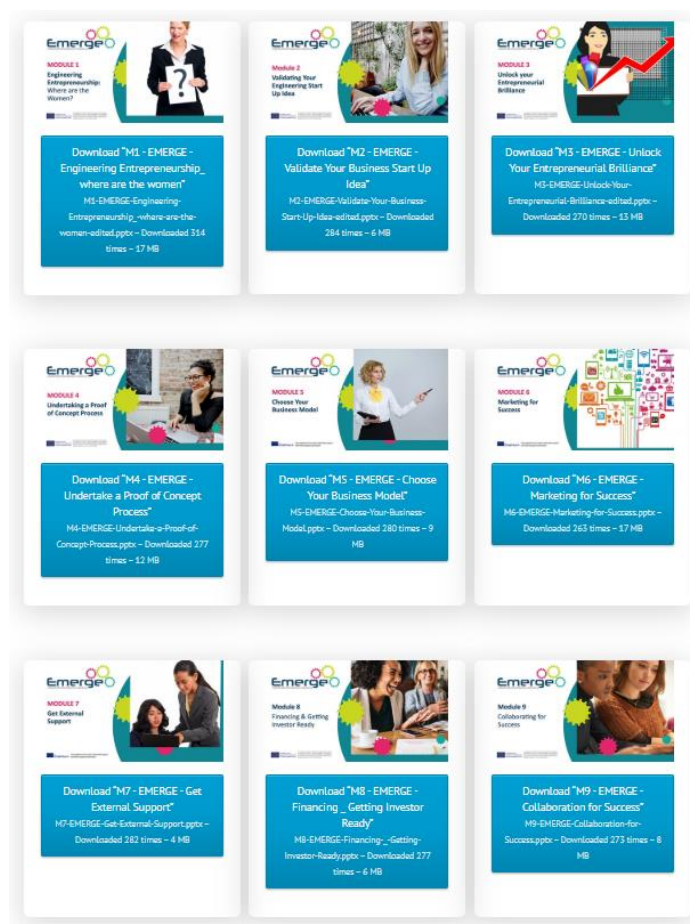
This online collaboration tool facilitates the creation of meaningful documents. All group members can work at the same time (real-time) in the same document, from any location from various devices. Changes are automatically saved in documents as being typed upon. It is possible to monitor the revision history of a document where you also can see who made a specific change. The value of Google Docs as a learning resource is that group members can also share documents, chat, and comment on the same.

4. EMERGE COURSE CONTENT OVERVIEW

4.1 Modules

The EMERGE Curriculum comprises nine modules structured as a journey through the key engineering and entrepreneurial start-up topics.

MODULE 1	Engineering Entrepreneurship: Where are the Women?
MODULE 2	Validating Your Engineering Start-Up Idea
MODULE 3	Unlock your Entrepreneurial Brilliance!
MODULE 4	Undertaking a Proof of Concept Process
MODULE 5	Choose Your Business Model
MODULE 6	Marketing for Success
MODULE 7	Getting External Support
MODULE 8	Financing and Getting Investor Ready
MODULE 9	Collaborating for Success



All modules are available in English, Polish and Turkish and are available for download through the EMERGE learning platform. Access through

English

<http://www.emergeengineers.eu/open-education-resources/>

Polish

<http://www.emergeengineers.eu/open-education-resources-pl/>

Turkish

<http://www.emergeengineers.eu/open-education-resources-tk/>

4.2 A visual summary of content organization

EMERGE recommend that the ideal and most comprehensive approach is to follow the course sequence as laid out. However, course designers have been careful to allow for the interdependence of topics meaning the order can be adjusted or modules can be accessed independently.

EMERGE FEMALE STARTUP IN ENGINEERING ONLINE COURSE



Erasmus+

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MODULE 1

ENGINEERING ENTREPRENEURSHIP: WHERE ARE THE WOMEN?

**1.1 Ambition Knows
No Gender Being
Your Own Boss!**

1.2 Getting Started
Business Plans
and Planning

**1.3 Reducing the Risk
of Start Up Failure**
Particularly in Female
Engineering

MODULE 2

VALIDATING YOUR ENGINEERING START UP IDEA

**2.1 Validating
and Incubating your
Engineering and
Entrepreneurship Ideas**
Will Your Idea Work?

**2.2 Incubating your
Engineering (and STEM)
Entrepreneurship Ideas**
Why You Should
Incubate Your Idea?

**2.3 Define & Fine
Tune Your Business Idea**
e.g. Measure Value
Proposition (MVP) and
Unique Selling Point (USP)

MODULE 3

UNLOCK YOUR ENTREPRENEURIAL BRILLIANCE

**3.1 Becoming a
Successful Entrepreneur**
Why Skills and Traits are
So Important and How to
Develop Them!

**3.2 Staying Connected
to Vital Information**
Guide Future Decisions.
Continue Entrepreneurial
Development

**3.3 Real Life Case
Studies of 8 Different
Types of Entrepreneurs
and How They Succeeded**

**3.4 Real Life Case
Studies of Top
7 Innovative Female
Start Ups**

MODULE 4

UNDERTAKING A PROOF OF CONCEPT PROCESS

**4.1 Proof of
Concept (PoC)**
The PoC Process and
Ideas Assessment.
Naming and Protecting
Your Idea

4.2 Bootstrapping
What it is? Is it right for
you? The Importance
of Minimum Viable
Product (MVP)

**4.3 Testing Your Idea
on a Shoestring**
Interviews, Case Studies,
Advice from Top
Entrepreneurs

MODULE 5

CHOOSE YOUR BUSINESS MODEL

**5.1 Choose Your
Business Structure
and Setting Up Your
Company**

**5.2 Successful Start-up
Advice. Choosing the
Right Business Model**
e.g. Marketplace,
Subscription Model

**5.3 Getting your
Business and Financial
Parameters in Order**

MODULE 6

MARKETING FOR SUCCESS

6.1 What is Marketing?
Learn Great Marketing,
Sales and Developing
Your Brand

**6.2 Marketing for
Success and Developing
Your Brand Marketing
Tip from 12 Successful
Female Entrepreneurs**

**6.3 Reaching
your Audience**
Understanding the
Customer Journey and
Customer Touch Points

MODULE 7

GETTING EXTERNAL SUPPORT

**7.1 You Need
External Support e.g.**
The Benefits of
Mentoring and
Incubators/Accelerators

**7.2 Finding the
Right External Support
for Your Start-up in
Ireland, Poland, UK
and Turkey**

**7.3 12 Digital Tools
for your Start Up**
Will Help You Automate
and Simplify Business
Tasks and Operations

MODULE 8

FINANCING AND GETTING INVESTOR READY

**8.1 Pricing, Costs and
Making a Profit**
Explaining Turnover,
Costs and Profit in Detail

**8.2 7 Ways to Fund
Your Start-Up e.g.**
Bank Loan, Private
Investment, Y Combinator,
Self-Funding

**8.3 Nail Your
Investor Pitch**
A Step to Step Guide
on How to Create
the Perfect Pitch

MODULE 9

COLLABORATING FOR SUCCESS

**9.1 Collaborative
Culture Sharing Spaces
and Ideas. Cultivating a
Creative and Collaborative
Atmosphere**

**9.2 Co-Working
and Clusters**
How They Can Be a
Smart Way to Work?

**9.3 Collaboration
Tech Tools**
How to Use Them
to Elevate Your Start
Up Business

We now take you through each of the nine modules with an Introduction to the Module, the topics covered, the learning outcomes and the exercises included to ensure maximum learning.




Module 1	Engineering Entrepreneurship: Where are the Women?
Introduction	<p>It is known that perceptions of opportunity and capability are strongly linked to entrepreneurial activity - that is, if you think you will succeed and will be supported, you are more likely to try.</p> <p>EMERGE provides the training, support, and guidance you need to succeed. This module is the start of your entrepreneurship journey.</p>
Topics Covered	<ol style="list-style-type: none"> 1 Ambition Knows No Gender Being your own boss can be a great career move. We explain why and meet some female engineering entrepreneurs breaking the mould. 2 Getting Started What is a business plan is and why it is so important? We debunk the myths of business planning 3 Reducing the Risk of Start-Up Failure Fear of failure is an immobilising barrier to entrepreneurship and is even more prevalent for Women in Engineering.

Learning Outcomes

- Being a female STEM entrepreneur is something new, exciting, scary, and daring. The key is to be brave, build your courage.
- The very basis for your STEM education and career is the platform for entrepreneurship, measured investigation, curiosity, clear methodologies. STEM women are experts at researching, assessing, and delivering facts.
- You are not alone, there are hundreds of female STEM entrepreneurs and inventors out there ready to give advice and tell you how they got over their challenges.
- There are many kinds of entrepreneurs, approaches, and structures e.g. introverts, co-founders, accidental entrepreneurs, and inventors
- Taking my first step as an entrepreneur I must remember things will never be 100%.



Module 2	Validating Your Engineering Start-Up Idea
Introduction	<p>Module 1 sparked your interest in entrepreneurship and helped you kick start your business idea generation.</p> <p>In this Module, you will learn how to validate and incubate your entrepreneurship ideas, define your target market, and identify your unique selling points are.</p>
Topics Covered	<p>1 Validating your engineering (and STEM) entrepreneurship ideas</p>



	<p>Is anyone else doing what you want to start doing? If not, there may be a good reason why. Is your business idea new? Will it work? Validation will give you more insight</p> <p>2 Incubating your engineering (and STEM) entrepreneurship ideas</p> <p>Why and how you should incubate your business idea?</p> <p>3 Define & Fine Tune Your Business Idea</p> <p>Define its benefits and features, find and measure your value proposition, know your unique selling points</p>
Learning Outcomes	<ul style="list-style-type: none"> • You now understand how to validate and incubate my engineering (and/or STEM) idea. You know what Idea validation is and is not, what to look for, key tips, key questions, and tests. • You now understand my target market better, how to research them, key questions, how to conduct an interview and validate and assess the results • You know what is needed to do an elevator pitch • You know the difference between Features v Benefits, Unique Value Proposition v Unique Selling Point • Crucially you know how to incubate and further develop your business idea
Exercises	<p>Exercise 1 Building a Market Validation Questions Set</p> <p>Exercise 2 Analysing Data Questioning</p> <p>Exercise 3 Business Model Questioning</p> <p>Exercise 4 Fine-Tuning Your Business Idea Questioning</p> <p>Exercise 5 Write a Powerful Value Proposition</p>



Module 3	Unlock your Entrepreneurial Brilliance!
<p>Introduction</p>	<p>This module will guide you on your entrepreneurial journey based on your specific skills and traits</p> <p>You will learn how to become more socially connected to information, peers, advisor, and experts in the field</p> <p>Realise the diverse types of entrepreneurs and how they succeeded based on their different traits, skills, and approaches</p>
<p>Topics Covered</p>	<ol style="list-style-type: none"> 1 Becoming a Successful Entrepreneur Why skills and traits are so important and how to develop them so you can become a successful entrepreneur. 2 Staying Connected to Vital Information How to stay connected with industry to guide future decisions, continue your entrepreneurial development, and... Unlock Your Brilliance! 3 Real-Life Case Studies of 8 Different Types of Entrepreneurs and How They Succeeded...The Accidental Entrepreneur, The Introvert, Uncertain but Tried Anyway. Real-Life Case Studies of Top 7 Innovative Female Start-Ups
<p>Learning Outcomes</p>	<ul style="list-style-type: none"> I know there is no 'ideal' entrepreneur personality to be successful. There are many different traits and skills. I should have a mix of good traits and skills such as being thrill-seeking,



	<p>sociable, analytical, intuitive, and creative...</p> <ul style="list-style-type: none">• Now I have taken the entrepreneurial tests I am aware of what kind of entrepreneur I am and the different ways I can improve my entrepreneurial skills, traits, and characteristics.• I know how to stay on top of vital industry information to guide my future decisions, continue to further develop and evolve my business• I am confident I can unlock my brilliance because of this Module
Exercises	<p>Exercise 1 Improving your Entrepreneurial Skills and Characteristics</p> <p>Exercise 2 Reviewing Your Engineering Skills</p> <p>Exercise 3 Entrepreneurial Potential Self-Assessment</p> <p>Exercise 4 The Entrepreneur Equation</p> <p>Exercise 5 Entrepreneur Personality Test</p> <p>Exercise 6 What Kind of Leader Are You?</p> <p>Exercise 7 How Resilient Are You?</p>




Module 4	Undertaking a Proof of Concept Process
Introduction	<p>In our earlier modules, you assessed your entrepreneurial potential, you learned why now is a good time to start-up, and learned how to validate your business idea. In this module, we take you through the proof of concept process and how, with minimal resources, you can accelerate your Engineering start-up idea.</p>
Topics Covered	<ol style="list-style-type: none"> 1 Proof of Concept Learn and work through a Proof of Concept Process and Ideas Assessment, Name & Protect your idea 2 Bootstrapping Bootstrapping what is it and is it right for you? The importance of minimum viable product (MVP), Business Models for Your Startup 3 Testing your idea on a shoestring Interviews, Case Studies, Startup Advice from Top Entrepreneurs
Learning Outcomes	<ul style="list-style-type: none"> • I understand the Proof of Concept (PofC) Process and its importance to further validate my business idea • I can explain the key business terms bootstrapping, prototyping, and Minimal Viable Product • I also know the steps to getting started in building my own MVP • I have gained some key insights into how I can test my

	business idea on a shoestring
Exercises	<p>Exercise 1 Find Out Your IPR Relevant to Your Country</p> <p>Exercise 2 Choose Your Business Name</p> <p>Exercise 3 Build Your Own Minimum Viable Product</p> <p>Exercise 4 Test Your Idea</p>



Module 5	Choose Your Business Model
Introduction	<p>This module will guide you through the different types of business structures</p> <p>You will learn successful start-up advice about 9 Successful Business Models and why they work with plenty of examples.</p> <p>You will learn the different ways to get in control of your financial parameters.</p>
Topics Covered	<p>1 Choose Your Business Structure</p> <p>You have a great business idea but now you need to set up a company – what structure should you choose?</p> <p>2 Successful Start-up Advice: Choosing the Right Business Model</p> <p>Middleman, Marketplace, Subscription Model, Customized Everything, On-Demand Model, Modernized Direct Sales</p>



	<p>Model, Freemium Model, Reverse Auction, Virtual Good Model</p> <p>3 Getting your Business and Financial Parameters in order</p> <p>Once you know your business structure and business model you need to do a check to make sure you have all your business and financial parameters in order.</p>
Learning Outcomes	<ul style="list-style-type: none"> • There are several different business legal structures which you can choose for your business each with its benefits • Gained insights in particular into social enterprise and how your new company may be able to engineer a better world! • Your business model is what guides the daily workings and operation of your business, and now you know of 9 high performance, replicable business models • 5 key elements you need to consider taking control of your business parameters • The basics of your business financials including profit and sales forecasting – we will build on these further as we explore finances more in Module 8)
Exercises	<p>Exercise 1 Decide on Your Company Type</p> <p>Exercise 2 Decide on Your Business Model</p> <p>Exercise 3 Profit Forecasting</p>



Module 6	Marketing for Success
<p>Introduction</p>	<p>Without marketing, many businesses would not exist because marketing is ultimately what increases your customer base and drives sales.</p> <p>In this module, you will learn some basic but essential marketing tactics and skills that will help get your business off the ground!</p>
<p>Topics Covered</p>	<p>1 What is marketing?</p> <p>Learn what marketing is and the relationship it has to sales. Great marketing starts with your brand so we will look at branding in detail including your brand story</p> <p>2 Marketing for Success</p> <p>Developing your brand. In this section, we get top marketing tips for success from 12 Successful Female Entrepreneurs (from a range of sectors)</p> <p>3 Reaching your Audience</p> <p>The buying journey and touchpoints. How to get to your customers? Where your customers are? What do Your Customers Want?</p>
<p>Learning Outcomes</p>	<ul style="list-style-type: none"> • I understand what marketing is and its relationship to sales • I have learned successful marketing tips and tricks and the different strategies and ways I can reach, know, and



	<p>understand my customers.</p> <ul style="list-style-type: none">• I know a multitude of ways I can implement marketing strategies that are cost-effective, I don't have to be an expert to carry out.• I understand that I need to implement a mix of different marketing mixes and strategies but the most important thing to do is concentrate on those that fit my business, my customer, and me best. To do a few things right because to try and do all perfectly on a shoestring is next to impossible.
Exercises	<p>Exercise 1 Create a Brand Story</p> <p>Exercise 2 Map Your Customer Journey</p> <p>Exercise 3 Find Your Customers</p> <p>Exercise 4 Get Your Customers</p> <p>Exercise 5 Find What Your Customers Want</p> <p>Exercise 6 Add Selling Opportunities to Your Business</p>



Module 7	Get External Support
<p>Introduction</p>	<p>This module will guide you on the different external supports that exist from services, mentors, advisors, panels, funding, digital tools. You will learn why and when you should engage in external supports.</p> <p>You will know what is out there for women startup entrepreneurs in the engineering sector (and STEM.)</p>
<p>Topics Covered</p>	<ol style="list-style-type: none"> 1 You Need External Support <p>External supports can guide you in areas you/your team may be weak. In this section, we look at the benefits of mentoring, incubators/accelerators to you and your business</p> 2 Finding the Right External Support for Your Startup <p>Information and links to some key Entrepreneurship and Engineering external supports in Ireland, UK, Poland, and Turkey</p> 3 Digital Tools for your Start-Up <p>12 Digital tools that can help automate and simplify some of your new business tasks and even improve operations.</p>
<p>Learning Outcomes</p>	<ul style="list-style-type: none"> • I know the difference between support services, mentors/advisors, funding supports, and what their role is, and how they can assist my start-up. I can now choose the right support for me.

	<ul style="list-style-type: none"> • I realise that I can't do everything and the quicker I engage the priority supports I need in the beginning it will get my business off to a healthier start instead of plunging my resources into areas of my business that will not progress its development • That I should engage with my Local Enterprise Organisation straight away and start on my Business Plan as a priority. It is important to get assessed to understand what my particular needs are. Business community support is important, especially when learning from those who have learned the valuable mistakes and risks.
Exercises	<p>Exercise 1 Create Your Start-Up Shopping List</p> <p>Exercise 2 Find the Right External Support in Your Country</p> <p>Exercise 3 Join a Mentoring Program in Your Country</p>




Module 8	Financing & Getting Investor Ready
Introduction	<p>This module will cover all you need to know when it comes to financing and having an investor pitch ready. What your investors are looking for and what potential funding is available.</p> <p>You will learn how to develop and deliver a 3-minute business pitch.</p>
Topics Covered	<p>1 Pricing, costs, and making a profit</p> <p>Without truly knowing your costs, you cannot know if you</p>

	<p>are going to make a profit or not. Many start-up entrepreneurs mistake turnover for profit. We will explain these in detail.</p> <p>2 7 Ways to Fund your Start-Up</p> <p>We look at these sources of funding in detail - Bank Loan, Private investment, Y Combinator, Fund Yourself, Government supported Small Business Grants, Incubator or Accelerator, Crowd Funding</p> <p>3 Nail your Investor Pitch</p> <p>A step by step guide on how to create and pitch the perfect pitch</p>
Learning Outcomes	<ul style="list-style-type: none"> • My business plan and addressing all sections are vital. I must have a table of contents, a good summary, and appendix and not assume that the investor will read all my Business Plan. It must be easy for them to read and find the information that they need. • There are many different types of funding available it is important to be aware of the different types and to make sure I select the one that best suits my business and business needs. If in doubt go to my mentor or local enterprise office. • It is not essential that I go for external funding support through an investor, angel, or private individual. The right funding for my business may be available through grant funding. However, I must be aware that investors and angels can bring valuable experience and input. • Having a good investor pitch is important not only for potential investors but for anybody who wants to hear about my business. I must be able to explain my business clearly in approximately 3 minutes without notice.
Exercises	<p>Exercise 1 Answer Questions Related to Financial Section of Business Plan</p> <p>Exercise 2 Choose Your Pricing Approach</p> <p>Exercise 3 Choose How to Fund Your Business</p> <p>Exercise 4 Answer Questions How to Apply for a Grant</p> <p>Exercise 5 Craft Your Perfect Pitch</p>



Module 9	Collaborating for Success
Introduction	<p>An entrepreneur with a vision starts a new business, but it takes a collaboration of many people to make it a success.</p> <p>This module takes you through how forging partnerships can strengthen your Engineering start-up, disrupt industries, and invigorate your brand.</p>
Topics Covered	<ol style="list-style-type: none"> 1 Collaborative Culture Working together, sharing space, ideas, and cultivating a creative, collaborative atmosphere 2 Co-Working & Clusters Co-working and clusters can be a ‘smart’ way to work for start-up female engineering entrepreneurs. What does this mean for you? 3 Collaboration Tech Tools How to use them to bring your teams/workers together, work more efficiently and ultimately elevate your Start-up Engineering business
Learning Outcomes	<ul style="list-style-type: none"> • Collaboration can make a business more efficient by the sharing of resources among other businesses as needed • The collaboration of other companies or like-minded individuals can engage innovative thinking and progressive



	<p>business development</p> <ul style="list-style-type: none"> • It is encouraged for all levels of the business to engage in difficult and challenging company conversations through collaborative approaches to iron out potential business problems or weaknesses • There are many tools and supports out there that can assist collaborative start-up environments such as Makerspaces, FabLabs, Custers, and Hackerspaces
Exercises	<p>Exercise 1 Start Using the Collaboration Tips and Guides in a Business Collaboration Group</p> <p>Exercise 2 Assess if a Co-Working Space is for Your Business</p> <p>Exercise 3 Try One of The Social Networking Options</p>

5. Useful Links

To summarise, these are the links you need facilitate innovative teaching to female engineers in any VET or HEI setting in the EU through our EMERGE Course OERs, a first of its kind 'Female Start-Up in Engineering' Skills Curriculum.

EMERGE Website	www.emergeengineers.eu
EMERGE Course <i>(Module Numbered Links bring you to English Version)</i>	<p>MODULE 1 Engineering Entrepreneurship: Where are the Women?</p> <p>MODULE 2 Validating Your Engineering Start-Up Idea</p> <p>MODULE 3 Unlock your Entrepreneurial Brilliance!</p> <p>MODULE 4 Undertaking a Proof of Concept Process</p> <p>MODULE 5 Choose Your Business Model</p> <p>MODULE 6 Marketing for Success</p> <p>MODULE 7 Getting External Support</p> <p>MODULE 8 Financing and Getting Investor Ready</p> <p>MODULE 9 Collaborating for Success</p> <p>English</p> <p>Polish</p>



	Turkish
EMERGE Knowledge Exchange Platform	English – Virtual Talks, Workshops, Innovation Events, Blogs, Special Interest Groups Polish – Virtual Talks, Workshops, Innovation Events, Blogs, Special Interest Groups Turkish – Virtual Talks, Workshops, Innovation Events, Blogs, Special Interest Groups
EMERGE Placement Framework	English Polish Turkish
EMERGE Roadmap to Partnerships (Action Plans)	English Polish Turkish
Facebook	@emergeprojecteu

6. Sample 9 Day EMERGE Training Timetable

We have designed the EMERGE course so it can be delivered in one block (as below) or adapted into your own training timetable as additional content in your existing engineering courses.

Day	Training Content
Day 1	09.00 – 13.00 Module 1 14.00 – 15.30 Module 2
Day 2	09.00 – 13.00 Module 2 14.00 – 15.30 Module 3
Day 3	09.00 – 13.00 Module 3 14.00 – 15.30 Module 4

Day 4	09.00 – 13.00 Module 4 14.00 – 15.30 Module 5
Day 5	09.00 – 13.00 Module 5 14.00 – 15.30 Module 6
Day 6	09.00 – 13.00 Module 6 14.00 – 15.30 Module 7
Day 7	09.00 – 13.00 Module 7 14.00 – 15.30 Module 8
Day 8	09.00 – 13.00 Module 8 14.00 – 15.30 Module 9
Day 9	09.00 – 13.00 Module 9

Since the learning materials are quite intense and new to the teachers and learners, it is recommended to spread the information across multiple days with additional time given for the completion of exercises and assignments.

www.emergeengineers.eu

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