



CHARM-EU (CHALLENGE-DRIVEN, ACCESSIBLE, RESEARCH-BASED AND MOBILE EUROPEAN UNIVERSITY)

DELIVERABLE D3.2 – CHARM-EU: PROGRAMME CONTENT GUIDELINES

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EXECUTIVE SUMMARY: PROGRAMME CONTENT GUIDELINES

While WP3.1 focused on the Curriculum Design Blueprint, WP3.2 Programme Content Guidelines focuses on the content of such programmes. The key theme of CHARM-EU is trying to rethink the role of Europe in the World as it faces one of the main global challenges in the 21st century: Reconciling Humanity with the Planet.

To address this goal, the content of the programmes, while student-directed and flexible, will still maintain a certain coherency around the principles embedded within the Sustainable Development Goals. For this reason, the following measures were proposed:

- Fora with key stakeholders (from academics, business representatives, researchers active within the fields, NGOs, and students) will inform the curriculum content approaches adopted within CHARM-EU.
- Consultation and conversations within and between the alliance members' institutions among the research community will identify areas of congruence and connections between the SDGs and will encourage inter- and transdisciplinarity and potentially open new areas for inclusion in the curriculum. Key challenges and areas of expertise within SDGs will be identified.
- Local community involvement among all the alliance members' own locales will allow for a further layer of contextuality and provide authentic linkages between the SDGs and the lived experiences around the campuses.



1. INTRODUCTION

The CHARM-EU Programme Content Guidelines outlines the process for identifying and developing challenge-driven, research-based, accessible, mobile educational programmes. It ensures that educational content is reflective of inter-institutional research strengths, engagement activities, and educational offerings.

This document describes the:

- Process for **identifying existing curriculum content and complementary thematic research areas** where all partner universities have critical mass and are aligned to research themes on global challenges.
- Process for **iterative data scanning and curriculum design** to connect research strengths and educational priorities within a strategic design process at inter-institutional level.
- Guidelines to create a robust and tested mechanism to enable inter-university stakeholders to create a strategically maximised curriculum from a **review of relevant institutional research and educational data**.
- Selection of **core modules** within the pilot MSc in Global Challenges for Sustainability¹.

It enables the creation of a unique set of indicators that identifies points of coherence within the knowledge architecture of all inter-institutional partners. It serves as a resource for other higher education institutions seeking to develop similar inter-institutional educational programmes.

Context

Knowledge transfer is a key principle and outcome of the CHARM-EU structure and curriculum, and identifying aligned thematic areas for curriculum design is key to a successful inter-institutional educational programme². Global challenges are by their nature complex, fluctuating, multi-stakeholder and multi-negotiated entities. Challenge-based learning (CBL) requires a curriculum design process that is flexible, data-driven, strategic, multi-stakeholder, and multi-negotiated. This requires a new inclusive and collaborative interconnected and interactive knowledge architecture

¹ More information about the pilot programme delivery is available in deliverable 7.1. (Programme Design Exemplar) and the MSc module structure [document](#).

² This approach supports the European Commissions' guiding document *Mission-Oriented Research and Innovation in the European Union: A problem-solving approach to fuel innovation-led growth*, which lay the foundation for the current Horizon Europe Mission orientation.



within universities in reflection of both the EIT Knowledge Triangle and principles of transdisciplinary and challenge-driven programme design.

Knowledge architecture refers to the three pillars of knowledge and knowledge action around which universities are organised. These are:

- Research
- Education
- Engagement (Civic, Business, Community)

The challenge facing universities is to create a nexus where these three pillars interweave, integrating knowledge and aligning action. The goal is to explore how this approach to knowledge transfer can inform and support programme educational principles.

Four key actions, implemented by Work Package 3 (Curriculum Design) are presented in a narrative format within this document which together form a model for selecting programme content in an inter-institutional programme:

- Programme content strategy guidelines
- Curriculum design fora
- Programme guidelines for micropilot
- Masters content guidelines

2. GUIDELINES FOR IDENTIFYING EDUCATIONAL PROGRAMME CONTENT

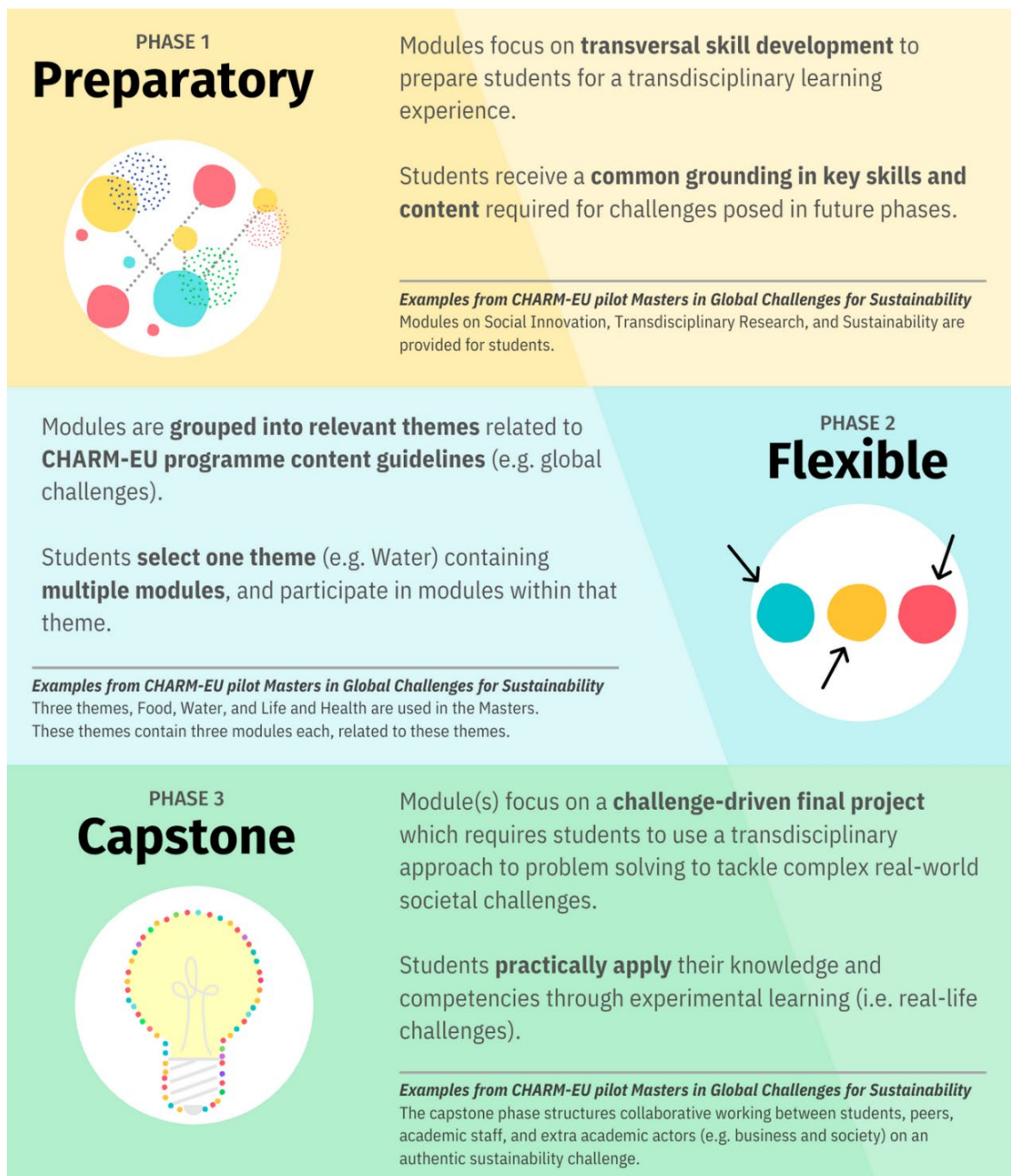
This section outlines how CHARM-EU curriculum development teams and programme directors collate and identify existing curriculum content, human resources, and thematic research areas where all partner universities have critical mass. Within CHARM-EU, this data enables Knowledge Creating Teams (KCTs)³ to propose thematic areas to build content for the three phases of the CHARM-EU Curriculum Design Blueprint:

- Phase 1: Preparatory Phase;
- Phase 2: Flexible Phase;
- Phase 3: Final Project Phase (Capstone).

³ See the Curriculum Design Blueprint for more information on CHARM-EU KCTs.



Figure 1: Graphical description of the three phased structure.





1. Identify the university office/individual responsible for reporting on and managing the university's programmatic content/curriculum.
2. Identify the university office/individual responsible for inter/transdisciplinary studies.
3. Collaboratively develop a '**Heart Document**' (see Appendix A for a template) to create a shared vision of the proposed educational experience and agree on a set of educational principles to underpin the development of curriculum models and teaching and learning strategies.
 - a. The document should contain headings related to educational philosophy, graduate attributes, benefits to stakeholders, mission/purpose, and teaching and learning strategies.
 - b. Each partner completes the document based on their institutional vision.
 - c. Present the combined results to all partners, discuss and provide a voting mechanism whereby each partner will vote on each element giving a score from 1 (most important) to 5 (least important).
 - d. The most voted upon results are then used to scaffold the programme content.
4. Request a curriculum search within each partner to identify postgraduate modules and module coordinators that align with agreed educational principles and graduate attributes. Collate information in a spreadsheet.
5. Request a curriculum search for challenge-based projects, modules, or capstones. Collate information in a spreadsheet.
6. Information should be provided in Excel and in the English language for ease of collaboration.
7. Circulate information to the KCTs responsible for devising module content for Phases 1 and Phase 3

Identifying the content appropriate for the thematic challenge pathways for Phase 2

These guidelines identify complementary research themes across partners related to the Sustainable Development Goals. These themes will allow the formation of cross-institutional KCTs that design and deliver the thematic challenge pathways for the Flexible Phase, and the supervision and guidance of the final Capstone Challenge.

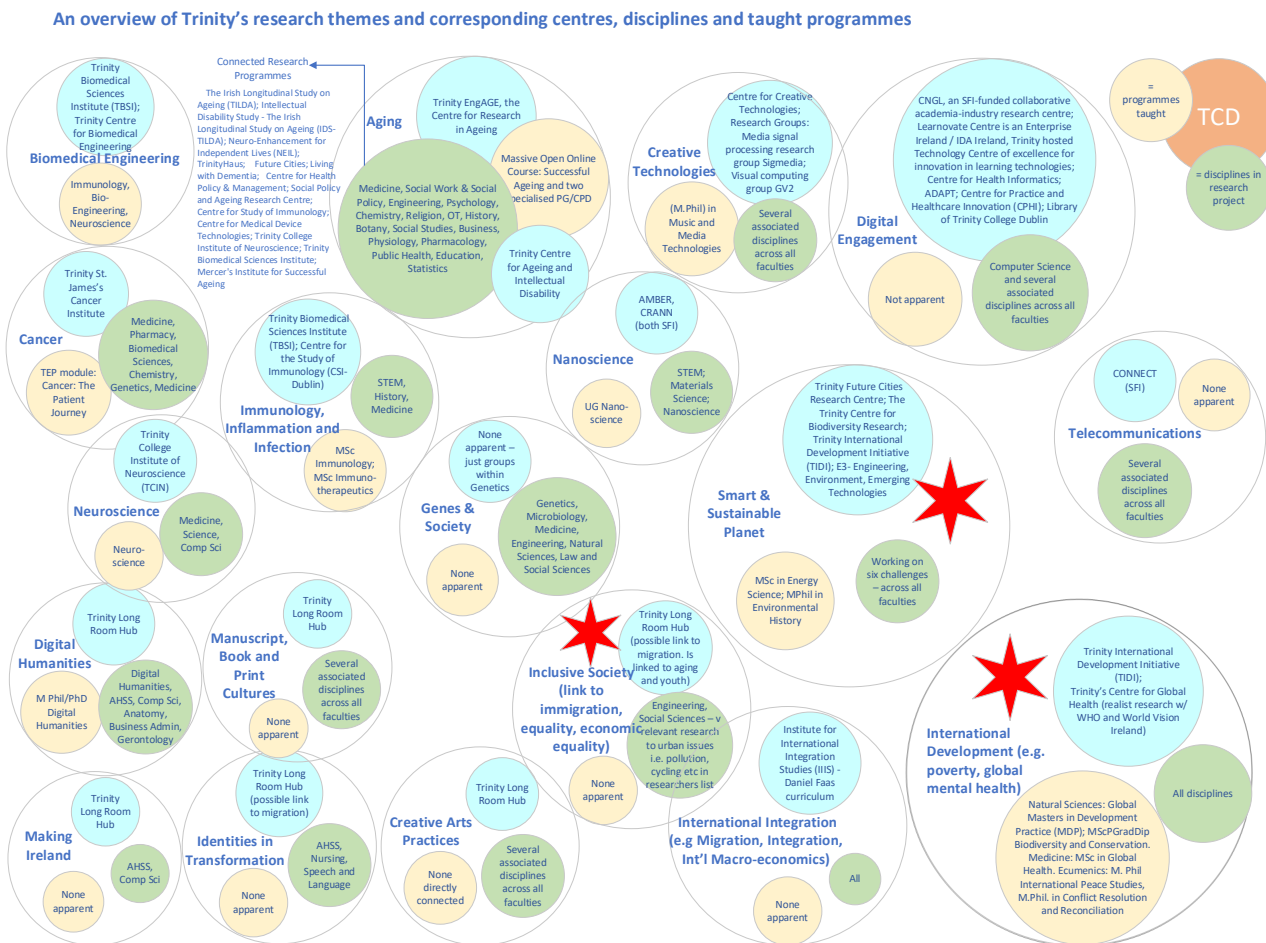
Guidelines:

1. Identify the university office/individual responsible for reporting on and/or managing the university's **strategic research themes and research activities** (e.g. the Office of Research and Innovation or the Office for Institutional Planning with responsibility for preparing data for rankings organisations).



- a. Obtain a list of institutional strategic research themes from the university office/individual responsible for reporting on and/or managing the university's strategic research themes.
 - b. Obtain a list of research institutes/centres/unit and groups, organised thematically, in Excel format in the English language..
 - c. Obtain a list of the university's research outputs (i.e. journal articles, organised thematically if possible.)
 - i. The Excel spreadsheet should contain information regarding the number of academic and research staff with the research entities, the level and source of funding, and if feasible the number of citations and international collaborations. These should be included at this stage only if this information is readily available. Universities may have prepared this information to satisfy requests from ranking organisation for example Shanghai Rankings.
2. Identify the university office/individual responsible for reporting on and managing the university's **programmatic content/curriculum**.
 - a. Obtain a list of all disciplines and connected academic programmes and modules at postgraduate level (Masters level).
 - b. List rankings of all disciplines according to THE and QS rankings, where relevant.
 - c. Figure 1 provides a suggested visualisation of data based on an examination of Trinity College Dublin's strategic research themes, UN SDGs and connected research entities, postgraduate programmes and disciplines. This does not capture research outputs i.e. journal articles/books.
 3. Synthesise the information from steps 1 and 2 to find synergies and overlap both within the individual institutions and across the partner institutions.
 - a. Look for strongest connections, when first starting this process it is best to narrow down the focus to 3-4 broad topics of themes that have significant engagement across the partners institutions.
 - b. Seek agreement on theme priorities through discussion, voting if necessary.

Figure 2: An overview of Trinity’s research themes and corresponding centres, disciplines and taught programmes.





3. CURRICULUM DESIGN FORA

After the initial identification of programme content, curriculum design forums should be organised to:

- Gather stakeholder feedback on programme content and structure
- Initiate the creation of KCTs⁴

To develop a KCT, curriculum design fora with businesses and societal actors is a necessary step to

- Deliver information about the programme to potential KCT members
- Gather feedback from potential KCT members about the programme
- Request collaboration from participants

Guidelines for Curriculum Design Fora

The forum should include:

- An overview of the programme (e.g. in the case of CHARM-EU, the MSc in Global Challenges for Sustainability)
- Semi structured questions to gather feedback on the
 - Programme concept and vision
 - Educational principles
 - Potential Programme Learning Outcomes⁵
- Information on businesses' current relationship with universities
- Information on how participants would like to cooperate with the programme
- Information on specific tasks that the participants can offer (e.g. challenge, coaching)

⁴ A KCT is a collaborative group of academics and extra-academic actors (e.g. traditional and social enterprise) (organised around a complementary research theme/area). These are composed of a core team of academics and an expanded network of industry and community stakeholders. KCTs research and design module content, teach and assess students, and build cross-institutional research networks. KCTs are located within all phases of the CHARM-EU curriculum. KCTs are structured around either the development of transversal skills or a common theme or 'Challenge Pathway' identified by the Program Content Guidelines (3.2) (e.g. Water, Food, and Life and Health). The aims of a KCT are to develop and teach transdisciplinary module content and build trans-institutional communities of CHARM-EU stakeholders.

⁵ See the Curriculum Design Blueprint for more information on the development of Programme Learning Outcomes.



4. PROGRAMME CONTENT GUIDELINES FOR MICROPILOTS

Micropilots are recommended to test a microcosm of a final educational programme in a short term activity. For the purposes of CHARM-EU we conducted a Winter School which tested:

- The CHARM-EU educational principles, pedagogical approach, technologies, team formation and scaffolds.
- Professional development opportunity for staff across the Alliance to work together and develop learning activities.
- Educational content design and delivery
- Involvement of extra-academic actors from business and society

Guidelines for Micropilot Programme Content

The following guidelines can be used to test elements of an educational programme, such as the MSc in Global Challenges for Sustainability, in a short-term teaching and learning activity (i.e. Micropilot).

- **Use a structured design process** for developing the Micropilot through inter-institutional workshops. These workshops should synthesise ideas and address:
 - Micropilot aim
 - Practical considerations
 - Resources (i.e. staffing, stakeholders)
 - Materials and equipment
 - Facilities, space and location
- **Select themes for the Micropilot educational content.** These should align with the proposed themes or problem spaces of the educational programme. This selection should be conducted by a collaborative inter-institutional discussion based on existing curriculum design or program content. For example, in our Micropilot, problem spaces were selected based on discussions at the CHARM-EU Days conference and at the workshop.
- **Select Module Learning Outcomes (MLOs) based on MLOs from the programme content.** These can be shortened versions or selected MLOs, rather than all MLOs from the programme.
- **Identify what elements of the educational programme require testing.** For example, in our Micropilot the CHARM-EU Educational Principles, engagement with stakeholders, student selection and application process, and student team formation were tested.
- **Identify what technologies require testing.** If the educational programme is using a hybrid or online modality, the same technologies should be used in the Micropilot.



- **Identify methodologies for evaluation.** A mixed method approach is recommended to bring meaning to the data e.g. online surveys, daily reflections, staff observations, and focus groups
- **Perform a “dry-run” of the Micropilot prior to the launch date.** This can help address any technical or administrative challenges that may emerge.
- **Document the Micropilot activities and results.** Both evaluation results and how the activities were received should be documented in detail.
- **Present the results of the Micropilot to the educational programme stakeholders.** Key recommendations should be extracted and used to iterate elements tested.

5. APPLICATION OF PROGRAMME CONTENT GUIDELINES WITHIN CHARM-EU

Within CHARM-EU, these guidelines were used to develop the pilot MSc in Global Challenges for Sustainability. Prior to development, the CHARM-EU Winter School⁶ piloted elements of Phase 1 to inform the wider teaching and learning practices in other phases.

MSc in Global Challenges for Sustainability

The CHARM-EU pilot MSc was structured using themes developed during the pilot data-gathering phase. Based on the data-gathering exercise:

- A Phase 1 KCT was formed. This KCT brought together expertise from all five partners within transversal skills development and both theoretical and research foundations to support transdisciplinary, challenge-based learning, innovation and sustainability.
- Three thematic Phase 2 KCTs (Water, Food and Life and Health) developed content for the Flexible Phase. These themes were identified through the process outlined above.
- A Capstone KCT developed content for the Capstone phase.

Phase 2 Water theme case study

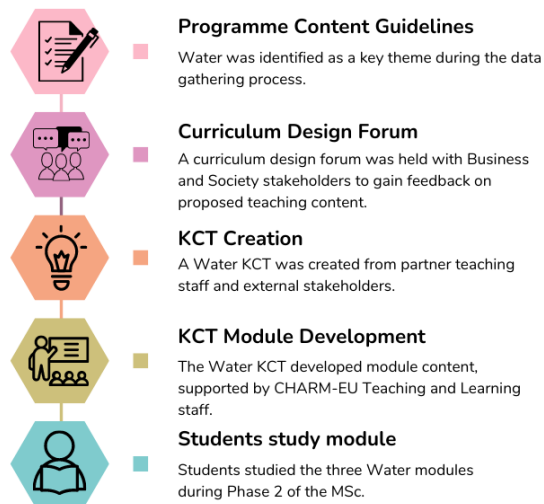
Water was identified as a Phase 2 theme via the Program Content Guidelines data-gathering process. Each institution contacted relevant academics, enterprise (traditional and social) and community within their institution relevant to the Water theme (e.g. lecturers/researchers in water health; engineering companies focused on waste management, local community water projects) to form a KCT. A Curriculum Design Forum was held with these individuals. The KCT convened and

⁶ <https://www.charm-eu.eu/toolkit/charm-eu-winter-school-report-design-exemplar>

worked on module development within their theme, supported by a professional development process and Educationalist supports⁷. Three modules were created by the KCT and approved by the Academic Board. Students select their theme during the application process and complete three modules during Phase 2.

Figure 3: Water theme case study

Development of Phase 2: Water theme



6. CONCLUSION

The programme content guidelines have described how CHARM-EU developed the structure of their programmes. These guidelines are useful for any European University Initiative or educational development seeking to implement a challenge based, inter-institutional educational award. For further reading, the following documents are recommended:

- Curriculum Design Blueprint
- [Teaching and Learning Strategies Handbook](#)
- [Assessment Handbook](#)

⁷ See the Teaching and Learning Strategies [Handbook](#) for more information on this process.



7. APPENDIX A: CHARM-EU HEART TEMPLATE

Aim and Instructions

The aim of this document is to create a shared vision of the CHARM-EU educational experience and to develop an agreed set of educational principles to underpin the development of the CHARM-EU curriculum models and teaching and learning strategies – The Heart of the Educational Experience.

To do this each partner is asked to complete the following form as agreed in the meeting in Utrecht, June 2019. The five versions of this document will then be collaboratively synthesised and distributed.

The objective is to keep the principles short and sweet so that we can demonstrate the core principles in multiple forms (such as animations, videos, etc) from a variety of perspectives (student, researcher, business, educator etc).

Contributor's Name:

Contributor's Institution:

Educational Philosophy

Please describe your understanding of the CHARM-EU educational philosophy under each of the core elements outlined below:

- Challenge (CH) operating local to be global
- Accessibility and inclusive (A)
- Research Based (R)
- Mobile (including programme organisation) (M)
- Knowledge Triangle (Business, Education, Research)

Graduate Attributes

What do you see as the set of graduate attributes we want our students to be able to demonstrate? These can be also seen as the Programme level outcomes. Please write a comprehensive list below and as many attributes/outcomes as you wish – the more the better!

Benefits to Stakeholders

Please complete a sentence outlining the key benefits of engaging with CHARM-EU for each of the stakeholders listed below:

- Students



- Consortium Institutions
- Consortium Management or Leadership
- Teachers
- Entrepreneurs/Business
- Researchers

Mission/Purpose

How would you describe the mission and/or purpose of the CHARM-EU educational experience from the following perspectives?

- Student Perspective
- Institution Perspective
- Business Partner Perspective
- Researcher Perspective

Teaching and Learning Strategies

How do you see the core teaching and learning strategies? What should be the dominant approaches and how will they reflect the educational philosophy outlined above? How will we structure the educational experience to meet the goals and principles?



8. APPENDIX B: PROGRAMME CONTENT GUIDELINES SUMMARY INFOGRAPHIC

PROGRAMME CONTENT GUIDELINES

- 1. IDENTIFY BROAD THEMATIC FOCI**

Identify key themes from chosen policy directive e.g. UN SDGs. Align chosen theme in this instance "Reconciling Humanity with the Planet" with SDGs and Horizon Europe missions.

Rationale: Identifying broad themes for programme content creates a starting point for the analysis of content/expertise availability within partner institutions.
- 2. ISOLATE KEY INDICATORS**

Isolate key indicators that evidence strengths within each domain: research, education and engagement. For example, key indicators of research are citation and research funding. Align these indicators with key themes identified in Step One.

Rationale: Data is optimally relevant when filtered and weighted to indicators that best demonstrate the principles of challenge-driven curricula. Indicators of strategic value will contextualise programme content.
- 3. PRELIMINARY DATA SEARCH**

Employing key themes identified in Step One, complete a preliminary desktop scan of all publically available information (university websites, international rankings etc.) on research themes, educational provision and engagement (industry) activities of all partners (the EIT knowledge triangle).

Rationale: The analysis aims to align the key themes in Step One with broad partner strategy, activity and foci.
- 4. ENGAGE WITH PARTNER ADMINISTRATIVE DATA**

Source deep data from all university central administration offices corresponding to research, education provision (e.g. admissions, strategy) and engagement including business, career development, civic and public engagement. This data is reflective of key themes.

Rationale: Engaging with partners will uncover specific data related to results from step 1 and 2.
- 5. COLLATE DATA TO IDENTIFY AREAS OF EXPERTISE**

Filter all data by key indicators across European University partners. Collate by key themes e.g. the points of cohesion between the UN SDGs and sample theme "Reconciling Humanity with the Planet" and key performance indicators.

Rationale: Collating data will guide appropriate programme content across institutions and enable the formation of Knowledge Creating Teams.
- 6. ENGAGEMENT**

 - Submit information to all stakeholders for review.
 - Integrate results of needs analysis into content review process.
 - Propose thematic content streams within programme structure.
 - Propose Knowledge Creating Teams based on content identification.