

EUT⁺

EUROPEAN UNIVERSITY OF TECHNOLOGY

Deliverable 32

D3.2.2c Evolution of Master

Del. Rel. No D3.5

WP 3

Description: evolution of master curricula within the past year (harmonized and then decentralized)

Comments:

Dissemination level: **PU**-Public

<https://www.univ-tech.eu/phase-1-results>

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FOREWORD

Following on from Deliverable 31 / 3.2.2b, Deliverable 32 / 3.2.2c evidences the evolution of EUt+ Master's curricula within the past year. For the purpose of this deliverable the past year is considered from September 2022 – August 2023 inclusive, in keeping with the calendar for submission of WP3 Task 3.2 deliverables.

The activities of Task 3.2 “Integrating existing Master's degrees” are described including details of the progress made by the first- and second-year Master's clusters and the emergence of new EUt+ cluster specialisations. Feedback from the cluster leaders provides useful information and insights. Also, during this period, clusters in Food Science and Technology and Telecommunications and Networks designed joint Master's degree programmes, responding to the [Erasmus Mundus Joint Masters \(EMJM\) projects](#).

Staff and student mobility results are reported, presenting a growing momentum in EUt+ student and staff mobilities in the past year. Whilst WP3 Tasks 3.1 and 3.2 facilitate student mobility with provision of the cluster [Mobility Maps](#)¹, a significant step in making this information easily accessible to students, was made with the launch of the Mobility Database project at the beginning of 2023. Progress in the implementation of the EUt+ certificate and Diploma supplement, a strong motivator for students, is also explained.

Finally, reference is made to the anticipated development of these activities in the Accelerate Phase of EUt+ (the beginning will be in November 2023).

¹ The Mobility Map is the list of the modules that each partner institution is offering to incoming students.

Glossary

- **Cluster** – A *cluster* is a group of curricula, in each thematic, from at least three partner institutions which aims at an accelerated convergence to achieve, as soon as possible, a *European degree* with a single academic regulation, where the student can move freely across several EUT+ campuses. The *cluster* works towards a common pedagogical model based on the description given in the *European Degrees in Engineering EUT+ Reference Guide*.
- **Competence** - The proven ability to use knowledge, personal, social and methodological skills in a work or study environment and also for professional and personal development. In the context of the European Qualification Framework (EQF) competence is described in terms of responsibility and autonomy. (European Council, 2017)
- **Learning Outcomes** - “At the end of [an educational activity to be specified], the student will be able to [production to be specified]”. *European Degrees in Engineering EUT+ Reference Guide*.
- **Basic Learning Outcomes** – what students know and know how to do at the end of a course unit.
- **Final Learning Outcomes** – what students know and know how to do at the end of their degree.
- **Mobility Map** - The Mobility Map is the list of the modules that each partner institution is offering to incoming students. The modules are described in basic learning outcomes. The Mobility Map details the pedagogical and technical information needed for the choice and the organization of students’ study tracks. Each "home institution" chooses the modules that its students can choose among the modules offered by the welcoming institution.

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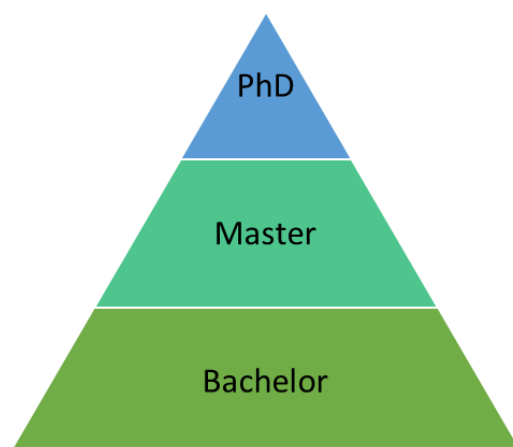
Introduction

Deliverable context and objectives

The aim of deliverable D32 is to expound the evolution of EUT+ master curricula within the past year, September 2022 – August 2023 inclusive.

Based on the 12 characteristics of the European Degree for the EUT+ Master engineering curricula detailed in the “The European Degrees in Engineering Reference Guide” (Annex 1) EUT+ Master programmes may be developed through the harmonisation of existing national curricula or through the conception of new programmes jointly developed by the partners. These master's in engineering degrees share common competencies frameworks and a set of Final Learning Outcomes (FLO). They are designed to lead progressively towards a unique European degree and accreditation at the European level.

The master's degree is the continuity of the student's learning pyramid (Fig. 1), a strengthening of knowledge and competences in a specialised area. During this third year of the EUT+ initiative, existing clusters continued to refine their approach and make progress in



the harmonisation of curricula and in the development of the Mobility Maps designed to facilitate student mobility.

Fig 1. The levels of the Bologna pyramid

The emergence of new working groups may be credited to the increased momentum of the initiative as it became more widely known within the partner universities. Increased in staff mobility may also attributed to the relationships established between the partners resulting from collaboration within the clusters.

At master's level, the highly specialised content and the programme requirement for project work, and /or internships resulted in some clusters choosing to create new joint master's degrees.

Part1. Evolution of Master's curricula in past year (2022-2023).

Existing clusters progress report

During the year September 2022 – August 2023 incl. the clusters formed during the first and second years of the phase 1 of the EUT+ initiative; Civil Engineering, Mechanical Engineering Telecommunications and Networks, Architecture, Industrial Engineering continued to work constructively to:

- + refine the basic and final learning outcomes for their specialisations.
- + update the cluster Mobility Maps at master's level.
- + accompany incoming and outgoing students.

From Autumn 2022 – Spring 2023, Architecture and Industrial Engineering opened their Mobility Maps to students attracting the first pioneers in these specialisations.

New working groups

Working groups also formed in Computer Science and Microelectronics, working initially on the harmonisation of existing curricula at Bachelor level with evolution at Master level

planned in the subsequent phase of development. Both groups are expected to be validated as clusters by the EUT+ partner's rectors in the Autumn of 2023.

Creation of new EUT+ Master's

As the EUT+ dynamic continued to grow, 2022 saw the emergence of the Environmental Engineering master's cluster (Table 1).

Table 1. Environmental Engineering Master Cluster

Partner University	Specialisation/Programme
Darmstadt University of Applied Sciences Darmstadt (h_da)	Civil Engineering
Riga Technical University (RTU)	Environmental Science
Technical University of Sofia (TU Sofia)	Hydro-aerodynamics, Hydraulic machines / International Affairs, Risk analysis
Technical University of Cartagena (UPCT)	Civil Engineering/ Hydraulic and Environmental Engineering/ Agronomic Engineering
Technical University of Cluj-Napoca (TUCN)	Environmental Engineering and Sustainable Development Entrepreneurship
Cyprus University of Technology (CUT)	Chemical Engineering Department
University of Technology of Troyes (UTT)	Ingénierie et Management de l' Environnement et du Développement Durable (IMEDD)

Environmental Engineering followed the process of harmonisation of existing curricula to create their Mobility Map an example of which can be seen below in Fig.2.

Origin of the student	University of Applied Sciences Darmstadt (h_da)							Technical University of Cartagena (UPCT)						
	Courses	Semester	Final LO	Basic LO (KeyWords)	ECTS	Comments	Interaction on du to optional courses previously followed	Optional courses Interdicti on after mobility	Courses	Semester	Final LO	Basic LO (KeyWords)	ECTS	Comments
Riga Technical University (RTU)	Project Safety-compliant planning and operation of plants	3	F1 F2 F3 F7 F8 F10 F11 F13 F16	B3 B4 B5 B6 B7	7.5	German			SANITARY ENGINEERING	3		F1, F3, F7, F10, F14, F15, F16, B1, B4, B5	6	Spanish
	Waste water treatment 2	3	F13 F15	B1 B2 B3 B4 B7	5	German			PLANIFICACIÓN Y GESTIÓN AVANZADA DE RECURSOS HÍDRICOS	3		F1, F3, F8, F9, F11, F13, F15, F16, B1, B2, B5	6	Spanish
	Recycling Management/Waste Treatment 2		F13 F15	B1 B2 B3 B4 B7	5	German			HYDROELECTRIC, WIND AND TIDAL ENERGY	3		F1, F3, F12, F15, F16, B3, B6	4.5	English
	Safety-compliant planning and operation of plants	3	F13	B1 B2 B3 B4 B7	5	German			GESTIÓN Y TRATAMIENTO DE RESIDUOS Y SUELOS	3		F1, F2, F6, F7, F15, F16, B1	4.5	Spanish
	Environmental Law 2	3		B2 B4	5	German			TECNOLOGÍAS AVANZADAS DE SEPARACIÓN	3		F1, F3, F13, F14, F15, F16, B1, B7	3	Spanish
	Environmental geotechnics	3		B1 B7	5	German			GESTIÓN DE LA CALIDAD Y DE LA SEGURIDAD	3		F7, F8, F9, F15, F16, B2, B4, B5, B9	3	Spanish
	Interdisciplinary Studies	3	F6 F9 F12		5	German			CARACTERIZACIÓN DE RIESGOS AMBIENTALES, GESTIÓN DE LA SALUD	3		F1, F6, F8, F9, F15, F16, B2, B4	3	Spanish

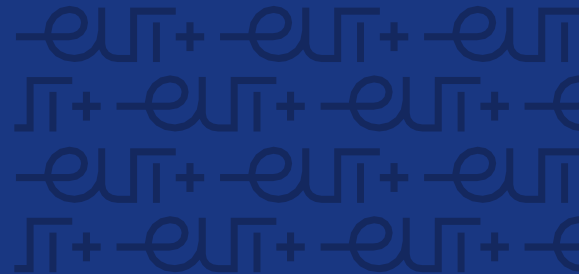
Fig.2 Environmental Engineering Mobility Map extract.

Task 3.2 Physical meetings

During the past year, regular meetings of the clusters and working groups during the EUT+ physical weeks contributed to the progress of these clusters. (Table 2.)

Table 2. EUT+ Physical Meetings

EUT+ Physical Meetings 2022 - 2023				Participating clusters /working groups
Troyes	France	26-30 September	2022	Mechanical Engineering, Telecommunications and Networks, Architecture, Food Science and Technology, Industrial Engineering, Civil Engineering clusters
Limassol	Cyprus	10-14 October	2022	Environmental Engineering Master working group
Darmstadt	Germany	21-25 November	2022	Environmental Engineering Master working group
				Telecommunications and Networks cluster



Sofia	Bulgaria	16-20 January	2023	Industrial Engineering cluster
				Architecture cluster
Cluj-Napoca	Romania	7-11 March	2023	Computer Science working group
				Micro Electronics working group
				Environmental Engineering Master cluster
				Civil Engineering cluster
				Mechanical Engineering cluster
				Telecommunications and Networks cluster
Dublin	Ireland	24-28 April	2023	Architecture cluster
Darmstadt	Germany	8-12 May	2023	Micro Electronics working group
Riga	Latvia	26-30 June	2023	Environmental Engineering Master cluster (on-line)
				Computer Science working group
Troyes	France	10-14 July	2023	Global Sustainable Development working group

Joint degrees: Erasmus Mundus call applications

The impetus built within the clusters, and the relationships developed between partners gave rise to two joint degree projects over 2022 – 2023.

In January 2023, the Food Science and Technology cluster, responded to the Erasmus Mundus Joint Master call (ERASMUS-EDU-2023-PEX-EMJM-MOB) with their project “Erasmus Mundus Joint Master Healthy and Innovative Food Technology within the Circular Economy Scenario” (EUROFOOD).

Also intending to explore this opportunity, the Telecommunications and Networks cluster applied to the ERASMUS-EDU-2023-EMJM-DESIGN MEASURES call with a project entitled “FutuRe telecommunication Infrastractures and Next-generation netWorks Education Program FRIEND-NOW” - (Annex 3). The FRIEND-NOW proposal was accepted by the European Commission, Erasmus+ Programme on 24th July 2023 and the work on developing this EUT+ joint masters will now go forward.

Part 2. Cluster feedback

In July 2023, Task 3.2 created a short questionnaire to collect feedback from cluster leaders on their experience of evolving EUT+ master's curricula.

The on-line questionnaire consisted of 4 extended close-ended questions determining the cluster progress and 4 open-ended questions concerning the activities, problems encountered and any suggestions/ comments.

Status report

All clusters reported having created a set of basic and final learning outcomes and Mobility Maps. Revision is ongoing as changes in curricula may happen each academic year. The Mechanical Engineering cluster has taken the more advanced step of linking basic to final learning outcomes.

The Architecture cluster reported having applied the learning outcomes already established in the Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications. All EUT+ partner faculties, as other Higher Education Institutions in the EU refer to this document and apply the same learning outcomes framework to have a recognised degree in Architecture. This greatly facilitated the work of the cluster.

Key insights

+ Difficulties encountered by the clusters due to the diversity of curricula at master's level: 'The main problem is the diversity of the curricula at master level that makes it hard to find common learning outcomes.'

An example of this was clearly seen within the Industrial Engineering cluster, where different types of courses or study programmes, inclusive of required coursework to obtain a degree in industrial engineering were found among the participating partners:

- Two study programmes related to industrial management engineering (h_da, UTT)
- Three study programmes related to industrial production engineering (UTCN, TU Sofia, RTU)
- One programme mixing both management and production engineering (UPCT)

+ The importance of guidance from experts (WP leaders/task managers) particularly in determining learning outcomes – Positive reference was made to the WP3 Master Class on this subject given during Troyes Week, September 2022.

+ The value of physical meetings between academics and visits to partners campuses which helped cluster members to better understand each other’s programme variations.

The cluster leader explained, “The short visit to each other schools when we had the opportunity to see in more detail the programmes were very helpful. Probably a timeframe dedicated to this when new clusters are formed would be of great help.”

“In October 2022, we organised an exhibition in Cluj-Napoca (Romania) dedicated to the Diploma projects from all 5 Architecture schools in the cluster. We are discussing the possibility of moving this exhibition to other schools.”

A more extensive survey of the bachelor's and master’s cluster members is envisaged for the final analysis report of WP3.

Part 3. Cluster mobilities report

Mobility results

EUT+ student and staff mobilities have increased consecutively year on year during the period from 2020 – 2023.

In 2020/2021 students were already taking advantage of the EUT+ alliance to study at partner EUT+ campuses outside of the clusters despite restrictions due to the Covid 19 pandemic. (Fig 3a in blue) Mobilities within the clusters are reported from 2021 – 2022 when the first wave Civil Engineering, Mechanical Engineering and Telecommunications and Networks completed their Mobility Maps. (Fig. 3.b in orange).

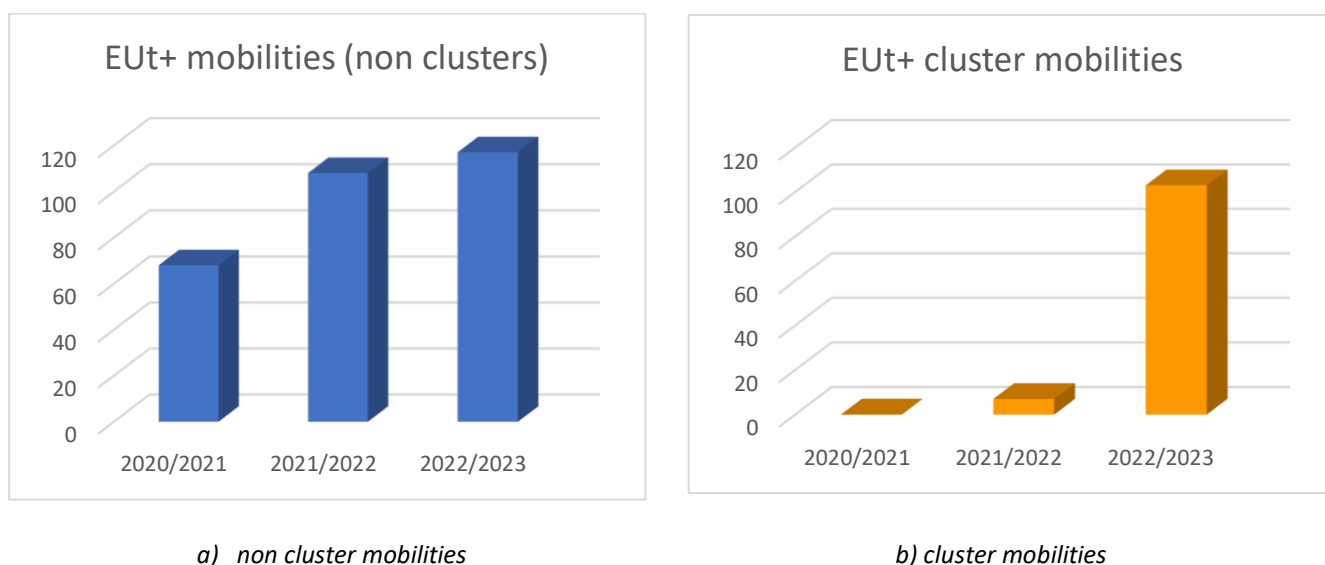


Fig. 3. EUT+ Student Mobilities

As can be seen in the graphs above, student mobilities inside clusters (Fig. 3.b in orange) show an exponential increase over the past year - 2022- 2023. This may be attributed to several factors:

The opening of more clusters for mobility (Second wave clusters: Architecture, Environmental Engineering, Industrial Engineering), improved communication and promotion of those opportunities within the partner universities, including positive testimony from returning pioneer students and clarification of the benefits of an EUT+ experience.

Table 3 below, shows the number EUT+ student mobilities by specialisation and cycle of study (bachelor’s or master’s) during the period 2021 – 2023. A total of 403 students took up the opportunity to study on another EUT+ inter campus. Double the number of mobilities took place outside of the clusters as inside the clusters. This data reveals a keen and growing interest from students in EUT+ inter-campus mobility options and the need for more specialisations clusters to form and fields of study to open mobilities.

Table 3. EUT+ Student mobilities 2020 – 2023 by cluster

Cluster	No of mobilities /cycle of study	No of mobilities /specialisation
BSc-Mechanical Engineering	30	42
MSc-Mechanical Engineering	12	
BSc-Telecommunications and Networks	14	23
MSc-Telecommunications and Networks	9	
BSc-Civil Engineering	5	6
MSc-Civil Engineering	1	
BSc-Architecture	22	23
MSc-Architecture	1	
BSc-Industrial Engineering	7	12
MSc-Industrial Engineering	5	
MSc-Environmental Engineering	4	4
Total EUT+ student mobilities within clusters		110
Total EUT+ student mobilities outside of the clusters		293
TOTAL EUT+ student mobilities during period 2020 – 2023		403

It is notable that 70% of the cluster mobilities took place at Bachelor level. Although this can be explained partly by the process that the clusters followed in first harmonising bachelor curricula and then master’s curricula, this also corresponds with the analysis of the

European Tertiary Education Register (ETER) database report, “In other words, credit mobility fostered by the Erasmus programme tends to focus on different countries and educational levels than degree mobility 70% of the Erasmus mobile students were at the bachelor level”.²

Financial barriers, socio-economic issues and home responsibilities may be barriers to mobility for students at any tertiary level. However, some EUT+ partners detect specific issues at master level, which appear to reflect the differences in national cultures and economic drivers.

UTCN, Romania and TU Sofia, Bulgaria report most students are already active in the workplace. For those students, a semester mobility may present not only a loss of income but also the loss of their current job and consequently a future employment opportunity.

“In the current economic climate, shrinking support for scholarships and grants, as well as tighter budgets for individuals, may slow the pace of student mobility.” (OECD: [Education at a Glance 2022](#))

Staff mobilities

The staff mobilities within the EUT+ alliance (fig. 4 below) also gathered momentum over the last 3 years (2021 – 2023), as the links between the partner universities developed presenting opportunities for collaboration and knowledge exchange. Academics participating in the clusters, built on the connections developed within these groups to organise teaching mobilities and to collaborate on other projects such as Blended Intensive Learning Programmes (BIPs). The Architecture cluster reported that over the past year, “We encouraged the teaching mobility between partners. These mobilities already started and some are planned for the beginning of the 2023-2024 academic year.”

² <https://www.eter-project.com/wp-content/uploads/2022/02/ETER-brief-3.-What-ETER-tells-us-about-student-mobility-in-European-higher-education.pdf>

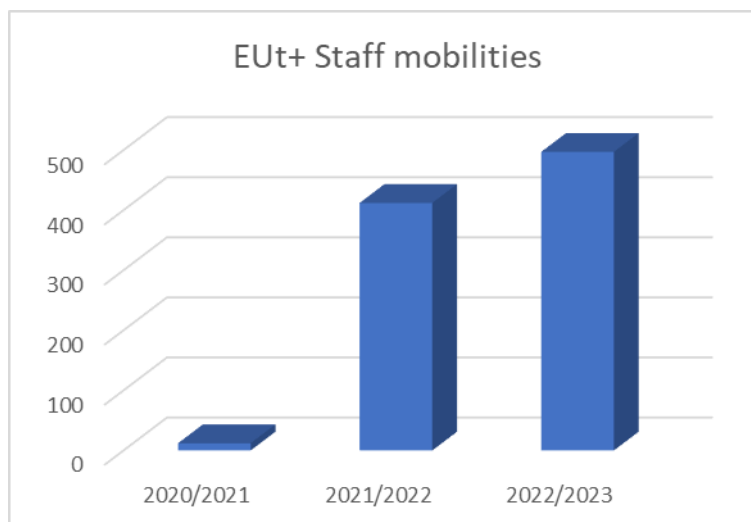


Fig. 4 Staff mobilities 2020 - 2023

WP3 actions to facilitate mobilities:

I. EUt+ Mobility Database development

The Mobility Maps created by the clusters are designed to provide information for students and international relations/Erasmus Offices of each university to guide students in the choice of their study pathways across the EUt+ inter-campuses.

Experience of the pioneer students revealed the need for a single interface / tool that would offer easy visibility of the mobility options along with the wider objective of creating a full database of partners' curricula.

The main objectives of this Mobility Database project are to:

1. Provide a tool (application) for students to search for and choose their mobility based on all the required information and through a single application/ or platform. (Fig. 1. Example of search function).

2. Bring together the content of the cluster Mobility Maps in one EUT+ database giving teachers, administrators, and international relations staff full visibility.
3. Create a reference source of relevant data related to mobility choices and more. Provide a tool facilitating updates and modifications that also tracks those changes. Permit the sending of alerts indicating the need for review of contents.

The Mobility Database (Annex 2. 'Presentation Mobility Database') was developed using an application framework compliant with universities' standards as outlined below:

- + February 2023: project launched.
- + June 2023: the pre-production application of the EUT+ Mobility Database ("info-mobility.univ-tech.eu") installed on a server.
- + June - July 2023: security testing by the ISSM the "Information Systems Security Manager".
- + June 2023: Assurance of data protection in accordance with the [data protection authority](#) under the EU's General Data Protection Regulations.
- + July 2023: Initial testing phase complete.
- + Next steps : Input of mass data September 2023-October 2023: Launch of the application for general use for cluster mobilities end October 2023. In Phase 2 (Accelerate) of the EUT+ initiative, it is envisaged that the database administration and evolution will come under the responsibilities of WPA8, "Common digital Services and data convergence".

Fig.1. Screenshot of the student mobility search page

EUT+ Mobility Search Programmes Login english ▾

Mobility Search

Please select your home university, your exchange semester and the cluster for your mobility. You'll find the mobilities opportunities in the cards below 😊.

Sending Institution*
University of Technology of Troyes ▾

Mobility Semester*
Semester 4 ▾

Cluster*
Mechanical Engineering Bachelor ▾

[Search](#) [Reset](#)

Hochschule Darmstadt, University of Applied Sciences	Rīgas Tehniskā universitāte	Technological University Dublin
Machine elements 1 3 ects Thermodynamics 2 (Sem 4) / Thermodynamics 1 (Sem 3) 3 ects	Computer Graphics (Advanced course for Mechanical Engineers) 5 ects MTM119	Solid Modelling 1 5 ects SMOD H1000 Mechanics 3 5 ects MECH H2007

II. EUT+ Certificate and degree supplement

On 24th November 2022, the EUT+ Student Experience was formalised by 4 EUT+ universities, UTCN, UPCT, TU Sofia and UTT with 'EUT+ Agreement – Pilot for the facilitation of the student mobility between EUT+ partners and Cluster Development' (Annex 3).

During 2023, the 4 EUT+ signatories further agreed to issue graduating students with an EUT+ certificate along with a supplement to their national diploma. EUT+ certificate will be issued if the following conditions are satisfied:

- + Minimum physical mobility of 10 weeks within EUT+.
- + A minimum of 25 ECTS obtained during the physical mobility at a EUT+ partner campus.

- + Validation of at least 5 ECTS through the study of national language and culture assessed at least A1 level
- + Achievement of the following level in foreign European languages:
 - One foreign European language at level B2 for bachelor
 - A second foreign European language at level B1
- + Fulfilling the national conditions for validation of the degree.

This certificate received internal validation of the 4 universities and is expected to be issued to graduating students for the first time in Autumn 2023. The exact issuance process is under final review at the time of writing this report. The certificate will be written in English and in the language of the student home university. It will be signed by all the 4 universities that signed the 'EUT+ Agreement – Pilot for the facilitation of the student mobility between EUT+ partners and Cluster Development' (Annex 3).

The ambition is to propagate the certificate across all EUT+ partners universities.

Conclusion

Over the past year the Master's clusters have continued to progress aligning ambitions with the aims of the EUT+ Initiative 'Bid' which describes the convergence of 'curricula groups' as the 'harmonised management' of curricula.

Through a competences-process and program-approach the partners in the clusters have worked to harmonise their national curricula, to establish a shared set of Final Learning for each Master of Engineering, and to present a set of curricula compatible for student mobility in the Mobility Maps.

Food Science and Technology cluster approached this challenge by developing a fully joint degree from the outset. This is now awaiting accreditation. Also, during 2022-2023, the

Telecommunications and Networks, a cluster from the 1st wave begun in 2020-2021, took a first step towards creating a joint Master's degree in this specialisation.

Cluster members comprise of academic staff/ professors from the different EUT+ partner institutions who have volunteered to work on the EUT+ initiative and who have invested their time and experience in evolving the EUT+ Master's degree curricula.

Some have become more involved, undertaking staff mobilities to encounter more opportunities, exchange good practices and develop awareness of their partner campuses. This is illustrated in the increase in staff mobilities during 2022-2023 - *Fig. 4 Staff mobilities 2020 – 2023*.

The 'EUT+ Certificate and Degree Supplement', agreed by four EUT+ universities, UTCN, UPCT, TUS and UTT in November 2022 will first be awarded to graduating students in Autumn 2023 along with their national university degrees. Long awaited, the EUT+ certificate carries a significant value-add for students and a motivator for future inter-campus mobilities. The feedback from those pioneers who undertook mobilities through the clusters will be integral to the development of the EUT+ Initiative in the Accelerate Phase 2.

In the longer term, the EUT+ Certificate is anticipated to transform into a future European Label which is in consideration by the EU. EUT+ academic staff are actively contributing to the EU project, 'Joint European Degree label in engineering' (*JEDI*) which has the objective of exploring common criteria for a potential European label for European joint programmes under the perspective of engineering, technology, and science-oriented education.

As the EUT+ initiative moves into the Phase 2, 'Accelerate', clusters will continue to form around new specialisations both at Bachelor's and Master's level. At Master's level, the creation of more joint degrees is anticipated to avoid the complications described in the key insights from clusters due to the diversity of curricula. Feedback from the first students graduating with the EUT+ certificate and supplement to their degree will also be integral to the successful development of the EUT+ Initiative in the Phase 2.

Appendices

Annex 1 - European Degrees in Engineering EUT+ Reference Guide V.1

Annex 2 - Presentation of the Mobility Database

Annex 3 - EUT+ agreement - Facilitation of student mobility between EUT+ partners

Annex 4 - EUT+ agreement - Pilot for the facilitation of Student Mobility between EUT+ partners
and Cluster development

Annex 5 – EUT+ Certificate example

European Degrees in Engineering

EUt+ Reference Guide

V.1

In 2017, at the [Gothenburg Social Summit](#), the European Commission laid out [its vision](#) for 2025 of a [European Education Area](#) in which the free movement of learners is guaranteed: “A continent where spending time in another Member State – to study, to learn or to work – has become the standard and where, in addition to one’s mother tongue, speaking two other languages has become the norm. A continent in which people have a strong sense of their identity as Europeans, of Europe’s cultural heritage and its diversity.”

This document draws on the basis of the European frameworks on education, the information we have on current developments, the expectations for the European Higher Education Area, the contents of the call for proposals for European Universities and our application to this call, as well as the feedback from the participatory workshops in EUt+.

The examples considered here are mainly from the engineering sector, as they are the majority in EUt+, and the examples are easily transferable to other sectors, such as management or arts.

This document deals with Bachelor and Master programs in engineering (tasks 3.1 and 3.2). It does not deal with doctorates or Master’s programs in graduate schools (task 4.1).

Narrative

We come from a generation that has built the world by posing, often unwillingly, problems of a new magnitude, we must educate the generation that will be able to address them with wisdom to solve them.

1 References, definitions and glossary

1.1 References and bibliography

1.1.1 External resources

European Standards and Guidelines 2015:

- [english](#)
- [français](#)

Documents on the European diplomas from the DGEAC:

See annexes

Documents on the framework of learning outcomes and competences:

[Cadre de l'ENAE](#)

[UNESCO documents on level descriptors use](#)

“Dublin” descriptors: [here](#), and [there](#)

Literature on curricula design and competency frameworks:

ORGANISER LA FORMATION A PARTIR DES COMPETENCES, MARIANNE POUMAY, JACQUES TARDIF, FRANÇOIS GEORGES, DE BOECK, JUIN 2017

BERTHIAUME, D. ; REGE COLET, N. (2013). LA PÉDAGOGIE DE L'ENSEIGNEMENT SUPÉRIEUR : TOME 1 : ENSEIGNER AU SUPÉRIEUR. BERNE, SUISSE : PETER LANG.

BERTHIAUME, D. ; REGE COLET, N. (2014). LA PÉDAGOGIE DE L'ENSEIGNEMENT SUPÉRIEUR : TOME 2 : SE DÉVELOPPER AU TITRE D'ENSEIGNANT. BERNE, SUISSE : PETER LANG.

1.1.2 Internal ressources

See annex **“Competency framework of the European University of technology Masters of engineering” / “Compétences générales des Masters Ingénieurs de l'Université de technologie européenne”**

1.2 Definitions

(Pedagogical) competences: “know how to act and manage complex situations”

Jacques Tardif's definition based on the work of Noam Chomsky: it provides a corpus of competencies that is very stable over time, that describes particularly well the “character traits” of a student trained in a given institution or program, and that is robust to changes in professions and disciplines. It best formalizes the “digital footprint of a school” beyond the

affective “alma mater”, while providing a clear pedagogical framework for effective and persistent learning. In this sense, the corpus of pedagogical competences constitutes the fixed point of the “learning contract” between the school/university and the student.

Example of a pedagogical competence (extracted from the EUt+ Master Pedagogical Competences): “Piloting a process or system reliably and efficiently; deciding, planning and organizing with a holistic vision; anticipating and preventing direct or indirect local impacts of a system on its territory, while being aware of the global challenges.”

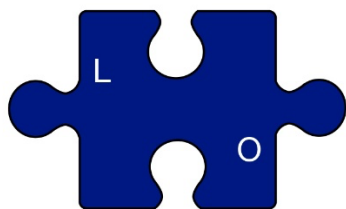
Learning outcomes: “At the end of [an educational activity to be specified], the student will be able to [production to be specified]”.

[a pedagogical activity to be determined] = any pedagogical activity which can be a 2-hours lecture, a full semester, a project or a period in a company...

[Output to be determined] = any ability that the student will have acquired as long as it is precisely defined, which may be “expressing the gradient in the three usual coordinate systems”, “describing with suitable mathematical tools the hydrodynamic speed field”, or “having the C1 level in German”.

For practical reasons, a distinction is often made between ([From kitmap, Université de Nantes](#)) :

- specific learning outcomes (acquis d’apprentissage spécifiques)
- basic learning outcomes (acquis d’apprentissage élémentaires)
- final learning outcomes (acquis d’apprentissage terminaux)



Curriculum :
Terminal learning outcomes

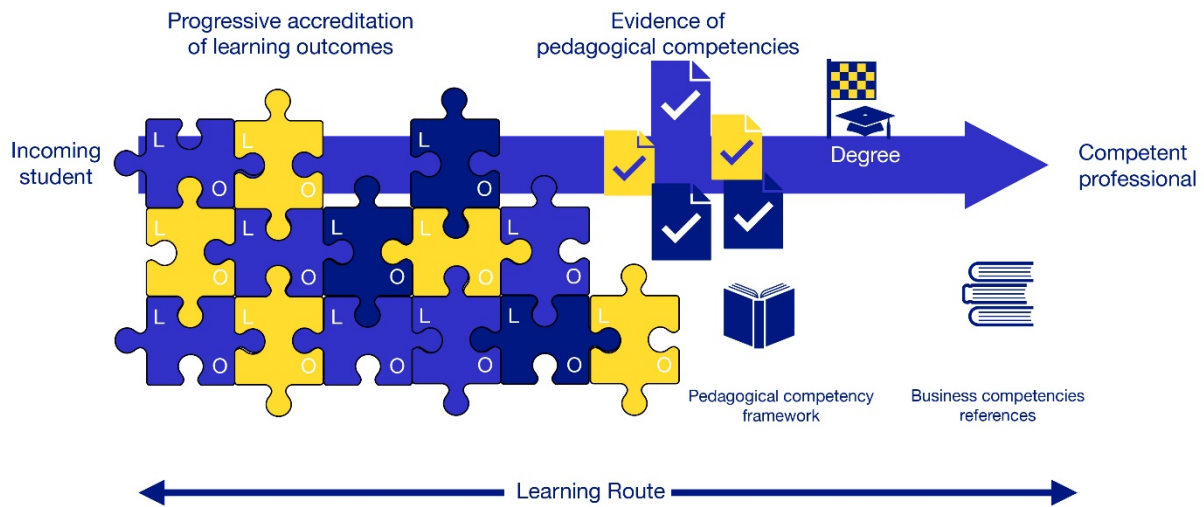


Course Unit:
Basic learning outcomes



Classroom session:
Specific learning outcomes

This is structured pedagogically as follows:



Articulation of competencies and learning outcomes

Based on D. Lemenu and E. Heinen (2015) in "How to move from competences to learning assessment".

In the context of the European diplomas of the EUT+, the target programmes are defined in terms of final learning outcomes. They are the precise description of the learning outcomes for each of the degrees.

The descriptions of the modules (or the smallest exchangeable unit) will be made by basic learning outcomes. Generally one elementary learning outcome per ECTS (or a little less) will be listed. This is the basis for discussion between teachers.

The degree framework is described by final learning outcomes. These will usually be in the order of 15 to 20 for a Bachelor of Engineering and about 25 (or slightly more) for a Master of Engineering (in which case the Master learning outcomes will include, explicitly or not, the Bachelor learning outcomes).

1.3 Generic principle of a student's curriculum

According to the above definitions, the principle of a student's curriculum is as follows:

- A learner is enrolled in the programme because
 - o he/she has learning outcomes from previous training and experience
 - o He/she demonstrates a capacity to achieve the learning outcomes required for the qualification
- In various ways, he/she collects the basic learning outcomes to progressively validate the final learning outcomes.

- When he/she has validated all or almost all the final learning outcomes, by means of one or more concrete and complex cases, he/she proves his/her ability to apply them, thus validating the pedagogical competences.

Each step of this progression is monitored by the teachers, who are responsible for guiding the learner, in particular according to his or her prerequisites, then the validated outcomes and the choices he or she wishes to make. Self-assessment and the e-portfolio are essential tools for the acquisition of learner autonomy and for dialogue with teachers.

The teachers validate in particular the final competences, which must be assessed in more or less complex situations.

1.4 Curricula convergence trajectory

The current curricula are converging towards the European curricula through:

- the progression of each of the existing curricula towards the general principles and schemes described below
- the final learning outcomes which allow the design of a “common curriculum”, identical for all students, making local offers compatible.

From the bid:

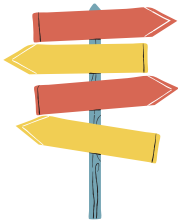
Each curricula group will progress according to the three-phases schema of (1) harmonized management; (2) decentralized management; (3) deconcentrated management.

	Phase 1	Phase 2	Phase 3
Curricula management	Harmonized	Decentralized	Deconcentrated
Academic regulation	Compatibles for mobility	Identical	Single
Steering	Collaborative	Linked in network	Single, with subsidiarity for operation
Degree	One per campus, same field	One per campus, identical, or joint degree according to national regulation	Only one for the EU+
Estimated duration of the phase	1 year	2 years	2 years, depending on regulations

Each new curriculum will be integrated from a group of pre-existing curricula from 3 to 5 campuses.

2 The 12 characteristics of the European degree for the EU+ Bachelor/Master engineering curricula

2.1 Embedded mobility / multi-campus model



Embedded mobility happens when one or more substantial periods of mobility is structural to obtain a degree and that the curriculum is inherently delocalised. The exception is the absence of long or even majority mobility in a curriculum.

In order to build themselves and their vision of Europe, our students need to *experience an in-depth exposure and immersion*. This can only be achieved through *long and transforming mobility*.

Mobility is not an end in itself, but a necessity to be exposed to others and their cultures, and to discover oneself.

Mobility is therefore a way of being more than an operation of geographical movement. For the EU+ European degrees, students are guided towards this state of mind which leads them to meet other cultures in the long term. They travel for at least several months, ideally for a full semester. They attend classes on the host campus alongside local students and other students on mobility.

In this regard, a short mobility does not make sense, nor does mobility only in a lingua franca. Meetings take place during lessons, during personal work, but also and above all during informal encounters outside teaching periods.

Short mobility lasting a few days or weeks are not supported or taken into account for European degrees, as they do not provide the necessary depth of immersion. Moreover, they would generate too much carbon impact for a limited time, for the sole benefit of being able to say that one has briefly set foot elsewhere in Europe. They do not allow time for immersion in the culture of the other, no time for a deep encounter...

Virtual mobility, an oxymoron by nature, must not be used as a cover for an absence of mobility. Immersion is an encounter, the virtual does not allow a real encounter. However, after meetings and links between students, videoconferences and tools for working together at a distance allow relationships to be pursued. The virtual is used as a tool to continue a meeting. It is also useful to prepare for mobility (language learning, etc).

From the bid:

Mobility needs to be financially sustainable, simple, attractive and pedagogically embedded. As such, mobility will be almost exclusively for one-semester chunks of time or more, in order to allow a real immersion within the partner institution and the local culture and language, as well as to amortize its carbon footprint.

From the bid:

Firstly, it should be noted that the European framework harmonises levels B, M and D in the EHEA, and characterises them by the Dublin descriptors. It does not align with the exit level of high school. Thus, the existing difference between the 6 and 8 semester-duration Bachelors serves mainly to align the levels of competences in the form of an “entrance buffer” of variable duration in order to eventually reach the same official level of competences.

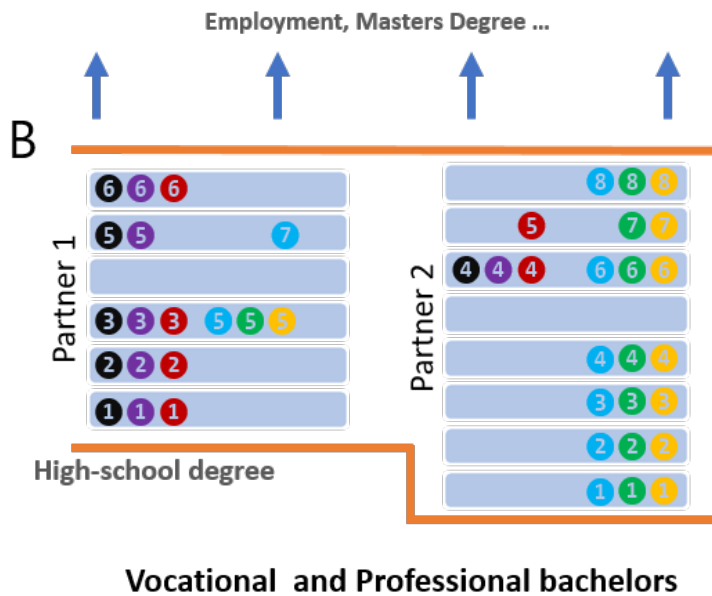
Narrative

“At the end of her journey, she would have learned to know herself better, to be self-confident, and she is now able to build her own career path. This other-Eut+-campus experience was so enriching, both in terms of learning outcomes and life experience, and allowed her to grow. The experience was all positive, because, even, the ‘mobility’ was quite easy, in fact. She felt at home on this foreign Eut+ campus. The university environment was well prepared to welcome her, and everything went smoothly: she got an Erasmus grant, no difficulties with accommodation, her European student card allowed her to take public transport easily, go to the university restaurant and even borrow books. Everything Robyn learned and experienced during this semester gave her the desire and the strength to apply for another semester, this time in Dublin.”

EUt+ Bachelor

Long-term mobility for a young student at the beginning of his or her studies, or if he or she encounters a tough time, can be a disincentive to enroll in a curriculum. In programmes that include these more fragile students, a trip lasting a full semester, supervised, prepared and in a group, makes it possible to offer a more progressive immersion by reducing apprehension. Mobility is therefore proposed as a trip for a full semester, with a pre-validated list of courses, proposed in the continuity of the courses already completed in their curriculum. It is therefore, in fact, a linear curriculum with a semester offered in another campus, where the immersion is carried out in a comforting group.

From the bid:



For vocational or professional Bachelor's degree courses, with more vulnerable groups for whom mobility is not an easy matter and employability is above all perceived as local, we adopt structures that are more reassuring for students. They move in groups for a specific semester to another partner, according to a predefined programme when they are globally linguistically and pedagogically ready. Additional individual mobility is then allowed for the most motivated students (e.g. cyan and red). The

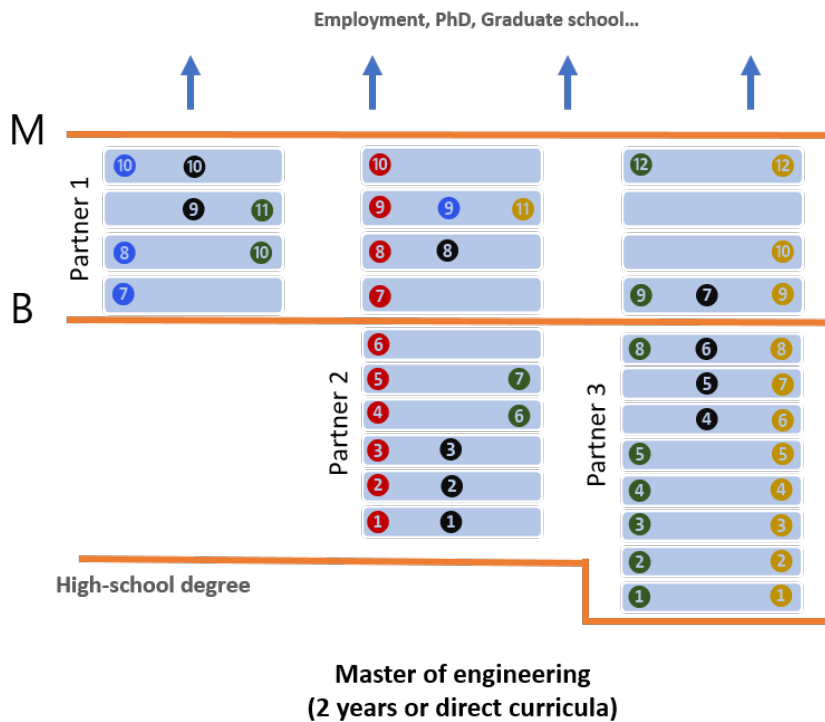
degrees correspond to a global competence scheme which is harmonized at EUt+ level, but is declined in function of the environment of each partner.

EUt+ Master

In the "Master" programme, which may include the "Master full track" (i.e. the Bachelor part) mobility is fully integrated. As soon as the student is ready for mobility (validated by the teachers, generally at the end of 1 to 3 first semesters), the student freely follows his or her curriculum on the different campuses. Only the pedagogical coherence of the courses is taken into account.

From the bid:

For the Master's courses (2 years or direct), the curricula will be fully joint. As soon as the "buffer entrance" phase is passed, students are free to choose their course according to the skills they wish to acquire, the partners they wish to visit and the details of the offering. The minimum mobility path is shown in blue or yellow (one semester). The green and black itineraries correspond to what we hope will be the majority in the long term. At the end of the complete convergence process, the course in red should be an exception only for students with difficulties that do not allow them mobility (it will only give the national degree and not the European one that we are aiming for in the long term).



Through a competences-process and program-approach developed by all the teams in the convergent curricula group, a single competences framework is established and shared for each Master of Engineering target curriculum. The same (single) academic regulations will be applied on all campuses.

From the bid:

<i>Objectives of the proposal</i>	<i>Indicators: List relevant quantitative and qualitative indicators showing whether and to what extent the objectives of the alliance are being achieved. Please indicate your target where possible.</i>	<i>Source of information: How could these indicators be measured? - What could be the sources of information?</i>	<i>Assumption and risks: What might be the factors and conditions not under the direct control of the alliance which are necessary to achieve these objectives? What risks have to be considered?</i>
<ul style="list-style-type: none"> Multiculturalism 	<ul style="list-style-type: none"> Share of EU+ students who will have spent at least one semester at one of the EU+ campuses Efficient communication and daily running of EU+ Efficient communication at meetings involving representatives from different campuses 	<p>Multiculturalism and multilingualism overseeing committee reports (quality management, Task 1.3)</p>	<ul style="list-style-type: none"> Financial resources Specific local constraints limiting mobility

2.2 Multilingualism / Multilinguisme



Multilingualism is the ability to meet others in their own language and when international exchanges are not reduced to a single lingua franca, opening up the richness of the deep diversity of languages and cultures.

The Erasmus preamble states that every European student with a higher education degree should be able to work in at least two foreign European languages in addition to their own. Multilingualism does not mean having one's mother tongue at home and a single lingua franca for study and work. It means being open to a diversity of languages, both in learning and in working.

The fundamental principle on EU+ languages is that linguistic diversity is a richness, that there is no nobler language and that a native language should not provide an a priori disadvantage. As a corollary, one strives to meet the other in his or her language and not in a lingua franca.

As a reminder of the objectives set out in the EU+ application and the European Union objectives, in order to maintain linguistic diversity, in particular for the implementation of study programmes:

- Each of the partners with the most widely spoken languages (English, French, German and Spanish) teaches in its national language;
- As a result, each partner prepares its students for learning in other languages on the other campuses and prepares itself to welcome on its campus students with a lower level of proficiency in its national language. In particular, language support courses are organised at the beginning or during the semester;
- Each of the partners with less widely spoken languages (Bulgarian, Greek, Latvian and Romanian) offers courses in other languages for incoming mobility students;
- Students in mobility with low-dissemination language partners are required to follow a course in the host partner's national language at a level of A1 in one semester and A2 in two semesters;
- Low-spread languages are promoted as much as possible among all partners;
- Each partner progressively imposes the mastery of one European foreign language at Bachelor level and two European foreign languages at Master and Doctorate level;
- Particular emphasis is placed on opening up the staff (academic and non-academic) to linguistic diversity and their practice;
- In general, there is a benevolent attitude towards the development of language skills, especially in situations;
- These language provisions do not hinder the development of knowledge of other European or non-European languages.

A language observatory is indicated in the application and particular care is taken to ensure that it functions effectively and that its conclusions are taken into account.

From the bid:

We strongly encourage multilingualism. On our campuses, 9 out of the 24 official languages of the EU are spoken, and all three alphabets of the EU are used. We will harness this linguistic and cultural richness to work towards the achievement of ambitious objectives. By 2025:

- students having completed a Bachelor's degree will master at least one foreign language at B2 level. At least 30% of them will have benefited from physical mobility and at least 50% from virtual mobility;
- students being awarded a Master's degree (engineering or other) will master at least two foreign language at B2 level. In steady state, at least 80% of students will have undertaken part of their curriculum abroad.

It should be noted that EUt+ is far from being the most ambitious Alliance in this field. In the European Reform University Alliance (ERUA), the Université Paris 8 has opened Danish and Bulgarian courses (German and Greek had already been taught there for a long time). We therefore believe the objective is attainable.

It is essential that students understand that monolingualism does not open up sufficiently to the culture of others, to their way of thinking. Nor does English alone allow students to find a job in a non-English-speaking country, where mastery of the national language is almost always necessary to find a job, and even more so to integrate.

Narrative

“Looking at the courses that would allow him to validate the skills he is aiming at, he sees that they are available in Cluj and Dublin. He chooses to go to Cluj first, based on the fact that he already knows English. Learning Romanian appears to be a more interesting challenge, in terms of intercultural opportunity.

He decides to leave his home country alone, with no classmates, so as to fully be immersed in this new culture and way of living.”

EUt+ Bachelor

In the EUt+ Bachelor programme, at least one foreign language at B2 level is required. It will be necessary for the mobility semester. This language will generally be English. In view of the continuation in Master, the acquisition of a second language at an intermediate level in Bachelor is more than recommended. This will also open up the field of mobility.

In doing so, we remain below the European expectation of two European working languages in addition to the native language for higher education graduates. However, we believe it is a useful first step, being already an improvement as regards the current situation, and will generate insights for iterative improvement.

EUt+ Master

At Master’s level, students are expected to master two European foreign languages at B2 level. The deepening of one of these two languages to C1 or even C2 level will almost always be obtained, following the mobility already experienced during the Bachelor’s degree and continued at this level.

From the bid:

<i>Objectives of the proposal</i>	<i>Indicators: List relevant quantitative and qualitative indicators showing whether and to what extent the objectives of the alliance are being achieved. Please indicate your target where possible.</i>	<i>Source of information: How could these indicators be measured? - What could be the sources of information?</i>	<i>Assumption and risks: What might be the factors and conditions not under the direct control of the alliance which are necessary to achieve these objectives? What risks have to be considered?</i>
Multilingualism	All Bachelor students will have a certified B2 level in one foreign language All Master students will have a certified B2 level in two foreign languages Meetings between students of EUt+ will take place in several languages Meetings between EUt+ faculty and/or administrative staff will take place in several languages Efficient communication and daily functioning of EUt+	External official language tests Multiculturalism and multilingualism committee observation reports (quality management, Task 1.3)	Local and/or national and/or European higher education support Financial resources Specific local constraints limiting mobility

2.3 Self-customization of study track



Self-customization of study track is the possibility for all students to choose their own course track to fulfill the learning outcomes required for their desired degree.

The choice of courses does not come from simply more permissive vision of training “menu” or “à la carte”. It has a deeper cause which must be understood before it is implemented, in order to avoid making substantive mistakes.

A degree is the proof attested by a higher education institution of (pedagogical) competences that will allow a given degree of professional and possibly civic autonomy. We understand competences here in the sense of Jacques Tardif, i.e. “knowing how to act in a complex environment”, because they are profoundly structuring pedagogically by ensuring, in particular, the persistence and adaptability of learning. Competences are the deep mark, the digital imprint of the graduating institution. They are based on an underlying set of values, and they characterise the approach and professional development of graduates. Even in a rapidly changing world, with rapidly obsolete techniques, or graduates changing career paths, competences remain stable over time. We will generally count 3 to 5 competences for a Bachelor’s degree, and 5 to 7 competences for a Master’s degree.

It is important to remember that a competence constitutes an autonomous know-how, in the sense that it includes all the elements necessary for its achievement. It is therefore rare that there are purely scientific competences and others that are purely technical or purely “attitudinal”; an engineer, or even any professional, will need to mobilise all these elements simultaneously for the effective performance of a task. The higher the level of qualification, the more strongly this is the case: executive professions require a general approach to problems, unlike highly technical and specialised professions that have been trained in secondary education.

The pedagogical implementation of a degree requires a list of learning outcomes that the graduate must master independently, and that he/she must learn to usefully engage in a complex situation. A learning outcome can be defined as “the ability of the student to do [this] at the end of [a piece of training]”. For a given degree, the list of final learning outcomes is appropriate. It may usefully be supplemented by basic learning outcomes, which are not binding but which help to build up the learning pathway. These learning outcomes are fairly flexible and can be periodically adapted according to the evolution of techniques, the economy and society. In a way, it is the concrete instantiation of competences at a given time. Depending on the granularity level chosen and the mode of description, one final learning outcome can be considered for 5 to 15 ECTS. It can be very precise (e.g. Validate a C1 level in English), more open (e.g. Validate a C1 level in a European foreign language) or very flexible (e.g. Describe with relevance the relevant structure-property relationships of a material).

A list of courses to be validated does not guarantee the learning outcomes for many reasons (partial compensation of courses, general structure not adapted to the particular case of each student, contents of the courses decided independently without global coherence...). Modularity and flexibility are here given to the student to progress on the learning outcomes to be validated, according to the means available to him/her (formal teaching, other teaching

provided elsewhere or abroad, prerequisites, projects, internships, community involvement...). What is important is that the student validates all the learning outcomes in one way or another and that, before the degree, he/she has been able to prove his/her capacity to implement them in several complex situations related to the young graduate's job.

Far from giving the student total freedom of choice, the customised construction of the pathway is a "co-responsibility" of the student with a teacher-referent for the validation of all the final learning outcomes. Thus, no course is formally compulsory, but no learning outcome can be avoided and the final demonstration of the mobilisation of final learning outcomes in a complex situation must be carried out by the student.

Flexibility in building the learning pathway is intrinsic to this approach. It starts from the very first day (each student, even if he or she has a sufficiently high average level, comes with various preliminary learning outcomes on which to build). It allows each student to follow a more or less different path, and allows periods abroad without them being a *de facto* derogation, as they will simply have to contribute to the progression towards full validation of the final learning outcomes.

The follow-up of these learning outcomes requires that each course be described in terms of basic learning outcomes (approximately one basic learning outcome per ECTS) allowing for the follow-up of the student. The student's progress is usefully monitored via an e-portfolio, a record and pedagogical anticipation of the student's progress, which can be consulted in particular by the teacher-referents, and is a real Ariadne's thread for the educational process.

This responsibility (supported and supervised) given to the student enables in particular:

- A stronger sense of responsibility of the student for the courses he/she has chosen;
- A choice at a time that is often more favourable pedagogically for the student, who chooses courses more spontaneously when he or she is ready;
- Freedom of movement geographically (and temporally).

The concept of repeating a year or semester disappears (but not the possibility of attending a course twice if necessary to validate it). Some students can go very fast, and validate more than 60 ECTS per year, while others will be slower (depending on the student's time or intellectual availability), and this can also vary over time.

Experience shows that students behave very maturely towards this system, which does not generate any major drift, and that the duration of graduation is not substantially increased. On the other hand, there are many spontaneous double degrees and interesting or original pathways.

Narrative

“She needs to know what her options in the EUt+ framework are: the choices available, the credits, the progression of courses... With the help of her teachers, she identifies what competencies and learning outcomes are missing for her training to be complete.

Because sustainability is one of the major issues of today’s society and EUt+ campuses are in advance on the issue, Robyn can choose her courses on this subject from different EUt+ universities and pick the best for her from every campus, and thus design her own path of studies.”

“Robyn progressively wants to achieve more autonomy and she is happy to be provided with excellent learning facilities and resources, which enable her to follow her own schedule at her own pace, in compliance with her personal objectives. In this way, Robyn is able to manage her time more effectively and make the most of her stay, absorbing various aspects of the local customs, traditions, and lifestyle.”

EUt+ Bachelor

The EUt+ Bachelor model leaves a small margin for students to define what they need. It is based on the full implementation of the Bologna process.

Around a common core for all students:

- The initial level of students is ensured by checking their initial learning outcomes. Gaps are filled, already demonstrated learning outcomes exempt them from relative courses. The level is thus readjusted on enrollment.
- Learning outcomes may be obtained through work experience, community work or other activities. In this case, they will be proven by the student and validated by the teachers.
- During a semester of mobility, or when choosing courses that are not offered in the “standard curriculum”, learning outcomes are credited without restriction or constraint if they match a relevant pathway towards the final learning outcomes of the degree.
- Systems of electives allow for different ways of acquiring competences.

EUt+ Master

The curriculum is fully based on the generic principle that requires:

- A free pathway where the student progressively validates basic learning outcomes that ultimately cover the final learning outcomes of the degree;
- Proof of validation of competences during an in-depth experience, in a company, on a real project, or in a research laboratory;
- Support from a referent teacher who guides the student in his or her choices;

- A European pathway where at least one semester of mobility was carried out during the Master's degree and one during the Bachelor's degree (or two during the Master's degree, if this was not the case during the Bachelor's degree);
- The pathway is recorded and monitored in an e-portfolio.

Some courses have prerequisites or requirements to be followed. These prerequisites are, however, reduced to the minimum pedagogical requirement.

To help the student, standard pathways are suggested, but they are not prescriptive.

The initial level of the student is assessed and possibly compensated for, if initial learning outcomes were lacking or if they had already been demonstrated elsewhere.

2.4 Modularisation and flexibility



Modularisation and flexibility are the possibility for courses to be chosen (or not) at different moments, by students of different programmes, without overall constraints, only because they fit pedagogically in the individual paths.

Modularisation and flexibility are the necessary technical corollaries of the freedom to build a pathway left to the student and the freedom of movement between campuses.

They also allow for adaptation to a variety of audiences (students working in parallel with their studies, disabled people, etc.) as well as original courses (double degrees, additional training outside the initial stream, etc.).

Modularisation and flexibility definitively anchor the notion of competences and learning outcomes as the framework for training, since pedagogical articulations can no longer be made directly between teaching units (which are largely versatile building blocks and are no longer subdivisions of a single degree pathway).

It should be noted that the gathering of students with diverse backgrounds in a course should be usefully used as an advantage.

Modularisation and flexibility imply a clear need for student monitoring, which should be done by means of a pedagogical e-portfolio, in which the student records his or her track and associated basic learning outcomes. The e-portfolio is accessible to the teacher (as soon as the student enables it), and then the learning outcomes are checked and validated in accordance with the curriculum.

Narrative

“Robyn is aware of the shared learning outcomes in the diploma and of those that are required for him to succeed in his semester. However, he has some doubts about his choice of courses. So, he contacts a mentor who has a pan-campus vision of the programme offerings. The mentor offers advice on the choices available: it is possible to acquire similar learning outcomes through different pedagogical methods (learning by doing, industry placement, laboratory engagements, research group placement, and so on). “

“His fellow students from different engineering backgrounds are able to join his courses because of flexible, additional short-time qualification courses: these are not necessarily STEM subjects, but are drawn from a diverse range of humanities and other courses, including social aspects, including music and arts, as well as sports. “

2.5 Student-centered learning



Student-centered learning implies no longer being interested in the teacher’s delivery, but in what the student will ultimately be able to achieve as a learning outcome. The programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach.

Student-centered learning is precisely defined in the quality assurance process: it is point 1.3 of the European standards and guidelines. It is also the “core” of the concept of learning outcomes.

The main idea is to focus on what the student will be able to restate from his/her learning and not on what the teacher will have “taught” during his/her teaching. Thus the description will be based on learning outcomes, both at the level of the course unit (basic learning outcomes) and at the level of the degree (final learning outcomes).

All the guidelines of point 1.3 of the ESG are to be considered at the level of each course and the overall curriculum.

The pedagogical methods used, as long as they are in line with student involvement as defined in ESG 1.3, are the teachers’ freedom and responsibility. Teachers are free to choose the methods they use as long as:

- They put the student at the center of the learning process;
- They guarantee a solid and lasting acquisition of learning outcomes;
- They are addressed to all the students concerned, included in their diversity, with success for all;
- They respect the means allocated by the institution;

- They are in line with the ethos of the institutions and of EU+ (this is explicitly reflected in the competences of the degree).

In this context the student is evaluated on the learning outcomes. What is expected of him/her must be shown in a previously stated context.

No numerical marking can provide a comprehensive assessment of these learning outcomes, which must be explicitly assessed. Indeed, the normative nature of numerical marking does not clearly reflect a learning outcome. By giving an illusion of objectivity and impartiality, it prevents a real assessment of the student's abilities, and by standardising according to criteria that are very often implicit, it prevents the richness of student diversity, which is often welcome for the continuation of the curriculum and professional integration. Finally, as mentioned below, they generally express an ability to fit into a learning scheme that is more akin to behaviourism, through the ability to conform to an exercise with a strong implicit codification, than to the progressive construction of skills. Finally, it is important to make a real assessment of the learning outcomes, in the context in which they have been defined:

- not beyond, although it is welcome to always challenge students reasonably and to encourage them to go further than the strict framework of the syllabus;
- not below, whether to maintain a minimum success rate, compensate for an overly ambitious programme or for limited resources.

Care should also be taken with assessments that require students to provide answers to overly prepared questions, which would not then question the real appropriation of what they have learned.

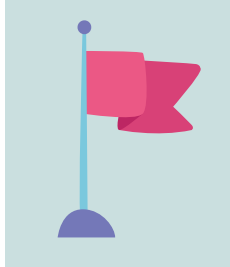
Work on this subject has shown that the persistence of learning is largely dependent on metacognition and in particular on the student's ability around:

- Self-evaluation
- Identification of know-how

Self-assessment and cross-assessment should therefore be developed as much as possible. The construction of the *e-portfolio* also firmly consolidates these two fundamental capacities for a solid training.

Since learning is student-centered, the quality of teaching is therefore measured by the overall added value in student learning outcomes. The inclusive values of EU+ invite us to measure the quality of teaching in terms of the success of all students. In this sense, the support of the student on a differentiated pathway must be carried out with particular attention to ensuring the mastery of the prerequisites which must be precisely given for each teaching unit.

2.6 Challenge-based experiential learning



Challenge-based experiential learning involves learning by nearly constantly immersing students in a conducive, stimulating, visionary environment to solve real-world challenges.

The transition from transmissive teaching methods to a socio-constructivist approach is disrupting the core of learning. The focus is shifting from lecture-based teaching to immersing students in an environment that expects them to be active and collaborate in solving the problems they have been given. It is therefore no longer a question of a few projects here and there, but of a “training core” which is articulated around at least one major project allowing a supervised learning trajectory towards the achievements of the diploma.

Such an evolution requires in-depth work that takes time: it is a general transformation of the university environment, towards methods such as those developed at the MIT MediaLab, for example.

This is closely linked to new pedagogical methods: “Challenge-based experiential learning” should not compensate for too much traditional teaching, but as a new basis for structuring pedagogy. It is therefore necessary to support teachers in this process.

Narrative

“Projects are a central part of Robyn’s courses, and her final project would be an important assessment of her EUt+ diploma. Robyn chooses to work on an interdisciplinary project entitled ‘Ethics in technology: how to overcome the future?’ During this project, Robyn interacts with students from other EUt+ campuses and develops a variety of skills: a problem-solving mindset, leadership, teamwork, but also creativity. Robyn also learns to question her own role in society in a conscious way.”

“In seminars she approaches challenges from real-life situations in power plants of different European countries. In a collaborative way she and the other students find solutions for these challenges. Their teachers supply them with insights from their current research projects. “

2.7 Innovative pedagogies



Innovative pedagogies are the decisive shift towards socio-constructivist, student-centered pedagogies, with all professors having a deep knowledge of the didactics of their fields, team-working to apply the most effective methods.

The teacher, the professor, is no longer there to recite disciplinary knowledge and expect students to answer correctly to a series of questions. He or she is no longer a lecture provider. He/she has to design a supportive, stimulating and visionary environment in which the student is immersed, and has a role as a leader-catalyst for the students in their process of acquiring learning outcomes.

The objective is not, in fact, innovation as such, nor is it innovation for innovation's sake. It is above all to use the most effective practices for the students we are teaching and the objectives we are pursuing, supported above all by a very good knowledge of didactics by the teachers.

Innovative pedagogies have nothing to do with the excessive digitalisation of teaching or the introduction of digital technology or original teaching formats that are “fashionable” or inspired, without sufficient prior reflection, by institutions with high media activity.

It is a question of leaving the transmissive doctrine of training, which institutes a transmission of knowledge based on a highly asymmetric exchange. Student-centered learning, valuing the learning outcomes, their persistence, and their effective mobilisation is the objective to be achieved. It substitutes for the evaluation of the student's ability to reproduce the barely contextualised content of lectures or tutorials.

These pedagogies place the student at the centre of the learning process and his or her ability to mobilise what has been learned as proof of quality. This is a deep evolution of the hierarchical representation associated with “traditional” teaching methods. It should be noted that digital tools remain fairly neutral in these developments, as the medium does not in itself lead to any modification of the pedagogical relationship, except that it largely supports the communication between students around a given problem.

The management of “challenge-based experiential learning” requires such a pedagogical evolution.

Narrative

“There are other students in his class with a similar age/work profile, so he does not feel isolated or lonely. The class is organised around group working so he has an opportunity to get to know the others. These older students also help the younger ones by giving them confidence to speak out and ask questions in class.”

“Students keep an e-portfolio of their work which allows them to reflect on their learning and to demonstrate how they believe that they are meeting the described learning outcomes for the programme. This forms part of the final assessment.”

2.8 Academic rigour



Academic rigour refers to professors having a comprehensive and extensive knowledge and a deep and critical reflection to teach and expect from their students to a high demand.

In fact, it is more the teacher who is involved in this, to ensure that the content transmitted is already up to standard, with knowledge that is not isolated or superficial.

One can only demand from the student what he or she has been taught, not only as a subject, but also as a model of behaviour. Academic rigour is required of the teacher, both in terms of mastery of what he/she teaches and the associated didactic tools, but also in terms of the state of mind that he/she communicates to the student.

The teaching of learning outcomes in an active form leaves the student a great deal of autonomy in the progression. The teacher is not the source of transmitted knowledge, but guides the student on a learning journey which is not linear, and which must constantly be adapted to what arouses the students’ interest, to technical developments, to new jobs, to current topics, to interactions with other courses or to varying prerequisites or cultures. It is therefore necessary for the teacher to have a broad and deep knowledge of his or her field. They cannot simply teach a pre-prepared course or moderate tutorials according to the only method they know. Academic rigour requires a broad and solid knowledge that gives the necessary ease to have no difficulty in guiding students in unexpected directions with relevance and hindsight.

Teaching cannot be satisfied with mastery of one’s discipline alone, no matter how profound. The brain of the student arriving in a new education is not virgin, even if he has never tackled the slightest question of what he is going to learn there. He has or will spontaneously have (modes of) representation which will perturb his capacity to construct knowledge or more

accurate methods. Teaching thus consists of accompanying the student in successive cycles of deconstruction of erroneous representations to enable the construction of correct representations. This is a long, iterative process in which different representations generally coexist. The identification of erroneous representations, epistemological obstacles and the ability to direct students towards relevant examples in order to deconstruct and reconstruct representations or to put them to the test requires the teacher to have a solid grasp of the didactics of his or her discipline. The didactics of a discipline cannot be improvised, even when one has a deep and solid mastery of one’s own discipline. It also needs to be learned and tested. Academic rigour is at stake: the most tried and tested knowledge or methods can only be deeply and durably acquired by a student if they are taught with great didactic dexterity.

Also, the teacher remains a human model who will deeply influence the student by his rigour, his seriousness, his courage, his culture, by the depth he shows in his reflections and in general in the values he transmits voluntarily or not. The values and behaviour of the teaching staff will have a profound influence on the students. They cannot be completely distinguished from the more “academic rigour”, especially in professions such as engineering where thinking about the application of knowledge is as important as the knowledge itself.

Finally, it is important to move away from traditional transmissive modes of teaching where the “on-table” assessment of the student involves many implicit assumptions (what to take away from the lecture or tutorials, what to write and how to write it, etc.) that are essential for success. In such cases, a selection of students who understand the implicits of the teaching and assessment framework in particular is carried out, which is a form of behaviourism. Well-selected students know how to behave in order to continue to succeed, which guarantees rather comfortable success trajectories for the teacher and the institution. However, they do not fully guarantee an in-depth acquisition of the lessons, but a capacity of restitution according to given codes. The quality of the training is also diminished in terms of the “job to be passed on”. These transmissive methods with standardised assessments that are not based on contextualised learning outcomes thus lead to heterogeneous and non-guaranteed quality learning, which runs counter to the expected academic rigour.

From the bid:

Objectives of the proposal	Indicators: <i>List relevant quantitative and qualitative indicators showing whether and to what extent the objectives of the alliance are being achieved. Please indicate your target where possible.</i>	Source of information: <i>How could these indicators be measured? - What could be the sources of information?</i>	Assumption and risks: <i>What might be the factors and conditions not under the direct control of the alliance which are necessary to achieve these objectives? What risks have to be considered?</i>
Academic freedom and integrity	Satisfaction of academic and student teams	Return of external solicitations and audits	External factors explicitly or implicitly limiting freedom of expression and ethical conduct

2.9 Interdisciplinarity



Interdisciplinarity gives students the awareness that complex problems require a synergy of very different disciplines to be tackled, and the competence to do so.

There is always a big pitfall: for some people, interdisciplinarity means mixing mechanics and thermodynamics!

The competences of the degree are structurally interdisciplinary, they are even transdisciplinary: the spontaneous running of the world has little to do with disciplinary breakdowns. The student must be able to:

- combine different disciplinary elements in order to solve a problem that links issues from different disciplines
- deal with a problem in which no part is reducible to disciplinary elements, where each element is thus inherently complex.

It is not advisable to ask the student to do this exercise at the very end of the curriculum, as it takes a long time to learn to decompartmentalise. Moreover, the student cannot do it alone, bearing the burden of decompartmentalisation which is not carried out by the teachers. Interdisciplinarity cannot be addressed only during projects, internships or interdisciplinary activities. It is all teaching, without exception, that is concerned.

It should be understood that the level of interdisciplinarity is induced by the real problems that our graduates will have to solve during their professional career and their civic life. Graduates of higher education will have to tackle problems in which “hard” science issues will be inseparable from technical issues, humanities and social science issues as well as ethical, environmental or financial issues. This level of interdisciplinarity will necessarily have to be progressively achieved during the course of the curriculum. Thus, the courses themselves must address interdisciplinary complexity at a gradual level adapted to the student’s progress. From the very beginning of the course, the traditional compartmentalisation of teaching between traditionally related subjects should vanish and offer as many bridges as possible. Gradually, the disciplines will no longer be simply connected and decompartmentalised, but will usefully deal with pedagogically adapted problems so as to bring students into a depth of thought that combines the solidity of the disciplinary knowledge and the complexity of real problems.

Narrative

“After long conversations about the possibility of flexibly modulating courses, Robyn is convinced that interdisciplinarity is a ‘must’: today’s societal challenges require the complementarity of different disciplines as any competences blend most of them. She chooses

her classical technological courses, mixing technological engineering with courses on applied ethics and sustainable sciences. The objective, she thinks, is to bring different modules together that are thematically connected, in line with her professional project. By the interdisciplinarity of her courses, Robyn will learn to think human first and be conscious of her environment, to become a technologically responsible and aware citizen. '

2.10 Exposure / engagement with research



Exposure / engagement with research means raising students' awareness of research methods and results in various ways according to their level and ambitions.

The student must be aware of the existence of research, its role, what it allows but also what it does not allow, its diversity, and, depending on his/her level, be introduced to methodologies. They must also clearly distinguish research from innovation.

This can be done in different ways, depending on the field, level or aspirations of the student. However, we are aware that a simple visit to a research laboratory or a project lasting a few hours does not do much in this respect. A discussion on the role of research and its methods is necessary.

EUt+ Bachelor

During the Bachelor's degree, all students are given an introduction to research and an overview of its role. This discovery takes various forms during the course, as not all students are equally receptive at the same level.

The most motivated students can, in one way or another, participate in a research activity to deepen their insight.

EUt+ Master

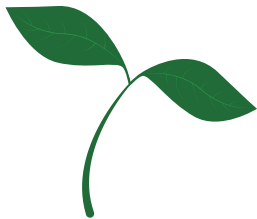
A substantial period of time will be spent on an R&D issue, in the public or private sector, in an appropriate manner. This is expected to provide an introduction to research methods and an awareness of its importance.

In the case of graduate schools, exposure to research is permanent, as the lab it is the central place for the student.

Quality processes

In Master of Engineering, exposure to research is usefully the subject of a learning outcome or elements of a learning outcomes.

2.11 Civic engagement



Civic engagement

discards the concept of elitism confined to an 'Ivory Tower' and holds that there is no relevant science without conscience.

It concerns both the public and the major societal and fundamental issues, calling for a very strong secularisation of teaching.

The graduate student must be aware of his role in the world. They are trained to be aware of their role and duty on the external world, not just to take selfish advantage of opportunities. Graduates must be responsible, with a strong civic awareness and critical thinking.

Civic engagement is not a philanthropic micro-activity where a (future) elite meets the rest of the population in a limited setting. It is about the awareness of the role of graduates in society as a whole and, in particular, the interdependence of all its actors. The impact of human activities and especially those of technology on the environment is a major component of this civic engagement.

The learning of social and environmental responsibility, of which graduates will be important actors, is done through this civic engagement. Ethical issues are also addressed. The consequences of technology on society and the environment are often indirect: during their civic commitment, graduates will realize this complexity, which should lead them to consider carefully the issues at stake in the tools they will be developing.

Civic engagement provides learning opportunities that would otherwise be difficult to obtain. It also allows for an interdisciplinary approach to real issues.

Civic engagement should not compensate for an overly strong academic approach to teaching: awareness of it should be integrated into all teaching units, alongside activities that are linked to the outside world. 'Traditional' courses should be open to these issues so that students can derive the greatest benefit from these periods of engagement.

Narrative

‘During his stay, because of his civic engagement, Robyn gets involved in his local community. He learns how to interact with others outside the campus and to adapt to the different circumstances and different scenarios. Building relationships with his classmates from other EUt campuses make him become more aware of his European identity, of the importance that we are living in a society with so diverse people, and these interactions prepare him for the world of tomorrow.’

EUt+ Bachelor

In Bachelor, the commitment must allow, through various activities, an awareness of the interdependence of the various components of society and its environment.

EUt+ Master

In the Master’s programme, preparing for an executive role, the student must be prepared for in-depth reflection and a proactive attitude to his/her role in society and the environment. In particular, he/she integrates the notions of sustainable development and social responsibility into all his/her activities with the required proportion.

Quality processes

Civic engagement contributes to learning outcomes, validated on the demonstration of these outcomes and not only on the time spent on such an activity. Competences include this dimension.

2.12 Alignment with future labour market needs



Alignment with future labour market needs enable students to be very flexible and anticipatory in a job market and competence expectation that will change dramatically in the coming decades

The issue here is to enable students to keep up with drastic and unpredictable changes in skill requirements, because it will not be possible to train tens of millions of adults en masse when professions are going to change dramatically, without being able to foresee anything about this now.

In technological curricula, the alignment with the past and present labour market is generally very good. It is more difficult when it comes to anticipating general developments. Alignment with the future labour market requires:

- in-depth prospective work on trends and developments, which is not exclusively fed by research trends;
- The training of students with a very good degree of polyvalence, notably based on solid scientific and technical foundations;
- The important introduction of human and social sciences in technological training, in particular to have the tools and the capacity of reflection to anticipate and follow a changing world;
- The development of strong self-learning skills;
- A taste (or at least the absence of reluctance) for disciplinary and geographical mobilities.

This alignment is not just a matter of curriculum management or syllabus choices. It is integrated at all levels of granularity, especially within the teaching. Alignment with the future labour market therefore relies in particular on the exposure, in one way or another, of the entire teaching staff to the economic activities and sectors likely to employ students. It also requires a continuum in teaching, avoiding too much distinction between the academic and the applied.

3 Annex: Competency framework of the European University of technology Masters of engineering

Memorandum of Understanding

Competency framework of the European University of technology Masters of engineering

The eight partners constituting the European University of Technology agree on the following general competency framework for their Masters of Engineering graduates:

Identifying, analysing comprehensively and formalising complex or multidisciplinary technical or socio-technical problems by relying on solid scientific and technical skills and knowledge.
Proposing and designing original, resilient, sustainable and reliable solutions or systems, integrating all technical, societal, human, environmental and economic constraints over the entire life cycle.
Managing a team or structure in an international, transdisciplinary and multilingual context, integrating social and legal aspects, interacting, integrating a wide variety of profiles, ensuring the integrity of the work and the expression of diversity.
Piloting a process or system reliably and efficiently; deciding, planning and organizing with a holistic vision; anticipating and preventing direct or indirect local impacts of a system on its territory, while being aware of the global challenges.
Guaranteeing a quality or validation process at all levels; carrying out a continuous improvement process; evaluating performance and margins for improvement and progress.
Exchanging, receiving and transmitting information and ideas to any trade at any level of qualification and to the civil society; assessing information; accompanying professional developments; assessing and completing training and self-training needs; self-directed learning.
Leading or supporting an innovation process and implementing original proposals, based on the state of the art and mobilising a variety of skills, proposing solutions based on an avant-garde vision; contributing to a research and development process, evolving in an uncertain and restricted technical and technological environment.

Protocole d'accord

Compétences générales des Masters Ingénieurs de l'Université de technologie européenne

Les huit partenaires constituant l'Université de technologie européenne s'accordent sur les compétences générales suivantes pour leurs diplômés de *Master Ingénieur* :

<p>Identifier, analyser avec une vision globale et formaliser des problèmes techniques ou sociotechniques complexes ou pluridisciplinaires en s'appuyant sur des aptitudes et une culture scientifique et technique solides.</p>
<p>Proposer et concevoir des solutions ou des systèmes originaux, résilients, pérennes et fiables, en intégrant l'ensemble des contraintes techniques, sociétales, humaines, environnementales et économiques sur l'ensemble du cycle de vie.</p>
<p>Gérer une équipe ou une structure dans un contexte international, transdisciplinaire, et polyglotte, en intégrant les aspects sociaux et juridiques, interagir, intégrer une grande variété de profils, garantir l'intégrité du travail et l'expression de la diversité.</p>
<p>Piloter un procédé ou un système avec fiabilité et efficacité ; décider, planifier et organiser avec une vision systémique ; anticiper et prévenir l'ensemble des incidences locales directes ou indirectes d'un système sur son territoire, tout en ayant conscience des enjeux globaux.</p>
<p>Garantir un processus de qualité ou de validation à tout niveau, mener une démarche d'amélioration continue, évaluer les performances et marges d'amélioration et de progression.</p>
<p>Échanger, recevoir et transmettre des informations et des idées à tout corps de métier et tout niveau de qualification ainsi qu'à la société civile ; vérifier des informations ; accompagner les développements professionnels ; évaluer et compléter les besoins de formation et d'autoformation ; s'autoformer.</p>
<p>Mener ou accompagner une démarche d'innovation et concrétiser des propositions originales, s'appuyant sur l'état de l'art et mobilisant des compétences variées, proposer des solutions s'appuyant sur une vision d'avant-garde ; contribuer à un processus de recherche et développement, évoluer dans un environnement technique et technologique incertain et contraint.</p>

EUt+ Mobility Database

July 2023

Agenda

The objective of the Eut+ Mobility Database

Current status

Technical details

Designated roles and application functionalities

Database framework and examples of the application

Next steps

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The objective of the mobility database

1. Provide a tool for students to search for and choose their mobility based on all the necessary information and through a single application.
2. Bring together the content of the cluster mobility maps in one EUT+ database giving teachers, administrators, and international relations staff full visibility.
3. Create a reference source of all relevant information related to courses, learning outcomes, facility data input, regular updates and revisions and downloads of information.

Agenda

The objective of the Eut+ Mobility Database

Current status

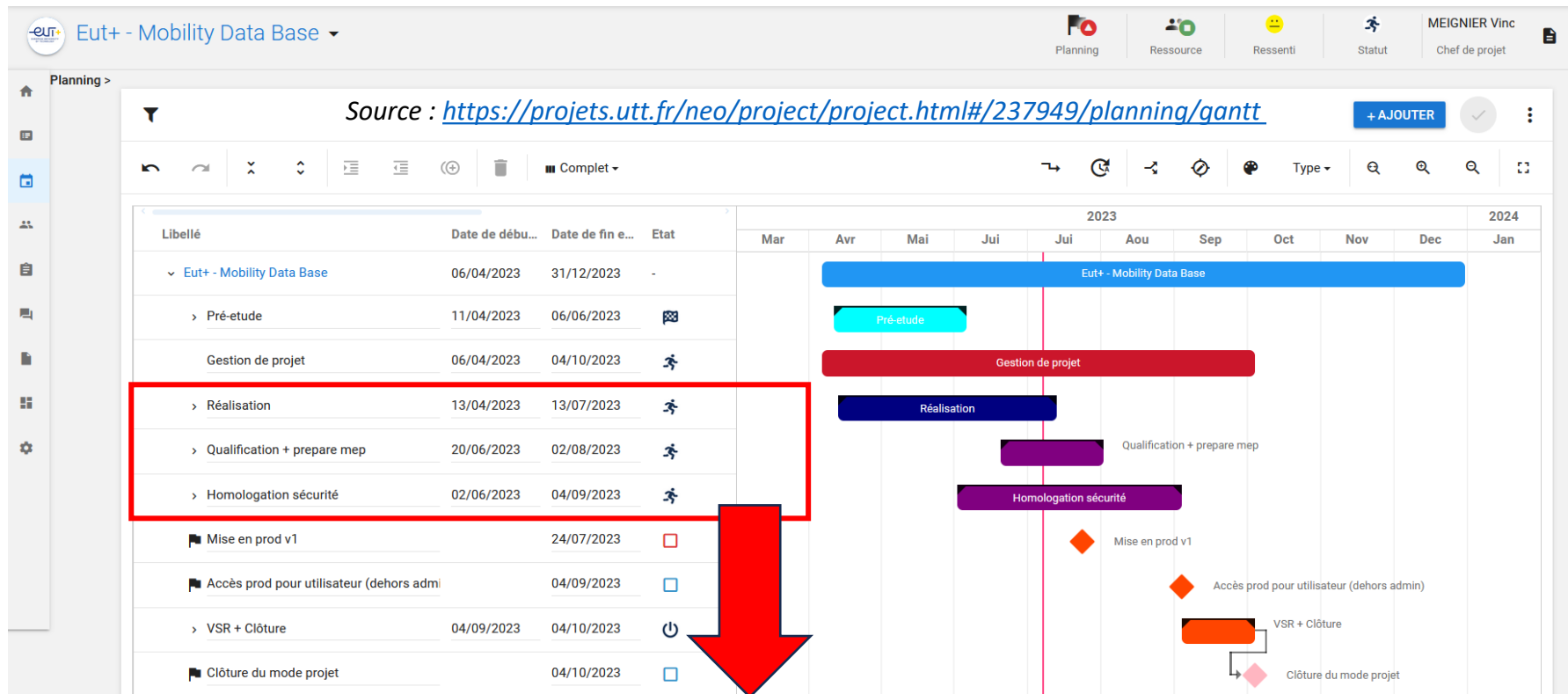
Technical details

Designated roles and application functionalities

Database framework and examples of the application

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Current status



- **Test on pre-production environment. Target : 7 July 2023**
- **Approval DPO (data protection officer) : Target : 20 July 2023.**
- **Approval and penetration test by RSSI (chief information security officer). Target: 20 July 2023.**
- **Target on production version 1 (v1.0.4). Target : 24 July 2023**

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Application specification (development) :

- Programming language PHP 8.2.4
- Framework Symfony 6.2.7
- Composer version 2.5.5
- Database MariaDB version 10.4.28
- Application and database hosting on OVH (<https://www.ovhcloud.com/fr/>) until November 11th, 2023.
- Mailer DSN : use mailer DSN UTT (for dev)

Specification setup on the OVH machine :

- Operating System/OS : Rocky 9.2
- Configuration safeguard automatic (everyday).
- Configuration SELinux for Symfony.
- Configuration firewall on the server, access SSH and HTTPS for VPN UTT and server on 10.13.0.0/16
- Version PHP on server : PHP 8.2.7
- Composer version 2.5.8
- phpMyAdmin version 5.2.1-1.el9, 10.5.16 MariaDB – MariaDB Server.

Note : access only with VPN UTT and machines UTT 10.13.0.0/16 :
<https://51.68.226.144/phpMyAdmin/>

- Certificat security SSL *.univ-tec.eu
- 2 domain names : <https://info-mobility.univ-tech.eu> (production*) and <https://info-mobility-pp.univ-tech.eu> (pre-production**).
- 2 databases : eut_mobility (production) and eut_mobility_pp (pre-production)

Mailer DSN use messenger info-mobility@univ-tech.eu

*access limited (for now) to VPN UTT and team development

** access to public until end of test pre-production (week 28)

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Designated Roles

Roles exists (role minimum) :

- Public (ROLE USER)
- Manager of cluster (ROLE ORG)
- Administrator (ROLE ADMIN)



Application functionalities

	public	mngr	adm
Access application	v	v	v
Function search mobility	v	v	v
Function search programme	v	v	v
Course information*	v	v	v
Course information		v	v
Registration and forgot password		v	v
Access application (admin)		v	v
Parameter Mobility (members, campus site, faculty, semester, cluster, season, language)			v
Parameter Courses (course, course category, course format, course difficulty, course type, course utility, course history)		v	v
Parameter Learning outcomes (basic learning outcomes, final learning outcomes)		v	v
Parameter mobility		v	v
Parameter application (importance, quality, status, user)			v

* Name of academic referent exclude

Agenda

The objective of the Eut+ Mobility Database

Current status

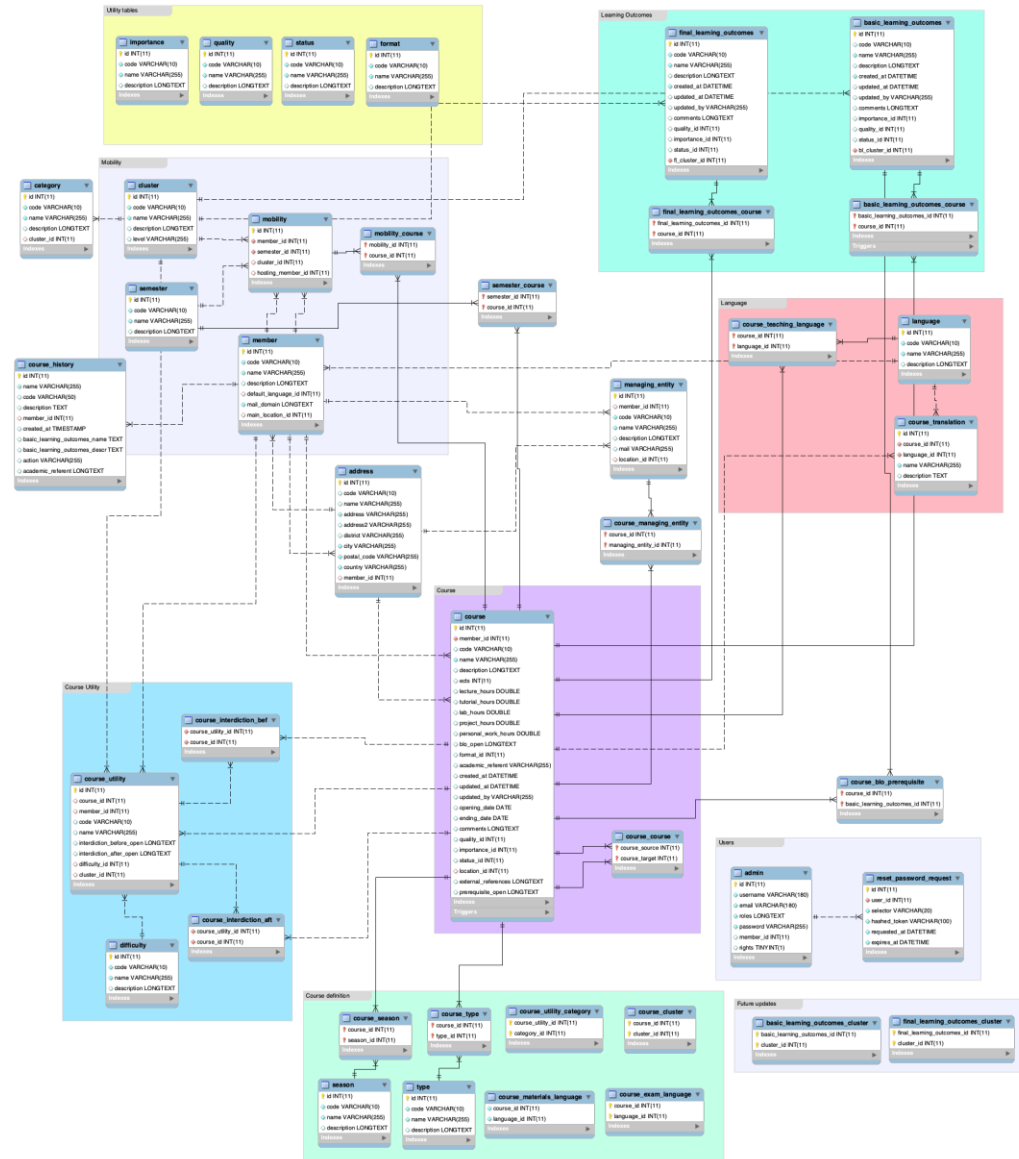
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Database framework





Student search function - examples

Mobility Search

Please select your home university, your exchange semester and the cluster for your mobility. You'll find the mobilities opportunities in the cards below 😊.

Sending Institution*

University of Technology of Troyes

Mobility Semester*

Semester 4

Cluster*

Mechanical Engineering Bachelor

Search

Reset

Hochschule Darmstadt, University of Applied Sciences	
Machine elements 1	3 ects
Thermodynamics 2 (Sem 4) / Thermodynamics 1 (Sem 3)	3 ects
Machine elements 2 (Sem 4)	8 ects
Materials engineering	8 ects

Rīgas Tehniskā universitāte	
Computer Graphics (Advanced course for Mechanical Engineers) MTM119	5 ects
Resistance of Materials (for mechanical engineering). Part 2. MMP219	5 ects

Technological University Dublin	
Solid Modelling 1 SMOD H1000	5 ects
Mechanics 3 MECH H2007	5 ects
Mechanics 1	5 ects
Materials and processes 2	5 ects



Let's search for a course

Quickly explore the courses offered by the different members of the EUt+.

Search

Mobility Semester

- S1
- S2
- S3
- S4

Course Cluster

- MEB
- MEM
- TEB

Hochschule Darmstadt, University of Applied Sciences

Code	Nom	ECTS
	Engineering Mechanics 2 (Lecture and Tutorial)	5
	Machine elements 1	3
	Elective Module Fundamentals of acoustics	5
	Thermodynamics 2 (Sem 4) / Thermodynamics 1 (Sem 3)	3
	Machine elements 2 (Sem 4)	8



Course

<input type="checkbox"/>	ID	Code	Name	Ects	Description	Member	Cluster	Season	Teaching Language	Exam Language	Material
<input type="checkbox"/>	18	MTM119	Computer Graphics (Advanced course for Mechanical Engineers)	5	Null	Rīgas Tehniskā universitāte	MEB	S	Empty	EN FR	
<input type="checkbox"/>	19	MMP219	Resistance of Materials (for mechanical engineering). Part 2.	5	Null	Rīgas Tehniskā universitāte	MEB	S	Empty	Empty	
<input type="checkbox"/>	20	MTH306	Construction of Machines and Mechanisms	5	Null	Rīgas Tehniskā universitāte	MEB	S	Empty	Empty	
<input type="checkbox"/>	21	MTM326	Mechanical Vibration and Acoustics	5	Null	Rīgas Tehniskā universitāte	MEB	S	Empty	Empty	
<input type="checkbox"/>	22	MMI101	Fluid Mechanics (Sem 3)	3	Null	Rīgas Tehniskā universitāte	MEB	S	Empty	Empty	
			Engineering Mechanics 2			Hochschule Darmstadt,					

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Next steps

- Finalisation of process DPO and RSSI approval.
- Production launch version 1 (v1.0.4) to be accessible to Administrators and cluster leaders from September 2023.
- Data entry into Production version by each Eut+ partner
- Close access pre-production and open access with VPN UTT.
- Warranty period on September 2023 (team development stay on contact).

DPO (data protection officer)

RSSI (chief information security officer)





EUT+ AGREEMENT

FACILITATION OF STUDENT MOBILITY BETWEEN EUT+ PARTNERS

ENGLISH VERSION



Co-funded by
the European Union

page 1

BETWEEN the partners:

Université de technologie de Troyes, University of Technology of Troyes (France), whose headquarters are located 12 rue Marie Curie - 10000 Troyes, France, represented by its Director, Pierre KOCH,

Hochschule Darmstadt, Darmstadt University of Applied Sciences (Germany), whose headquarters are located at Haardtring 100, 64295 Darmstadt, represented by its President, Arnd STEINMETZ,

Rīgas Tehniskā universitāte, Riga Technical University (Latvia), whose headquarters are located at Kaļķu iela 1, Rīga, 1658, represented by its Rector Leonīds RIBICKIS,

Ollscoil Teicneolaíochta Bhaile Átha Cliath, Technological University Dublin (Ireland), whose headquarters are located at North Circular Road 191 Park House Grangegorman, Dublin D07 EWW4, represented by its President David FITZPATRICK,

Технически университет София, Technical University of Sofia (Bulgaria), whose headquarters are located at Kliment Ohridsky Bd 8, Sofia 1000, represented by its Rector Ivan KRALOV,

Τεχνολογικό Πανεπιστήμιο Κύπρου, Cyprus University of Technology (Cyprus), whose headquarters are located at Archbishop Kyprianos 31 Savings Cooperative Bank Building 3rd Floor, Lemesos 3036, represented by its Rector Panayiotis ZAPHIRIS,

Universidad Politécnica de Cartagena, Technical University of Cartagena (Spain), whose headquarters are located at Plaza del Cronista Isidoro Valverde, Edificio la Milagrosa, Cartagena 30202, represented by its Rector Beatriz MIGUEL HERNÁNDEZ,

Universitatea Tehnică din Cluj-Napoca, Technical University of Cluj-Napoca (Romania), whose headquarters are located at Str Memorandumului 28, Cluj-Napoca 400114, represented by its Rector Vasile ȚOPA.

hereinafter referred to as “**the partners**”. Where a provision applies indiscriminately to the “Coordinator” and the “Partners”, in the context of this Agreement, they shall be collectively referred to as the “Partners”. The initiative or project “European University of Technology” is also referred to by its acronym “EUT+”. All the active partners for the development of the project are also called “the Alliance”.

In line with the following agreements, memorandums of understanding and other documents:

- the second call for Erasmus+ “European Universities” projects,
- the application file for this call for projects and its annexes, which the partners submitted on 26 February 2020,
- Grant Agreement N° 101004088 signed by the partners and the European Commission on 16 October 2020, which remains the document of reference in the event of a conflict between the terms of this agreement and the Grant Agreement,
- the EUT+ Memorandum of Understanding European University of Technology: Toward a single university,
- the EUT+ Memorandum of Agreement for the creation of EUT+ Bachelor in Engineering and Master of Engineering programmes by evolution and convergence of existing partner programmes.

HAVING STATED THIS, IT IS AGREED AND DETERMINED AS FOLLOWS:

1 Purpose of this agreement

The eight partners of EUT+ have affirmed their ambition to build a single European university based on the full integration of their eight institutions, creating a new higher education ecosystem. Student experience is an essential feature of this new European university.

This agreement’s objective is to make a first step towards establishing joint European degrees. It aims, more specifically, to facilitate student mobility and the future development of EUT+ new programmes of study. It sets a framework for implementing student enrolment in semester mobility according to each individual partner’s procedures and quality assurance systems to ensure a cohesive, well-defined and smooth process across all the EUT+ campuses. As ECTS recognition is usually still regulated by national or regional laws, partners agree to involve their local boards and committees to develop working solutions for the fall/winter semester 2022/23 in line with their respective regulations. Furthermore, the partners will strive to find a common pivotal week for change of semester from autumn to spring in order to avoid hindering mobility due to the current incompatibility of university calendars. Efforts will be made by all partners to offer modules in a language of instruction other than the national language to enable mobilities for complete semesters for students who are not yet knowledgeable of the national language at the destination. The partners agree on working towards creating new study programmes in one year from today. A given new programme can be conceived as an academic itinerary with a single common language or with multiple languages. This shall be decided on a case-by-case basis based on dedicated agreements between the partners participating in this programme.

Accordingly, this agreement forms a binding agreement to enter the recognition processes necessary and implement these recognition processes within all partners including by installing additional EUT+ wide committees and working groups as required in order to achieve the goal of automatic recognition of modules. In this, this agreement is considered as a starting point for continuous further development of the facilitation of student mobility in EUT+.

Furthermore, this agreement launches a pilot phase that will enable a new framework for student exchanges and common courses to be tested across pilot institutions and/or departments of EUT+



partners. The framework for this pilot phase will be discussed amongst participating partner institutions and may be signed fully or partially by all EUT+ partners.

2 Definitions

When not specified in the agreement, the definitions used are those of the *European Degree in Engineering EUT+ reference guide*. Further specifications are defined and developed in the pilot phase framework, and will be implemented by those institutions that participate in this pilot phase.

3 General Agreement of process guidelines for the facilitation

The core of the student mobility facilitation are the mobility maps provided by the experts within clusters of study programmes. The experts, mainly staff and professors from all partners, delivered those mobility maps as a result of work package 3 after more than one year of intensive collaboration. The maps, included in appendix 1 to this agreement, are the agreed-on lists of those modules that each partner institution will offer to incoming students. The modules are described by their basic learning outcomes. ECTS are obtained through the pool of modules proposed in the mobility maps. The mobility maps will be put into practice as part of the pilot phase starting for the winter semester 2022.

The detailed procedures for providing student mobility and thus enabling student experience as well as the detailed pedagogical and technical information needed to select and organize students' study tracks will be specified and implemented during the pilot phase. They will be subject to yearly review, extension, and improvement, notably by the EUT+ education committee. The education committee, whose terms of reference will be described in a dedicated document, will include two representatives per partner appointed by the Rector. The target is to implement the principle of automatic recognition of ECTS, which is fully agreed upon in accordance with article 3.4 of the Memorandum of Agreement, for the creation of the EUT+ Bachelor in Engineering and Master of Engineering programmes by evolution and convergence of existing partner programmes signed in Limassol (Cyprus), on the 24th September 2021. Furthermore, the pilot phase will document the inclusion of language courses, the language level to be achieved and the possible subsequent certification in form of an EUT+ certificate. This will ensure automatic recognition of learning periods throughout EUT+.

To facilitate student mobility within EUT+, coordination committees will be established for each cluster. These coordination committees will support convergence of EUT+ study programmes as they are being implemented within the partners' local processes and hence contribute to a recognizable EUT+ student experience including student application issues, their enrolment and the availability of places. The committees are considered to be the bridging elements for the implementation of mobilities during the academic year 2022/2023. In addition, the committees will be supported by existing councils and boards of EUT+ as needed. They will report to the Education Committee. Moreover, for the purposes of this agreement, the education committee will meet at least monthly to ensure that new study programmes, with a single common language or with multiple languages, are successfully set-up.

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APPENDIX

1: Mobility Maps

- Bachelor Civil Engineering
- Bachelor Mechanical Engineering
- Bachelor Networks and Telecommunication
- Master Mechanical Engineering
- Master Networks and Telecommunication



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EUT+ AGREEMENT

PILOT FOR THE FACILITATION OF THE STUDENT MOBILITY BETWEEN EUT+ PARTNERS AND CLUSTER DEVELOPMENT

ENGLISH VERSION

24 NOVEMBER 2022 – 4 PARTNERS



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EUT+ Agreement: Process Guidelines for the Facilitation of Student Mobility between EUT+ Partners and Cluster Development

BETWEEN the following partners:

Universidad Politécnica de Cartagena, Technical University of Cartagena (Spain), whose headquarters are located at Plaza del Cronista Isidoro Valverde, Edificio la Milagrosa, Cartagena 30202, represented by its Rector Beatriz MIGUEL HERNÁNDEZ,

Universitatea Tehnică din Cluj-Napoca, Technical University of Cluj-Napoca (Romania), whose headquarters are located at Str Memorandumului 28, Cluj-Napoca 400114, represented by its Rector Vasile ȚOPA,

Технически университет София, Technical University of Sofia (Bulgaria), whose headquarters are located at Kliment Ohridsky Bd 8, Sofia 1000, represented by its Rector Ivan KRALOV,

Université de technologie de Troyes, University of technology of Troyes (France), whose headquarters are located at 12 rue Marie Curie 10000 Troyes, represented by its Director Christophe COLLET.

Hereinafter referred to as “**the partners**”. The initiative or project “European University of Technology” is also referred to by its acronym “EUT+”.

All the active partners for the development of the project are also called “the Alliance”.

In line with the following agreements, memorandums of understanding and other documents:

- the second call for Erasmus+ “European Universities” projects,
- the application file for this call for projects and its annexes, which the partners submitted on 26 February 2020,
- Grant Agreement N° 101004088 signed by the partners and the European Commission on 16 October 2020, which remains the document of reference in the event of a conflict between the terms of this agreement and the Grant Agreement,
- the EUT+ Memorandum of Understanding European University of Technology: Toward a single university,
- the EUT+ Memorandum of Agreement for the creation of EUT+ Bachelor in Engineering and Master of Engineering programmes by evolution and convergence of existing partner programmes.
- the EUT+ agreement facilitation of student mobility between EUT+ partners, signed by the partners on 27 April.

HAVING STATED THIS, IT IS AGREED AND DETERMINED AS FOLLOWS:

This agreement does not aim at uniformity but at convergence and interoperability. It is supported by our institutions, with their different backgrounds, and provides them with an opportunity to rethink

their own higher education while participating in a common discussion of the challenges they face together. It is intended to respect the speed and methods of implementation by each institution.

1 Purpose of This Agreement

The partners of EUT+ have affirmed their ambition to build a single European university based on the full integration of their eight institutions, creating a new higher education ecosystem. Student experience is an essential feature of this new European university (see EUT+ agreement facilitation of student mobility between EUT+ partners).

To achieve this, the partners agree to launch a pilot process which is defined in this agreement and will be implemented by the partners who sign it.

This agreement establishes key elements and processes for the experimental implementation of the mobility maps created by the first three Clusters for the Academic Year 2022–2023 within the EUT+ Alliance. In this, it aims to provide for seamless student mobility, defines the expected multilingualism level and automatic recognition of all ECTS gained in the welcoming institution.

This agreement further provides a framework and timetable for student enrolment in semester mobility so as to ensure a cohesive, well-defined and smooth process across the signing EUT+ campuses.

This agreement is considered as a *learning agreement* for all students participating in a cluster mobility, according to the terms defined below. It serves to accelerate inter-institutional cooperation and to organize the iterative process of harmonization of existing degrees offered by the partners.

2 Definitions

When not specified here, the definitions used are those of the *European Degree in Engineering EUT+ reference guide*.

2.1 Institutions

For a student, the “home institution” is the institution of first registration for a given curriculum, and is the institution responsible for monitoring the student’s curriculum. The “welcoming institution” is the destination institution for a mobility semester.

2.2 Modules

A *module* is an indivisible block of training. It is described by *basic learning outcomes* (as defined in the *European Degree in Engineering EUT+ reference guide*). It grants ECTS to the student who had proven his proficiency in these *basic learning outcomes*.

2.3 Clusters

A *cluster* is a group of curricula, in a given thematic, from different partner institutions which aims at an accelerated convergence to become, as soon as possible, a *joint European degree* with a single academic regulation, where the student can move freely across several EUT+ campuses.

The *cluster* works towards a common pedagogical model based on the description given in the *European Degree in Engineering EUT+ reference guide*.

A common set of *final learning outcomes* is defined in the cluster. This set will be the *final learning outcomes* of the target joint European degree. It is described in accordance with the general pedagogical competences framework and the European guidelines (eg. ENAEE framework, Dublin descriptors...). It is guided by and respects the related competences frameworks.

The harmonization of pre-existing national curricula with common objectives of final learning outcomes is progressively achieved in the clusters by the [*cluster*] *academic coordination committee* under the supervision of the *Education Committee*.

Modules and associated ECTS defined in the clusters are fully pre-recognized by the partner institutions as stated in the mobility maps.

Especially for partner institutions with a fully linear study track (without the possibility for students to choose modules or with a very limited number of elective modules), specific modules of the partners institutions are fully recognized by the home institutions as equivalent to given specific modules as stated in the mobility maps.

2.4 Mobility Map

The *mobility map* is the list of the modules that each partner institution is offering to incoming students. The modules are described in *basic learning outcomes*.

The mobility map details the pedagogical and technical information needed for the choice and the organization of students' study tracks. Each "home institution" chooses the modules that its students can choose among the modules offered by the welcoming institution.

The mobility maps are periodically extended and improved, they are built as successive steps of convergence toward this target. They allow a first step in the construction and the deepening of the reciprocal understanding of the partner institutions as well as the development of transversal academic communities within EUT+.

Partner institutions may build curricula by selecting modules from the mobility maps. In particular, a complete semester can be built up by forming a bundle of about 30 ECTS from among the proposed modules with the choice being based on the themes and languages of instruction. As the study regulations and mobility conditions are still largely defined at the national level, it is the home



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EUT+ Agreement: Process Guidelines for the Facilitation of Student Mobility between EUT+ Partners and Cluster Development

institution that defines these bundles. In such a case, the whole bundle is automatically recognized and students only report the validated ECTS.

2.5 EUT+ Student Experience

An *EUT+ Student Experience* is defined as a physical mobility (inside EUT+, from the *home institution* to the *welcoming institution*) with a block of a minimum of 12 weeks at the welcoming institution selecting modules offered in a cluster, enabling the student to validate a minimum of 25 ECTS.

Other kinds of mobilities including short-term, blended, virtual and other forms of mobilities will be addressed in further documents.

3 EUT+ Intercampus Mobility

Mobility is embedded in any EUT+ curricula: “In order to build themselves and their vision of Europe, our students need to experience an in-depth exposure and immersion. This can only be achieved through long and transforming mobility. Mobility is not an end in itself, but a necessity to be exposed to others and their cultures, and to discover oneself. Mobility is therefore a way of being more than an operation of geographical movement. For the EUT+ European degrees, students are guided towards this state of mind which leads them to meet other cultures in the long term,” (from Article 2.1 of the European Degree in Engineering EUT+ reference guide V.1, appendix to the *Memorandum of Agreement for the Creation of EUT+ Bachelor in Engineering and Master in Engineering Programmes, by Evolution and Convergence of Existing Partner Programmes*, signed by the eight EUT+ partners in Limassol (Cyprus) on 24th September 2021).

3.1 Mobility Maps Implementation

The pool of modules and associated ECTS defined in the clusters are fully recognized by the partner universities, under the conditions indicated. In this respect:

- All modules listed in a mobility map are open to all students, in the conditions indicated; some partners can pre-define bundles of modules.
- A student *freely* chooses the proposed modules, they can only be refused for the following reasons:
 - o The level of the student is not sufficient (problem of prerequisite).
 - o An obvious proficiency issue in the language of instruction.
 - o A limitation in the number of places offered.
- All ECTS obtained during the mobility period are automatically recognized by the home institution in the student’s curriculum, in the given category, if applicable.

Note that some partners will recognize these modules as equivalent to specific modules taught at home.

The partner institutions shall align their study regulations with this agreement by 2025.

The partners are aware that this is their commitment towards a European degree and that they have written this into the bid, and that it will be the subject of an objective and quantitative report to the European Commission.

4 Automatic Recognition of ECTS

The principle of automatic recognition of ECTS is fully agreed in accordance with article 3.4 of the Memorandum of Agreement for the creation of EUt+ Bachelor in Engineering and Master in Engineering programmes by evolution and convergence of existing partner programmes signed in Limassol (Cyprus), 24th September 2021. ECTS are obtained through the pool of modules proposed in the mobility maps and through the predefined bundles if the mobility map states it. This common pool of modules will be regularly enlarged by the relevant [cluster] academic coordination committee, and report to the Education Committee.

To adopt a transparent interpretation of student achievements, partners use only the Bologna process grading system (ie. ECTS and grades A-F) as described by the European commission: European Commission, Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office, 2017 as given at <https://data.europa.eu/doi/10.2766/87592>. If necessary a conversion system such as outlined at www.egracons.eu may be utilized.

5 Language

In order for EUt+ to be a driver of change in Higher Education in Europe it is necessary to agree in principle that there is a parity of esteem for all European languages; thus, a recognition that all languages are of cultural and linguistic importance. EUT+ encourages opportunities for staff and students of EUT+ is to realize their potential through intercultural and linguistic experiences.

The languages of teaching are clearly specified in the mobility maps. A module may have one main language of teaching (in which all teaching resources are given) and one or more secondary languages of teaching. In case some parts of the teaching cannot be provided in that language, but additional resources allow the whole teaching to be followed in that secondary language without compromising the success of a student doing the work that would normally be expected.

In all cases, partner institutions guarantee that:

- The languages of teaching declared are indeed effective when incoming students are received;
- The academics or teachers in charge of a module are explicitly notified of the presence of EUt+ students and their language profile.

5.1 Expected Languages Level

In clusters, the students to be graduated will master:

- one foreign European language at level B2 at Bachelor;
- in addition, a second foreign European language at level B2 at Master (B1 until 2025).

The partner institutions may offer, require or strongly encourage the acquisition of this second foreign language from the bachelor level onwards.

This applies only to students who started the bachelor level at an EUT+ campus. The case of new master students will be addressed later.

5.2 Language as a Condition for Intercampus Mobility

The minimum requirement for students to move intercampus is level B1 of the language in which the selected modules in the welcoming institution are being taught. The acquisition of language is designed to open up the field of mobility.

The required level of language will be known beforehand and clearly defined in the respective mobility map.

Priority should be given to solve problems of language that could prevent seamless students' mobility. Study tracks in a main shared language would be the solution as a first step. In particular, considering the position of English language as the most common lingua franca, this approach makes it an easier choice to start with. EUT+ partners will strive to find solutions to introduce students to other languages (and not only the most spoken western ones) as teaching and working languages. They will do what is necessary to enable the students to follow a full semester in another language as soon as possible.

5.3 Language Verification

Partners will implement external verification for all EUT+ students by 2025. If the European Commission provides language assessment tools, they are considered as external verification in this case. For the Academic Year 2022–2023 attestation by the home Language Center will also be accepted.

5.4 Language ECTS and Modules

Language modules will be integrated in EUT+ curricula by all partners. Students are required to validate a minimum of 15 ECTS during their bachelor curriculum and 10 ECTS during their master curriculum. The sum of 25 ECTS can be distributed in multiple ways between the bachelor and master levels. This applies only to students who started the bachelor level at a EUT+ campus. The case of new master students will be addressed later.

It is a requirement to gain up to 5 ECTS in the national language and culture of the host institution during a mobility, achieving at least an A1 level. These modules are to be included in the cluster mobility maps. These 5 ECTS are included in the 25 ECTS expected for bachelor plus master level.

To actively promote multilingualism, EUT+ partners will study the possibility to offer a full year by the welcoming institution's national language foundation course up to the level B2 free of charge.

6 EUT+ Certificate

In anticipation of the *European Label* and later the *Joint European Degree* proposed by the European Commission, an EUT+ certificate attached to the national diploma will be offered to EUT+ students according to the following conditions:

- A minimum of 25 ECTS obtained during a semester mobility at an EUt+ partner campus,
- Validation of at least 5 ECTS through the study of national language assessing at least A1 level,
- Achievement of the prescribed level in foreign languages,
- Fulfilling the national conditions of validation of the degree.

The student is automatically awarded this EUt+ certificate without having to request it. The mobility does not necessarily have to be done within a cluster. Each partner institution, within their framework and national regulations, implements this label in the most robust and ambitious form possible. If a *certificate* is not possible for legal reason, the partner can consider a *label*.

7 Creation of [cluster] Coordination Committees

Each cluster has a *[cluster] coordination committee*. [cluster] is the name of the cluster (e.g. Bachelor in mechanical engineering).

This committee supports convergence to EUt+ engineering programmes and contributes to the EUt+ experience including student application issues. It is intended to include academics, student representatives and international relations officers from all partners.

7.1 Role and Functions of the Committees

Composition:

- academic staff involved in the cluster chosen by the partner university
- students involved in the cluster chosen by the students amongst their representative
- representant from the Erasmus Common Office
- representants from the WP3 (the responsible cluster et the WP3 leader or his/her representative)

Its main role is to interface between EUt+ and the university faculty:

- Gathering information with regard to the clusters
- Monitoring student learning experience by student survey or feedback analysis on to the modules and the organisation.
- Advising outgoing and incoming students in the clusters
- Managing number of seats in the cluster per partner and application of agreed selection criteria (e.g in the case that there are more students than places)
- Progressively extending the mobility map
- Analysing technical aspects (eg. overlaps of timetables/semesters)
- Ensuring that the academic supervisor system works well
- Improving the common final learning outcomes

7.2 Meetings

Each committee holds:

Technical meetings with all the committee members apart from the students. They define the:

- The number of places open by cluster per campus

- Selection criteria for students (in the case that there are more students than places)

Progress meetings with all the members. They focus on the feedback from students and improve the processes and clusters.

Each cluster will hold annually at least:

- 2 technical meetings to manage the flow of applications
- 2 Progress meetings for quality management

8 Common Process for Student Enrolment

A common process for the effective management of student enrolment within the framework of the EUT+ engineering programmes is defined here. The partners will implement it no later than the autumn 2022 semester.

8.1 Reservation of Places

Faculties or departments relevant to the clusters commit to reserving a number of places for EUT+ students on mobility. Their capacity (i.e. the number of places made available) in accordance to legal and regulatory limitations will be provided to the partners 8 months prior to the next study semester. They are defined according to the physical mobility growth plan.

If a partner receives fewer students in total across all faculties than expected in the EUT+ growth plan because of internal balance problems, in collaboration with the other partners, solutions will be identified to avoid students being turned away (in other locations) due to lack of places. These points will be globally monitored by the *Education Committee*.

8.2 Student Applications

The EUT+ partners will actively promote the EUT+ Student Experience in a coordinated manner and within an agreed time frame.

The student application phase will open from February to mid-April for students applying for the following autumn semester and from mid-September to the beginning of November for spring semester applications. For the 2022/23 autumn semester, applications will be accepted until the end of May.

Students may apply to multiple EUT+ campuses (1st choice, 2nd choice, 3rd choice, etc.) in constructing their academic pathway through the selection of modules and destinations defined in the cluster mobility maps. Prerequisites such as *basic learning outcomes* and interdictions to repeat modules may be applied by the academic departments. If modules are equivalents, it is usually not allowed to repeat them as stated in the mobility map. Therefore, students' applications are subject to initial validation by the academic department or faculty of the home institution. Within the EUT+ Alliance, the welcoming institution accepts the validation of the home institution and the student's application will be accepted subject to availability of places.

This process is synchronized and supervised by the relevant [cluster] academic coordination committee.

In case the home institution has an imposed linear curriculum path, the choice of the student will be the selection of predefined bundle of modules available at specific destinations.

8.3 Validation of Places

In EUT+ Alliance, the welcoming institution automatically accepts the student's application by the home institution as long as there are enough places.

All efforts will be made to fulfill the students first choice. In the event that student demand exceeds the number of places for a given module, a selection process will be applied. This process will be defined by the [cluster] academic coordination committee, in coordination with the EUT+ Erasmus Common Office.

9 Alignment of University Calendars

The partners will strive to find a common pivotal week for change of semester from autumn to spring in order to avoid hindering mobility due to the current incompatibility of university calendars.

A working group with at least one representative from each partner institution will be set up to work out technical solutions and ensure gradual convergence.

10 Reporting

A report on mobility numbers is provided every semester.

An annual review of general convergence (processes, study regulations, etc.) is annually made to share best practices and measure progress. The means of convergence are monitored, shared and discussed in the Education committee.

11 Complementary articles

Each partner institution encourages its students and academic and non-academic staff to participate in the mobilities.

12 Review clause

This agreement is reviewed annually according to the evolution of student mobility and the evolution of the convergence of curricula in the clusters, or every time that another partner would like to join the agreement.



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EUT+ Agreement: Process Guidelines for the Facilitation of Student Mobility between EUT+ Partners and Cluster Development

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Prof. Christophe Collet, Directeur



European University of Technology Award Certificate

Awarded to **Maria José Dubois-Petrov**

Delivered by Technical University of Cartagena, Technical University of Cluj-Napoca,
Technical University of Sofia, and University of Technology of Troyes

Reference diploma code XXXX

Degree XXXXX

Awarded on March 21, 2023

Beatriz Miguel, Rector
Technical University of
Cartagena

Vasile Topa, Rector
Technical University of
Cluj-Napoca

Ivan Kralov, Rector
Technical University of
Sofia

Christophe Collet, Director
University of Technology of
Troyes

EUT+ European Award Certificate criteria (according to the pilot agreement [1])

- Minimum physical mobility of 12 weeks within EUT+
- A minimum of 25 ECTS obtained during the physical mobility at a EUT+ partner campus
- Validation of at least 5 ECTS through the study of national language and culture assessed at least A1 level
- Achievement of the following level in foreign languages (using the CEFR frame [2])
 - one foreign European language at level B2 for bachelor;
 - a second foreign European language at level B1
- Fulfilling the national conditions for validation of the degree.

Certificado de Reconocimiento Europeo EUT+, expedido por la Universidad Politécnica de Cartagena, la Universidad Técnica de Cluj-Napoca, la Universidad Técnica de Sofía y la Universidad Tecnológica de Troyes.

Criterios del certificado EUT+ (según el acuerdo piloto [1])

- Movilidad física mínima de 12 semanas dentro de EUT+
- Un mínimo de 25 ECTS obtenidos durante la movilidad física en un campus asociado a EUT+
- Convalidación de al menos 5 ECTS de estudio de la lengua y la cultura nacionales evaluadas como mínimo en el nivel A1
- Consecución del siguiente nivel en lenguas extranjeras (según el marco CEFR [2])
 - una lengua extranjera europea de nivel B2 para grado
 - una segunda lengua extranjera europea de nivel B1 para máster
- Cumplir las condiciones nacionales de convalidación del título.

[1] Pilot for the facilitation of the student mobility between eut+ partners, clusters development and trajectory towards EUT+ European engineering degrees. Issue Nov. 2022.

[2] Common European Framework of Reference for Languages (CEFR). March 2023.



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