EUSKAL UNIBERTSITATE SISTEMAREN KALITATE AGENTZIA
AGENCIA DE CALIDAD DEL SISTEMA UNIVERSITARIO VASCO

UNIBASQ

TITULU OFIZIALAREN EGIAZTAPEN-BAIMENTZE ESKAERAREN EBALUAZIOAREN BEHIN BETIKO TXOSTENA

INFORME FINAL DE EVALUACIÓN DE LA SOLICITUD DE VERIFICACIÓN-AUTORIZACIÓN DE TÍTULO OFICIAL

Tituluaren izena /Denominación del título	Máster Universitario en Ingeniería en Fabricación Digital y Sostenible / Digital and Sustainable Manufacturing Engineering
Unibertsitate eskatzailea / Universidad Solicitante	Mondragón Unibertsitatea; FH JOANNEUM GESELLSCHAFT MBH (Austria) y POLITECHNIKA KOSZALINSKA (Polonia)
ECTS kopurua/número de ECTS	90 ECTS
Data / Fecha	22 de julio de 2025

Unibasq-ek goian aipatu den titulu ofizialaren ikasketa-plana ebaluatu du, bat etorriz 2021eko irailaren 28ko 822/2021 Errege Dekretuaren, unibertsitate-ikasketen antolaketa eta kalitatea ziurtatzeko prozedura ezartzen dituenaren (aurrerantzean, 822/2021 ED), 3. atalean eta 2017ko abenduaren 19ko 274/2017 Dekretuaren, Gradu, Master eta Doktorego tituluak lortzeko egin behar diren unibertsitate-ikasketa ofizialak ezartzeari eta kentzeari buruzkoaren (aurrerantzean, 274/2017 Dekretua), 14. artikuluan ezarritakoarekin.

Ikasketa-planaren ebaluazioa 822/2021 Errege Dekretuaren zazpigarren xedapen gehigarrian xedatutakoarekin bat etorriz egin da; izan ere, nazioarteko unibertsitate-titulu bateratua da, Europako Batzordearen Europako Unibertsitateen Programaren esparruan, eta Goi-mailako Hezkuntzaren ardura duten Europako ministroek onartutako Programa Bateratuen Kalitatea Bermatzeko Europako Prozedura (European Approach for Quality Assurance of Joint Programmes) erabili da. Nazioarteko adituen panel batek bisita bat egin du, eta bisita-txosten bat egin du (ikus eranskina). Kide anitzeko batzorde batek egin du ebaluazioa, 822/2021 EDak eta 274/2017 Dekretuak ezartzen dutenari jarraituz. Unibasqen webgunean kontsulta daitezkeen irizpideen arabera hautatutako akademikoek, ikasleek eta profesionalek osatu dute batzordea. Prozedurari jarraituz, txosten-proposamen bat bidali zitzaion Unibertsitateari, eta horrek zenbait ohar bidali ditu.

Batzordeko kide guztiek batera baloratu ondoren, **"Máster Universitario en Ingeniería en Fabricación Digital y Sostenible/Digital and Sustainable Manufacturing Engineering"** tituluari **ALDEKO TXOSTENA** ematea erabaki da, ondorengo balorazioen arabera eta, hargatik eragotzi gabe, hala badagokio, Eusko Jaurlaritzako Hezkuntza Saileko Unibertsitate Politika eta Koordinaziorako Zuzendaritzak goian aipatutako titulu ofizialaren eskaerari buruz egindako

Unibasq, conforme a lo dispuesto en el artículo 26 del Real Decreto 822/2021, de 28 de septiembre, por el que se establece la organización de las enseñanzas universitarias y del procedimiento de aseguramiento de su calidad (en lo sucesivo RD 822/2021), y en el artículo 14 del Decreto 274/2017, de 19 de diciembre, de implantación y supresión de las enseñanzas universitarias oficiales conducentes a la obtención de los títulos de Grado, Máster y Doctorado (en lo sucesivo Decreto 274/2017), ha procedido a evaluar el plan de estudios que conduce al título oficial arriba citado.

La evaluación del plan de estudios se ha llevado a cabo en consonancia con lo dispuesto en la disposición adicional séptima del RD 822/2021, ya que se trata de una titualción universitaria conjunta internacional en el marco del Programa de Universidades Europeas de la Comisión Europea, utilizándose el Procedimiento Europeo para la Garantía de la Calidad de los Programas Conjuntos adoptado por los Ministros Europeos responsables de Educación Superior (European Approach for Quality Assurance of Joint Programmes). Se ha realizado una visita por parte de un panel de personas expertas internacionales que ha emitido un informe de visita (ver anexo). La decisión sobre la evaluación se ha realizado de forma colegiada por un Comité tal como lo establece el RD 822/2021 y el Decreto 274/2017, formada por académicos y académicas, estudiantes y profesionales, seleccionados acorde a los criterios que pueden consultarse en la web de Unibasq. De acuerdo con el procedimiento, se envió una propuesta de informe a la Universidad, que ha remitido una serie de observaciones.

Valorado conjuntamente por todos los miembros del Comité, se ha considerado otorgar **INFORME FAVORABLE**, al título "**Máster Universitario en Ingeniería en Fabricación Digital y Sostenible/Digital and Sustainable Manufacturing Engineering"** de acuerdo con las siguientes valoraciones y sin perjuicio de la debida consideración y subsanación, en su caso, de los aspectos consignados en el informe preceptivo

nahitaezko txostenean jasotako alderdiak behar bezala aztertu eta zuzentzeari.

ESG 2.6rekin bat etorriz, ebaluazio txostenak Unibasq-en webgunean argitaratuko dira; era berean, behin betiko txostena DEQAR unibertsitateen eta irakaskuntzen kalitateari buruzko txostenen bilgune europarrean argitaratuko da.

de la Dirección de Política y Coordinación Universitaria del Departamento de Educación del Gobierno Vasco relativo a la solicitud del título oficial arriba citado.

En coherencia con el ESG 2.6 esta serie de informes de evaluación serán publicados en el sitio web de Unibasq; asimismo, el informe definitivo se publicará en la base europea de informes sobre la calidad de las enseñanzas y centros universitarios DEQAR.

Considerándose el informe del panel de personas expertas y las valoraciones llevadas a cabo basadas en él y en otra información preceptiva disponible, el Comité de Evaluación de Titulaciones de Ingeniería y Arquitectura informa como sigue:

1. Respecto a las condiciones establecidas por el informe preceptivo de la Dirección de Política y Coordinación Universitaria del Departamento de Ciencia, Universidades e Innovación del Gobierno Vasco de 17 de septiembre de 2024, cabe señalar que la primera de ellas ha sido subsanada ya que se eliminó el término dual de la denominación de la titulación. Adicionalmente se han eliminado los términos “European joint” en la solicitud ante el Ministerio. La segunda condición del informe preceptivo se refería a una posible duplicidad o solapamiento con el “Máster en fabricación digital” ofertado la Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU). En el autoinforme presentado se incluye un apartado de justificación de la necesidad de la titulación en todos los países de impartición explicando también la existencia de titulaciones similares. El “Máster Universitario en fabricación digital” de la UPV/EHU es un máster de 90 ECTS que oferta la Escuela de Ingeniería Dual de Elgoibar en colaboración con empresas del sector dado que se trata de formación dual. En el autoinforme se justifica la diferencia basándose en la tipología y duración de las asignaturas e indicando el enfoque conjunto e internacional de la propuesta con las movilidades integradas como Blended Intensive Programmes (BIPs) y la especialización en tecnologías de fabricación en los diferentes itinerarios ofrecidos por las universidades participantes en el Consorcio. De modo que aunque existe una denominación similar, el contenido es diferente y puede ofrecer al potencial alumnado una opción de internacionalización y especialización diferente al del título de la UPV/EHU.
2. En la solicitud inicial se incluyó la petición de Mención Dual regulada por el artículo 22 del RD 822/2021 de la normativa española que se ha eliminado de la solicitud y este aspecto debe quedar claro en toda la información pública sobre la titulación.
3. El Máster Universitario en Ingeniería en Fabricación Digital y Sostenible/Digital and Sustainable Manufacturing Engineering / ofertado por Mondragon Unibertsitatea (España), FH JOANNEUM GESELLSCHAFT MBH (Austria) y POLITECHNIKA KOSZALINSKA (Polonia) puede acreditarse de acuerdo con los criterios y procedimientos definidos en el Procedimiento Europeo para la Garantía de la Calidad de los Programas Conjuntos adoptado por los Ministros Europeos responsables de Educación Superior (European Approach for Quality Assurance of Joint Programmes).

   La validez de la acreditación es de seis años y válida hasta el 23/05/2031.

   De cara la mejora del programa se establecen las siguientes recomendaciones y sugerencias de mejora que considerando que el programa conjunto es nuevo para todas las organizaciones y que aún no hay pruebas de su aplicación será objeto de especial seguimiento para desarrollar plenamente su potencial de mejora:

1. En cuanto a la información pública:
   a. Proporcionar información clara sobre el título otorgado a los estudiantes, especialmente en esta fase inicial y teniendo en cuenta que ESTIA (Francia), como socio asociado, no otorgará el título conjunto, sino un título de MSc.

b. Además, es importante informar a las y los estudiantes sobre la necesidad de tener 300 ECTS para acceder a los programas de doctorado y que dependiendo de sus estudios previos (el programa de licenciatura podría ser de 180-240 ECTS) podrían necesitar créditos adicionales para llegar a los 300.

c. Publicar la normativa de Estudios y Exámenes en la página web.

d. Publicar en la página web información sobre todas las posibilidades de movilidades y sobre los proyectos formativos comunes que se desarrollarán complementariamente entre centros universitarios y entidades colaboradoras y, más en concreto, las entidades del entorno socioeconómico donde las y los estudiantes podrán realizar parte del proceso educativo.

e. También sería necesario facilitar información exhaustiva sobre los permisos de trabajo, ya que las y los estudiantes internacionales podrían necesitarlos para integrarse en los proyectos formativos comunes que se desarrollarían complementariamente entre centros universitarios y entidades colaboradoras. En este sentido, debería proporcionarse información adicional sobre los seguros sociales y de cualquier otra naturaleza exigibles y qué institución se encargará de su gestión, formalización, etc.

f. Incluir en la futura documentación una descripción de la estructura y contenido de la página web del programa y de las guías didácticas.

g. Aclarar si se considerará un sitio web con toda la información o distintos sitios web individuales para cada socio.

2. Actualizar la información relativa a la estructura de gobernanza en el Acuerdo de Cooperación.
3. Seguir trabajando en la integración de todas las entidades participantes, en particular de las entidades/industrias/organizaciones de todos los países.
4. Seguimiento continuo del programa para garantizar que los resultados esperados se alcanzan efectivamente una vez que el programa se haya puesto en marcha. Estos resultados también deberían reflejarse en las conversaciones con las entidades/industrias/organizaciones.
5. Incluir como indicador el tiempo medio necesario para completar el programa y describir el modo en que se realizará este seguimiento de las y los estudiantes, teniendo en cuenta también las necesidades específicas de estudiantes en movilidad.
6. En cuanto al reconocimiento de la experiencia profesional, dejar claro a todo el estudiantado potencial que los módulos que incluyen proyectos formativos comunes que se desarrollarían complementariamente entre centros universitarios y entidades colaboradoras (TR8. Prácticas y Tesis de Máster) no pueden ser reconocidos.

Otras sugerencias de mejora son:

1. Desarrollar un plan común de prestación de servicios de acompañamiento al estudiantado en aspectos clave para su movilidad, tales como la tramitación de visados y otros permisos (cuando sean necesarios) y la búsqueda de alojamiento, entre otros.
2. Elaborar un manual unificado de apoyo a estudiantes que describa todos los servicios disponibles y cómo acceder a ellos en todo el consorcio.
3. Proporcionar información clara sobre los servicios de apoyo personal para la movilidad del estudiantado, garantizando una gestión eficaz de la reubicación y la participación en proyectos en las universidades asociadas.
4. Crear una red conjunta de alumni.
5. Evaluar las movilidades bajo el aspecto de la sostenibilidad desde la perspectiva del estudiantado.

En cuanto a los motivos de esta decisión, el Comité se remite al informe de evaluación adjunto cuando no se consigna otra motivación o justificación. Unibasq espera recibir un informe de seguimiento sobre las recomendaciones y sugerencias de mejora realizadas en mayo de 2027.

EUSKAL UNIBERTSITATE SISTEMAREN KALITATE AGENTZIA
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Decision of the Committee for Engineering and Architechture of Unibasq

on the study programme:

Study programme	Máster Universitario en Ingeniería en Fabricación Digital y Sostenible/Master in Digital and Sustainable Manufacturing Engineering
Jointly offered by	Mondragon Unibertsitatea; FH JOANNEUM GESELLSCHAFT MBH (Austria) & POLITECHNIKA KOSZALINSKA (Poland)
Workload (ECTS)	90 ECTS
Date	22 July 2025

Unibasq, in accordance with the provisions of Article 26 of Royal Decree 822/2021, of 28 September, establishing the organisation of university education and the procedure for ensuring its quality (hereinafter RD 822/2021), and Article 14 of Decree 274/2017, of 19 December, on the implementation and abolition of official university education leading to the award of Bachelor's, Master's and Doctorate degrees (hereinafter Decree 274/2017), has proceeded to evaluate the curriculum leading to the above-mentioned official degree.

The evaluation of the curriculum has been carried out in accordance with the provisions of the seventh additional provision of RD 822/2021, as it is an international joint university degree within the framework of the European Commission's European Universities Programme, using the European Approach for Quality Assurance of Joint Programmes adopted by the European Ministers responsible for Higher Education (European Approach for Quality Assurance of Joint Programmes). A visit was made by a panel of international experts, who issued a visit report (see annex). The decision on the evaluation was made collectively by a committee, as established by Royal Decree 822/2021 and Decree 274/2017, made up of academics, students and professionals, selected according to the criteria that can be consulted on the Unibasq website. In accordance with the procedure, a draft report was sent to the University, which has submitted a series of observations.

After joint evaluation by all members of the Committee, it has been decided to grant a FAVOURABLE accreditation decision to the master's degree programme in "Ingeniería en Fabricación Digital y Sostenible/Digital and Sustainable Manufacturing Engineering" in accordance with the following assessments and without prejudice to the due consideration and correction, where appropriate, of the aspects set out in the mandatory report of the Directorate of University Policy and Coordination of the Department of Science, Universities and Innovation of the Basque Government relating to the application for the above-mentioned official degree.

In accordance with ESG 2.6, this series of evaluation reports will be published on the Unibasq website; likewise, the final report will be published in the European database of reports on the quality of university teaching and centres, DEQAR.

Considering the report of the panel of experts and the assessments carried out based on it and other mandatory information available, the Engineering and Architecture Degree Evaluation Committee reports as follows:

1. With regard to the conditions established by the mandatory report of the Directorate of University Policy and Coordination of the Department of Science, Universities and Innovation of the Basque Government dated 17 September 2024, it should be noted that the first of these has already been rectified, as the dual term has been removed from the name of the degree. In addition, the terms 'European joint' have been removed from the

application to the Ministry. The second condition of the mandatory report referred to a possible duplication or overlap with the 'Master's Degree in Digital Manufacturing' offered by the University of the Basque Country/Euskal Herriko Unibertsitatea (UPV/EHU). The self-assessment report submitted includes a section justifying the need for the degree in all the countries where it is taught, also explaining the existence of similar degrees. The 'Master's Degree in Digital Manufacturing' at the UPV/EHU is a 90 ECTS master's degree offered by the Elgoibar Dual Engineering School in collaboration with companies in the sector, as it is a dual training programme. The self-assessment report justifies the difference based on the type and duration of the subjects and indicates the joint and international focus of the proposal with integrated mobility such as Blended Intensive Programmes (BIPs) and specialisation in manufacturing technologies in the different pathways offered by the universities participating in the Consortium.

So, although there is a similar name, the content is different and may offer potential students a different option for internationalisation and specialisation than the UPV/EHU degree.

2. The initial application to the Spanish Ministry included a request for Dual Mention regulated by Article 22 of Royal Decree 822/2021, which has been removed from the application, and this aspect must be made clear in all public information about the degree.

3. Based on the report of the expert panel and the discussions of the Committee for Engineering and Architecture in its meeting on 22 July 2025 decides:

The master degree programme in Digital and Sustainable Manufacturing Engineering offered by Mondragon Unibertsitatea (Spain), FH JOANNEUM GESELLSCHAFT MBH (Austria) and POLITECHNIKA KOSZALINSKA (Poland) is accredited in accordance with the criteria and procedures defined in the European Approach for Quality Assurance of Joint Programmes.

The accreditation is given for a period of six years and is valid until 23/05/2031.

The following recommendations are given for further improvement of the programme. As the joint programme is new for all organizations and that there is no evidence yet of its delivery, special follow-up is recommended to fully develop its potential to improve:

1. Regarding public information:
    a. Provide clear information regarding the degree awarded to students, particularly in this initial phase and considering that ESTIA (France), as an associated partner, won't award the joint degree, but a MSc degree.
    b. Additionally, it is important to inform the students about the need to have 300 ECTS to access PhD programmes and that depending on their previous studies (bachelor's programme might be 180-240 ECTS) they might need additional credits to reach 300.
    c. Publish the Study and Examination regulations on the webpage.
    d. Publish on the website information about all the possibilities for mobilities and about entities from the socio-economic environment where students will be able to carry out part of the educational process (work-placements).
    e. It would also be necessary to provide information on work permits as international students might need them for the work placements. In this sense additional information about insurances and which institution is in charge of managing and formalizing them should be provided.
    f. Include a description of the structure and content of the programme's website and educational guides in future documentation.
    g. Clarify if there will be one webpage with all information or there will be individual webpages for each partner.

2. Update the information regarding the governance structure in the Cooperation Agreement.
3. Continue working on the integration of all partners, particularly the industry partners in all countries.
4. Continuous monitoring of the programme to ensure that the expected outcomes are effectively achieved once the programme is implemented. These outcomes should also be reflected in discussions with the industry partners.
5. Include the average time to complete the programme as an indicator and describe the way this monitoring of the students will be done, considering also the specific needs of mobile students.
6. Regarding the recognition of professional experience, make it clear for all potential students that the modules including internships or work placements (TR8. Work experience and Master's Thesis) can't be recognized.

Additional suggestions for further improvement are to:

1. Develop a common plan for the provision of support services to students in key aspects of their mobility, such as visa and other permits (when necessary) and finding accommodation, among others.
2. Elaborate a unified student support handbook that outlines all available services and how to access them across the consortium.
3. Provide clear information on personal support services for students' mobility, ensuring effective management of relocation and project engagement at partner universities.
4. Create a joint alumni network.
5. Evaluate the mobilities under the sustainability aspect from a student perspective.

With regard to the reasons for this decision the Committee refers to the attached assessment report, when there is no additional motivation or justification. Unibasq would like to receive a follow-up report containing the coordinators' reactions to all the suggestions by May 2027.

Assessment report of the joint Master's programme in Digital and Sustainable Manufacturing Engineering offered by

- Mondragon Unibertsitatea (MU) - Spain
- University of Applied Sciences FH Joanneum (FHJ) - Austria
- Koszalin University of Technology (KUT) - Poland)

Review coordinated by Unibasq following the European Approach on Quality Assurance for Joint Programmes

23 May 2025

Content

Executive Summary

This report is issued by the panel appointed by Unibasq-the Agency for Quality of the Basque University System in the framework of the review procedure following the European Approach for Quality Assurance of Joint Programmes to review the joint Master's programme in Digital and Sustainable Manufacturing Engineering proposal submitted by Mondragon Unibertsitatea on behalf of the consortium composed of:

- Mondragon Unibertsitatea (Spain)
- University of Applied Sciences FH Joanneum (Austria)
- Koszalin University of Technology (Poland)

and ESTIA (France), even if this last one won't award the joint degree. This joint programme proposal is part of the initiatives in the framework of the EU4Dual European University Alliance. The application concerns a joint master programme of 90 ECTS that will be offered as a full-time one year and a half programme. The joint master's programme will comprise three components spread over three semesters: the first one transversal providing the same foundational knowledge in a hybrid mode with two Blended Intensive Programmes (BIP); the second one thematic to choose among 4 specialisation tracks and the last one comprising the master thesis at a partner company and the last BIP.

The self-assessment report, the extensive programme materials before the site visit and on site and the conversations with highly motivated delegations have provided the panel with a comprehensive view of the programme. According to the panel, who based its assessment on the standards of the European Approach for Quality Assurance of Joint Programmes, the joint Master's programme in Digital and Sustainable Manufacturing Engineering fulfils all standards. Consequently, the panel assesses the overall quality of the programme as positive.

The panel considers that some of the programme strengths are due to its joint design with consortium partners being represented equally and involving highly qualified staff in the corresponding professional fields. The representatives of the participating institutions underlined the added value of the joint programme and how it builds on the synergies and shared resources of the partners (academic and industrial).

Without affecting its overall positive appreciation of the programme, the panel has noticed some potential areas for enhancement. The fact that the joint Master programme is new for all organizations and that there is no evidence yet of the development of the programme, makes follow-up recommended to fully develop its potential to improve. Moreover, as this will be the first application of the Dual Higher Education Study Model and its key criteria, it will be important to monitor how everything is working with the first cohorts to make the appropriate adaptations once feedback from all the stakeholders is gathered. Therefore, the panel advices the joint Master's programme in Digital and Sustainable Manufacturing Engineering to consider the following:

Recommendations:

The panel recommends to:

1. Provide clear information regarding the degree awarded to students, particularly in this initial phase and considering that ESTIA won't award the joint degree, but a MSc degree.
2. Additionally, it is important to inform the students about the need to have 300 ECTS to access PhD programmes and that depending on their previous studies (bachelor's programme might be 180-240 ECTS) they might need additional credits to reach 300.
3. Update the information regarding the governance structure in the Cooperation Agreement.
4. Continue working on the integration of all partners, particularly the industry partners in all countries.
5. Continuous monitoring of the programme to ensure that the expected outcomes are effectively achieved once the programme is implemented. These outcomes should also be reflected in discussions with the company partners.
6. Include the average time to complete the programme as an indicator and describe the way this monitoring of the students will be done, considering also the specific needs of mobile students.
7. Regarding the recognition of professional experience, make it clear for all potential students that the modules including internships or work placements (TR8. Work experience and Master's Thesis) can't be recognized.
8. Publish the Study and Examination regulations on the webpage.
9. Publish on the website information about all the possibilities for mobilities and about entities from the socio-economic environment where students will be able to carry out part of the educational process (work-placements).
10. It would also be necessary to provide information on work permits as international students might need them for the work placements.
11. Include a description of the structure and content of the programme's website and educational guides in future documentation.
12. Clarify if there will be one webpage with all information or there will be individual webpages for each partner.

Suggestions for further improvement

The panel suggests to:

1. Develop a common policy for students obtaining visas (when needed) and finding accommodation.
2. Elaborate a unified student support handbook that outlines all available services and how to access them across the consortium.
3. Provide clear information on personal support services for students' mobility, ensuring effective management of relocation and project engagement at partner universities.
4. Create a joint alumni network.
5. Evaluate the mobilities under the sustainability aspect from a student perspective.

The review process

This report addresses the ex-ante evaluation of a joint programme proposal as the programme has not started yet. Therefore, the assessment is less evidence-based than in the case of an ex-post evaluation.

The joint Master's programme in Digital and Sustainable Manufacturing Engineering is a new joint programme and will be provided by four higher education institutions in the framework of the EU4Dual European University Alliance: Mondragon Unibertsitatea (Spain); University of Applied Sciences FH Joanneum (Austria); Koszalin University of Technology (Poland) and ESTIA (France), even if this last one won't award the joint degree. The request was submitted on 15 November 2024 on behalf of the consortium by Mondragon Unibertsitatea, which coordinates the programme.

The panel of reviewers was appointed on 3 March 2025 with the following composition:

- Dr. Jasmina Casals Terré, Universitat Politècnica de Catalunya (Spain)
- Dr. Thomas Felberbauer - Fachhochschule St. Pölten (Austria);
- Amaia Vertiz Conde – Universidad Pública de Navarra (Spain);
- Dr. Cezary Odżygóźdź – Nicolais Copernicus University in Toruń (Poland).

The review process was coordinated by Eva Fernández de Labastida on behalf of Unibasq. All panel members signed a statement of independence and confidentiality.

The panel based its assessment on the Standards for Quality Assurance of Joint Programmes in the European Higher Education Area (EHEA) adopted by the EHEA ministers in May 2015.

The panel members studied the application documentation of the proposed programme and reported on their preliminary findings. At the preparatory meetings on the 7 and 19 March 2025, the panel discussed the preliminary findings, identified the most important issues for discussion on site and prepared the sessions with the delegations.

The site visit took place on 31 March 2025 at the premises of Mondragon Unibertsitatea in Bilbao and Arrasate-Mondragon. The panel discussed with the management, the consortium partners, as well as with lecturers, and the professional field. No students were interviewed as the programme is not running yet. The schedule of the visit is available as an annex. The materials made available by the programme either before or during the site visit are also listed at the end of the report.

Right after the discussions, the panel formulated its considerations and preliminary conclusions per standard. These are based on the findings of the site visit and build on the assessment of the programme documents.

The coordinator then drafted the report and circulated it to all panel members for review and feedback. The comments of the members were incorporated in a final version, which was validated by the chair on 23 May 2025. The draft report was sent to the programme for factual check and there were no comments.

Overview of the programme

The joint Master's programme in Digital and Sustainable Manufacturing Engineering is the outcome of the collaboration of four universities in the framework of the EU4Dual European University Alliance. Three of the universities (Mondragon Unibertsitatea (Spain); University of Applied Sciences FH Joanneum (Austria); Koszalin University of Technology (Poland)) will award the joint master´s degree, while the fourth university, ESTIA (France), is part of the core team offering a specialization track but will not award the joint degree (as required by national regulations). Besides the core partners, the rest of the components of the EU4Dual European University Alliance will act as mobility partners (see Figure 1), providing student mobility opportunities during the BIPs and/or work placements for the dual study programme.

List of participating institutions:

Name of the institution	Higher education institution	Degree awarding institution	Registered in EQAR	Role in the consortium
Mondragon Unibertsitatea (Spain)	Yes	Yes	Yes	Leader
Koszalin University of Technology (Poland)	Yes	Yes	Yes	Core team
FH Joanneum (Austria)	Yes	Yes	Yes	Core team
ESTIA school of engineering (France)	Yes	No	Yes	Core-team
Duale Hochschule Baden-Württemberg (Germany)	Yes	No	Yes	Mobility partner
Savonia UAS (Finland)	Yes	No	Yes	Mobility partner
John von Neumann University (Hungary)	Yes	No	Yes	Mobility partner
PAR University College (Croatia)	Yes	No	Yes	Mobility partner
Malta College of Arts, Science and Technology (Malta)	Yes	No	No	Mobility partner

Figure 1. List of participation higher education institutions and role in the consortium.

In addition, it is expected that industrial partners will provide work-placements and professional lecturers (due to the type of dual-studies).

This joint programme focuses on advanced manufacturing. Its aim is that their graduates will understand the Green and Digital Transitions from a Manufacturing Engineering perspective while gaining the skills for leadership roles in industry or research. The programme has 4 tracks with a maximum of 25 students per track/per year. The admission requirements establish the need of bachelor's in engineering (although some additional courses may be required depending on the bachelor's programme). It is aimed as a dual programme at least 5 months of work experience or an internship in a European company and with an international experience in at least 3 European universities through Blended Intensive Programmes (BIP) in the first and last semesters, plus the option to start and end at the same university or to change to a second university for the second and third semesters.

It is a 90 ECTS master programme spread over 18 months (three semesters of 30 ECTS each):

- First semester (transversal). It provides the same foundational knowledge from all the partners. It is organized jointly by all Partner Institutions with online- courses designed and taught by professors from different institutions. The blended teaching methodology includes face to face mobility weeks as part of the Blended Intensive Programme, BIP where participants will get the required basics in transversal competences in digital and green transition and social sciences (12 ECTS) and five digital and sustainable manufacturing courses (18 ECTS).

- Second semester (thematic) where the students must choose among 4 specialisation tracks:
    - Simulation-driven Innovation in Manufacturing (MU)
    - Smart Production Engineering (FHJ)
    - Additive Manufacturing Technologies (KUT)
    - Robotics for Manufacturing (ESTIA)

This semester includes a mandatory work placement.

- Third semester (master thesis). Students stay at the same Partner institution chosen for the specialization track for developing their Master´s Thesis which will be a real project in a company. During the third semester there will be a third mobility window related to the Research & Innovation BIP course.

Assessment

1. Eligibility

1.1 Status

The institutions that offer a joint programme should be recognised as higher education institutions by the relevant authorities of their countries. Their respective national legal frameworks should enable them to participate in the joint programme and, if applicable, to award a joint degree. The institutions awarding the degree(s) should ensure that the degree(s) belong to the higher education degree systems of the countries in which they are based.

Evidence

The self-evaluation report (SER) explains that the joint Master's programme in Digital and Sustainable Manufacturing Engineering will be offered by four core institutions: Mondragon Unibertsitatea (Spain); University of Applied Sciences FH Joanneum (Austria); Koszalin University of Technology (Poland) and ESTIA (France); and mobility partners within the EU4Dual Alliance across Europe. ESTIA will participate in the joint master programme, but won't award the joint degree, but a Master of Sciences Degree (MSc degree), which is recognized and accredited in France by the Conférence des Grandes Ecoles. ESTIA will ensure that this degree meets French regulations and aligns with the goals of the joint degree. As described in the Consortium agreement, and confirmed during the interviews, Mondragon Unibertsitatea, as the coordinating institution, will be responsible for issuing the physical joint master's degree award and its diploma supplement.

The Consortium agreement establishes that "Each student who successfully completes the Joint Master's degree and who has fulfilled the requirements of the applicable national legislations shall receive a Joint Master's degree testified by a joint diploma on behalf of the joint degree awarding Partner Institutions involved in the provision of the Joint Master's degree to that particular student. In addition, partner institutions may issue further national degree documents in alignment with national regulations." In this sense, ESTIA will issue an appropriate diploma to the students who fulfil the requirements of the French legislation to be awarded a MSc degree.

As outlined in the SER and the corresponding annexes, the institutions that offer the joint programme are recognised as higher education institutions by the relevant authorities of their countries and can participate in the joint programme. The SER also provides information regarding the accreditation status per institution, including the relevant external quality assurance agency in charge. The Cooperation Agreement also shows the commitment of all the partners to achieve the accreditation of the joint programme in each of the corresponding higher education systems.

Assessment

During the interviews the added value of the programme was highlighted by the management together with the aim to create more international joint programmes building on the synergies of the partners and sharing resources as expected in the framework of the EU4Dual University Alliance.

There is no doubt that the institutions participating in the Joint Master are recognised as HEIs by the relevant authorities of their corresponding countries as outlined in the SER and evidenced by the legal documents available. As confirmed by the documentation and discussed during the interviews, particularly with the programme management, their national legal frameworks enable all the partners to participate

in the joint programme, while awarding a joint degree is not possible for ESTIA who will award a MSc degree to the students who follow their track and meet the French requirements. This aspect should be clear to students before they enrol and should be published on the website (see Standard 8. Transparency and Documentation). The institutions awarding the degree ensure that the awarded degrees belong to the HE system where they are based, and the joint programme will be accredited in each of the countries. Each student who successfully completes the programme and who has fulfilled the requirements of the applicable national legislations will receive a joint master's degree; the degree will be testified by a joint diploma issued on behalf of the degree-awarding partner institutions involved in the delivery of the degree programme to that student. Graduates also receive a Diploma Supplement that provides comprehensive information (grading systems, educational systems, module credits…) and other relevant details. Additionally, graduates will receive a joint certificate signed by the EU4Dual Alliance. The panel considers that clear information regarding the degree awarded to students should be provided, particularly in this initial phase and considering that ESTIA won't award the joint degree, but a MSc degree. It is also important to emphasize that only students who end up with 300 ECTS after they are awarded with this Master will gain access to PhD Studies, if not, additional credits will be needed.

The panel concludes that the standard is fulfilled.

Recommendations
The panel recommends providing clear information regarding the degree awarded to students, particularly in this initial phase and considering that ESTIA won't award the joint degree, but a MSc degree.
Additionally, it is important to inform the students about the need to have 300 ECTS to access PhD programmes and that depending on their previous studies (bachelor's programmes might be 180-240 ECTS) they might need additional credits to reach 300.

1.2 Joint design and delivery

The joint programme should be offered jointly, involving all cooperating institutions in the design and delivery of the programme.

Evidence
In the framework of the EU4Dual Alliance, the consortium composed by Mondragon Unibertsitatea (Spain); University of Applied Sciences FH Joanneum (Austria); Koszalin University of Technology (Poland) and ESTIA (France) has established the working mechanisms, governing bodies and management tools in the signed Cooperation agreement following the Policy for Joint Degree Design and Accreditation Framework (annex 14) developed to provide guidelines for the design and accreditation of joint programmes in the EU4Dual Alliance. As explained in the SER and during the site visit, there was a selection process with the EU4Dual Alliance and this was the first chosen, while there are some other proposals in preparation.

As stated in the SER and explained in the interview with the programme management, the four universities have actively participated in all the design processes (programme design, student and industrial partners recruitment, quality management…) and will also work for its joint delivery. The SER also describes the close relation of these institutions with companies and their previous experience with dual programmes.

In addition, the panel had the opportunity to talk to industry representatives who have been involved in the design of the programme and provide placements for some other programmes.

The programme will be delivered collaboratively by the four core institutions and mobility partners (Figure 1) within the EU4Dual Alliance across Europe. In addition, industrial partners will provide lecturers and work placements in the different countries in the second and third semesters. The Cooperation agreement describes the different roles and duties of the core partners, mobility partners and industrial partners.

The Cooperation agreement also establishes the programme governance through some joint governing bodies indicating that they will meet regularly, and that some additional "ad hoc" committees would be created "when required". During the interviews the Joint programme coordinator showed the current programme governance structure where they were developing some additional joint bodies adding to the ones initially created to guarantee the correct implementation of the programme. The updated composition of the joint bodies for the joint master is presented in figure 2 and was provided as an additional annex (Governance and Management):

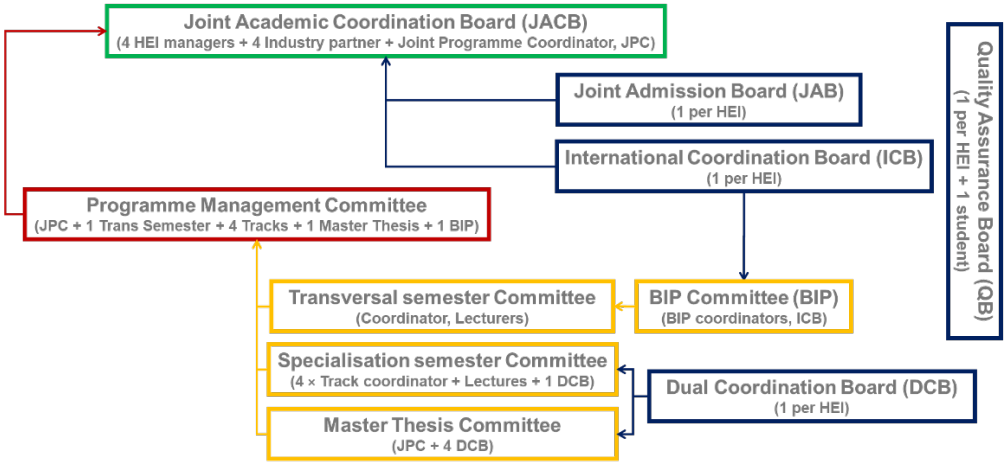

Figure 2. Joint Governing Boards and Committees.

This joint governance structure provides coordination mechanisms through the Programme Management Committee (PMC) in charge of the academic coordination (programme, specialisation tracks), building on the coordination done at the:

- Transversal semester Committee
- Specialisation semester Committee (one per track)
- BIP Committee
- Dual Coordination Board
- Master Thesis Committee

As mentioned above, all the core partners participate in the programme design and its delivery. Besides, each partner leads specific joint modules, offering unique areas of expertise which give added value to the programme, building on the complementarity and expertise of the partners (see figure 3):

		Courses	ECTS	Participant
1st semester (winter) Transversal Student location: In any of the four partner countries	Common to Manufacturing	TR1. Sustainable & Lean Manufacturing	3	ESTIA, KUT
		TR2. Product Lifecycle Management	3	ESTIA, FHJ
		TR3. Advanced Simulation & Modelling	6	MU, FHJ
		TR4. Introduction to Artificial Intelligence	3	MU, FHJ
		TR5. Industry 5.0	3	ESTIA, KUT
	Common to all EU4Dual Blended Intensive Programme (mobility)	TR6. Digital Transition	6	MU, ESTIA, FHJ, KUT
		TR7. Interdisciplinary Sustainable Future	6	MU, ESTIA, FHJ, KUT
2nd semester (summer) Specialisation Student location: Depends on specialisation	Simulation-driven Innovation in Smart Manufacturing	SI1. Advanced materials characterisation technologies	5	MU
		SI2. Next-Gen Metal Forming: From Simulation to Industrial Applications	6	MU
		SI3. Applied simulation to Casting of advanced components of aeronautic p	3	MU
		SI4. Manufacturing Composites for High-Tech Industries	3	MU
		SI5. Machining	7	MU
	Robotics for Manufacturing	RO1. Fundamentals of robotics	5	ESTIA
		RO2. Industrial cells implementations	5	ESTIA
		RO3. Enhanced robotic cells	6	ESTIA
		RO4. Robotics application to advanced processes	4	ESTIA
		RO5. Methods for advanced and robotized processes	4	ESTIA
	Additive Manufacturing Technologies	AM1: Materials for Additive Manufacturing	4	KUT
		AM2: Additive Manufacturing Technology from Polymers	5	KUT
		AM3: Additive Manufacturing Technology from Metals	5	KUT
		AM4: Designing for Additive Manufacturing	5	KUT
		AM5: Modelling and Simulation of Additive Manufacturing Processes	5	KUT
	Smart Production Engineering	SP1. Analytics & Artificial Intelligence	5	FHJ
		SP2. Production Systems Engineering	5	FHJ
		SP3. Production Integration (Vertical)	5	FHJ
		SP4. Digital Production Logistics	4	FHJ
		SP5. Value & Cost Engineering	5	FHJ
	Common to Manufacruring DUAL	TR8. Work Experience	6	MU, ESTIA, FHJ, KUT
3rd semester (winter) Student location: Same as the specialisation	Common to Manufacruring Blended Intensive Programme (mobility)	TR9. Research & Innovation	5	MU, ESTIA, FHJ, KUT
	DUAL	Master's Thesis	25	KUT, ESTIA, FHJ, MU

Figure 3. Structure of the joint Master's programme in Digital and Sustainable Manufacturing Engineering

Assessment

Based on the submitted documentation, site-visit and interviews, the panel finds that the four core partner institutions jointly designed and will deliver the programme, supported by mobility and industrial partners. This collaborative approach is evident in the programme structure, which leverages each partner's area of expertise to form a comprehensive and coherent curriculum. By integrating strengths from multiple institutions across diverse regions, the alliance will deliver a curriculum spanning both academia and industry. The programme's mobility framework will allow each student the opportunity to engage with different educational contexts in a hybrid or physical way.

The panel considers that, in addition to the joint design, all institutions are involved in the delivery of the programme, co-leading a joint module of the first semester and leading the specialization modules on the second semester. Regarding the coordination, there will be regular meetings of the governing bodies and the coordinators at each university, which will facilitate the process of improvement during the implementation phase. As the structure of the governance is still growing, the panel recommends that once it is completed this information is updated in the cooperation agreement and published on the website.

Based on the discussions on site the panel believes that there is a clear partnership and collaboration of all the institutions. Nevertheless, the panel believes that during the delivery part the consortium should continue working on the integration of the partners, particularly the industrial partners in all countries.

The panel considers that the standard is fulfilled.

Recommendations
Update the information regarding the governance structure in the Cooperation Agreement.
Continue working on the integration of all partners, particularly the industry partners in all countries.

1.3 Cooperation agreement

The terms and conditions of the joint programme should be laid down in a cooperation agreement. The agreement should in particular cover the following issues:

- *Denomination of the degree(s) awarded in the programme*
- *Coordination and responsibilities of the partners involved regarding management and financial organisation (including funding, sharing of costs and income etc.)*
- *Admission and selection procedures for students*
- *Mobility of students and teachers*
- *Examination regulations, student assessment methods, recognition of credits and degree awarding procedures in the consortium.*

Evidence
The Cooperation Agreement (Annex 2) has been developed by the Partner Institutions in accordance with legislation in their respective jurisdictions and it establishes joint procedures and criteria for awarding a joint degree covering, among others, the following issues:

- Legal framework, which establishes the rights and obligations of the partners' institutions.
- Programme governance, where the roles and duties of the partners and the joint governing bodies are outlined.
- Joint degree programme information (Academic programme and semester structure, including mobility paths).
- Student administration, which includes all the issues regarding students as application, selection and admission procedures, mobility, performance monitoring, degree awarding and recognition, services available and rights and responsibilities.
- Staff, including teaching and administrative staff, covering the mobility options. It also includes non-educational actors considering industrial partners participating as guest lecturers and providing work-placements among other potential contributions.
- Quality Assurance, referring to the EU4Dual Quality Assurance Framework and the Quality and Accreditation Committee.
- Programme information and publicity, awareness-raising and marketing.
- Financial management, where the financial management and the students' participation costs are outlined.
- Agreed intellectual property rights and data protection regulations.

The Cooperation Agreement establishes that each Partner Institution formally recognises the modules offered within the joint degree programme and the credits awarded. Regarding degree awarding, the document states that "Each student who successfully completes the Joint Master's degree and who has fulfilled the requirements of the applicable national legislations shall receive a Joint Master's degree testified by a joint diploma on behalf of the joint degree awarding Partner Institutions involved in the provision of the Joint Master's degree to that particular student. In addition, partner institutions may issue further national degree documents in alignment with national regulations." In this sense, ESTIA will issue a diploma to the students who fulfil the requirements of the French legislation to be awarded a MSc degree.

Assessment

The panel considers that the Cooperation agreement covers adequately the general terms and conditions to provide a joint programme. It is comprehensive and well structured. Clearly, the agreement balances the need for regulations that are specific enough to regulate required aspects while at the same time respecting the diversity of the partners and referring to national regulations when applicable.

The panel considers that the standard is fulfilled.

2. Learning Outcomes

2.1 Level

The intended learning outcomes should align with the corresponding level in the Framework for Qualifications in the European Higher Education Area (FQ-EHEA), as well as the applicable national qualifications framework(s).

Evidence

The SER outlines that the joint Master's programme in Digital and Sustainable Manufacturing Engineering has used the EUR-ACE (European Federation of National Engineering Associations) competence framework for Master level (FQ-EHEA and EQF 7) as a basis to define its learning outcomes. In addition, they have combined them with the learning outcomes defined in the European sustainability competence framework (GreenComp) and the Digital Competence Framework for Citizens (DigComp) as described in the matrix in annex 4.

The panel also reviewed the matrix indicating the contribution of the courses to the intended learning outcomes (27) grouped into 8 categories, with two types of competence general and transversal:

- General (21):
  - Knowledge and Understanding (4)
  - Engineering Analysis (4)
  - Engineering Design (2)
  - Engineering Practice (6)
  - Investigations (5)
- Transversal (6):
  - Making judgements (2)
  - Communication and team-working (2)
  - Lifelong Learning Skills (2)

Assessment

The described learning outcomes meet the requirements for a master's level and the defined qualification goals. The integration of the study contents is ensured in the transfer from one university to another within the framework of the study programme because of the adequate organization of the curriculum which aligns with the intended learning outcomes. The curriculum covers meaningful areas of industrial and manufacturing engineering. The specialisation period, which provides the option to make use of the specific expertise of the host university, provide different perspectives/technologies of application in manufacturing.

The panel considers that the joint master programme, specially the common first semester, will provide to students a sufficiently joint structure of learning outcomes guaranteeing consistency among graduates in all key areas, while at the same time allowing students a choice among specializations.

The panel considers that the standard is fulfilled.

2.2 Disciplinary fields

The intended learning outcomes should comprise knowledge, skills, and competencies in the respective disciplinary field(s).

Evidence

As explained in the SER, the academic programme has been designed considering the learning outcomes for the Master level in EUR-ACE, which is focused on Engineering, combining them with the GreenComp and DigComp to include the sustainability and digital aspects.

To ensure that the curriculum is aligned with the professional profiles and competencies of the field, the programme has also considered the occupations, skills and competences from the ESCO Framework, identifying three occupations and the learning outcomes that would habilitate the students for each occupation:

- Manufacturing Engineer
- Calculation Engineer
- Chief Technology Officer

The matrix of intended learning outcomes vs the content of each course was provided and reviewed during the site visit.

Assessment

The description of the intended learning outcomes outlines the knowledge, skills and competences that the students will achieve in the field of digital sustainable manufacturing engineering. The panel considers that the joint Master's programme in Digital and Sustainable Manufacturing Engineering consists of a suitable mix of theoretic knowledge, work experience and analytical skills, with enough flexibility allowing students to customise their own learning itinerary.

The qualification goals and learning outcomes of the joint Master's programme have been sensibly developed considering also the needs of the labour market as confirmed by the labour market representatives.

The panel considers that the standard is fulfilled.

2.3 Achievement

The programme should be able to demonstrate that the intended learning outcomes are achieved.

Evidence

To achieve the intended learning outcomes, the joint Master's programme in Digital and Sustainable Manufacturing Engineering programme comprises three components spread over three semesters. As the SER outlines the first mechanism that will ensure the achievement of all learning outcomes is that they are covered by at least one course defined in the study programme as it is reflected in the matrix showing the contribution of the courses to the learning outcomes. Some learning outcomes will be achieved in the courses while some others are achieved in the courses and the master thesis. The SER provides a description of how the learning outcomes under each category (see 2.1 Intended learning outcomes) will

be assessed (examinations, problems sets and exercises, short online quizzes, simulations and modelling exercises, technical reports, case studies, oral presentations and defence, work experience assessment, co-assessment by students and industry professionals, laboratory experiments and self-assessment).

The joint curriculum is broken down into several courses, which together ensure that the 90 ECTS of the programme cover all learning outcomes that must be achieved (see Figure 3 in 1.2 Joint design and delivery). The course catalogue describes and shows the alignment between learning outcomes, teaching methods and assessment procedures.

Assessment
The programme has a joint structure, with the first semester being common for all students, although there is flexibility to adapt to students' preferences and needs through the second and third semesters. This allows to create a personalized learning pathway from the options at the specialization period in the second semester and the development of the master thesis at a work placement during the third semester.

The students will receive feedback to evaluate their progress regarding their achievement of the intended learning outcomes. As mentioned before, there are several methods for assessment depending on the teaching methods and there will be a Master Thesis Joint Defence Committee (MTC), composed of academic and industrial supervisors, to evaluate the academic quality and originality of the master's thesis in alignment with the programme's academic standards while ensuring that it meets the academic and research requirements. They will also organize and oversee the joint defence process.

During the interviews with the coordinators the question regarding if all the learning outcomes will be achieved by all students regardless of their specialization track was raised. The joint programme coordinator explained that the focus is always on manufacturing engineering independently of the technologies applied/used in each of the specialization tracks.

Based on the documentation submitted to the panel and the conversations during the site-visit, considering that this evaluation is an ex-ante evaluation with no available evidence of actual results, the panel concludes that the intended learning outcomes of the programme are likely to be achieved. This conclusion is based on the programme's design, which aligns learning activities, teaching methodologies, and assessment frameworks with the intended learning outcomes. However, the panel emphasizes the importance of continuous monitoring to ensure that the expected outcomes are effectively achieved once the programme is implemented. These outcomes should also be reflected in discussions with the company partners.

The panel considers that the standard is fulfilled.

Recommendations
Continuous monitoring of the programme to ensure that the expected outcomes are effectively achieved once the programme is implemented. These outcomes should also be reflected in discussions with the company partners.

2.4 Regulated professions

If relevant for the specific joint programme, the minimum agreed training conditions specified in the European Union Directive 2005/36/EC, or relevant common trainings frameworks established under the Directive, should be taken into account.

Not applicable.

3. Study Programme

3.1 Curriculum

The structure and content of the curriculum should be fit to enable the students to achieve the intended learning outcomes.

Evidence

As described in the SER, the aim of the joint Master's programme in Digital and Sustainable Manufacturing Engineering is to provide students with highly specialized knowledge of manufacturing technologies to optimise them using enabling digital technologies. It offers four thematic pathways in four countries, covering a wider range of technologies than any single university could offer. The programme integrates concepts such as sustainability and the societal impact from a multidisciplinary prism. Besides, it involves industry partners not only as a dual partner in hosting the students for their work placements but also participating in the master's design and providing qualified lecturers.

The panel reviewed the contents of each course including information regarding main themes, learning outcomes, course material, teaching and learning methodology, programme and training activities, workload and assessment methods and criteria.

The key components of the courses are shown in figure 3 (1.2 Joint design and delivery) and in the next paragraphs a summary of each of them is outlined:

1st Semester (30 ECTS) – Transversal semester

it will be 30 ECTS common for all the students, dedicated to student's introduction to the master's and to two grand challenges, combining:

- 2 courses shared with all the future EU4Dual Master's programmes, built as BIP (Blended Intensive Programme) which include short mobilities:
  - Digital Transition (6 ECTS)
  - Green Transition (6 ECTS)
- Specifics courses (online) jointly developed and delivered:
  - Sustainable and Lean Manufacturing (3 ECTS)
  - Industry 5.0 (3 ECTS)
  - Advance simulation and Modelling (6 ECTS)
  - Data Science and Artificial Intelligence Applied to Engineering (3 ECTS)

2nd Semester (30 ECTS) - Specialization Period

It will be 30 ECTS dedicated to student's specialization and world of work experience, combining:

- 4 different specializations tracks (24 ECTS) where students will be assigned based on their preferences:
  - Simulation-driven Innovation in Smart Manufacturing (MU)
  - Additive Manufacturing Technologies (KUT)
  - Smart Production Engineering (FHJ)
  - Robotics for manufacturing (ESTIA)
- Work experience worldwide, for a minimum of 1 month, granted for 6 ECTS.

3th Semester (30 ECTS) - Research Period

30 ECTS, dedicated to world of work experience, combining:

- The BIP module dedicated to Research and Innovation (5 ECTS)
- The Master Thesis (25 ECTS) as an applicative project in a work placement.

Assessment

The curriculum offers a comprehensive and interdisciplinary approach to manufacturing engineering, combining academic learning with practical experience. The progression on the different semesters, from the first transversal semester providing the foundations of the programme, builds on each other and will enable students to achieve the intended learning outcomes in a flexible way allowing the students to design their own path in the second and third semesters. This allows students with different profiles to choose among specializations in the second semester and a real manufacturing engineering project in an industry in the third semester to show all the knowledge and skills achieved.

The panel believes that the proposed structure and content of the curriculum, including the work-placements will enable the students to achieve the intended learning outcomes.

The panel concludes that the standard is fulfilled.

3.2 Credits

The European Credit Transfer System (ECTS) should be applied properly and the distribution of credits should be clear.

Evidence

The joint Master's programme in Digital and Sustainable Manufacturing Engineering has a total study load of 90 ECTS (30 ECTS by semester), one credit is the equivalent of 25 hours of study as outlined in the SER and will be included in the diploma supplement. The general distribution of credits can be seen in Figure 2 (1.2 Joint design and delivery), where the structure of the programme and the courses is shown. Credits are awarded for various types of learning, including courses, research and internships. There is an adequate level of flexibility in the choice of courses and credits open to students. According to the course manuals, the programme offers courses ranging from 3 to 25 ECTS.

Assessment

The distribution of credits within the programme is well defined and transparent. The time equivalence of the ECTS was agreed among the members as confirmed during the interviews and the distribution of the credits was also agreed during the design phase. The panel considers that the European Credit Transfer System (ECTS) is applied properly, and the distribution of credits is clear.
The panel concludes that the standard is fulfilled.

3.3 Workload

A joint bachelor programme will typically amount to a total student workload of 180-240 ECTS-credits; a joint master programme will typically amount to 90-120 ECTS-credits and should not be less than 60 ECTS-credits at second cycle level (credit ranges according to the FQ-EHEA); for joint doctorates there is no credit range specified. The workload and the average time to complete the programme should be monitored.

Evidence

The programme has a total study load of 90 ECTS. Students are required to earn 30 ECTS per semester. These credits are obtained by taking mandatory courses offered by the universities. In the first semester, all students are required to take joint courses (online and BIPs), leading to specialization courses at the host university in the second semester and the work-placements in the third semester completing the master's thesis.

The allocation of the workload among course units in the first and third semester has been jointly agreed, while in the second semester each university could adapt their specialization track. This guarantees that the workload is about evenly distributed among all students, independently of their specialization track (Figure 2).

The documentation doesn't specify how the average time to complete the programme will be monitored.

Assessment

The workload for the programme is clearly and systematically presented and corresponds to the regulations for a joint master's programme. The degree is awarded after completing 90 ECTS which is in the typical range for master's degrees. The monitoring of the average time to complete the programme is not described in the documentation, although intense supervision and assistance should enable the staff to track students individually, as part of the internal quality system, and the panel finds no reason for concern in this regard. The panel considers that the workload is evenly distributed on the 90 ECTS of the master programme. However, the time required to settle every time that the students have to relocate may affect the workload and should be carefully monitored to avoid overloading the students.

The panel concludes that the standard is fulfilled.

Recommendation

Include the average time to complete the programme as an indicator and describe the way this monitoring of the students will be done, considering also the specific needs of mobile students.

4. Admission and Recognition

4.1. Admission

The admission requirements and selection procedures should be appropriate in light of the programme's level and discipline.

Evidence

The Cooperation agreement states that "The Joint Admissions Board (JAB) shall be responsible for the annual selection and admission of all students to the Joint Master (JM) in accordance with the joint procedures and criteria specified in the Study and Examination Regulations."

Access to the joint Master's programme in Digital and Sustainable Manufacturing Engineering is open to students who hold a university first cycle degree (Bachelor, EQF level 6 or similar) in the field of engineering.

Graduates in the following engineering degrees: Mechanical engineering, Manufacturing engineering, Materials science and engineering, Industrial engineering, Aerospace engineering, Civil engineering, Automotive engineering and metallurgical engineering; and with the skills described below will be granted direct access:

- Skill 1: understanding of manufacturing techniques, process optimization, and the integration of technology into manufacturing.
- Skill 2: knowledge of material properties and how they are processed into useful products.
- Skill 3: ability to design, interpret, and analyse simple mechanical systems.

while others might need to complete additional coursework, which is already described in the available documentation.

Once the applications are submitted via an online application portal, the applicants might be deemed eligible for admission if they fulfil the general admission requirements: A bachelor's degree in the field of engineering with a minimum of 180 ECTS credits or equivalent academic qualifications from an internationally recognized university. The accredited qualification must correspond to at least EQF Level 6 or an equivalent level. Proof of English proficiency at level B2 or equivalent. The JAB will rank the students based on a common ser of selection criteria, which will be reviewed annually.

For students who meet the general admission requirements, the JAB will verify the specific admission merits for the Master's programme. The specific admission merits (and their respective weights) are as follows:

- Direct access to the program (40%)
- English proficiency at C1 level (25%)
- Previous studies and experience (25%)
- Letter of motivation (10%)

If local regulations require it, a university may impose additional specific admission requirements. Failure to meet these additional requirements may limit a student's mobility options. These additional admission criteria will be clearly specified on the programme's webpage (see 8. Transparency and documentation).

There is a joint appeals procedure available for rejected candidates.

Assessment
The panel considers that the joint admission requirements and selection procedures are appropriate considering the programme's level and discipline. The entry requirements, minimum eligibility criteria, and applicable legislation for master's degree programmes in the countries of the four partner universities are clearly defined. The appeals procedure is a key component, ensuring that applicants' rights are protected and that the process aligns with transparency and equality policies, focusing on the adequacy, suitability, and clarity of admission criteria.

A joint admission policy governs all stages of the process, incorporating a unified selection procedure and the establishment of a Joint Admissions Board. This board operates with harmonized selection procedures and a shared recruitment policy, ensuring full compliance with relevant legal regulations across all partner institutions.

The panel concludes that the standard is fulfilled.

4.2. Recognition

Recognition of qualifications and of periods of studies (including recognition of prior learning) should be applied in line with the Lisbon Recognition Convention and subsidiary documents.

Evidence
The SER outlines the procedure for the recognition of prior learning or experience including the documentation the students might need to present. For the recognition of prior learning the specific regulations are included. The required duration of professional experience for credit recognition is based on the number of credits assigned to the different subjects (except for internships) and whether the professional activity was full-time or part-time. A maximum of 13,5 ECTS can be recognized in this way (15% of the master's workload).

According to the Cooperation Agreement, each Partner Institution formally recognises the modules offered within the joint degree programme and the credits awarded.

The recognition of qualifications and periods of study outside the consortium's universities, including recognition of prior learning, adheres to the Lisbon Recognition Convention and related documents.

Assessment
The panel considers that the Consortium has procedures in place to apply fair recognition procedures to facilitate recognition of the modules and credits awarded in the partner institutions. In addition, recognition of competencies and qualifications outside the consortium builds on the respective structures at the participating institutions in line with the Lisbon Recognition Convention. Regarding the recognition of professional experience, it should be clear for all potential students that the modules including internships or work placements (TR8. Work experience and Master's Thesis) can't be recognized.

The panel concludes that the standard is fulfilled.

Recommendation

Regarding the recognition of professional experience, make it clear for all potential students that the modules including internships or work placements (TR8. Work experience and Master's Thesis) can't be recognized.

5. Learning, Teaching and Assessment

5.1 Learning and Teaching

The programme should be designed to correspond with the intended learning outcomes, and the learning and teaching approaches applied should be adequate to achieve those. The diversity of students and their needs should be respected and attended to, especially in view of potential different cultural backgrounds of the students.

Evidence

The joint Master's programme in manufacturing engineering places its students at the center of the educational process and ensures alignment between learning outcomes, teaching activities, and assessment procedures. The course catalogue provides up-to-date information detailing objectives, relevance, methodology, and assessment criteria. Student-centred teaching methods are considered crucial to foster deeper learning and practical skills that align with industry demands. These methods emphasize active participation, problem-solving, collaboration, and real-world application, allowing students to take ownership of their learning process. These teaching methods can vary including lectures, tutorials, seminars, flipped classroom, case studies, simulation-based learning, workshops, collaborative and Problem-Based Learning (PBL), Work-Based Learning (WBL) and Industry-Linked Master Thesis.

The course syllabi tables provided in Annex 5 include detailed information on the lecturers, intended learning outcomes, course content, teaching methods and assessment activities, bibliography and software used for each course.

The SER also outlines the BIP methodology and the EU4Dual Model Framework for Dual Higher Education (Annex 13). BIPs include short-term physical mobilities abroad combined with virtual components which facilitate collaborative online learning and teamwork. There will be three BIPs, the first ones in the first semester (TR6 Digital Transition and TR7 Interdisciplinary Sustainable Future) and the last one in the third semester (TR9 Research and Innovation). Annex 13 outlines that Dual Higher Education (DHE) is the core of the EU4Dual Alliance with the aim to: “enhance employability; bridge the skills gap; enable cooperative networking as well as academic and professional integration; foster applied research and development and accelerate innovation for mastering the challenges of present and future societies.” Furthermore, it provides a definition of the term “Dual”: “The Dual Study Model is a particular form of a Higher Education organisational model providing for an integration with the world of work based on collaboration and mutual commitments in learning, teaching and quality assurance.” They have developed a Dual Study Model including several dimensions covering: Policy and strategy; Admission; Formalisation of Commitment; Teaching and Learning; Work-placement; Evaluation/assessment; and Quality.

Assessment

According to the panel, the programme has been designed in correspondence with the intended learning outcomes. It applies a variety of learning and teaching approaches (including internships or work-placements) that enable the students to achieve the intended learning outcomes and promote active learning.

The curriculum integrates a balanced blend of theoretical content, experiential learning, and project-based activities including work-placements. A key module of the programme is the industry-linked master thesis where students apply their knowledge to solve a real-world manufacturing challenge linked to an industry

partner. The teaching activities are student-centred, focusing on active learning, critical thinking, and problem-solving skills. Faculty members from each partner institution contribute their unique expertise, enriching the interdisciplinary nature of the programme. As stated in Annex 13, this will be the first application of the Dual Higher Education Study Model and its key criteria so it will be important to monitor how everything is working with the first cohorts to make the appropriate adaptations once feedback from all the stakeholders is gathered.

The panel concludes that the standard is fulfilled.

5.2 Assessment of Students

The examination regulations and the assessment of the achieved learning outcomes should correspond with the intended learning outcomes. They should be applied consistently among partner institutions.

Evidence

As described in the SER, the programme uses a variety of assessment methods aligned with the teaching methods and the intended learning outcomes as already outlined at 2.3 Achievement section. These methods consider the complexity of manufacturing processes and the interdisciplinarity nature of the field, including self-assessment, co-assessment by students and industry professionals, examinations, problem sets and exercises, short online quizzes, case studies, lab experiments, simulations and modelling exercises, technical reports, oral presentations and defence, and work experience assessments. This last assessment combines employer feedback, reflective reports and oral presentations.

The Study and Examination Regulations regulate the examination and assessment of students of the Joint Master's degree programme, including joint agreements on the order of examinations, assessment methods and criteria, grading, the joint conversion table for grades, access to information on grading, resits and re-assessments, functional disorders and handicaps, unfair practice and fraud.

Partner Institutions shall conduct examinations and assessments in accordance with the policies and procedures in force at the Partner Institutions without prejudice to those adopted by the Joint Academic Coordination Board (JACB) and stated in the Study and Examination Regulations for the Joint Master (JM), in accordance with national law. Annex 9 shows the grading equivalence developed among the partners.

Once all the courses have been completed, the Joint Academic Coordination Board (ACB) will meet in a monographic session to assess the achievement of the learning outcomes of all the students individually, to give them permission to start the Master's thesis and to review and update the assessment criteria and standards. The Master's degree is awarded when the student has passed all the learning outcomes and the Master's thesis.

For students with caring responsibilities or special support needs, the Academic Coordination Team will adapt the assessment method to their specific situation.

Assessment

The programme has put in place an assessment system that is comprehensive and varied. It directly correlates with the intended learning outcomes of the programme. As the joint programme includes work-

placements the assessment also includes the perspective of the industrial partners as mentors. The panel considers the proposed examination regulations and the assessment of the achieved learning outcomes correspond with the intended learning outcomes and that here are rules to be applied consistently among partner institutions. The joint Study and Examination Regulations should be published on the webpage.

The panel concludes that the standard is fulfilled.

Recommendation
Publish the Study and Examination regulations on the webpage.

6. Student Support

The student support services should contribute to the achievement of the intended learning outcomes. They should take into account specific challenges of mobile students.

Evidence

The SER describes how the support for students encompasses each stage of the students' journey: pre-arrival, upon arrival and during studies, outlining the services provided at each of the partner universities. Prior to their arrival at the different universities, students can rely on the support services for accommodation and for visa or legal issues. International Offices coordinate services, including introduction sessions, language courses, university guidance services, social assistance, support in contracting private health insurance, funding opportunities, and cultural and sports activities.

This is a summary of the available support services as described in the SER and presented during the discussions on site with the support staff from all the partners:

Pre-arrival includes all services provided to students before they actually arrive at the HEI to study the joint programme, regardless of if it is their first year or another semester at one of the consortium universities:

- Local tutors (students or faculty members).
- Communication channels.
- Student guides with practical information including immigration and visa procedures.
- Students' handbook about all the relevant information about the joint programme (joint structure, mobility options, requirements for internships and placements, master thesis and awarded degree, available staff...).
- Information about language courses available.

Upon arrival, students are offered some support services to facilitate their transition and adaptation including:

- Logistics for arrival (transportation, communication, etc.) and package with daily life information.

Orientation/Welcome Days.

- Administrative support to explain all the formal requirements of the programme.
- Meeting with the teaching staff (ECTS requirements, agenda for the semester, students' calendar as well as final thesis requirements).
- Contact details of relevant staff in case of any emergency.

Other support services and administrative support:

- Insurance.
- Equity Policies.
- Accommodation
- Bank account assistance
- Mentoring programme
- Digital support – e.g., email account, university wi-fi
- International office/student services office contact details
- Internships and exchange/mobility opportunities
- Alumni network and other students' meetings

- Intercultural training and preparation

For those students with disabilities or special medical needs, universities count on adaptation and accessibility services. When needed, lecturers make the necessary arrangements to adjust to the needs. Universities also have protocols against discriminatory practices and sexual harassment.

Assessment
The panel is of the opinion that the programme plans to offer a comprehensive student support in a well-designed manner. The programme addresses the specific challenges that mobile students face. Nevertheless, the SER describes the support services available in each of the partners, while the option of having a joint support office should be considered to harmonize the services provided to students.

In addition, as this is the first joint programme proposal of the consortium there are some common aspects which are usually a challenge for joint programmes and mobile students that might be considered to further improve the support services provided:

- Since the delays in obtaining visa by embassies and finding appropriate student housing are common issues to all international joint programmes, a common policy for students obtaining visas (when needed) and finding accommodation is advised.
- Consider developing a unified student support handbook that outlines all available services and how to access them across the consortium.
- Provide clear information on personal support services for students' mobility, ensuring effective management of relocation and project engagement at partner universities.
- Create an alumni network after finishing the studies.
- Publish all possibilities for mobilities on the webpage.
- Evaluate the mobilities under the sustainability aspect from a student perspective.
- Adding information on the website about entities from the socio-economic environment where students will be able to carry out part of the educational process (work-placements). It would also be necessary to provide information on work permits as international students might need them for the work placements.

The panel concludes that the standard is fulfilled.

Recommendations:

- Publish on the website information about all the possibilities for mobilities and about entities from the socio-economic environment where students will be able to carry out part of the educational process (work-placements).
- It would also be necessary to provide information on work permits as international students might need them for the work placements.

Suggestions for further improvement:

- Develop a common policy for students obtaining visas (when needed) and finding accommodation.
- Elaborate a unified student support handbook that outlines all available services and how to access them across the consortium.

- Provide clear information on personal support services for students' mobility, ensuring effective management of relocation and project engagement at partner universities.
- Create a joint alumni network.
- Evaluate the mobilities under the sustainability aspect from a student perspective

7. Resources

7.1 Staff

The staff should be sufficient and adequate (qualifications, professional and international experience) to implement the study programme.

Evidence

The SER provides a profile of the professors involved, detailing their specialized knowledge and professional experience (Annex 10), as well as the content they will teach (Annex 5). It effectively demonstrates that the programme incorporates the expertise of academic staff form the four partner universities, covering a wide range of academic specializations that are aligned with the programme's inter- and trans-disciplinary approach.

The proposal includes 23 academics (13 MU, 13 FHJ, 16 ESTIA, and 5 KUT) from the 4 core partners and 2 from SAVONIA (Mobility partner) for one of the BIPs. Lecturers at all partner institutions have the relevant academic qualifications, external recognitions, and suitable experience to provide quality training. According to the evidence (Annex 10), they are also actively involved in research projects and have made research contributions within the field of the programme. The SER also describes research groups of the four partners and some of the research initiatives developed in the framework of the EU4Dual Alliance.

Regarding the administrative staff, the SER provides a table with the staff that can be involved in the programme including administration and finance staff, academic services, maintenance and IT systems, library, laboratory technicians…

The programme will also include lecturers from industry to provide the perspective of the industrial partners. The SER states that EU4Dual is creating an "International Pool of Industry Experts" who can lecture at universities in areas related to the master's courses.

Each Consortium partner appoints a senior academic staff member as its local coordinator, who is responsible for the academic programme, liaises with the other coordinators at the other Consortium partners on all matters concerning the programme and ensures that the programme at their university is consistent with the joint agreements.

Assessment

The panel considers the staff a clear strength of the programme. The lecturers are well qualified, covering different aspects of the content and they are experts in their field, contributing with diverse perspectives to the broad range disciplines of the programme. Most of them have substantial international teaching experience and are proficient in English.

In addition to the partners' academic staff, there will be professional experts sharing their practical experience. According to the panel, the teaching staff boasts a high level of expertise. At all partner universities, the number of lecturers is more than sufficient. Regarding administrative staff, they are also well qualified and experienced to support the needs of students.

The panel concludes that the standard is fulfilled.

7.2 Facilities

The facilities provided should be sufficient and adequate in view of the intended learning outcomes.

Evidence

The SER outlines the facilities that will be used to deliver the joint master's programme like classrooms, meeting rooms, videoconference rooms or some other available spaces for events, conferences or visits. Besides, considering the nature of the programme, a comprehensive description of the available laboratories and infrastructures in each of the partners is available on the SER. During the site visit the panel had the opportunity to visit the premises of Mondragon Unibertsitatea in Bilbao "As Fabrik" campus, where the theorical classes will be held and teaching oriented laboratories are available. The panel could also visit the research/industrial facilities in the Mondragon Unibertsitatea campus in Arrasate-Mondragon where the students could be transferred for more practical activities.

The students will also have access to libraries and their resources either online or in paper. Details regarding student facilities can be found on each institution's website.

Assessment

From the panel's perspective, the facilities cover all the needs for the students to achieve the intended learning outcomes. The visited facilities in Bilbao and Arrasate where very adequate and up to date with classrooms prepared for hybrid classes and with flexible options for group work. The laboratories were also state of the art laboratories which could enable students a hands-on learning.

The panel concludes that the standard is fulfilled.

8. Transparency and Documentation

Relevant information about the programme like admission requirements and procedures, course catalogue, examination and assessment procedures etc. should be well documented and published by taking into account specific needs of mobile students.

Evidence

According to the SER the joint programme's students will sign a Student Agreement where all the relevant information regarding academic, financial, administrative and behavioural aspects will be gathered. Besides it will include the Study and Examination regulations and services provided to students. The partner institutions will inform students about any updates.

Currently there is a provisional webpage hosted at the EU4Dual webpage where information regarding the joint programme is published while the final website is developed: https://eu4dual.education/students/joint-masters-digital-and-sustainable-manufacturing/ It contains the following information:

- Brief description. Providing some information about the aims of the joint programme and a link to request the catalogue. It also includes information about the duration of the programme (90 ECTS – 18 months), teaching language (English B2), admission requirements and number of places.
- What's different about dual studies. Brief explanation of the dual studies combining studies and work experience.
- Study programme. Outline of the three semesters and the courses in each of them.
- Contact information
- Links for enrolment and info sessions

The SER states that the future website will provide relevant information such as admission requirements and procedures, course catalogue, examination and assessment procedures, etc. considering the specific needs of mobile students. This website will serve as the primary platform for publishing all relevant documents and information generated by the programme.

Assessment

The SER outlines the contents to be published. However, the panel suggest that a description of the structure and content of the programme's website, as well as the educational guides to be included in future documentation. This will provide a clearer overview of how information will be organized and presented, ensuring transparency and ease of access for all stakeholders. Besides in the previous standards there are some recommendations and suggestions for further improvement about information which should be available on the website. The panel concludes that once the website is launched, relevant information about the programme will be well-documented and readily accessible. The panel concludes that the standard is fulfilled.

Recommendations

Include a description of the structure and content of the programme's website and educational guides in future documentation.
Clarify if there will be one webpage with all information or there will be individual webpages for each partner.

9. Quality Assurance

The cooperating institutions should apply joint internal quality assurance processes in accordance with part one of the ESG.

Evidence

The SER outlines how the EU4Dual Alliance and the joint Master's programme in Digital and Sustainable Manufacturing Engineering address standards in part 1 of the ESG. It states that EU4Dual alliance's Policies for Joint Degree Design and Accreditation, and Evaluation and Assessment set the guidelines for quality assurance of the Joint programmes. In addition, it explains that for the implementation of the joint programme "a joint structure for academic governance, financial management and internal quality assurance has been established in integration with the EU4Dual alliance's structures". In this sense while the EU4Dual alliance's Quality and Accreditation Committee implements the internal evaluation strategies and mechanisms, the joint programme has its own Quality Assurance Board (QB) who is responsible for monitoring the programme quality and ensuring academic standards. The QB is composed of one representative of each university and one student representative. It will meet twice a year after each semester.

The programme is also developing its own Internal Quality Assurance Handbook (Annex 11) including the programme structure and content, internal quality assurance structures and policies and joint road maps for data analysis, decision making and quality development, as well as degree termination, if needed. The handbook states that some of the policies are in development and will be finalized before the joint programme starts. Quantitative indicators and qualitative information will be gathered by organizing surveys for students, teachers and work life partners and to ensure continuous quality development some indicators will be monitored and evaluated. The Internal Quality Assurance Handbook (Annex 11) provides a table with the indicators, data sources, responsibilities and timing.

Finally, the SER provides a description of the external quality assurance procedures in each of the partners' higher education systems.

Assessment

The joint programme is developing a comprehensive joint quality system clearly outlined in its Internal Quality Handbook. It builds on the already in place structures of the EU4Dual Alliance. It describes its quality policy, governance and management structure and the policies for continuous monitoring and enhancement of the programme. There will be surveys to measure the satisfaction of students, teachers and work-life partners (industrial partners). All the information will be managed via the online platform of the EU4Dual Alliance.

Internal stakeholders are represented in several bodies of the governance and management structure, students being represented at the Quality Assurance Board (QB), which will meet after each semester. The panel considers that students' involvement in the improvement of the programme is adequate and encourages the programme to consider the involvement of alumni and the labour market as an additional source of information for potential updates of the programme.

The panel concludes that the standard is fulfilled.

10. Overview of the assessment and recommendations and suggestions for further improvement

The panel concludes that all the standards are fulfilled and comes to a positive conclusion about the quality of the joint Master's programme in Digital and Sustainable Manufacturing Engineering and recommends its accreditation. In the following table an overview of the assessments is shown:

Standard	Assessment
1. Elegibility	
1.1 Status	Fulfilled
1.2 Joint design and delivery	Fulfilled
1.3 Cooperation agreement	Fulfilled
2. Learning outcomes	
2.1 Level	Fulfilled
2.2 Disciplinary field	Fulfilled
2.3 Achievement	Fulfilled
2.4 Regulated professions	Not applicable
3. Study programme	
3.1 Curriculum	Fulfilled
3.2 Credits	Fulfilled
3.3 Workload	Fulfilled
4. Admission and recognition	
4.1 Admission	Fulfilled
4.2 Recognition	Fulfilled
5. Learning, Teaching and Assessment	
5.1 Learning and teaching	Fulfilled
5.2 Assessment of students	Fulfilled
6. Student support	Fulfilled
7. Resources	
○ Staff	Fulfilled
○ Facilities	Fulfilled
8. Transparency and documentation	Fulfilled
9. Quality assurance	Fulfilled

The panel considers that this is a truly joint study programme. The panel considers that some of the programme strengths are due to its joint design with consortium partners being represented equally and involving highly qualified staff in the corresponding professional fields. The representatives of the participating institutions underlined the added value of the joint programme and how it builds on the synergies and shared resources of the partners (academic and industrial).

Without affecting its overall positive appreciation of the programme, the panel has noticed some potential areas for enhancement. The fact that the joint Master programme is new for all organizations and that there is no evidence yet of the development of the programme, makes follow-up recommended to fully develop its potential to improve. Moreover, as this will be the first application of the Dual Higher Education

Study Model and its key criteria, it will be important to monitor how everything is working with the first cohorts to make the appropriate adaptations once feedback from all the stakeholders is gathered. Therefore, the panel advices the joint Master's programme in Digital and Sustainable Manufacturing Engineering to consider the following:

Recommendations

The panel recommends to:

1. Provide clear information regarding the degree awarded to students, particularly in this initial phase and considering that ESTIA won't award the joint degree, but a MSc degree.
2. Additionally, it is important to inform the students about the need to have 300 ECTS to access PhD programmes and that depending on their previous studies (bachelor's programmes might be 180-240 ECTS) they might need additional credits to reach 300.
3. Update the information regarding the governance structure in the Cooperation Agreement.
4. Continue working on the integration of all partners, particularly the industry partners in all countries.
5. Continuous monitoring of the programme to ensure that the expected outcomes are effectively achieved once the programme is implemented. These outcomes should also be reflected in discussions with the company partners.
6. Include the average time to complete the programme as an indicator and describe the way this monitoring of the students will be done, considering also the specific needs of mobile students.
7. Regarding the recognition of professional experience, make it clear for all potential students that the modules including internships or work placements (TR8. Work experience and master's thesis) can't be recognized.
8. Publish the Study and Examination regulations on the webpage.
9. Publish on the website information about all the possibilities for mobilities and about entities from the socio-economic environment where students will be able to carry out part of the educational process (work-placements).
10. It would also be necessary to provide information on work permits as international students might need them for the work placements.
11. Include a description of the structure and content of the programme's website and educational guides in future documentation.
12. Clarify if there will be one webpage with all information or there will be individual webpages for each partner.

Suggestions for further improvement

The panel suggests to:

1. Develop a common policy for students obtaining visas (when needed) and finding accommodation.
2. Elaborate a unified student support handbook that outlines all available services and how to access them across the consortium.
3. Provide clear information on personal support services for students' mobility, ensuring effective management of relocation and project engagement at partner universities.
4. Create a joint alumni network.
5. Evaluate the mobilities under the sustainability aspect from a student perspective.

11. Annexes

Schedule of the site visit

Monday, 31 March 2025 (Premises of Mondragon Unibertsitatea in As Fabrik (Bilbao) and Arrasate-Mondragon.

8:15-9:00 Internal meeting of the panel

09:00 Welcome by the Academic Vice rector of Mondragon University and EU4Dual Alliance Coordinator

9:30-10:30 Programme management (coordinators from different partners and Joint Programme Coordinator)

10:30-11:30 Academic staff (different universities and specialization tracks)

Break

12:00-12:45 Support staff

12:45-13:30 Industry and companies' representatives (including the Dual coordinator at MU)

13:30-14:00 Visit to the facilities in "As Fabrik" Bilbao

Lunch break and transfer to Arrasate-Mondragon

15:45-17:00 Visit to the facilities (labs) in Arrasate-Mondragon:

- Meeting with the EU4Dual Academic Council
- HIREKIN: Innovation and entrepreneurship centre for sustainable industrial transformation
- Manufacturing research facilities

List of reviewed evidence

Annexes to the SER

1) Legal status of partner institutions
2) Cooperation agreement
3) Documents supporting each partner's legal basis for:
    a. Participating in the joint programme
    b. (Joint) degree awarding rights (if applicable)
4) List of Intended learning outcomes
5) Course syllabi of all partners
6) Curriculum – Study plan
7) Official documents indicating admission requirements and selection procedures
8) Official documents outlining procedure for recognition of qualifications
9) Students' assessment regulations
10) Academic staff CVs (all partners)
11) Relevant documents constituting internal quality assurance system
12) Diploma supplement (sample)
13) EU4Dual Model Framework for Dual Higher Education
14) Policy for Joint Degree Design and Accreditation Framework

Additional information

- Governing structure (updated)