Universidad de Castilla-La Mancha

Engineering & Architecture

M.A.

Erasmus Mundus Master in Sustainable Biomass and Bioproducts Engineering

Universities

WUST - Poland
UCLM - Spain
LUT - Finland

Credits ECTS

120 ECTS | 30 MA | 90 CP

Modality

In Person | Blended | Online

Delivery Place

1st Semester: Wrocław University of Science and Technology- Wroclaw (WUST)
2nd Semester: Faculty of Sciences and chemical technologies - Ciudad Real (UCLM)
3rd Semester: Lappeenranta-Lahti University of Technology- Lappeenranta (LUT)
4th Semester: WUST/ UCLM/ LUT (Depending on the M.A. Thesis)

Pre-Registration/Registration Deadlines

Pre-Registration: 1st April – 5th May 2022
Admission: 11th May – 30th May 2022
Registration: 20th June –1st September 2022

Fees

20 Erasmus Mundus Scholarships per intake (€0,0 whole program)

Academic Commission

- Jolanta Warchol (Coordinator - Poland)
- Bogdan Kuchta
- Karolina Labus
- Ana Maria Borreguero Simón (Coordinator - Spain)
- Juan Francisco Rodríguez Romero
- Javier Llanos López
- Tuomo Sainio (Coordinator - Finland)
- Maria Mamelkina

Type

Researcher
Professional

Seats Nº

22

Contact

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M.A. Description

Bioproducts and bio-based industry development has been identified as one of the motors of industrial growth in Europe inside the Horizon 2020 and other European initiatives. It results from the fact that bio-based materials processes are making big promises as environmentally friendly. The demand for clean technologies related to the use of bioprocesses for biofuels, bio-based chemicals and products is included in many sustainable development directives. Several-fold increase of markets for bio-based raw materials and new consumer products will create a large demand for specialists in bioproducts engineering. Consequently, the bio-mass conversion specialists will be highly demanded by the industry to develop engineering solutions of bio-products manufacturing.

The SBBE Master aims at preparing specialists in the field of sustainable biomass and bioproducts engineering.

Students receive a high-quality training and achieve qualification in the field of chemical engineering combined with bio-processing. They should be prepared for studies at Ph.D. level or for working in industry. The overall structure of the SBBE Master is a combination of courses with the intention of offering a dual scientific/engineering education. The mobility scheme and the course structure are based on a progressive learning from basic modules to specialization.

Duration: The duration of the Master program is 2 years. The program is designed as follows:

- 3 academic study semesters, one at each of the three European Partner Universities according to the mobility scheme. The language of instruction is English
- 1 semester for the Master thesis research project
- Summer School takes place after the second semester
- 1 month internship during the summer between semesters 2 and 3 (optional)

The successful completion of the curriculum is rewarded by the following national diplomas:

1. Degree from Wrocław University of Science and Technology (WUST)
2. Degree from University of Castilla-La Mancha (UCLM)
3. Degree from Lappeenranta-Lahti University of Technology- Lappeenranta (LUT)

*Diploma documents include Diploma Supplement.

Admission Profile

The SBBE Master's degree is designed to provide a high-quality training and achieve qualification in the field of chemical engineering combined with bio-processing. The minimum requirements for admission to the master are:

1) Strong academic background in appropriate disciplines

The SBBE Programme is open to excellent European and non-European students having acquired a BSc (or higher) equivalent diploma in Chemical Engineering, Environmental and Mechanical Engineering, and related fields. Degree must give applicant eligibility to apply to a university Master's studies in the country where the degree was completed.
If a candidate is in process of obtaining the Bachelor degree, applicant can apply for the admission. In this case, in addition to the above documents, applicant has to present, before 31th August, a letter signed by the university stating the expected date of title issuance and provide a detail transcript of records.

2) Demonstrated English language skills

Candidates must demonstrate their knowledge of English by proving her/his education in English (secondary school diploma and/or bachelor degree) or by proving a certified language level equivalent to at least B2 according to CEFR (Common European Framework of Reference for Languages) for example:

- TOEFL test: minimum score 78 (210 computer-based/547 paper-based test).
- ELTS test: minimum score 6.0, at least 5.7 on each sub-score (Academic test and not the General one!).
- Cambridge International Examinations: FCE level B2 with minimum score 72.

Not mandatory for students of the following nationalities: USA, UK, Ireland, New Zealand or Australia.

3) Rules from European Education and Culture Executive Agency (EACEA):

Candidates have to provide

- A residence certificate issued in accordance with the candidate's municipality normal registration rules;
or
- A certificate from the candidate's place of work, study or training issued by the employer or institution in question.
One of the document must have been issued within 12 months before the SBBE student scholarship submission deadline, i.e. the consortium's official deadline for student selection.

Admission Criteria

All eligible candidates are evaluated and ranked with a maximum score of 50 according to the following criteria by the consortium's selection Committee:

- Grade Point Average of academic results of the student within his/her class **Max.15 points.**
- Adequacy of the students background (academic courses) for the Master course: **Max 15 points.**
- Relevant merits associated to the CV: **Max 10 points.**
- Recommendation letter from BSc supervisor or Faculty Dean (Recommendation letter must be sent directly, uploaded on-line by its author): **Max 10 points.**

The admission policy is intended to ensure equal opportunity of access to higher education for qualified European and Third-country students. In the first instance the Selection Committee selects those students who meet the Admission Requirements and afterwards establishes a ranking considering merits (according to the list of Additional Merits listed above). Then, the shortlisted of 50 candidates will be invited for on-line interview. Finally, the Committee prepares the list of candidates selected for EMJM scholarship as well as the reserve list.
The candidates from both lists will be informed accordingly by mail or e-mail by the administrative officer of WUST. The candidates selected for EMJM scholarship must confirm their participation in SBBE program within one week.

Career Opportunities

The SBBE Program aims at preparing specialists in the field of sustainable biomass and bioproducts engineering.

The competences of a graduate of the SBBE EMJM are:

- Thorough knowledge of the principles of biomaterials composition and synthesis methodology.
- Ability and skills to synthesize biomaterials and appropriate analysis of its properties.
- Thorough knowledge of modelling and processes simulation methods.
- Advanced knowledge on present biorefining processes and Capacity to modernize the present technologies and develop the new ones.
- Capacity to promote and to develop scientific and technological innovation in a frame of circular economy.
- Possibility of making a critical analysis of scientific information
- Capacity of technical and economic evaluation of a project of innovation and research
- Aptitude to occupy leading positions in science and engineering
- Ability to integrate in a professional organization and develop ethics and responsibility
- Capacity to work effectively in a team project.

Beside professional knowledge, the proposed program offers transversal skills development that allows students to get awareness of ethical issues, EU legislative framework, and intellectual property rights as well as gain skills in communication, decision taking and collective actions.

Syllabus

COURSES	120 Credits		
Nature of bio-materials	2	CP	S1
Bio-components characterization	3	CP	S1
Modification of recovered bio-components	2	CP	S1
Recovery of bio-components	3	CP	S1
Operations unit and reactors of biomass treatment I	6	CP	S1
Lignocellulosic resources	1	CP	S1
Chemical-thermal biomass conversion	2	CP	S1
Environmental impact	1	CP	S1
Life cycle assessment	1	CP	S1
Good laboratory practice	2	CP	S1
Research methodology	2	CP	S1
Chemicals safety	1	CP	S1
Polish language and culture/ basic Spanish language	3	CP	S1
Philosophy of science	1	CP	S1
Bio-based materials fabrication	3	CP	S2
Operations unit and reactors of biomass treatment II	5	CP	S2
Design and optimization of bioprocesses by commercial simulators	4	CP	S2
Dynamic and control of bioprocesses	3	CP	S2
Chemical and mechanical fractionation	4	CP	S2
Bioproducts valorization and waste management	4	CP	S2
Knowledge management and communication skills	3	CP	S2
Spanish language and culture/Basic Finish language	4	CP	S2
Summer School		CP	S2
Bio-based sorbents in environmental protection	1	CP	S3
Bio-based fertilizers and food additives	1	CP	S3
Bio-based chemicals and consumer products	3	CP	S3
Sustainable Bio-products technologies	2	CP	S3
Lignocellulosic bio-refinery	5	CP	S3
Separations by filtration in biorefining	4	CP	S3
Separations by adsorption in biorefining	3	CP	S3
Business models and market analysis	3	CP	S3
Design and optimization of experiments	4	CP	S3
Finish language and culture	4	CP	S3
M.A. Thesis	30	MA	S4

Timeframe o Schedule
S1 1st Semester **S2** 2nd Semester **S3** 3rd Semester **S4** 4th Semester

Typology of the course
CP Mandatory course **MA** M.A. Thesis

Funded by the European Union