

FRAMEWORK PROGRAMME OF EARLY STAGE RESEARCHER TRAINING¹

1. BASIC DATA

Mentor's name and surname	Andreja Nemet	Mentor's register number at ARIS (SICRIS) :	36603
Mentor's e-mail:	andreja.nemet@um.si	Mentor's tel. no.:	02/2294 458
Research programme (RP) leader's name and surname:	Zdravko Kravanja	RP leader's register number at ARIS (SICRIS) :	06005
Title of research programme:	Process System Engineering and sustainable development	RP's Register number at ARIS (SICRIS) :	Kliknite ali tapnite tukaj, če želite vnesti besedilo.
Research organisation (RO) of University of Maribor, where training shall be conducted:	Faculty of Chemistry and Chemical Engineering	RO Register number at ARIS (SICRIS) :	0794
Research field according to ARIS classification :	2.02.03	Research field according to Ortelius classification (EURAXESS)	15.5.Chemical Engineering

2. DEFINITION OF RESEARCH PROBLEM AND GOALS OF DOCTORAL RESEARCH²

Starting point of research task of the early stage researcher and its position in the research programme, where the mentor is included, work hypothesis, research goals and foreseen result with emphasis on an original contribution to science:

The doctoral study will be carried out in the field of process system engineering. One of the main aim of the research program in which the doctoral study will be carried out is the development and application of a holistic planning approach for the transition from the current linear production and consumption systems to new circular value chains with the aim of reducing emissions into the environment. The concept of circular economy would include the entire supply chain, from renewable raw materials to molecular transformations, including those based on predicted kinetics, to the synthesis of individual green processes and their regional networks. Special attention will be

¹ Term early stage researcher (ESR) is written in male form and used as neutral for women and men.

² Research and study programme of training have to harmonise with contents of the research programme, where the mentor is a member.

given to both, the intensification of processes using a flow microprocessor system and the development of multi-stage syntheses from sources (wastes) to products. An example of a synthesis is a series of chemical conversions in the Power-to-X system and the vice versa and further also from x to y. It is envisaged that the design of promising process pathways will be selected using a computer-aided approach, e.g. a superstructure approach, upgrading the developed methods with the specifics of the microreactor system. The newly developed methods can also be included then in the MIPSYN -Global, which is a synthesis shell under constant development.

Students are expected to publish at least two articles in journals with impact factor, present their results at national and international conferences, according to student wish spend some time abroad, and contribute to the research program within the "Laboratory for Process Systems Engineering and Sustainable Development".

3. STUDY PROGRAMME

Foreseen study programme, to which early stage researcher shall be enrolled in academic year 2024/2025:

Chemistry and Chemical Engineering

4. DESCRIPTION OF WORK AND TASKS

The student carries out projects of scientific and research work
Participates in the design of research programs.
Professionally cooperates with clients for research.
Prepares reports and studies on research.
Monitors and coordinates research work according to funding agreements.
Takes care of safe and healthy work.
Organizes and teaches employees and students about the use of the laboratory equipment and personal protective equipment and other security measures.
Performs other related tasks as instructed by supervisor.
Participates in working and permanent commissions of UM member bodies and other members.
Replaces colleagues and superiors in his/her absence (by authorization).
Participates in annual and other stock-taking.
Performs other related work as instructed by superiors.

5. REQUESTED LEVEL OF EDUCATION

VII. /2. tariff group

6. REQUESTED FIELD OF EDUCATION

Technical, natural sciences.

7. KLASIUS SRV

Seventh level: Second level higher education and similar education/second-level higher education and similar

8. KLASIUS P

4- Natural sciences, mathematics and computer science
5- Technology, production technologies and construction

9. REQUESTED KNOWLEDGE

Requested computer skills: MS Windows, Word, Excel, Internet, email

10. REQUESTED SPECIAL REQUIREMENTS

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11. REQUESTED LANGUAGES

Active knowledge of one world-wide used language

12. REQUESTED WORK EXPERIENCE

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13. FORESEEN POSTDOCTORAL TRAINING

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Mentor's signature:

Research programme leader's signature:

Name and surname of Dean or
authorised person³:
prof. dr. Zoran Novak

Signature of dean or authorised person:

³ The training program is signed by the dean of the member where the ESR's employment and training will take place.

Place and date:

Maribor

27. 02.
2024

Stamp: