REPUBLIC OF TURKEY
GEBZE TECHNICAL UNIVERSITY
ERASMUS OFFICE

CONFIRMATION LETTER FOR ERASMUS TRAINEE

The below student has completed the traineeship at our enterprise/organisation as an Erasmus trainee student.

Name of the Trainee: Kadir Ercan Özdemir

Name of the Receiving Organisation/Enterprise: UCT Prague

Sector of the Receiving Organisation/Enterprise: University

Address and website of the Receiving Organisation/Enterprise: Technická 5, 160 00 Praha 6-Dejvice / https://www.vscht.cz/?jazyk=en

Start date of the traineeship: 15.10.2024

End date of the traineeship: 14.01.2025

Signature of the Supervisor at the Receiving Organisation/Enterprise:

Stamp of the enterprise/organisation:

Date: 13.01.2025

UNIVERSITY OF CHEMISTRY AND TECHNOLOGY, PRAGUE
DEPARTMENT OF INTERNATIONAL RELATIONS
Technická 5, 166 28 Prague 6
Czech Republic

Annex to the Confirmation Letter (After Mobility for Learning Agreement)

Traineeship title:

Software simulation of bioprocesses in the MATLAB environment

Detailed programme of the traineeship period including tasks carried out by the trainee (including the virtual component, if applicable):

The aim of the work was to extend the existing fed-batch yeast culture simulator with a model describing the behaviour of pH during cultivation, including its effect on the main cultivation parameters, and to extend the existing process control strategy with a feedback controller to regulate the pH value in the bioreactor. As part of the work, the student programmed several new functions and scripts in the Matlab environment, including the modification of existing program code.

Knowledge, skills (intellectual and practical) and competences acquired (achieved learning outcomes):

During his traineeship, the student has improved his knowledge and skills in particular in the following areas

- Mathematical modelling of complex chemical and biochemical processes (modelling pH behaviour in bioreactors)
- Design of feedback control systems (pH regulation in bioreactors)
- Design and programming of functions and scripts in the Matlab environment, including analysis of existing code
- Planning and carrying out bioprocess simulations
- Presentation skills (ability to present and defend results)

Evaluation of the trainee:

During his traineeship, the student focused primarily on enhancing the existing bioprocess software simulator by integrating a model of pH behaviour in the bioreactor, including pH regulation. He demonstrated very good analytical skills by thoroughly examining the existing simulator implemented in Matlab and the pH simulation module designed in Simulink. The student successfully developed new program code in Matlab, creating complex functions and scripts, and rigorously validated his solutions through advanced simulation scenarios. He worked independently throughout the traineeship, regularly proposing innovative solutions to specific challenges. His ability to clearly present and defend his results was commendable, reflecting a deep understanding of the subject matter. He maintained consistent communication with his supervisor from the Bioprocess Control Research Group at UCT Prague, ensuring progress and alignment with the traineeship objectives.

Date: 13.01.2025

Name, signature of the Supervisor at the Receiving Organisation/Enterprise and stamp of the Organisation/Enterprise:

Assoc. Prof. Pavel Hrnčiřík
Bioprocess Control Group
Department of Mathematics, Informatics and Cybernetics
UCT Prague

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