#### EU BEC - BRAC 2025

**36**

**years**

##### EUROPEAN BIOPROCESS ENGINEERING COURSE

 

**Principal Doctoral / Post Doctoral Course**

**Supetar, Island of** [**Brac**](http://www.otokbrac.com/)**,** [**Croatia**](http://www.hr/)

**20th - 26th September 2025**

[**http://www.brac-bec2025.com/**](http://www.brac-bec2025.com/)

**The European Bioprocess Engineering Course**

**Brac 2025**

The European Bioprocess Engineering Course (EU BEC) - Brac 2025 will again be held on the Island of Brac, Croatia in the Adriatic Sea. The last, held in 2023, was the 34th anniversary of this long-running, highly successful series of courses on Brac and the next one will take place from 20th to 26th September 2025 in the town of Supetar. It is organized under long term cooperation by the University of Ljubljana, Croatian Society of Biotechnology and EU Working Group on Bioreactor Performance. All of the lectures will be given by internationally distinguished university teachers, who also consult for industry or by leading experts from multinational companies, who are also active in encouraging academic-industry collaboration.

This updated course covers the full spectrum of bioprocess engineering, from genetic concepts for micro-organisms used to produce pharmaceutical and other products via microbial physiology, bio-reaction kinetics, screening techniques, bioreactor design and scale-up. The organisms considered range from simple bacteria to animal cell cultures including recombinant organisms, and stem and CAR-T cells for advanced medical therapy. There is also a strong coverage of measurement, control and optimization and how they interact with each other and with the specific bio-reaction of interest. Finally, there is a broad-brush coverage of state-of-the-art downstream processing. The lectures are supplemented by exercises, discussions and a Design Case Study. Participants are also encouraged to bring posters of their work with selected candidates being invited to make short oral presentations (of approximately 5 minutes duration), at the *‘Chris Hewitt Speakers Corner’*,in recognition of the great contribution made by Chris to the course over many years. Finally, there is a strong social programme, which also ensure that there are many opportunities to interact with the lecturers.

 The course is directed specifically for PhD students and experienced bioprocess engineers and biotechnologists from research institutes, universities and industry. Participants are expected to have a background in chemical/biochemical engineering, biotechnology, a biological science or a related discipline. The lecturers are all acknowledged specialists in their fields, so that the course also provides a forum for highlighting recent research in relevant areas.

# SCIENTIFIC COMMITTEE

Prof. Dr. Henk J. Noorman, DSM-Firmenich, The Netherlands (Chairman)

Prof. Dr. Jochen Büchs, RWTH Aachen University, Germany

Dr. Marco Jenzsch, Roche Pharma Biotech, Penzberg, Germany

Prof. Dr. Marin Berovič, University of Ljubljana, Slovenia

Dr. Stuart M. Stocks, Novonesis, Denmark

# LECTURERS

Prof. Dr. Marin Berovic, University of Ljubljana,Slovenia

Prof. Dr. Jochen Büchs, RWTH Aachen University, Germany

Dr. Marco Jenzsch, Roche Pharma Biotech, Penzberg, Germany

# Prof. Dr. Goran N. Jovanović, Oregon State University, USA

Prof. Dr. Bjorn Kristiansen, GlycaNova, Norway

Prof. Dr. Cees Haringa, Delft University of Technology, The Netherlands

Prof. Dr. Henk J. Noorman, DSM-Firmenich, The Netherlands

Prof. Dr.Vesna Zechner-Krpan, University of Zagreb, Croatia

Prof. Dr. Qasim Rafiq, University College London, UK

Prof. Dr. Jakob Huusom, Technical University of Denmark, Denmark

Prof. Dr. Matthias Reuss, Stuttgart University, Germany

Dr. Stuart M. Stocks, Novonesis, Denmark

Prof. Dr. Luuk A.M van der Wielen, Bernal Institute, University of Limerick, Ireland

Dr. Emilie Overgaard Willer, Technical University of Denmark, Denmark

Prof. Dr. John Woodley, Technical University of Denmark, Denmark

# ORGANISING COMMITTEE

Prof. Dr. Marin Berovič, Inovine, Ljubljana, Slovenia (Chairman)

Prof. Dr. Ivana Radojičić Redovniković, Faculty of Food Techn. Biotechn., Univ. of Zagreb, Croatia

Prof. Dr. Vesna Zechner-Krpan, Faculty of Food Technol. Biotechnol., University of Zagreb, Croatia

Doc. Dr. Saso Gjergjek, Inovine, Ljubljana, Slovenia

 **POSTER PRESENTATION**

Poster dimensions should not exceed 1.0 m x 1.0 m. Every poster should include a title and author name(s) and affiliation(s). The posters will be on display in front of the lecture hall throughout the course for informal discussions. On the basis of the posters a group of selected candidates will be invited to make short (5 minutes) oral presentations at the *‘Chris Hewitt Speakers Corner’*.

**European Bologna Studies System recognizes 5 Credits**

**to the Certificates of EU BEC**

**SOCIAL PROGRAMME**

The social programme for all participants and tutors will include several special events: a Welcome Party; a ‘Get Together’ Party, to which, it is suggested, each participant might bring a bottle of a typical drink or food from her/his native country; an introduction to the Art of Professional Wine Tasting followed by a Competition and Tasting of Best Selected Croatian wines; Social trip and a Farewell party. Additional programs for accompanying persons are available.

**DATE AND VENUE**

The European Bioprocess Engineering Course Brac 2025 will be held between Saturday, 20th September andFriday 26th September 2025 in the town of Supetar on the most beautiful Adriatic Island of [Brac](http://www.otokbrac.com), [Croatia](http://www.hr). The lectures will commence on Saturday, 20th September and the course will conclude Thursday evening on 25th September. Departure is scheduled on Friday morning 26th September. The Island of [Brac](http://www.otokbrac.com) is situated just a few kilometers from [Split](http://www.split.hr), an old Dalmatian Harbor on the Mainland with the famous Summer Palace of the Roman Emperor Diocletian. Split has an International Airport that is well connected with all Major Airports in Europe.

During the course, the accommodation and meals will be provided at the fancy Waterman Resort Supetrus located within 10 minutes walking distance of the small Harbour of Supetar. From Split to Supetar, there are frequent Ferry-Boats from [Split](http://www.split.hr) Harbor to [Supetar](http://www.supetar.hr) and transfers between [Supetar](http://www.supetar.hr) Harbor and the Waterman Resort Supetrus will be available. Island of [Brac](http://www.otokbrac.com) also has its own small airport, directly accessible from a few airports in the region.

Although Croatia has no visa requirements for many Countries, participants are advised to check whether or not they require a visa.

**COURSE FEE**

The full all-inclusive fee for participants from industry is **3100** EUR. It includes a **Course Fee**, **Lecturing, Exercises Tutorial and Course Literature as Well as Full Accommodation** from September 20th to the morning September 26th **including All Meals and All Social Events**. The reduced fee for students is **2300** EUR for the same package (**accommodation in twin bed rooms**). To obtain the reduced rate, doctoral/postdoctoral students must submit written University Confirmation of their status with or immediately on registration.

The Fee for **Accompanying Person is 1200 EUR** and it **includes Full Accommodation and all Social Events of The Course.**

**PROGRAMME**

**EU Bioprocess Engineering Course 20th – 26th September 2025**

Supetar, Island of Brač, Croatia

**SATURDAY 20TH SEPTEMBER, DAY 1**

12.00 *Arrival / Registration*

16.45 - 17.00 *Welcoming Addresses*: M. Berovic, I. Radojičić Redovniković and H.J. Noorman

**Course Introduction: Some Basic Concepts**

17.00 - 17.45 *Lecture 1*: **Basic Microbiological Concepts** V. Zechner-Krpan

17.45 - 18.30 *Lecture* 2: **Basic Engineering Balances** J. Büchs

18.30 - 19.15 *Lecture* 3: **Introduction to Modern Industrial Bioprocesses** M. Jenzsch

19.45 *Dinner and Welcome Party*

**SUNDAY 21ST SEPTEMBER, DAY 2**

**Stoichiometry, Rates and Reaction Kinetics**

09.00 - 09.45 *Lecture* 4: **Stoichiometry**  H.J. Noorman

09.45 - 10.30 *Lecture* 5: **Kinetics** H.J. Noorman

10.30 - 11.00 Coffee break

**Physical Parameters in Bioprocessing and Bioreactors**

11.00 - 11.45 *Lecture* 6: **Sterilization in Bioprocesses** M. Berovic

11.45 - 12.30 *Lecture* 7: **Mixing, Mass and Heat Transfer in Bioreactors** S. M.Stocks

12.30 - 13.15 *Lecture* 8: **Process Intensification**  G. Jovanovic

13.30 – 14.30 Lunch

14.30 - 15.15 *Lecture* 9: **Bioprocess Engineering in Microtiter Plates and Shake Flasks**  J. Büchs

15.15 - 16:00 *Lecture* 10: **Bioprocessing in Conventional Bioreactors** S. M.Stocks

**Bioreactors and Bioprocessing I**

16.00 - 18.45 Design Study 1: Stoichiometry / Kinetics H.J. Noorman, S.M. Stocks,

 J. Büchs, C. Haringa

19.00 - 20.00 Dinner

20.30 *Get Together Party with Tasting of Participants ‘National Delights’* M. Jenzsch, V. Zechner-Krpan

 I. Radojičić Redovniković

**MONDAY 22ND SEPTEMBER, DAY 3**

**Bioreactors and Bioprocessing II**

09:00 - 09.45 *Lecture* 11: **Industrial Bioreactors and Detailed Modelling** C. Haringa

09:45 - 10.30 *Lecture* 12: **Scale-Up and Scale-Down** S.M. Stocks

10.30 - 11.00 Coffee break

11:00 - 11.45 *Lecture* 13: **Microscale-Based Design of Modular Industrial Scale Reactors** G. Jovanovic

11.45 - 12.30 *Lecture* 14: **Solid State Bioprocessing**  M. Berovic

12.30 - 13.45 Lunch

**Bioreactors and Bioprocessing III**

13.45 - 14.30 *Lecture* 15: **Redox Potential in Bioprocess Engineering** M. Berovic

14.30 - 15.15 *Lecture* 16: **Fed Batch and Continuous Culture** J. Büchs

15.15 - 16.00 Coffee break

16.00 - 18.00 Design Study 2: Transport phenomena J. Büchs, H. J. Noorman,

 S.M. Stocks, C. Haringa

19.00 - 20.00 Dinner

20.30 ***Chris Hewitt˙s******Speakers Corner*** B. Kristiansen, I. Radojičić Redovniković

**TUESDAY 23RD SEPTEMBER, DAY 4**

**Dynamic Diagnostic Analysis and Modelling**

09.00 - 09.45 *Lecture* 17: **Tools for *in-vivo* Diagnosis of Pathway Reactions** M. Reuss

09.45 - 10.30 *Lecture* 18: **Dynamic Modelling of Metabolism** M. Reuss

**Use of Enzymes**

11.00 - 11.45 *Lecture* 19: **Biocatalytic Process Engineering** J. Woodley, E. Overgaard Willer

12.00 **Social Boat Trip around the Island Brac to Bol**

**WEDNESDAY 24TH SEPTEMBER, DAY 5**

**Modern Measurement Techniques and Optimisation**

09.00 - 09.45 *Lecture* 20: **Bioprocess and Fermentation Monitoring** M. Jenzsch

09.45 - 10.30 *Lecture* 21: **Soft-sensors for Bioprocess Monitoring** C. Haringa

10.30 - 11.00 Coffee break

**Special Cases 1 and 2**

11.00 - 11.45 *Lecture* 22: **Recombinant Protein Production with Different Hosts** M. Jenzsch

11.45 - 12.30 *Lecture* 23: **Bioprocess Engineering for Stem Cell Culture** Q. Rafiq

12.30 - 14.00 Lunch

**Downstream Processing**

14.00 - 14.45 *Lecture* 24: **Downstream Processing 1**  L. van der Wielen

14.45 - 15.30 *Lecture* 25: **Downstream Processing 2**  L. van der Wielen

15.30 - 16.00 Coffee break

16.00 - 16.45 *Lecture* 26: **Downstream Processing 3** L. van der Wielen

16.45 - 18.45 Exercise: Case Study-Downstream Processing L. van der Wielen

19.00 - 20.15 Dinner

20.*30 Wine Culture and Art of Wine Tasting in Europe*

 *+ EU BEC 2025 Wine Competition* M. Berovic

**THURSDAY 25TH SEPTEMBER, DAY 6**

**Special Cases 3 and 4**

09.00 – 09.45 *Lecture* 27: **Culture of Human Mesenchymal Stem Cells on Microcarriers** Q. Rafiq

09.45 – 10.30 *Lecture* 28: **Barriers in Industrial Production of Metabolites** B. Kristiansen

10.30 - 11.00 Coffee break

**Control of Bioprocesses**

11.00 - 11.45 *Lecture* 29: **Introduction to Control of Bioprocesses** J. Huusom

11.45 - 12.30 *Lecture* 30: **Advances in Control of Bioprocesses** J. Huusom

12.30 - 14.00 Lunch

14.00 - 18.30 Free time

18.30 - 20.00 Dinner

20.15 ***Farewell Party and Presentation of Certificates and Case Study Prize***

**FRIDAY 26TH SEPTEMBER, DAY 7**

***Departure***

**PAYMENT**

The payment must be made **before June 20th** **2025** to have guaranteed participation. **After that date, a** *‘late-bird fee’* of 100 Euro will be charged. The payment in Euros should be made to the technical organizer by bank transfer to:

**Spektar Putovanja d.o.o.**

Strossmayerov trg 8

10 000 Zagreb, Croatia

<http://www.brac-bec2025.com/>

BANK ACCOUNT:
Spektar Putovanja d.o.o.
ZAGREBACKA BANKA ZAGREB
IBAN HR1323600001500395457
SWIFT ZABA HR 2X

(**With payment designation ‘BEC2025’ or Nr. 0023/003/2025**)

**ATTENTION**:  **Please note that the bank transfer charges must be** **paid by the sender!**

**Mrs. Petra Miskulin**

Project Manager

SPEKTAR PUTOVANJA d.o.o.

Congress and Incentive Department

Tel: 00385 1 4862 606

Fax: 00385 1 4862 622

**E-mail:** **petra@spektar-holidays.hr**[**www.spektar-putovanja.hr**](http://www.spektar-putovanja.hr)

**Since the total number of participants is limited, the participant list will be formed according to the date of payment. Early registration and early payment (not later than June 20th)**

**are the best way to**

**assure attendance on this very popular and overbooked course.**

**Registration details and payment, including the information specified below, should be sent by e-mail, preferably before June 20th, to the address:**

**E-mail:** **petra@spektar-holidays.hr**

[**http://www.brac-bec2025.com/**](http://www.brac-bec2025.com/)

**Contacts: Organizing Committee**

**Chairman of Organizing Committee**

**Prof. Dr. Marin Berovič,**

 Inovine, Slovenia
Phone: + 386 40 636 943 Viber, WhatsApp, Messenger
**E-mail:** marin.berovic@fkkt.uni-lj.si

**Prof. Dr. Vesna Zechner-Krpan**

Faculty of Food Technology and Biotechnology, University of Zagreb, Croatia

Phone: + 385 1 4605 142

 **E-mail:** vzkrpan@pbf.hr