



## International Biogas Hands On Training - Practical Digester Biology -

At the South West College, Enniskillen, Northern Ireland

November 22-24, 2017

For the **second time** the Centre for Renewable Energy & Sustainable Technologies (CREST) and the International Biogas and Bioenergy Center of Competence (IBBK Fachgruppe Biogas) are delighted to welcome you to a

### 3-day in-depth Biogas HANDS ON Operators & Planners Course

at the South West College in Enniskillen, Northern Ireland. The course will be delivered by biogas experts from Germany and UK with many years of practical experience in the biogas sector.

**Early bird discount available – book and pay until October 27<sup>th</sup> to save 15 % on the participation fee!**



### Who would benefit from the course?

- Biogas plant operators & staff; farmers planning to operate an AD-facility
- AD developers
- Central & local government officials engaged with AD
- Banks & investment houses, private investors
- Academic institutions

### Training Programme

Wednesday, 22 November 2017

Practical Plant Operation

08:30	Registration
09:00	Welcome to the seminar Lecturers and attendees introduce themselves
	<b>Overview of the Biogas industry and its future development</b> <ul style="list-style-type: none"> <li>• Trends of technology and substrate use</li> <li>• Scale of production and support</li> <li>• Technical challenges with high fibre and grass digestion</li> </ul>
10:30	Coffee break
11:00	<b>Choosing the right substrate and combining it for the optimal digestion input</b> <ul style="list-style-type: none"> <li>• Substrate selection criteria</li> <li>• Calculation of the gas yield according to energy content</li> <li>• Substrate quality and level of contamination</li> <li>• Off farm material from communal and industrial origin</li> </ul>
12:30	Lunch
13:30	<b>Practical experiences and lessons from operating a bio-waste and food waste plant</b> <ul style="list-style-type: none"> <li>• Specific biological requirements</li> <li>• Operational requirements</li> <li>• Pretreatment and removal of contaminants</li> <li>• Crust and sediment removal from the digester</li> <li>• Fractioning and quality of digestate</li> </ul>
15:00	Coffee break
15:30	<b>Measurement and data recording for optimisation, stabilisation and enhancement of the biogas process</b> <ul style="list-style-type: none"> <li>• Gas analysis related to the metabolic pathway</li> <li>• Application area for gas analysis devices</li> <li>• Application of further measured variables, controlling and supervisory control</li> </ul>
17:00	Discussion
17:15	End of the day

Thursday, 23 November 2016

Practical Digester Biology

9:00	<b>Process control and process optimisation</b> <ul style="list-style-type: none"> <li>• Inhibitors in anaerobic processes</li> <li>• Additives (Trace elements, enzymes, sulphur binder, buffer)</li> <li>• Process control measures</li> </ul>
10:30	Coffee break

11:00	<b>Meet the challenge: How to digest fibrous and N-rich feedstocks</b> <ul style="list-style-type: none"> <li>• Characteristics of the substrates</li> <li>• Causes of an NH<sub>3</sub>-inhibition (feedstocks, NH<sub>3</sub>-formation, pH, temperature)</li> <li>• Counter measures</li> <li>• Case studies and practical examples</li> </ul>
12:30	Lunch
13:30	<b>Start up phase and practical measures for monitoring the digestion process</b> <ul style="list-style-type: none"> <li>• Initial phase: Seeding, heating and start of the feeding</li> <li>• Testing parameters during operation</li> <li>• Practical devices for on-site monitoring (FOS/TAC, pH, gas analysis)</li> </ul>
15:00	Coffee break
15:30	<b>Interactive group and laboratory session – Necessary laboratory tests and practical interpretation of operating modes</b> <ul style="list-style-type: none"> <li>• Using examples from practise</li> <li>• Testing parameters during operation</li> <li>• Practical devices for plant monitoring</li> <li>• Record keeping</li> </ul>
17:00	Discussion
17:15	End of the day

Friday, 24 November 2016		Biogas treatment & upgrading	
09:00	<b>Biogas cleaning – desulphurisation</b> <ul style="list-style-type: none"> <li>• Technology overview</li> <li>• Mechanical, chemical and biological methods</li> </ul>		
10:30	Coffee break		
11:00	<b>Biomethane injection – connecting to the gas grid connection</b> <ul style="list-style-type: none"> <li>• Description of gas network in the UK and how it works</li> <li>• Basics of upgrading technologies</li> <li>• A-Z of how to secure a gas grid connection</li> <li>• Gas quality – complying with GSMRs</li> <li>• Sustainability issues</li> </ul>		
12:30	Lunch		
14.00	<b>Biogas upgrading and different pathways of biogas utilisation</b> <ul style="list-style-type: none"> <li>• Comparison of upgrading technology</li> <li>• Biomethane injection</li> <li>• Green gas certificates</li> </ul>		
~ 16.00	Hand out of certificates, end of the seminar		

**Programme may be subject to change.**

## Conditions of participation

Registration is required in writing per fax or e-mail. After receiving your complete registration, we will send you the confirmation and bill by e-mail. Written cancellations are possible **before October 27<sup>th</sup>, 2017** for an administration charge of 150 Euro. **After October 27<sup>th</sup>, 2017** cancellations are billed in full. In case of cancellations even in case of illness we gladly accept a substitute participant. The number of participants is limited, therefore a timely registration is recommended.

The complete price for the biogas course is **1290 €**  
**Early bird discount until October 27<sup>th</sup>: 1090 €**

**All prices are subject to 19 % VAT.** If there's a VAT registration number of your company available and your country belongs to the EU, we won't have to charge VAT. To be exempt from VAT for participants from Non-EU countries a translated and approved company register has to be provided with the registration.

### Included:

- Seminar-CD
- Beverages and lunch during the course
- Entrance to the biogas laboratory
- Certificate of participation

### NOT included:

- Travel to seminar and biogas site
- Accommodation
- Further meals and beverages
- Personal insurance – we highly recommend you to take travel insurance

Please register through our website [www.ibbk-biogas.com](http://www.ibbk-biogas.com) or fill out the form below and return it to us via Fax or E-Mail.

**Fax: +49 - (0)7954 – 921132**

**E-Mail: [register@ibbk-biogas.com](mailto:register@ibbk-biogas.com)**

### Registration form (please provide billing address)

Biogas Training, November 22-24, 2017 – Enniskillen, Northern Ireland

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 Family name

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 First name

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 Company/ Institution

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 Street/No.

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 VAT Reg.-No. (only required for European companies to issue invoices without VAT)

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 ZIP-code

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 City

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 Country

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 Tel.

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 Email

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 Website

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 Date

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 Signature

I am NOT interested in receiving information from IBBK

**IBBK Fachgruppe Biogas GmbH \* Am Feuersee 6 \* 74592 Kirchberg \* Germany**