

Training and Education

Agenda

1. Training and courses
 1. Development and making the training
 2. Recruitment of participants
 3. Financing
 4. Execution and content of training and courses (examples)
2. Ordinary education
 1. Why process operator
 2. How does fit the Danish System
 3. Development
 4. Making the education
 5. Content of the education
3. Learned lessons
4. Questions and discussion

Training and courses:

- Development and making the training and courses:
 - Challengers: no textbook exist and no figures for the process (at least not on daily operations), unknown area for educational institutions, finding cooperators
 - Meetings and visit at different biogas plants to get insight knowledge.
 - Talking to key persons within biogas (not daily operators) and from other business'
 - Talking to and taking the instructors to the biogas plants before developing the course – there is a great difference especially between universities and biogas plants
 - Looking for existing material from previous courses
 - Checking with key persons

Recruitment of participants:

- Need to know them good before they participate.
- Visiting the plants and participate in the same forums as they do
- E-mail and phone call
- Make it interesting for the participants – combine the training with a visit or knowledge sharing

Financing

- It is not cheap to educate!
- It is allowed to take payment to finance the teachers/trainers and the catering

Content and examples of training and courses

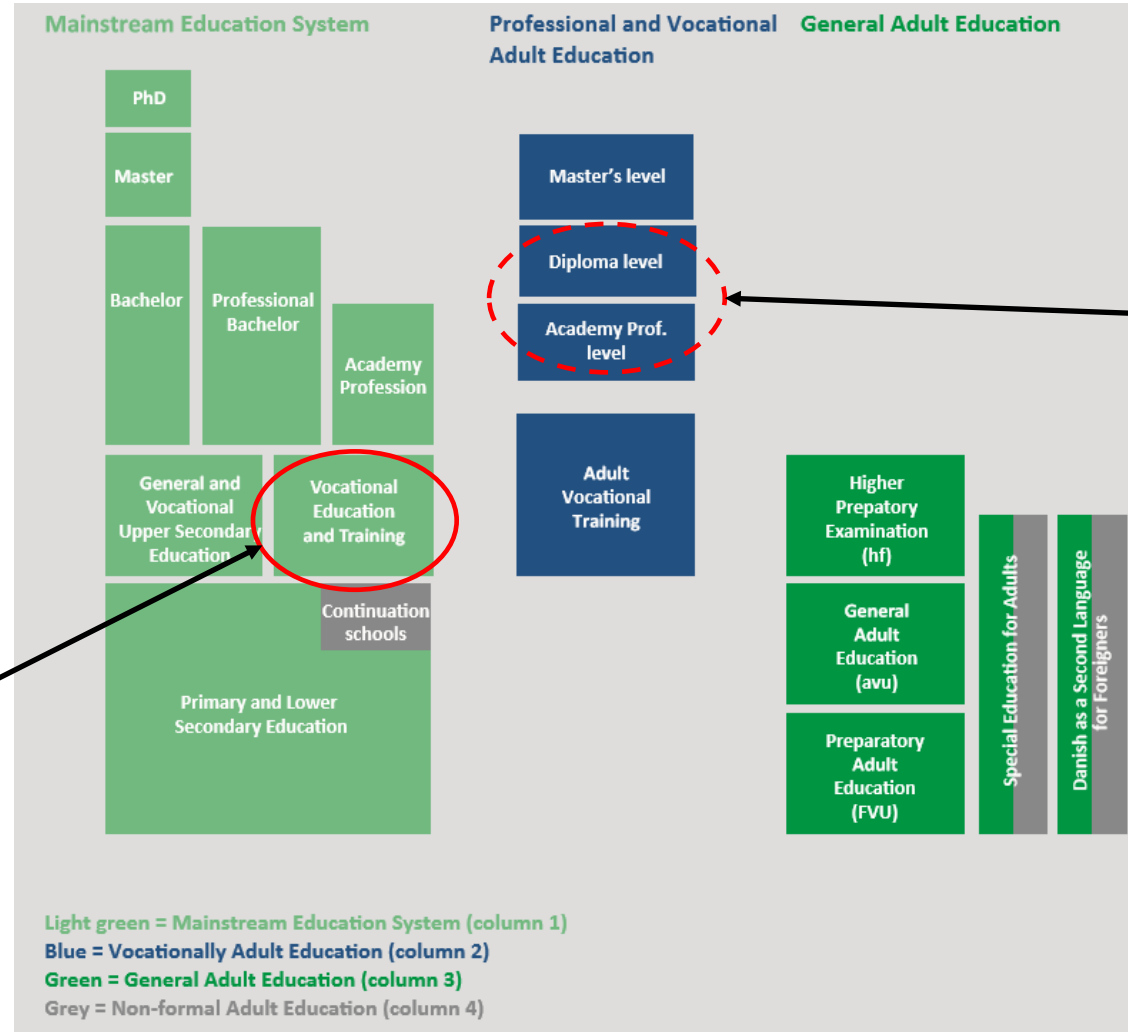
- Pump technology and maintenance – see example: 2 days course with focus on different aspects of pump systems and maintenance.
- Courses for board members: Economy and responsibility in a board – teachers: Chartered Accountant (with experience from the business) and a lawyer (with specialized knowledge on cooperatives and boards)

Ordinary education – Process Operator

- Why process operator?
- How does it fit the Danish educational system?
- Development and making the education
- Content of the education

Why an education as process operator?

- A biogas plant is an industry that in many ways can be compared to waste management plants, chemical industries and other process industries.
- Denmark has good experiences with process operator – even though it is a new education.
- Developed by industries together with educational institutions
- It is a combined school and practice learning (apprenticeship)
- We don't have the time and resources to develop a totally new biogas education – we must build on other experiences



Process operator in biogas from summer 2017

Academy educations from 2018?

Development and making the education

- EUC Lillebælt (Vocational Training Center Lillebælt) is a modern vocational training center, which was established in 1982. It is offering vocational training within different industries.
- They have been training offshore industries (especially oil) and waste industries and other process industries.
- EUC Lillebælt has a lot of experience with education to industries – they also know the mentality!!!
- DFFB have had a long dialog with EUC Lillebælt
- Have had meeting with biogas plants and board members from biogas plants.

Process operator ⁽¹⁾

“The process operator must be able to produce the intended at the right quality and on time whether the technology or the process as well is not working right and be able to complete maintenance and projects!”

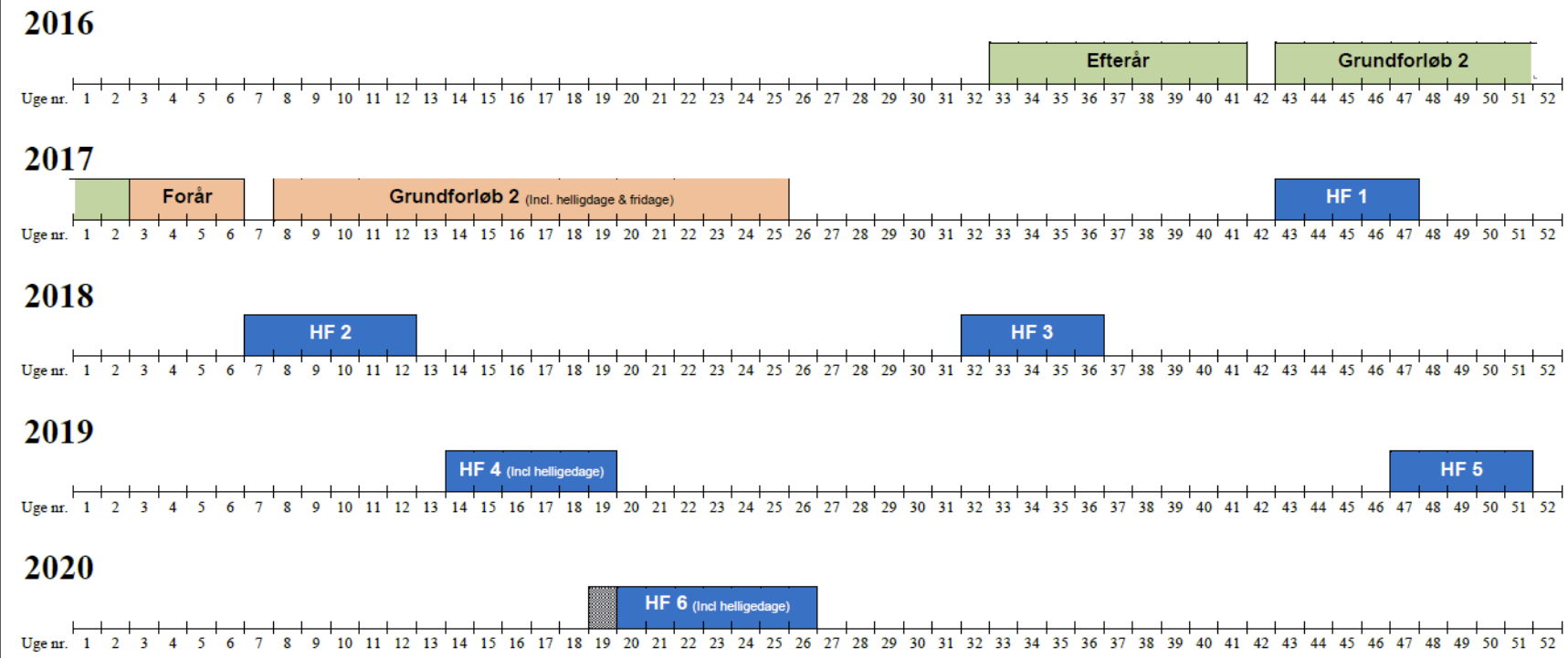
- 4 ½ year – possible to stop after 2 year and become a process worker.
- ETCS points
- The education contains of 4 areas: SRO (Industrial Control Systems), the process (energy, environment, cleaning, etc.) , equipment (pumps, pipes, etc.), you and the system (personal development, teamwork etc.).
- Biogas will have specialized topics (up to 7 weeks of school time) – to be develop during the education.





Process operator (2)

- The education teaches the student to monitor, manage and maintain production, which is usually computer controlled and highly automated. The student learns how the equipment works and how to control and regulate the processes that occur in plants.
- The student also learns how to intervene if production is not running as it should, and perform various measurements and quality jobs.
- An important part of the work is to help to improve and optimize production. It may be that the student have to find a practical solution on how to save water or energy production. In this way, the process operator also make a difference to the climate and environment.
- It is a combination of school and practical learning – see example.



Example



-  Grundforløb 2 "Forår"
-  Grundforløb 2 "Efterår"
-  Fejlfinding (Valgfrit specialefag)
-  Hovedforløb

Elev navn: _____

Firma: _____

Lessons learned

- Network with institutions
- Network with biogas plants!
- Make it practical
- Don't make it too theoretical
- “Talk with them and not to them”

- Patience