

## **Steering Migration through Sustainable Development: Euro- Egyptian Program for Agriculture and Rural Development (DeVilag)**

**Proposal to transfer Heliopolis University's course  
"Agriculture Engineering & Machinery Maintenance"**



Co-funded by the  
Erasmus+ Programme  
of the European Union

This project was co-funded within the ERASMUS+ scheme of the European Commission through Grant Agreement Number 598888-EPP-1-2018-DE-EPPKA2-CBHE-JP - ENV2. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

This document should act as a guideline how already existing learning material can be transferred in a way, that it can be used for a Massive Open Online Course.

### **General remarks:**

You can use the practical part that you prepared as proof that the students “attended the class” if you want to. You can also develop some short quizzes with about 10 questions. The questions should not be too hard, nor too easy but doable when the student worked on the course unit’s content. To strengthen the motivation of the students, I suggest to let the overall mean grade of the quizzes influence the final mark of the course (maybe like 5-10 % but that is your decision).

I suggest, that in the beginning, you determine which lecture style, you want to implement. Either you record audio slides or yourself, holding the presentation visually. When you have done this, you can produce all the “lecture” videos in that manner.

You should also think about how you want to interact with the students. Will there be F2F-Online discussion round, or will it be in a written forum.

### **Lecture 0: Introduction Video**

I suggest, that you record a video to explain the framework of the course. This video would deal with the course contents and learning outcomes, the topic that will be dealt with, possible assignments and practical parts, attendance proof, final examinations, etc.

### **Lecture 1: Introduction to Agricultural Engineering**

I suggest, that you divide the Lecture into the 6 topics to specify in your outline on the 2<sup>nd</sup> slide

The Outline is a good idea to structure all the lecture and divide then accordingly:

- Agricultural Engineers & Engineering (slides 1-8): 1 Own recorded video
- Challenges “Activities of Agricultural Engineering – Mauritius” (Slides 9-16): 1 own recorded video
- Agricultural operations + Agricultural Machinery (Slides 17- 26): 1 own recorded video
- Resources conservation (Slides 26-41): 1 own recorded video
- Agricultural structures (Slides 41-45): 1 own recorded video

### **Lecture 2: Surveying**

**Note:** This is quite a long lecture, so there are many sub-divisions as you see.

- Own recorded “Introduction into surveying”-Video (Slides 1-16)
- Equipment used in Surveying: If you want to, you can consider making some animation video here, which includes the following sub-groups of the Equipment.
  - Chains
  - Tapes
  - Instruments for marking stations
- Uses of Surveying: I would include the slides of this section into the “Introduction into surveying” video at the beginning.
- Procedure in chain Survey: Every Procedure can be done as an Animation. You can either do it by yourself or you search for a YouTube Video.
- Procedure Cross staff survey: see above

### **Lecture 3: Irrigation**

- I would record an “introduction video” for this lecture covering points 1 & 2 of this lecture.
- I think for the irrigation techniques you can create a video collection to share with the participants.

### **Lecture 4: Farm Power**

- Sources of Farm Power: Own Video (maybe with sub-divisions if needed)
  - I suggest, that the merits and demerits are stated after each source
- Concept of Farm Mechanization: own video

### **Lecture 5: Two stroke and four stroke engines**

- Classification on heat engines; Working principles of several engines: YouTube-Video
- Comparison between two and four stroke engines: own video or YouTube if available
- Working Principle of Diesel Engine: YT-video
- Comparison between Diesel and Petrol engine: own video or YouTube if available

### **On the practical parts:**

The practical parts I saw more or less all have a different nature but have in common, that there is additional knowledge transfer in them and not only exercises or tasks to do. My suggestion would be, that you separate the knowledge transfer and think about if you want to make videos out of them or hand it as reading material. Then, you should create a separate section for the exercises for the students, so that we have a knowledge transfer and a knowledge application in the practical part