

A large decorative graphic on the right side of the slide, consisting of a white diamond shape pointing left, set against a dark grey background. To the right of the diamond are two green triangles pointing left, one above and one below the diamond.

# Virtual mobility in practice: the VMCOLAB project

Bas Bergervoet (KU Leuven) – ELIES Conference, Porto - 26-11-2014

## ‘European Co-Laboratory for the Integration of Virtual Mobility in Higher Education Innovation and Modernisation Strategies’

**Duration:** 1 October 2012 – 31 January 2015

### Partners:

- **KU Leuven (BE)**
  - EFQUEL (BE)
  - Coimbra Group (BE)
  - University of Padova (IT)
  - **University of Porto (PT)**
- Vytautas Magnus University (LT)  
University of Granada (ES)  
United Nations University (DE)  
University Politehnica of Bucharest (RO)

**Funded by the European Commission  
under the Lifelong Learning Programme**



# Project aims

“contribute to the innovation and internationalisation of European Higher Education Institutions by exploiting the full potential of ICT and Virtual Mobility and broadening the access to an international learning experience for all European students”

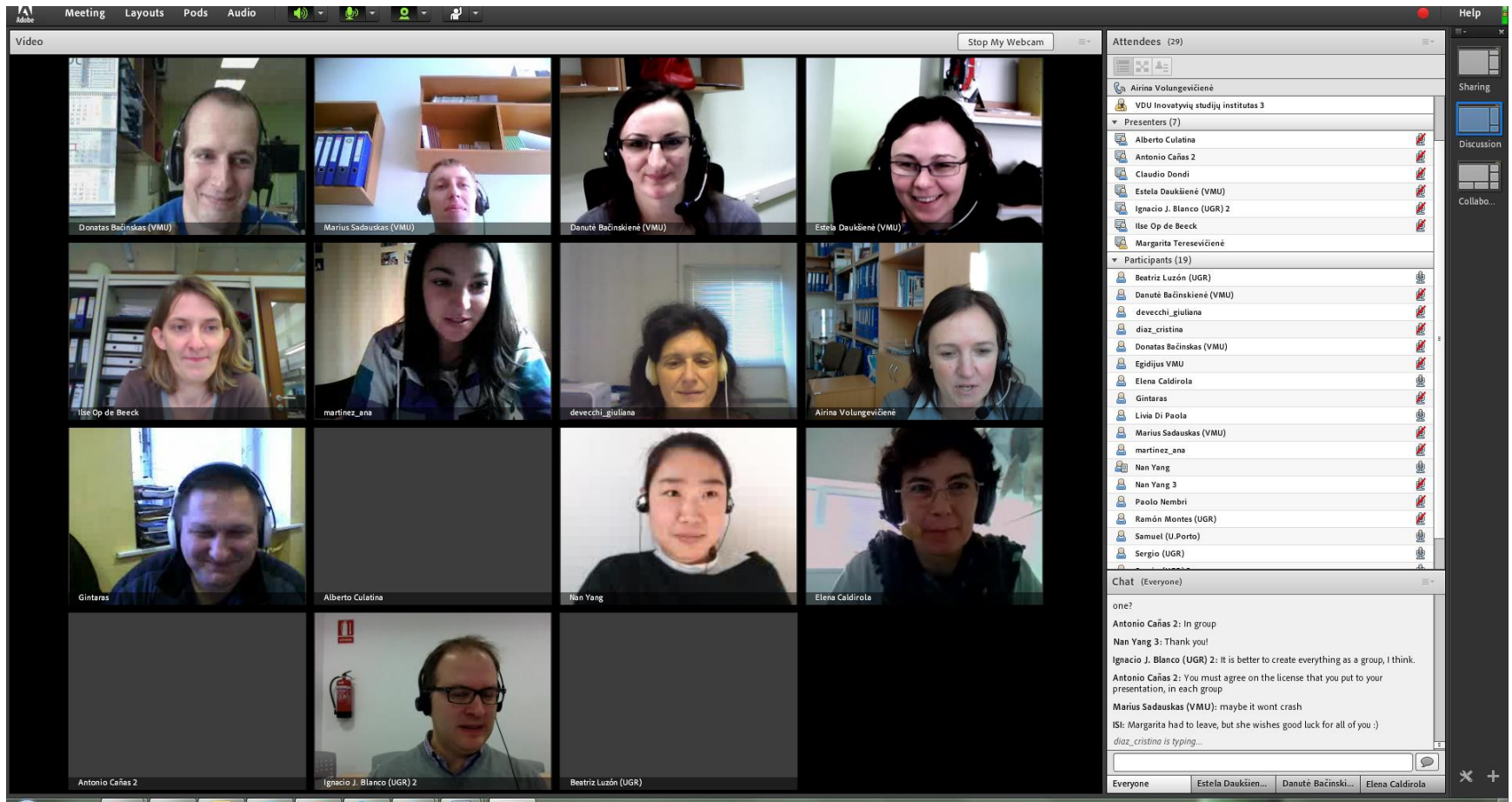
“develop support materials and services for those wanting to engage in virtual mobility experiences”

*“set of information and communications technology supported activities, organized at institutional level, that realize or facilitate **international, collaborative** experiences in a context of teaching and/or learning”*

# VM definition in normal words 😊

*“Learning and working together online with a group of international students and teachers”*

# Student VM in action



The screenshot displays a Zoom meeting interface. The main window shows a grid of 12 video feeds of participants. The top bar includes tabs for Meeting, Layouts, Pods, and Audio, along with icons for video, audio, and chat. The bottom bar shows the names of the participants in the current view.

**Attendees (29)**

- Airina Volungevičienė
- VDU Inovatyvių studijų institutas 3
- Presenters (7)**
  - Alberto Culatina
  - Antonio Cañas 2
  - Claudio Dondi
  - Estela Daukšienė (VMU)
  - Ignacio J. Blanco (UGR) 2
  - Ilse Op de Beeck
  - Margarita Teresevičienė
- Participants (19)**
  - Beatriz Luzón (UGR)
  - Danutė Bačinskienė (VMU)
  - devecchi\_giuliana
  - diaz\_cristina
  - Donatas Bačinskas (VMU)
  - Egidijus VMU
  - Elena Caldirola
  - Gintaras
  - Livia Di Paola
  - Marius Sadauskas (VMU)
  - martinez\_ana
  - Nan Yang
  - Nan Yang 3
  - Paolo Nembri
  - Ramón Montes (UGR)
  - Samuel (U.Porto)
  - Sergio (UGR)

**Chat (Everyone)**

one?

Antonio Cañas 2: In group

Nan Yang 3: Thank you!

Ignacio J. Blanco (UGR) 2: It is better to create everything as a group, I think.

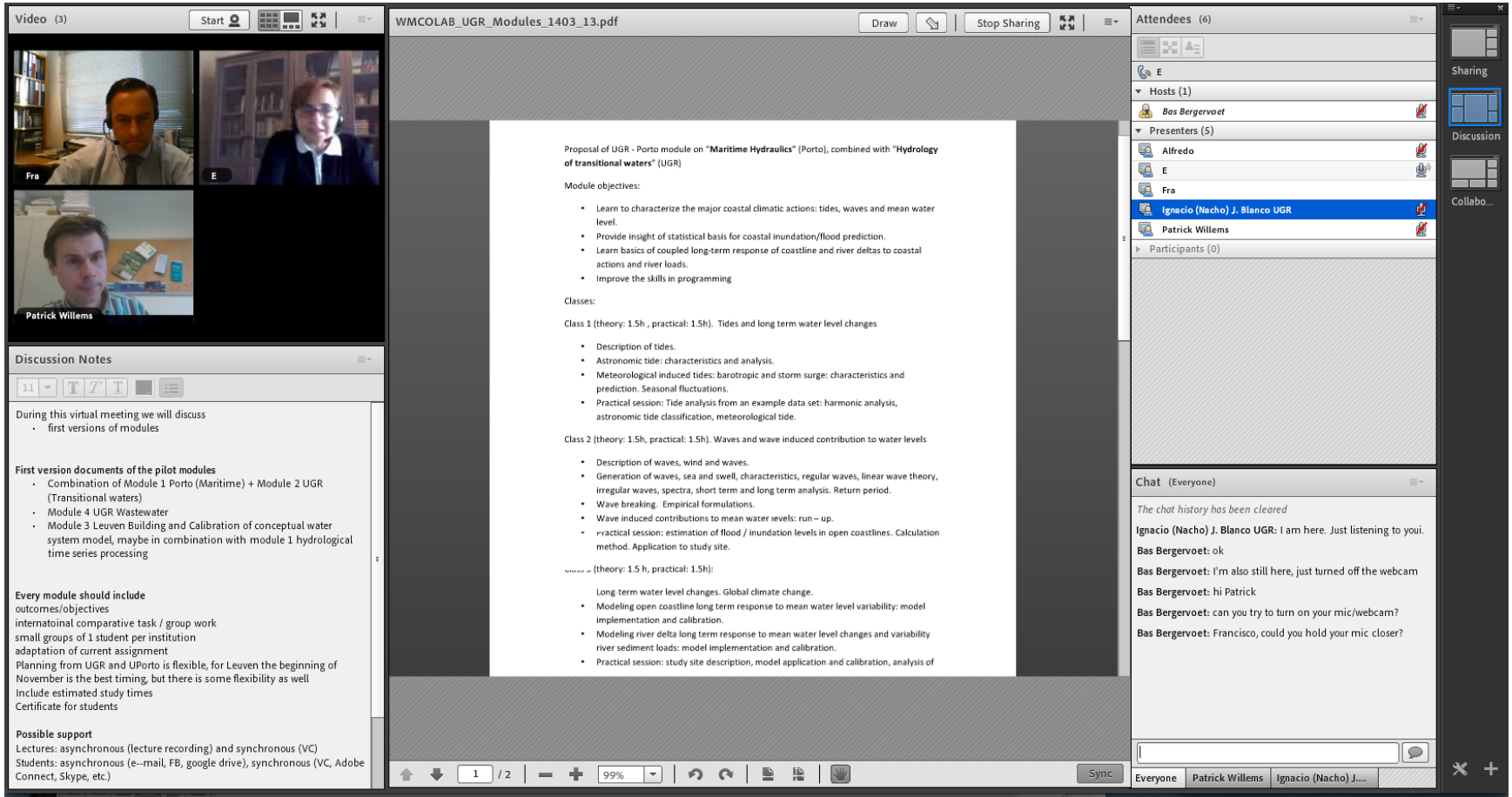
Antonio Cañas 2: You must agree on the license that you put to your presentation, in each group

Marius Sadauskas (VMU): maybe it wont crash

ISI: Margarita had to leave, but she wishes good luck for all of you :)

diaz\_cristina is typing...

# Teacher VM in action



The screenshot displays a virtual meeting interface with the following components:

- Video (3):** A window showing three participants: Fra, E, and Patrick Willems.
- Discussion Notes:** A panel on the left containing text about the virtual meeting, pilot modules, and support options.
 

During this virtual meeting we will discuss

  - first versions of modules

**First version documents of the pilot modules**

  - Combination of Module 1 Porto (Maritime) + Module 2 UGR (Transitional waters)
  - Module 4 UGR Wastewater
  - Module 3 Leuven Building and Calibration of conceptual water system model, maybe in combination with module 1 hydrological time series processing

**Every module should include**

  - outcomes/objectives
  - international comparative task / group work
  - small groups of 1 student per institution
  - adaptation of current assignment

Planning from UGR and UPorto is flexible, for Leuven the beginning of November is the best timing, but there is some flexibility as well

  - Include estimated study times
  - Certificate for students

**Possible support**

  - Lectures: asynchronous (lecture recording) and synchronous (VC)
  - Students: asynchronous (e-mail, FB, google drive), synchronous (VC, Adobe Connect, Skype, etc.)
- WMCOLAB\_UGR\_Modules\_1403\_13.pdf:** A shared PDF document titled "Proposal of UGR - Porto module on 'Maritime Hydraulics' (Porto), combined with 'Hydrology of transitional waters' (UGR)".
 

**Module objectives:**

  - Learn to characterize the major coastal climatic actions: tides, waves and mean water level.
  - Provide insight of statistical basis for coastal inundation/flood prediction.
  - Learn basics of coupled long-term response of coastline and river deltas to coastal actions and river loads.
  - Improve the skills in programming

**Classes:**

**Class 1 (theory: 1.5h, practical: 1.5h). Tides and long term water level changes**

  - Description of tides.
  - Astronomic tide: characteristics and analysis.
  - Meteorological induced tides: barotropic and storm surge: characteristics and prediction. Seasonal fluctuations.
  - Practical session: Tide analysis from an example data set: harmonic analysis, astronomic tide classification, meteorological tide.

**Class 2 (theory: 1.5h, practical: 1.5h). Waves and wave induced contribution to water levels**

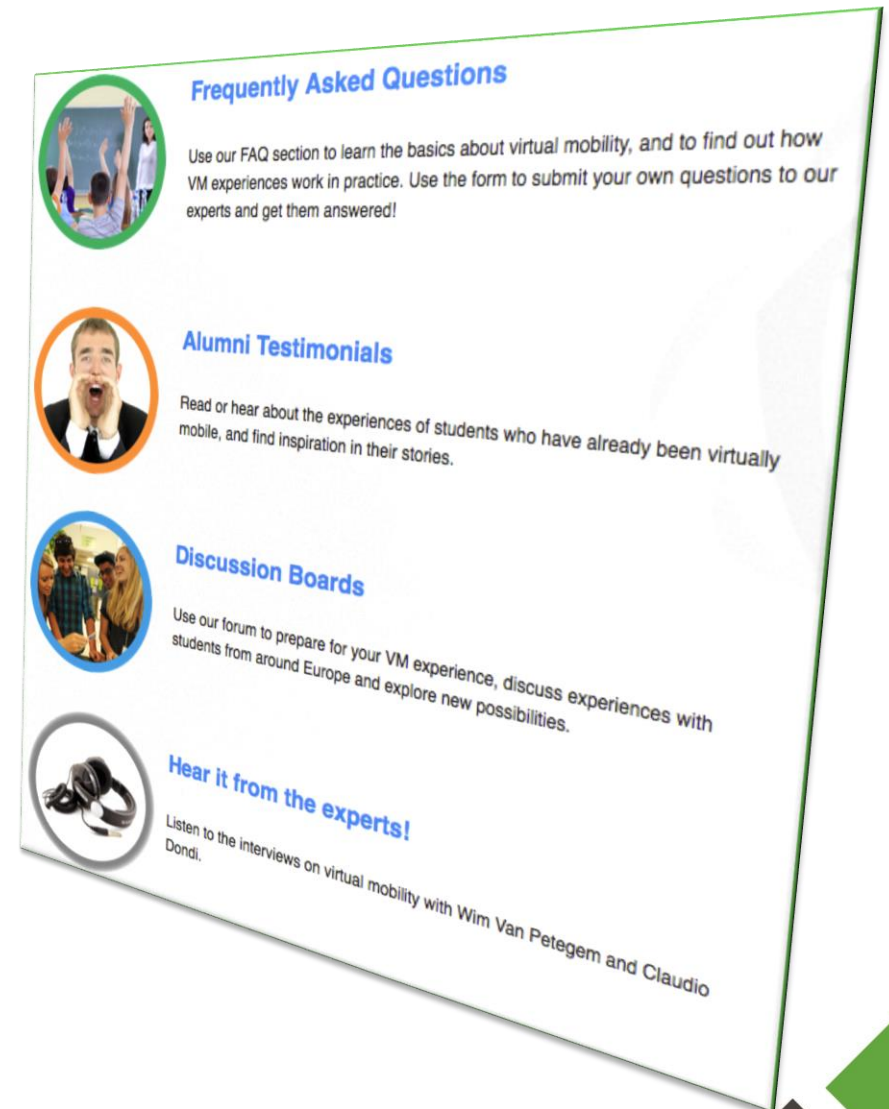
  - Description of waves, wind and waves.
  - Generation of waves, sea and swell, characteristics, regular waves, linear wave theory, irregular waves, spectra, short term and long term analysis. Return period.
  - Wave breaking. Empirical formulations.
  - Wave induced contributions to mean water levels: run-up.
  - Practical session: estimation of flood / inundation levels in open coastlines. Calculation method. Application to study site.

**..... (theory: 1.5 h, practical: 1.5h):**

  - Long term water level changes. Global climate change.
  - Modeling open coastline long term response to mean water level variability: model implementation and calibration.
  - Modeling river delta long term response to mean water level changes and variability river sediment loads: model implementation and calibration.
  - Practical session: study site description, model application and calibration, analysis of
- Attendees (6):** A list of participants including Bas Bergervoet, Alfredo, E, Fra, Ignacio (Nacho) J. Blanco UGR, and Patrick Willems.
- Chat (Everyone):** A chat window showing messages from Ignacio (Nacho) J. Blanco UGR, Bas Bergervoet, and Patrick Willems.

# Objectives/Results

- Quality Assurance handbook for Virtual Mobility
- Virtual Mobility Integration Kit
- Institutional Awareness Seminars
- 'Virtual4Me' website for students:  
[virtual4me.vmcolab.eu](http://virtual4me.vmcolab.eu)
- *Policy recommendations & policy event*
- And..... **Pilots!**





- Pilot on Open Educational Resources, led by Vytautas Magnus University
- Pilot on Water Management, led by KU Leuven
- Pilot on Career Service Staff Training, led by University of Padova

--> *Piloting guidelines & training course*

## VM Course on water management: time series analysis and modelling

- **Module 1: Hydrological time series processing and conceptual rainfall-runoff modelling**  
Prof. P. Willems – KU Leuven (Belgium)
- **Module 2: Introduction to surface water quality modelling**  
Prof. F. Rueda – University of Granada (Spain)
- **Module 3: Introduction to maritime hydraulics and hydrology of transitional waters**  
Prof. Francisco Taveira Pinto – University of Porto (Portugal)  
Prof. E. Sánchez-Badorrey – University of Granada (Spain)

## VM Course on water management: time series analysis and modelling

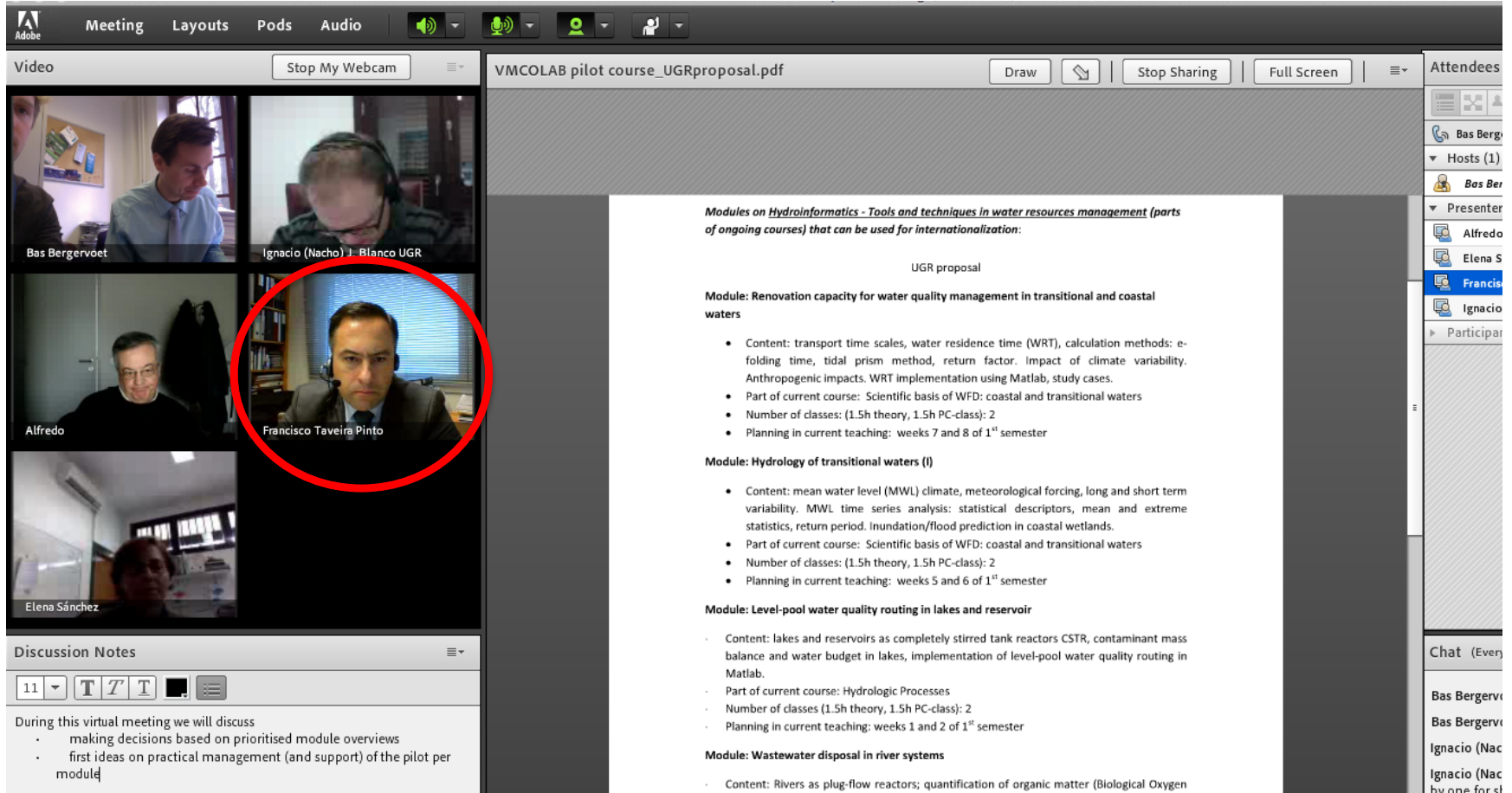
- Module 3: Introduction to maritime hydraulics and hydrology of transitional waters

Prof. Francisco Taveira Pinto – University of Porto (Portugal)

- Wave generation, propagation and transformation on oceans to shore;
- Regular and irregular waves (Prof. Paulo Santos);
- Methods for defining coastal inundation levels (Dr. Raquel Silva).

Prof. Elena Sánchez - Badorrey – University of Granada (Spain)

- Tide generation and water level changes;
- Long-term mean water level change due to climate change.



The screenshot displays a virtual meeting interface with the following components:

- Top Bar:** Includes tabs for Meeting, Layouts, Pods, and Audio, along with icons for video, audio, and participant management.
- Video Grid:** Shows five participants: Bas Bergervoet, Ignacio (Nacho) J. Blanco UGR, Alfredo, Francisco Taveira Pinto (highlighted with a red circle), and Elena Sánchez.
- Document Viewer:** Displays a PDF titled "VMCOLAB pilot course\_UGRproposal.pdf". The content includes:
  - Modules on Hydroinformatics - Tools and techniques in water resources management (parts of ongoing courses) that can be used for internationalization:**
  - UGR proposal**
  - Module: Renovation capacity for water quality management in transitional and coastal waters**
    - Content: transport time scales, water residence time (WRT), calculation methods: e-folding time, tidal prism method, return factor. Impact of climate variability. Anthropogenic impacts. WRT implementation using Matlab, study cases.
    - Part of current course: Scientific basis of WFD: coastal and transitional waters
    - Number of classes: (1.5h theory, 1.5h PC-class): 2
    - Planning in current teaching: weeks 7 and 8 of 1<sup>st</sup> semester
  - Module: Hydrology of transitional waters (I)**
    - Content: mean water level (MWL) climate, meteorological forcing, long and short term variability. MWL time series analysis: statistical descriptors, mean and extreme statistics, return period. Inundation/flood prediction in coastal wetlands.
    - Part of current course: Scientific basis of WFD: coastal and transitional waters
    - Number of classes: (1.5h theory, 1.5h PC-class): 2
    - Planning in current teaching: weeks 5 and 6 of 1<sup>st</sup> semester
  - Module: Level-pool water quality routing in lakes and reservoir**
    - Content: lakes and reservoirs as completely stirred tank reactors CSTR, contaminant mass balance and water budget in lakes, implementation of level-pool water quality routing in Matlab.
    - Part of current course: Hydrologic Processes
    - Number of classes (1.5h theory, 1.5h PC-class): 2
    - Planning in current teaching: weeks 1 and 2 of 1<sup>st</sup> semester
  - Module: Wastewater disposal in river systems**
    - Content: Rivers as plug-flow reactors; quantification of organic matter (Biological Oxygen
- Discussion Notes:**
  - During this virtual meeting we will discuss
    - making decisions based on prioritised module overviews
    - first ideas on practical management (and support) of the pilot per module
- Attendees:** A list of participants including Bas Bergervoet, Bas Bergervoet, Ignacio (Nacho) J. Blanco UGR, Alfredo, Elena Sánchez, and Francisco Taveira Pinto.

- Partners: UGR; KU Leuven; UP/FEUP;
- I have been involved in this pilot for the last 11 months;
- Goal: setup of a virtual course related to water management;
- Contents were defined after a few iterations;
- No ECTS attributed to FEUP students;
- VMCOLAB in parallel with normal classes: extra work with other lectures, exams, assignments;

- Academic year at FEUP started in middle September;
- Students were contacted a little bit later (I am on sabbatical leave...);
- Topic was considered interesting for the students (4 said yes, but only 3 were selected – last year of MIEC)...;

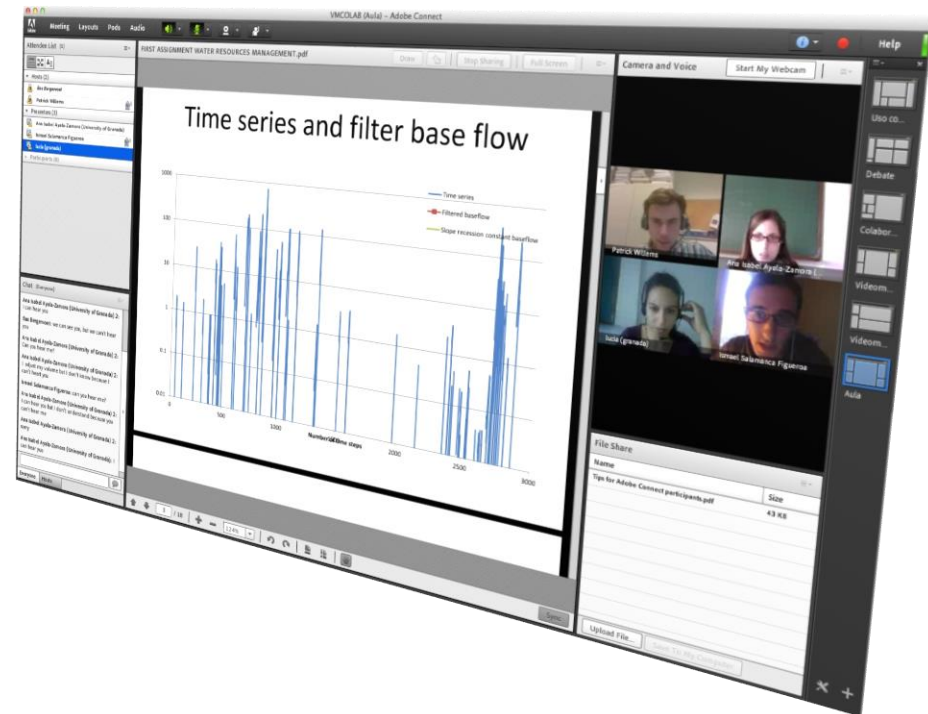
- There's some lack of time available for the course, but I think they are keen to do and finish it;
- Technical problems: not reported;
- Better communication between students of different Universities – to improve;
- More time for assignments/course;
- FEUP: PPT in English to prepare on time...

- Good opportunity to prepare new teaching material;
- Good opportunity to interact with other universities;
- Good opportunity to exchange datasets;
- Good opportunity to involve other teachers;
- Good opportunity to use new teaching tools.



# Tips for starting a VM Course

- Use existing networks
- Use an international comparative approach
- What needs to be done synchronously, what can be done asynchronously?
- Check your local support
- Familiarize yourself with the chosen tools
- Define clear roles and tasks amongst involved staff
- Planning is everything!



**VMCOLAB project website**

**[www.vmcolab.eu](http://www.vmcolab.eu)**

**Virtual4Me website (for students)**

**[virtual4me.vmcolab.eu](http://virtual4me.vmcolab.eu)**