

UpWind

A stylized orange graphic of a three-bladed wind turbine rotor hub, positioned to the right of the main title.

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General Objectives of WP1A.3

- ✧ To development of a number of modules for international courses in the field of wind energy and the necessary supporting education/training material.
- ✧ To provide a suitable vehicle for the training of:
 - ü *researchers, post-graduate students*
→ *PhD level*
 - ü *industrial engineers (those employed in SMEs), energy planners, project developers, consultants, etc.*
→ *Continuous Professional Development units*on the state-of-the-art knowledge and expertise produced in all wind related topics, with emphasis on the results of the UpWind project.



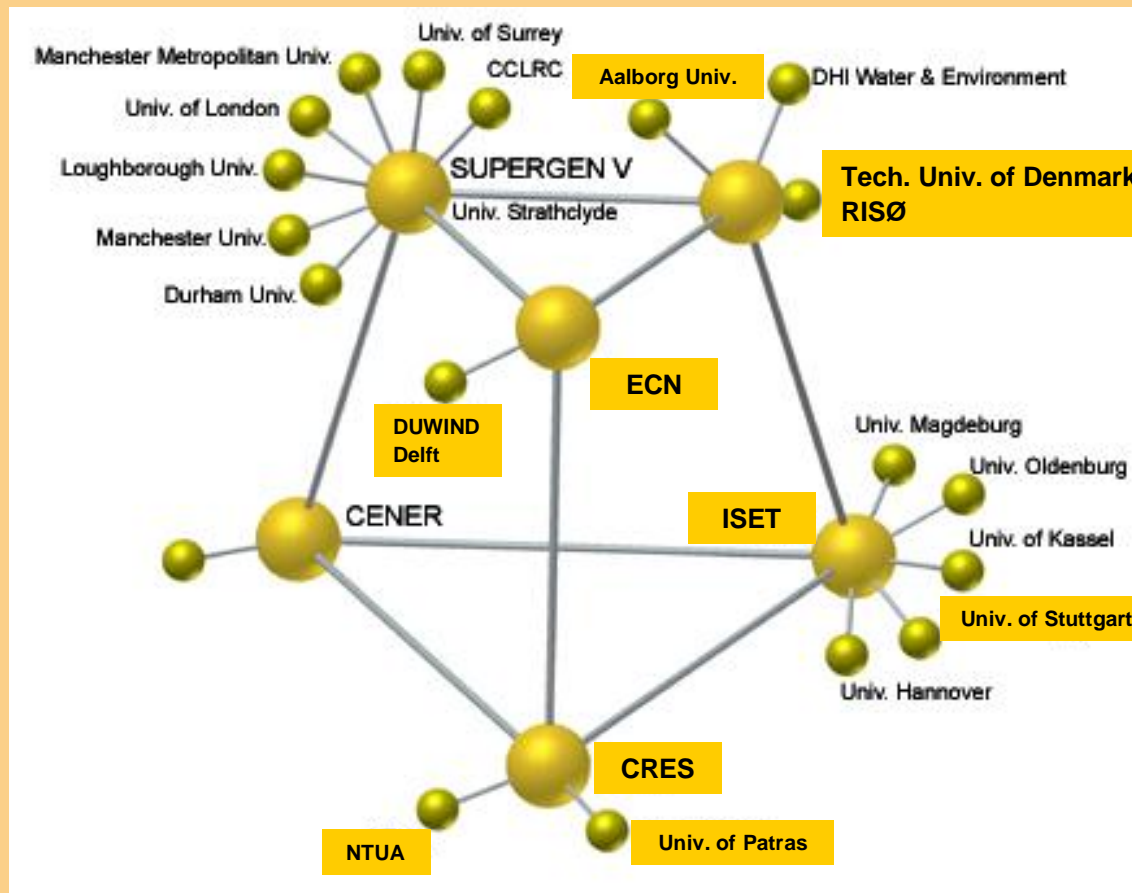
Specific Objectives of WP1A.3

- ✧ To develop a modular approach to wind power course(s) training materials;
- ✧ To produce course materials in the form of individual training modules covering focused technological topics, including the results of the other UpWind WPs; and
- ✧ To disseminate the results of this WP through pilot testing / application of the training modules by the project partners.



Objectives of WP1A.3

An initiative of the European Academy of Wind Energy (EAWE)



Overview of work- Task 1A.3.1

- ✧ Survey of existing training infrastructure and liaison with international and national experts in the field

- ✧ Deliverables:
 - Assessment study of the already existing education and training infrastructure on Wind Power technology all over the EU
 - Database of EU courses in the field of Wind Energy



Task 1A.3.1: specific activities

- ✧ Collection of information about existing wind power education and training programs (through a literature and web-based survey).
- ✧ Compilation of a list of organisations involved in wind power related training all over the EU, from polytechnic and other higher education institutes (universities) to vocational training centres or research institutes and/or associations active in the Wind Energy training field.
- ✧ Direct contact with the responsible persons of the various identified WE courses, in the form of interviews (i.e. [questionnaire survey](#)).



Task 1A.3.1: specific activities

- ✧ Questions asked to the course administrators:
 - Course content and duration;
 - Characteristics of targeted students;
 - Student assessment methods;
 - Recommendations for minimum skill levels;
 - Whether the course is provided in English;
 - If the training materials can be made available (and at no cost).
- ✧ 46 questionnaires were received – 43 analysed and reported.



Task 1A.3.1: specific activities

- ✧ An on-line **database** of all the courses found in the field of wind energy all around Europe, including all possible details.
- ✧ This “searchable” database is now under integration into the project’s web-site (as well as in the sites of all the WP1A.3 group members)!



Overview of work- Task 1A.3.2

- ✧ Setup of a Wind Energy Information and Education Network (WEIEN)

- ✧ Deliverable:
 - *The “Wind Energy Information & Education Network” – WEIEN (e-database)*
→ it was launched in February 2007 and it is *continuously updated*



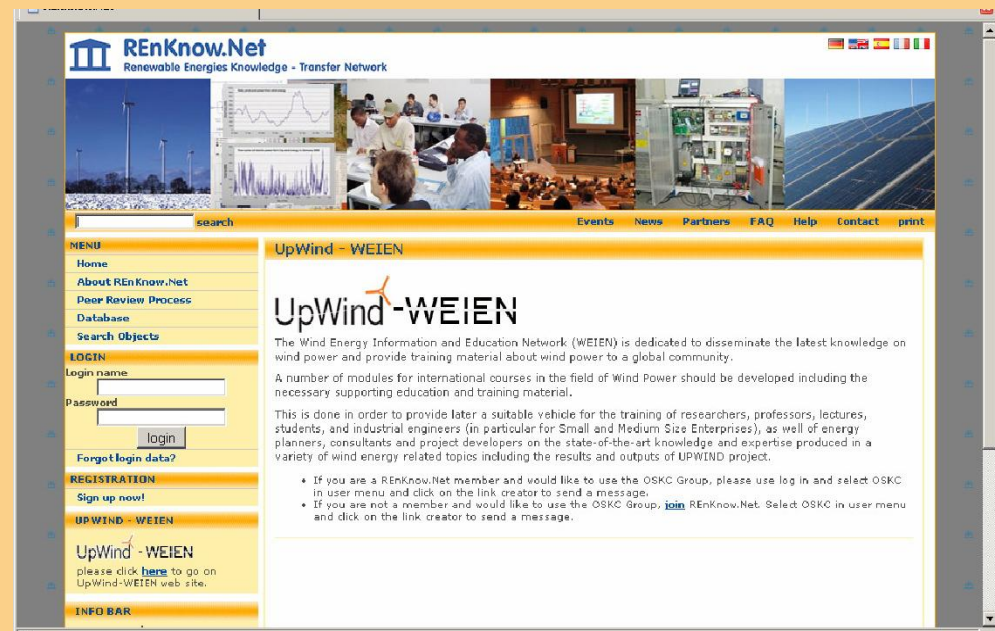
Task 1A.3.2: specific activities

- ✧ **Set up and promote** the Wind Energy Information and Education Network (**WEIEN**).
 - ü A database for up- and down-loading documents.
 - ü An internet based application for the facilitation of the “peer-review process” and a forum for discussions.
- ✧ The **main goals** of **WEIEN** are:
 - ü To **disseminate** the latest **knowledge** on wind power.
 - ü **Provide training material** to all actors in the wind power field.
 - ü **Provide** the **software “environment”** for the development of **training modules**.



Task 1A.3.2: specific activities

- ✦ Three information diffusion levels are foreseen:
 - ü information limited to the WEIEN members;
 - ü information publicly available and eligible for peer-review;
 - ü information publicly available



Task 1A.3.2: specific activities

✧ On-going tasks:

- Ø Development and continuous operation of the tools set at the disposal of WEIEN;
- Ø Feed-back from end-users of the modular trainings to allow a better identification of the needs for training as well as;
- Ø Contacting and inviting further training experts and stakeholders interested in the training activities to join the WEIEN Area (use and contribute to it).

Contribution of all WE actors is highly encouraged...



Overview of work- Task 1A.3.3

↘ Development of the Modular Approach

∅ Deliverable:

§ *Resource Guide of the Course Modules to be developed within WP1A.3*

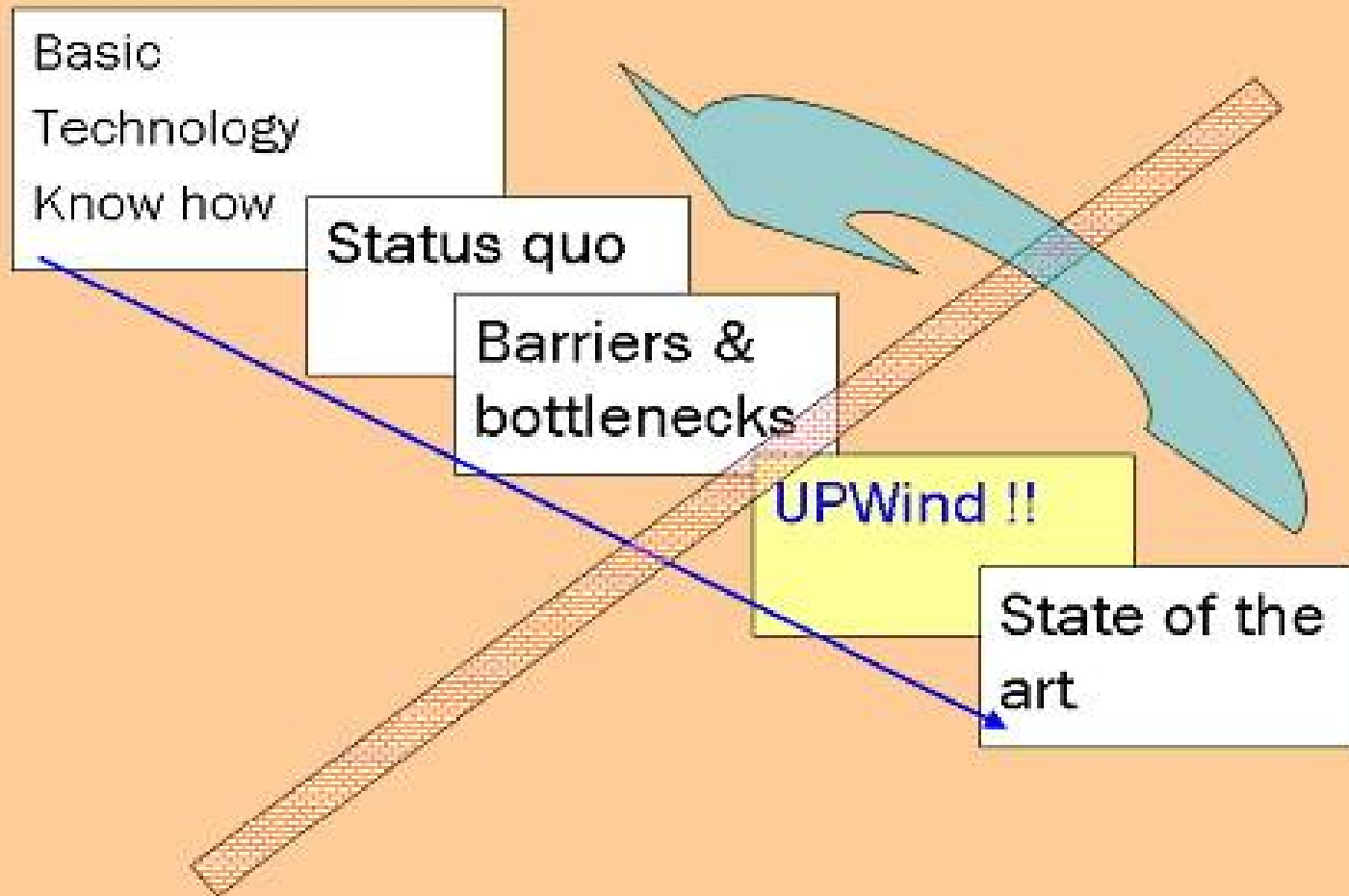


Task 1A.3.3: specific activities

- ✧ Conclusion about and design of the specific modules that need to be developed or updated in order to be integrated into existing and new courses.
- ✧ Determination of the specific materials required for the different target groups of training (two different levels) and structuring of the course programmes.
- ✧ Key decision made: UpWind training modules have to be built up on the technology status quo and to present the technological & research solutions to surpass existing bottlenecks.
- ✧ The training modules will comprise of scientific findings achieved in the UpWind project



Overview of work – Task 1A.3.3

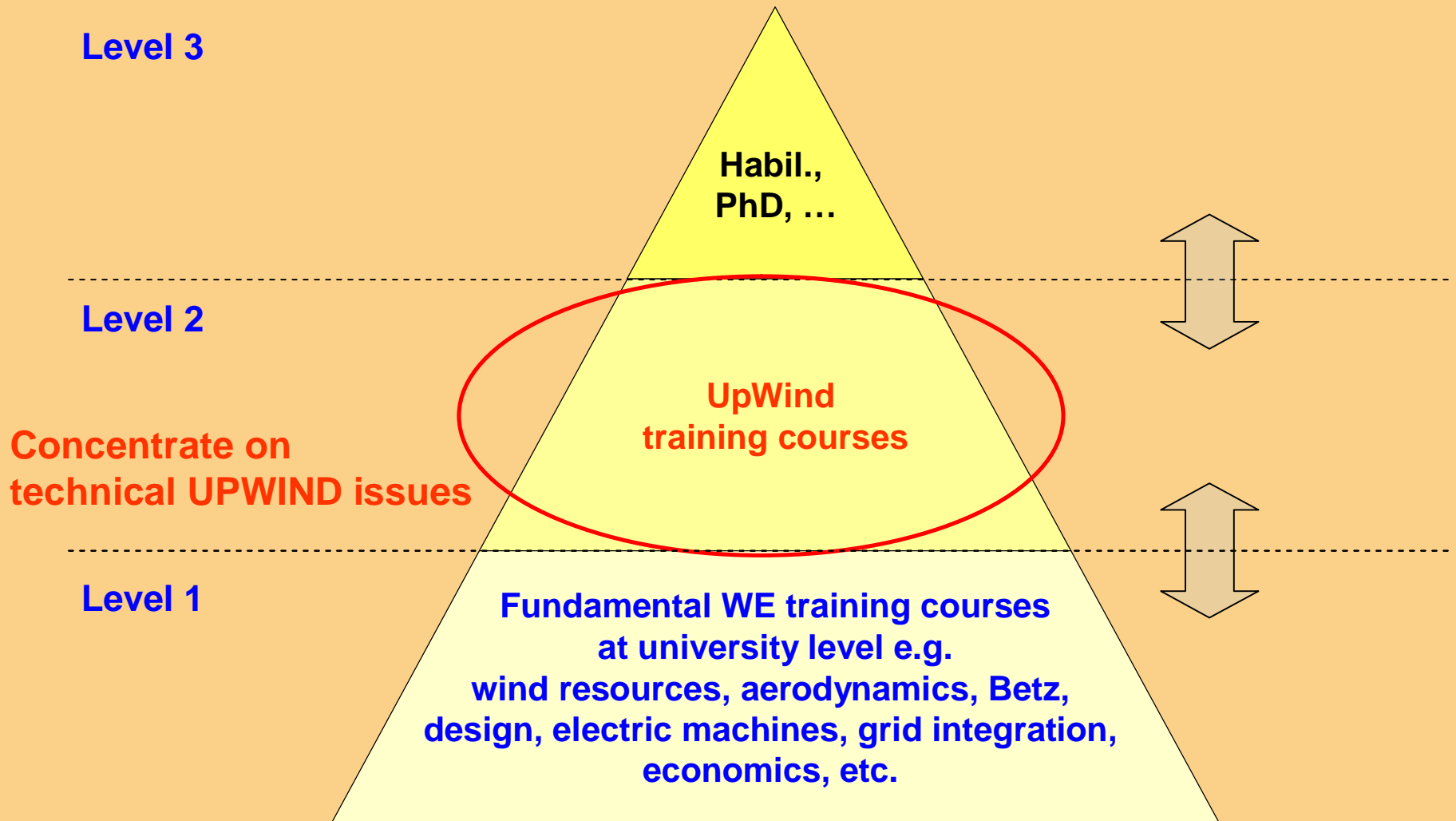


Overview of work – Task 1A.3.3

- ✧ It is not our aim to create “basic training courses”, as the **target groups** of UpWind training course(s) do already have some basic knowledge in wind energy technology.
- ✧ UpWind course(s) will rather built up on these “level 1 courses”.
- ✧ The modules will be structured and rated according to the required level based upon the European Credit Transfer and Accumulation System (ECTS); this will facilitate the development of course materials in a harmonised and uniform for course delivery framework.



Stages of wind energy training and education



Overview of work – Task 1A.3.3

- A PhD study programme must include organised course activities of one half of an academic year's duration (one semester).
- This means that we need a course “equivalent” to 30 ECTS → approximately 900 hours of “total student workload”, or 225 hours “teaching time!
- Intergration with other UpWind WPs - *requiring to identify some contents suitable for a PhD course from the work carried out and to quantify the available information as regards its extent* - a total of **255 “lecture” hours**, i.e. approximately **34 ECTS credits**, were finally assembled.



Overview of work – Task 1A.3.3

1. Aerodynamics & aero-elastics à 22 hours / 3 ECTS
2. Rotor structure & Materials (incl. Innovative rotor blades) à 30 hours / 4 ECTS
3. Offshore foundations & support structures à 15 hours / 2 ECTS
4. Control systems à 22 hours / 3 ECTS
5. Condition monitoring à 30 hours / 4 ECTS
6. Flow (wakes, wind farm layout) à 15 hours / 2 ECTS
7. Electrical grid à 7 hours / 1 ECTS
8. Design methodology (Integrated design and standards) à 38 hours / 5 ECTS
9. Metrology (incl. Remote sensing) à 15 hours / 2 ECTS
10. Transmission & Conversion (Mechanical & electrical part) à 23 hours / 3 ECTS
11. Up-scale (Cost modeling, etc.) à 38 hours / 5 ECTS.



Future work

- ✧ Task 1A.3.2 (WEIEN): Continuation of the work for the development of the WEIEN. *Feeding the WEIEN with materials is a procedure that will last until the end of the Project (and beyond that).*
- ✧ Task 1A.3.4: *Production of course materials*
- ✧ Task 1A.3.5: *Dissemination of the results through pilot applications*



WP1A.3: Training & Education

Thank You for Your Attention!!

