ALOA model with integration of e-assesment practices

The ALOA model includes a selection of six categories of general assessment: Multiple choice questions (MCQ); Essays; Problem solving; Practical work; Short- answer questions (SAQ) and Reflective practice assignments. Each category is divided in more specific assessment methods. The final list of assessment methods was obtained from literature research. It was considered that the list includes most assessment methods but it is assumed that there are assessment tasks that might not easily be included in these categories.

MCQ consists of a question followed by alternative answers from which the student has to choose the most correct alternative. The alternative answers may be of the binary type like true/false or include several alternative answers. Even though MCQ are commonly associated with assessing "Remember knowledge", they may be used for assessing most cognitive processes and types of knowledge.
The ALOA model defines the following sub-categories for MCQ: Remember; Understand; Apply; Analyse; Evaluate; Create.

In an **essay** the student is expected to produce a structured text that responds to the question or challenge posed by the teacher. The nature of an essay may vary, determining different Learning Outcomes. Essays allow for assessing deep learning instead of rote learning. Essays promote understanding, analysis and evaluation as well as the integration of different types of knowledge and skills.

Problem solving is a response to a question that requires thought and/or planned action. Problems vary in complexity and openness and, consequently, assessing problems also varies in complexity. In a closed problem the teacher knows the method and the solution; the answer is constructed and convergent. These problems are easy to assess but as the problems become more open and complexity increases, assessment has to become more flexible and it is more difficult to be reliable and valid.

Practical work plays an important role in Engineering and other areas of Education and is generally understood that students will learn more effectively when they are engaged in practical tasks.
ALOA model uses the following classification of practical work: Demonstration; Exercise; Structured enquiry; Open enquiry; Project.

Short answer questions are questions that demand a short response from the student. Answers may be in text, graphic or numerical formats. Short answer questions have potential to assess an extended range of LOs.
The ALOA model uses the following classification by Brown et al.: Select crucial evidence; Explain methods, procedures and relationships; Present arguments; Describe limitations of data; Formulate valid conclusions; Identify assumptions; Formulate hypothesis; Formulate action plans.

Reflective practice is an approach to measure the capacity to analyse and evaluate experiences and aim at motivating students to understand and critically think about their own learning and development.
ALOA model uses KOLB learning cycle to analyse this type of assessment: Concrete experience; Reflective observation; Abstract Conceptualisation; Active Experimentation.

The web tool developed in TALOE is based on the ALOA model and includes general assessment methods. When the teacher uses the web tool, the results suggest general assessment methods that can be used for the Learning Outcomes inserted by the teacher. After the integration, the web tool will provide the general assessment methods and the corresponding suggestions of e-assessment practices.