Intended learning outcomes
School of Innovation Sciences

BSc Innovation Sciences –
Major Sustainable Innovation

May 2016

BSc Innovation Sciences (Technische Innovatiewetenschappen)

The Bachelor Innovation Sciences can be completed either with a major in Sustainable Innovation or with a major in Psychology & Technology.

Intended learning outcomes major Sustainable Innovation

Following the ACQA competence areas[1], the intended learning outcomes of the BSc program are specified as follows in terms of knowledge and skills of the graduates:

1) Competent in scientific disciplines

   a. Knowledge of and insight into specific technological systems and their components in one of the following technology domains: Sustainable Energy and Sustainability for the built environment.
   b. Knowledge of and insight into the core concepts, theoretical frameworks and methodologies of innovation science for sustainability, thereby building upon disciplines such as economics and sociology.
   c. Multidisciplinary knowledge integrating innovation sciences knowledge with technological knowledge to address sustainability challenges.
   d. Knowledge of and basic skills in the relevant techniques of observation, data collection and analysis for sustainable innovation, and an awareness of the scope and limitations of these methods.
   e. Knowledge of and skills in the basics of the engineering profession such as mathematics, statistics and programming.

2) Competent in doing research

   a. Ability to (re)formulate a sustainability research problem in terms of the core concepts and theories of innovation sciences.
   b. Ability to develop and execute a research plan (with supervision).
   c. Ability (with supervision) to contribute to the development of scientific knowledge in one of the areas of the innovation sciences for sustainability.
   d. Ability (with supervision) to identify and analyze problems typical for the innovation sciences, by integrating technological and social sciences perspectives.
   e. Ability to appraise (under supervision) relevant scientific evidence on its usefulness in addressing a given research problem.

3) Competent in designing

   a. Ability to translate the outcomes of sustainable innovation research into design, policy or strategy recommendations for innovation in existing and new socio-technical systems (under supervision).
   b. Ability to identify both the social and the technical implications of innovation sciences in the design recommendations for sustainability problems.

4) A scientific approach

   a. Ability to use a systematic approach characterized by the consistent application of existing theories, concepts and models in innovation sciences.
   b. Ability to look beyond the borders of a specific discipline, to be sensitive to the relative contributions of various disciplines.

[1] A.W.M. Meijers, C.W.A.M. van Overveld, and J.C. Perrenet, Criteria for Academic Bachelor's and Master's Curricula, 2005.

c. Basic understanding of the practices and principles of science.

5) Basic intellectual skills

a. A reflective attitude, with an ability to critically reflect (with supervision) on own thinking, decision making, and professional behavior.
b. A critical mindset and the ability to ask constructive questions regarding the basic problems in the field.
c. Ability to read and write scientific texts and evaluate argumentations.
d. Ability to think in abstract terms, including the ability to use and modify (formal) models of basic phenomena and processes in the domain.

6) Competent in co-operating and communicating

a. Capability of reporting and communicating the results of one's learning and decision making –including one's research outcomes --, both verbally and in writing, with academic peers and engineers in one's domain.
b. Ability to work in (multidisciplinary) teams of engineers and academic peers.
c. Ability to listen, read, talk and write in English.

7) Takes account of the temporal, technological and social context

a. Ability to reflect on the relation between the use of scientific knowledge and technology, the implicated social, normative and ethical issues, and the way in which knowledge and technology development is influenced by its social and historical context.
b. Understanding of the different roles of engineers and related professionals in society, in particular in relation to sustainability challenges.