

Intended learning outcomes School of Innovation Sciences

MSc Innovation Sciences

May 2016

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Intended learning outcomes MSc Innovation Sciences

Following the ACQA competence areas¹, the intended learning outcomes of the MSc program are specified as follows in terms of knowledge and skills of the graduates:

1) Competent in scientific disciplines

- a. Advanced knowledge of and insight into technological systems and their components in a specific technology domain.
- b. Thorough understanding of concepts, theoretical frameworks and methodologies of innovation sciences extending to the forefront of knowledge
- c. Thorough multidisciplinary knowledge integrating innovation sciences knowledge with technological knowledge in relevant domains, and the ability to critically reflect on the scope and limitations of this knowledge.
- d. Thorough knowledge of and advanced skills in the techniques of observation, data collection and analysis techniques in the innovation sciences domain, and an ability to critically reflect of the scope and limitations of these methods.

2) Competent in doing research

- a. Ability to formulate research problems in terms of concepts and theories of innovation sciences.
- b. Ability to independently develop and execute a research plan.
- c. Ability to contribute independently to the development of scientific knowledge in one of the areas of the innovation sciences.
- d. Ability to identify and analyze problems typical for the innovation sciences, by integrating technological and social sciences perspectives.
- e. Ability to appraise relevant scientific evidence on its usefulness in addressing research problems.

3) Competent in designing

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

4) A scientific approach

- a. Ability to apply and critically examine existing theories, concepts and models in the innovation sciences domain.
- b. Ability to look beyond the borders of a specific discipline, to be sensitive to the relative contributions of various disciplines and to understand the knowledge demands of a specific discipline.
- c. Ability to use a systematic approach characterized by the consistent application of existing theories, concepts and models in innovation sciences, and knowledge of current debates about this.

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.

5) Basic intellectual skills

- a. A reflective attitude, with an ability to critically and independently reflect on own thinking, decision making, and professional behavior.
- b. A critical mindset and the ability to ask constructive questions regarding complex problems in the field.
- c. Ability to read and write scientific texts.
- d. Ability to think in abstract terms, including the ability to develop (formal) models of 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 academics and engineers in various domain, users, and the general public
- b. Ability to recognize and deal with differences in work practices between scientific disciplines, and academics from other cultural backgrounds.
- c. Ability to take a leading role in multi- or interdisciplinary teams of engineers and academics.
- d. Ability to listen, read, talk and write in English on a professional level.

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, and the ability to integrate such relations and implications in their scientific work.
- b. Understanding of the different roles of engineers and related professionals in society, and the ability to determine one's own place as a professional in society.