

REPORT OF DEVELOPMENT DIALOGUE SCIENCE AND INNOVATION MANAGEMENT (BA) AND SCIENCE AND INNOVATION (MA) OF UTRECHT UNIVERSITY.

11 April 2023

Representatives of the assessment panel and programme representatives met (online) to conduct the development dialogue. During the development dialogue, the panel and the programme discussed the following topics:

- New bachelor curriculum
- Positioning of the bachelor's programme
- Positioning of the master's programme

1. New bachelor's programme.

The panel took note of the new programme and has the following suggestions.

- Based on the current information, it was not completely clear to the panel what the most important changes, compared to the former curriculum, are. The panel suggests that the changes in the curriculum should be communicated a bit more clearly in outward communication.
- Revision of the curriculum should start with a review of the Intended Learning Outcomes (ILOs). It is impossible to review a curriculum if it is not clear what a student is expected to know/master/be able to do after the programme is successfully finished. To give one specific example: For the panel it is unclear how the Dublin descriptor that says 'the bachelor has the ability to (...) inform judgements that include reflection on relevant social, scientific or ethical issues' is incorporated in the proposed curriculum. This seems to require at least some basics in general academic skills, and some notions of ethics and philosophy of science. This may well be 'hidden' in courses like 'Big history', but this is difficult to judge based on the scheme.
- In addition to checking the ILO's, it is important to sit back from time to time and consider whether you are teaching what you intend with this programme.
- A specific question to the panel is how students can be challenged more, while keeping them motivated. One of the solutions is perhaps to more explicitly incorporate iterations between theory and real-world experiences. The Innovation Projects are scheduled relatively late in the programme, and the second half of the 3rd year almost exclusively consists of real-world experience, seemingly without a kind of feedback loop to enhance insight in the theory.
- One of the reasons you mention to revise the curriculum is that the expected number of students in the 3rd year is too high to go into depth. While that statement probably in itself deserves a separate discussion, the panel fails to see how the proposed setup solves the issue. The third year is labour-intensive, and it is complicated to scale up courses like Innovation Project and Thesis.

Response programme management: Currently, there is much repetition because third-year courses have many students taking this course as an elective. In the new curriculum, courses in the second and third year will be better aligned.

Response panel: it would be good to indicate at the start of third-year courses what is expected from students as basic knowledge (especially for students taking the course as an elective). In addition, the importance of small-scale teaching in third-year courses could be more explicitly communicated to students and teachers.

- The panel would like to see more practical context and content ('practice') integrated in the course programme. How do the courses interact with the surrounding ecosystem and how can the students use this to increase their understanding of the subject they are studying? This would help students to critically reflect, in a broader sense, on the relation between science, technology, and society.
- The panel does not see details as to how the students should relate to different types of businesses and organizations. Many students will not start their own private firms but will work with innovations and entrepreneurship processes within established businesses. Will the course programme deal with theories and practical tools for innovation and entrepreneurship processes within such organizations (i.e. intrapreneurship)?
- One way of increasing the students' engagement is to work with different challenge-based tasks connected to different innovation and entrepreneurship-related situations. A challenge-driven approach to learning is indeed very feasible in this type of education.
- The topic 'ethics' is not explicitly seen in the programme. With 'ethics' the panel means political choices and the role of cultural and social values in shaping innovation. The panel suggests explicating this more explicitly in the courses and possibly also setting learning objectives in this respect.
- A new course will be 'big history'. This course should provide a broad basis for the scientific knowledge that all NW&I students should have to understand phenomena in energy, transport and life sciences, such as the carbon cycle, evolution, etc. In this course, attention is also paid to thinking in different disciplines. The panel is of the opinion that especially the introduction of many different perspectives to students is important in this course.

Response of the programme management: That is exactly what we intend to do but we can better communicate this to our students.

Response panel: The panel, then, understands that the goal of the course is not primarily to teach the 'big history of the Earth' but rather to use that history as a vehicle to (1) teach some basic natural science approaches, and (2) make students aware of the value of different scientific and scholarly disciplines in making sense of the Earth and its history. This is something the panels applauds.

2. Positioning of the bachelor's programme

- The panel suggests communicating more explicitly the difference between the UU bachelor's programme compared with the programmes at TU/e and the VU.

Response programme management: We already do this in our information to incoming students but can do this more explicitly in other documents.

- Another issue, the programme management raises is the rise of more and more broad bachelors that claim to be interdisciplinary. They also have capstone projects and challenge-

based learning. The panel suggests that the programme can distinguish itself from these bachelors by relying on its own strengths. The panel suggests telling the outside world in what ways interdisciplinarity is practised in the programme (e.g. no modular courses, courses build on each other, strong link between teaching and research). For example, the programme might consider putting this in bullet points on the website, including examples.

3. Positioning of the master's programme

- According to the panel, the panel reviewed two master's programmes instead of one. Students whom the panel met introduced themselves as SBI students or IS students instead of S&I students. The panel noted that the programme management has no uniform story with respect to the direction of the two master tracks. The panel suggests the programme to brainstorm internally about this topic. The panel itself considers more opportunities and possibilities in further convergence of the two tracks than in divergence of the two tracks.