

## Hydraulic & Geo-Structures

| Specialisation Courses (≥50 EC)                                                                       | Quartile | ECTS | CEM Elective Courses (≥15 EC)                                                                         | Quartile | ECTS |
|-------------------------------------------------------------------------------------------------------|----------|------|-------------------------------------------------------------------------------------------------------|----------|------|
| Structural Health Monitoring for Smart Infrastructure                                                 | 1        | 5    | Specialisation course or any other course from CEM<br>(pay attention to the required prior knowledge) | 1,2,3,4  | 5    |
| Hydrology                                                                                             | 1        | 5    |                                                                                                       |          |      |
| Building Information Modelling (BIM)                                                                  | 1        | 5    |                                                                                                       |          |      |
| Sustainable Engineering                                                                               | 1        | 5    |                                                                                                       |          |      |
| Structural Dynamics (ME)                                                                              | 1        | 5    |                                                                                                       |          |      |
| Civil Engineering Challenges*                                                                         | 1        | 5    |                                                                                                       |          |      |
| Geo Risk Assessment                                                                                   | 1        | 5    | <b>Free Electives (max 15 EC)</b>                                                                     |          |      |
| Digital Twinning in Infrastructure                                                                    | 1        | 5    | Specialisation course or any other course from CEM, UT                                                | 1,2,3,4  |      |
| Data Analysis in Water Engineering & Management                                                       | 1        | 5    | or approved other university**                                                                        |          |      |
| Geotechnical Modelling                                                                                | 1        | 5    | <b>Other usefull courses (0 EC)</b>                                                                   |          |      |
| Hydraulic Engineering                                                                                 | 1        | 5    | Boost your Competences                                                                                | 1,2,3,4  | 0    |
| Mathematical Physics of Water Systems                                                                 | 1        | 5    |                                                                                                       |          |      |
| Machine Learning Applications in Civil Engineering                                                    | 1        | 5    |                                                                                                       |          |      |
| Subsurface Infrastructure Engineering & Data Management                                               | 1        | 5    | <b>GRADUATION ***</b>                                                                                 |          |      |
| Mathematical Optimization in Transport                                                                | 1        | 5    | Academic Research Skills in CEM/CME                                                                   | 2,4      | 5    |
| Building with Nature                                                                                  | 1        | 5    | Preparation Master Thesis                                                                             | 1,2,3,4  | 5    |
|                                                                                                       |          |      | Master Thesis Hydraulic & Geo-Structures                                                              | 1,2,3,4  | 30   |
| Specialisation-coordinator: Dr.ir. Jord Warmink<br>Coordinator Master Thesis: Dr. Floriana Anselmucci |          |      |                                                                                                       |          |      |

\* Courses that require more prior knowledge and experience, preferably taken in the second year

\*\* an "approved university" is any university in The Netherlands (not HBO-schools), or any international university that is partner of the UT or of the faculty of ET.

The Free Electives should be at MSc-level and should have no overlap with other courses in your programme. For courses from other universities, contact your Specialisation-coordinator.

\*\*\* [Click here for the procedure of how to start the course Preparation MSc-thesis and your MSc-thesis project](#)