

### Curriculum bachelor Technische Natuurkunde for students generation 2025

#### First academic year (B1 2025-2026)

| Course code               | Dutch name                                     | English name <sup>1</sup>                        | EC          |
|---------------------------|------------------------------------------------|--------------------------------------------------|-------------|
|                           | <b>TN SEM01 Semester 1</b>                     | <b>Semester 1</b>                                | <b>7.0</b>  |
| 202300095                 | Experimenteren                                 | Lab course                                       | 4.0         |
| 202300096                 | Programmeren en dataverwerking                 | Programming and Dataprocessing                   | 3.0         |
|                           | <b>TN MOD01 Dynamica en Relativiteit</b>       | <b>Dynamics and Relativity</b>                   | <b>11.0</b> |
| 202100094                 | <i>Dynamica en Relativiteit</i>                | <i>Dynamics and Relativity</i>                   | 4.5         |
| 202001215                 | <i>Calculus 1</i>                              | <i>Calculus 1</i>                                | 4.0         |
| 202000675                 | <i>Project Dynamica en Relativiteit</i>        | <i>Project Dynamics and Relativity</i>           | 2.5         |
|                           | <b>TN MOD02 Thermodynamica</b>                 | <b>Thermodynamics</b>                            | <b>12.0</b> |
| 202000677                 | <i>Thermodynamica</i>                          | <i>Thermodynamics</i>                            | 4.0         |
| 202001224                 | <i>Calculus 2</i>                              | <i>Calculus 2</i>                                | 4.0         |
| 202000680                 | <i>Project Thermodynamica</i>                  | <i>Project Thermodynamics</i>                    | 4.0         |
|                           | <b>TN MOD03 Elektromagnetisme en Meten</b>     | <b>Electromagnetism and Measurements</b>         | <b>15.0</b> |
| 202000682                 | <i>Elektriciteit en Magnetisme</i>             | <i>Electromagnetics</i>                          | 5.0         |
| 202001232                 | <i>Vector Calculus</i>                         | <i>Vector Calculus</i>                           | 2.0         |
| 202000683                 | <i>Instrumentatie</i>                          | <i>Instrumentation</i>                           | 4.0         |
| 202000684                 | <i>Analytisch Programmeren</i>                 | <i>Analytical Programming</i>                    | 1.0         |
| 202000685                 | <i>Project Elektromagnetisme en Meten</i>      | <i>Project Electromagnetism and Measurements</i> | 3.0         |
|                           | <b>TN MOD04 Quantum en Geometrische Optica</b> | <b>Quantum and Geometrical Optics</b>            | <b>15.0</b> |
| 202000687                 | <i>Quantum Materie</i>                         | <i>Quantum Matter</i>                            | 5.0         |
| 202001211                 | <i>Lineaire Algebra</i>                        | <i>Linear Algebra</i>                            | 3.0         |
| 202000688                 | <i>Geometrische Optica</i>                     | <i>Geometrical Optics</i>                        | 2.5         |
| 202000689                 | <i>Engineering Systems</i>                     | <i>Engineering Systems</i>                       | 4.5         |
| Total first academic year |                                                |                                                  | 60          |

<sup>1</sup> As printed on the transcript of records

### Second academic year (B2 2026-2027)\*

| Course code                | Dutch name                                                  | English name                               | EC          |
|----------------------------|-------------------------------------------------------------|--------------------------------------------|-------------|
|                            | <b>TN MOD05 Signalen. Modellen en Systemen</b>              | <b>Signals. Models and Systems</b>         | <b>15.0</b> |
| 202000691                  | <i>Signalen</i>                                             | <i>Signals</i>                             | 4.0         |
| 202400597                  | <i>Modellen</i>                                             | <i>Models</i>                              | 4.5         |
| 202400598                  | <i>Project Signalen. Modellen en Systemen</i>               | <i>Project Signals. Models and Systems</i> | 2.5         |
|                            | <b>Keuze 1 van 2:</b>                                       | <b>Elective 1 of 2</b>                     |             |
| 202000694                  | <i>Klassieke Mechanica</i>                                  | <i>Classical Mechanics</i>                 | 4.0         |
| 202000695                  | <i>Engineering Solid Mechanics</i>                          | <i>Engineering Solid Mechanics</i>         | 4.0         |
|                            | <b>TN MOD06 Golven. Interferentie en Waarschijnlijkheid</b> | <b>Waves. Interference and Probability</b> | <b>15.0</b> |
| 202001485                  | <i>Optica Theorie</i>                                       | <i>Optics Theory</i>                       | 4.5         |
| 202300063                  | <i>Optica Practica</i>                                      | <i>Optics Practicals</i>                   | 2.5         |
| 202200094                  | <i>Quantummechanica 1</i>                                   | <i>Quantum Mechanics 1</i>                 | 5.0         |
| 202200095                  | <i>Hilbertruimte</i>                                        | <i>Hilbert Space</i>                       | 3.0         |
|                            | <b>TN MOD07 Fysica van Gecondenseerde Materie</b>           | <b>Condensed Matter Physics</b>            | <b>15.0</b> |
| 202000701                  | <i>Inleiding Vastestoffysica</i>                            | <i>Introduction Solid State Physics</i>    | 7.0         |
| 202000702                  | <i>Statistische Fysica</i>                                  | <i>Statistical Physics</i>                 | 6.0         |
| 202000703                  | <i>Partiële Differentiaalvergelijkingen</i>                 | <i>Partial Differential Equations</i>      | 2.0         |
|                            | <b>202000704 TN MOD08 Continuüm Dynamica</b>                | <b>Continuum Dynamics</b>                  | <b>15.0</b> |
| 202300023                  | <i>Vloeistoffysica Theorie</i>                              | <i>Fluid Physics Theory</i>                | 4.5         |
| 202300024                  | <i>Vloeistoffysica Practica</i>                             | <i>Fluid Physics Practicals</i>            | 2.5         |
| 202000706                  | <i>Elektrodynamica</i>                                      | <i>Electrodynamics</i>                     | 6.0         |
| 202000707                  | <i>Numerieke Methoden voor PDV</i>                          | <i>Numerical Methods for PDE</i>           | 2.0         |
| Total second academic year |                                                             |                                            | 60          |

### Third academic year (B3 2027-2028)\*

| Course code               | Dutch name                                      | English name                             | EC          |
|---------------------------|-------------------------------------------------|------------------------------------------|-------------|
| -                         | <b>Minor/profilering</b>                        |                                          | <b>30.0</b> |
|                           | <b>TN MOD11 Oriëntatie Module</b>               | <b>Orientation</b>                       | <b>15.0</b> |
| 202300067                 | <i>Vorbereiding Bacheloropdracht</i>            | <i>Preperation Bachelor's Assignment</i> | 3.0         |
| 202300068                 | <i>Statistiek in Wetenschappelijk Onderzoek</i> | <i>Statistics in Scientific Research</i> | 2.0         |
|                           | <b>Keuzevakken 10EC:</b>                        | <b>Elective courses 10 EC</b>            |             |
| 202000710                 | <i>Fysische Materiaalkunde</i>                  | <i>Materials Science</i>                 | 5.0         |
| 202000711                 | <i>Technische Optica</i>                        | <i>Technical Optics</i>                  | 5.0         |
| 202100223                 | <i>Computational Physics</i>                    | <i>Computational Physics</i>             | 2.5/5.0     |
| 202100225                 | <i>Remote Control of Experiments</i>            | <i>Remote Control of Experiments</i>     | 2.5/5.0     |
| 202100224                 | <i>Machine Learning</i>                         | <i>Machine Learning</i>                  | 3.0/5.0     |
| 202001413                 | <i>Soft Matter Physics</i>                      | <i>Soft Matter Physics</i>               | 5.0         |
|                           | <b>202000715 TN MOD12 Bacheloropdracht</b>      | <b>Bachelor's Assignment</b>             | <b>15.0</b> |
|                           | <i>Algemene Aspecten (50%)</i>                  | <i>General Aspects (50%)</i>             | 7.5         |
|                           | <i>Fysische Aspecten (50%)</i>                  | <i>Physics Aspects (50%)</i>             | 7.5         |
| Total third academic year |                                                 |                                          | 60          |

\* Subject to changes