Thematic Learning Area: Sustainability

To help you make informed choices regarding broadening electives, within each TLA a number of learning paths are offered. A learning path is a coherent selection of TLA electives across departments, grouped around one TLA subtheme. The learning paths within a TLA are based on the assumed amount of pre-knowledge, indicating that familiar programs have better access. This means some learning paths are specifically accessible for students from one department, whereas another learning path suits best for students from another department. If you have met the expected pre-knowledge, for instance by following the requested 'stem courses' or deficiencies in another way, the relevant electives are accessible also. You can make well-informed choices by either choosing preferred but not necessarily related electives, or by choosing a pre-defined learning path. Combinations of learning paths or self-selected electives are also possible.

Energy	
Description of the content	The TLA Sustainability compiles Bachelor's elective courses with a central focus on sustainability. Courses within this TLA encourage students to contextualize technological innovation and understand sustainability from a variety of different perspectives. These include human, social, and environmental perspectives, and are related to themes of health, energy, mobility, economics, planning and data science. The aim of this TLA is for students to learn to take responsibility and seek regenerative answers to far-reaching and long-lasting grand societal challenges.
Offered by	IE&IS, BE, ID
Language	English
Contact person	Tommaso Mondovì, Msc <t.mondovi@tue.nl>

Learning path 1

1. Climate change

Course code	Course name	Link to course catalogue
0SK40	Climate Change: Understanding the causes and solutions	

Learning path 2

2. Impact of technology

Course code	Course name	Link to course catalogue
0SV10	Sustainable technology in society	
0SV40	Managing sustainable technologies	
0SV80	Sustainable technology in society (advanced)	

Learning path 3

3. Assessment

Course code	Course name	Link to course catalogue
0SV20	From Industrial Ecology to Circular Economy	
0SV140	Assessment to Support Decision Making	

Learning path 4

4. Global Sustainability

| Course code	Course name	Link to course catalogue
0SV00	Sustainable Development in a global context	
0SV130	Global sustainability and innovation	
0SV150	Global sustainability in long term perspective	

Learning path 5

5. Sustainable Design

Course code	Course name	Link to course catalogue
DDB180	ID Green: design perspectives on Sustainability	
7XEUA0	Design for a sustainable future	
1ZK20	Sustainability perspectives on product innovation	
DUB210	Designing with more-than-human worlds	

Additional Sustainability TLA Courses related to other themes

Course code	Course name	Link to course catalogue
DUB220	Participatory reimagining	
JBG000	Data science ethics	
7S7X0	Materialization of façades and roofs	
0SV60	Economic policy	
7W7X0	Urban planning	
6BER01	Nanomaterials: Fabrication and Chemistry	
6BER04	Topics in molecules and materials	
6BER08	Polymer chemistry and technology 2	
6BER06	Electrochemical Energy Conversion and Storage	
6BER06	CBL Process Design	
	ISBEP (Bachelor End Project)	

Additional information
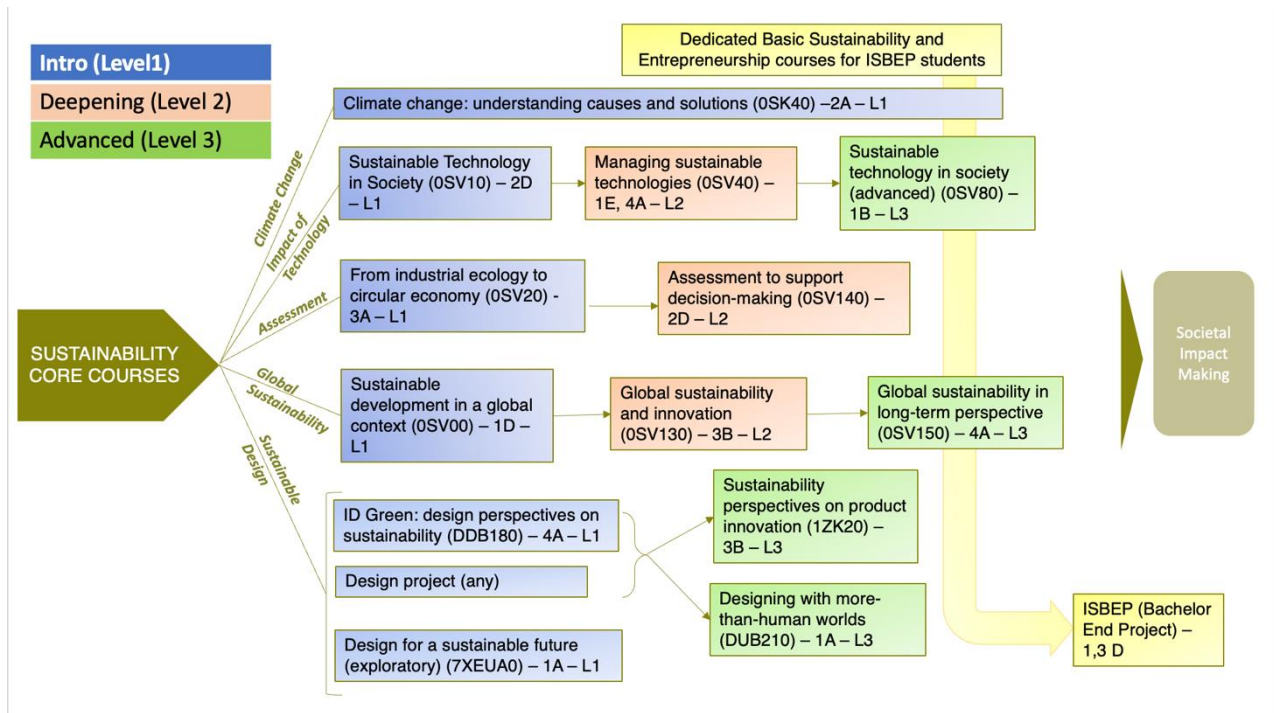
The visual above displays the TLA Sustainability Core Courses, whereby Sustainability represents the central focus of each individual module. The courses are grouped around the following categories:

- **Climate change:** the course listed under this category encompasses a comprehensive understanding of the science behind Climate Change and its relation to the pressing societal challenges defining our world and society today;
- **Impact of technology:** Comprising three courses, this category delves into the societal implications of technology, encouraging students to contemplate the challenges that technology ameliorates or generates within society.;
- **Assessment:** With two courses under this branch, students are introduced to various tools, including Life Cycle Assessment, for quantifying the environmental impact of products and how these assessments may inform decision-making within organizations;
- **Global Sustainability:** This category, consisting of three courses, explores the global ramifications of sustainability challenges, including questions of governance;
- **Sustainable Design:** , this category offers a series of courses prompting students to integrate sustainability considerations into product design.
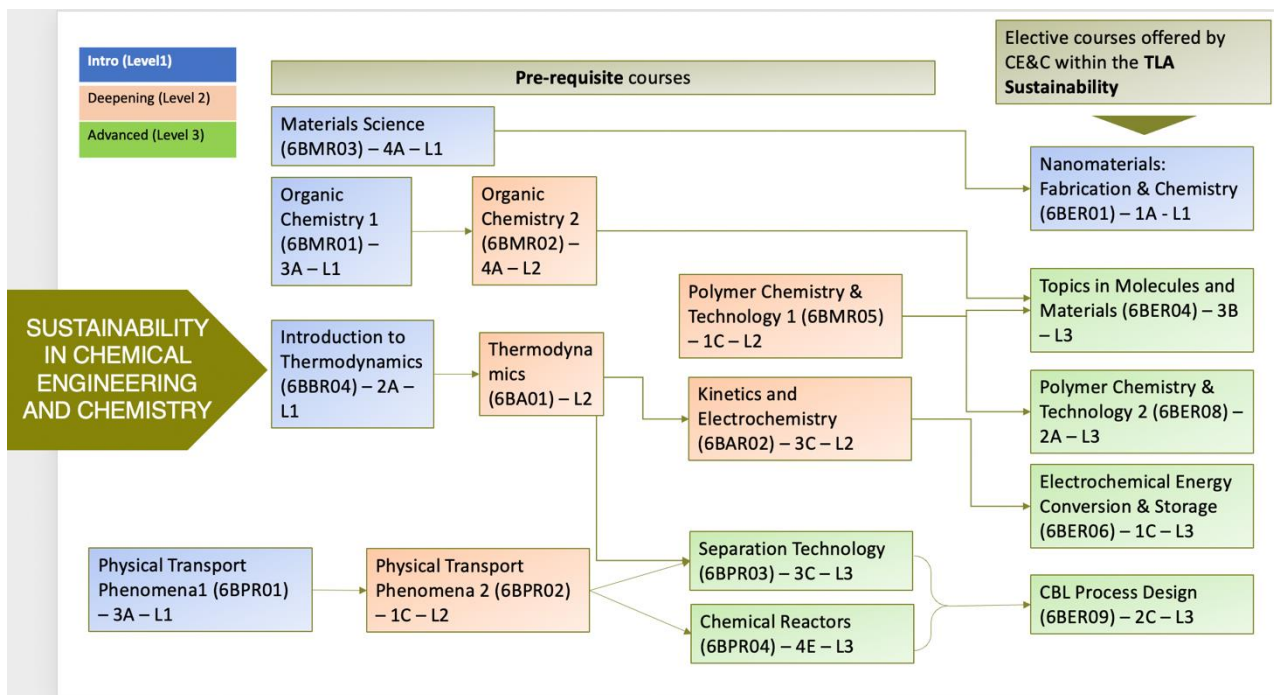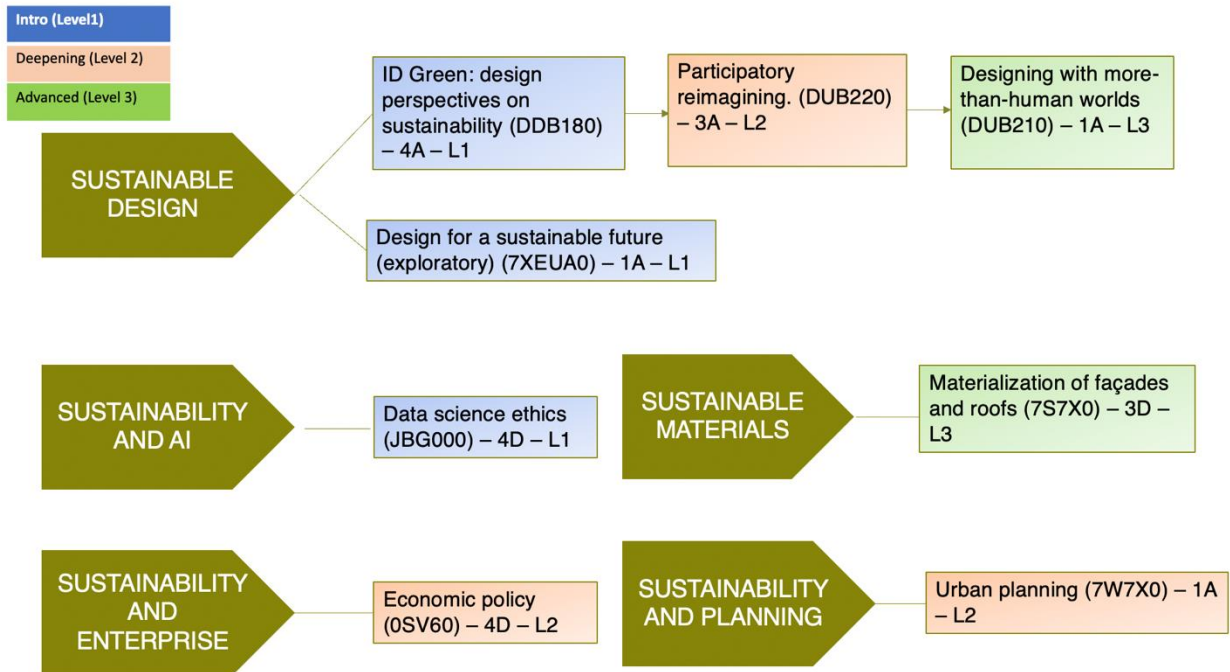
Courses are color-coded based on their level, as indicated in the key in the top-right corner. Typically, completion of the respective predecessor course at level 1 or level 2 is required for enrollment in level 2 and level 3 courses, although exceptions may apply. Students interested in enrolling in a level 2 or 3 course without completing the prerequisite course(s) are encouraged to contact the course lecturer.

ISBEP: The Innovation Space Bachelor End Project is recommended within this Thematic Learning Area as it enables students to work on a project directly related to sustainability. To prepare adequately for this, students are advised to select one course from the Sustainability and Entrepreneurship TLAs, namely:

1. Entrepreneurship in action 1 (Ideation) (1ZAUB0) – L1, Q1 (5 ECTS)
2. Sustainability perspectives on product innovation (1ZK20)–L3, Q1, Q3 (5 ECTS)

For further inquiries concerning the Sustainability TLA, please contact: sustainability@tue.nl

Intro (Level1)
Deepening (Level 2)
Advanced (Level 3)

SUSTAINABLE DESIGN

ID Green: design perspectives on sustainability (DDB180) – 4A – L1

Participatory reimagining. (DUB220) – 3A – L2

Designing with more-than-human worlds (DUB210) – 1A – L3

Design for a sustainable future (exploratory) (7XEUA0) – 1A – L1

SUSTAINABILITY AND AI

Data science ethics (JBG000) – 4D – L1

SUSTAINABLE MATERIALS

Materialization of façades and roofs (7S7X0) – 3D – L3

SUSTAINABILITY AND ENTERPRISE

Economic policy (0SV60) – 4D – L2

SUSTAINABILITY AND PLANNING

Urban planning (7W7X0) – 1A – L2

Intro (Level1)
Deepening (Level 2)
Advanced (Level 3)

Pre-requisite courses

Elective courses offered by CE&C within the **TLA Sustainability**

SUSTAINABILITY IN CHEMICAL ENGINEERING AND CHEMISTRY

Materials Science (6BMR03) – 4A – L1

Organic Chemistry 1 (6BMR01) – 3A – L1

Organic Chemistry 2 (6BMR02) – 4A – L2

Introduction to Thermodynamics (6BBR04) – 2A – L1

Thermodynamics (6BA01) – L2

Polymer Chemistry & Technology 1 (6BMR05) – 1C – L2

Kinetics and Electrochemistry (6BAR02) – 3C – L2

Physical Transport Phenomena1 (6BPR01) – 3A – L1

Physical Transport Phenomena 2 (6BPR02) – 1C – L2

Separation Technology (6BPR03) – 3C – L3

Chemical Reactors (6BPR04) – 4E – L3

Nanomaterials: Fabrication & Chemistry (6BER01) – 1A - L1

Topics in Molecules and Materials (6BER04) – 3B – L3

Polymer Chemistry & Technology 2 (6BER08) – 2A – L3

Electrochemical Energy Conversion & Storage (6BER06) – 1C – L3

CBL Process Design (6BER09) – 2C – L3

The two figures above represent additional TLA courses whereby Sustainability is a present theme, however is not the central focus of these. These courses are clustered around other themes including AI, Materials, Entrepreneurship and more. Students interested in these themes are welcomed to couple the Sustainability TLA courses recommended here alongside the respective TLA of each theme, for example:

Student interested in AI and Sustainability might consider: Data Science Ethics + AI TLA.