



SBE Student Challenge

Edition 7

Bridges across the Roeselare-Leie Canal

Assignment Brief



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1. Our challenge

1.1. Background

The **seventh edition** of the SBE Student Challenge focuses on one of infrastructure's most compelling design tasks: the bridge.

A bridge is more than a technical structure. It combines infrastructure, architecture, public space, mobility and landscape in a single intervention. Designing one therefore requires close collaboration between disciplines.

This multidisciplinary approach lies at the heart of the SBE Student Challenge. Participants work in teams, combine their expertise and develop one shared design vision. The challenge introduces students to integrated design questions from professional practice without requiring a complete professional design process.

This edition is based on two real projects along the **Roeselare-Leie Canal** in West Flanders: the **Lys Bridge in Ingelmunster** and a **new cycling and pedestrian bridge in Oostrozebeke**. Both projects support active mobility and accessibility along the canal, but respond to different landscapes, communities and local ambitions.



1.2. Context

The Roeselare-Leie Canal is an **important economic and logistical waterway**. Along its banks, it also interacts with urban areas, industry, mobility networks, public space and landscape. Its role and design opportunities therefore vary by location.

The projects in Ingelmunster and Oostrozebeke illustrate this diversity. Although both are cycling and pedestrian bridges across the same canal, their spatial conditions, users and local ambitions differ. This leads to the central question:

How can two bridges along the same waterway share a common identity while remaining rooted in their local context?

Each team will develop one assigned bridge location in detail. Teams should nevertheless consider the similarities and differences between both projects and reflect on how their proposal could belong to a broader family of bridges along the canal.



Research area in Ingelmunster



Research area in Oostrozebeke

1.3. Design Challenge

Infrastructure along a corridor may share recognisable design principles or derive its identity mainly from local conditions. Most bridge projects balance both approaches.

The balance between **shared design principles** and **local identity** is the central theme of this edition.

Teams should develop an integrated response to their assigned site, bringing together architecture, structural engineering, active mobility, landscape, public space, water management and user experience. The result should be one coherent design approach rather than a collection of separate disciplinary solutions.

The following questions may guide the design process:

- Which design principles could be shared by both bridge projects?
- Which aspects should emerge directly from local conditions?
- Does the canal itself suggest a common identity?
- Can two bridges be recognisably related without becoming identical?
- How can local character strengthen a broader vision for the canal corridor?

Teams should formulate and convincingly defend a clear design position.

CENTRAL QUESTION: How can two bridges along the same canal share design principles while responding to the identity, landscape and mobility needs of their respective locations?

1.4. Project Briefing

The technical information below is deliberately limited. It does not reproduce the full professional project documentation, but provides the main spatial, infrastructural and technical conditions needed to develop a credible proposal.

A distinction is made between:

- Project-specific data, derived from the available project information.
- General design guidance, derived from current Flemish references, including the Vademecum Fietsvoorzieningen, Standaardbestek 250 and Standaardbestek 260.

1.5. Project Location A

1.5.1. Lys Bridge | Ingelmunster

The Lys Bridge project **replaces a former pedestrian bridge** across the Roeselare-Leie Canal in Ingelmunster. The previous bridge was removed because of its structural condition. The new crossing will reconnect both banks for **cyclists and pedestrians**.



Former Lys Bridge in Ingelmunster



Location for the new bridge

The northern bank consists of parkland, woodland, flood-sensitive areas and nearby residential development. The southern bank connects to the canal-side cycling network, housing and industrial activity. The design should reconnect both banks while integrating the bridge and its approaches into this varied landscape.

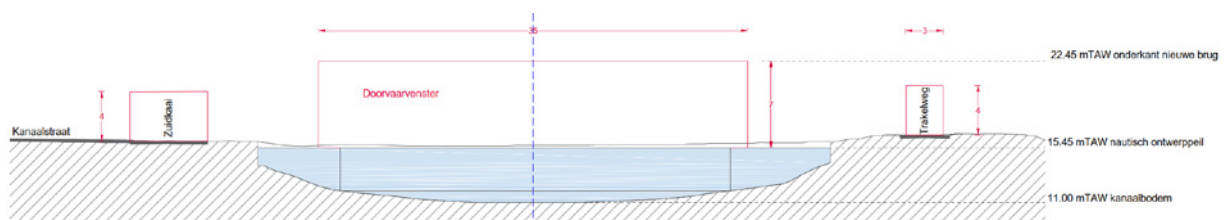
Participants should consider:

- Cyclist and pedestrian comfort
- Integration within the surrounding landscape
- Ecology and water management
- The relationship between the bridge and public space
- Structural clarity and architectural quality

1.5.2. Technical Datasheet

Project-specific

PARAMETER	REQUIREMENT
Function	Cycling and pedestrian bridge
Navigation envelope	35 m wide × 7 m high
Nautical design level	+15.45 m TAW
Supports in navigation zone	Not permitted
Free clearance above Kanaalstraat and Trakelweg	4.00 m
Main cycling connection	Trakelweg
Maintenance access	Required
Design life	100 years



1.6. Project Location B

1.6.1. Cycling and pedestrian Bridge I Oostrozebeke

The Oostrozebeke project concerns a **new cycling and pedestrian bridge across the Roeselare-Leie Canal**. The canal currently separates the Otteca district from the village center, forcing cyclists and pedestrians to detour via road bridges in Ingelmunster or Ooigem.



The new bridge should **reconnect residential areas, local facilities, recreation and the wider cycling network**. It should also strengthen the municipality's relationship with the canal and the Mandel landscape.

The route must cross a complex set of barriers, including the canal, the expressway N382, local roads and water-management infrastructure, while remaining safe, attractive and accessible.

The bridge should be considered as more than an isolated structure crossing the canal. Its approaches, landings and surrounding spaces should form an integral part of the landscape. The intervention should minimize unnecessary spatial and environmental impact while creating a meaningful and attractive transition between the bridge and its surroundings.



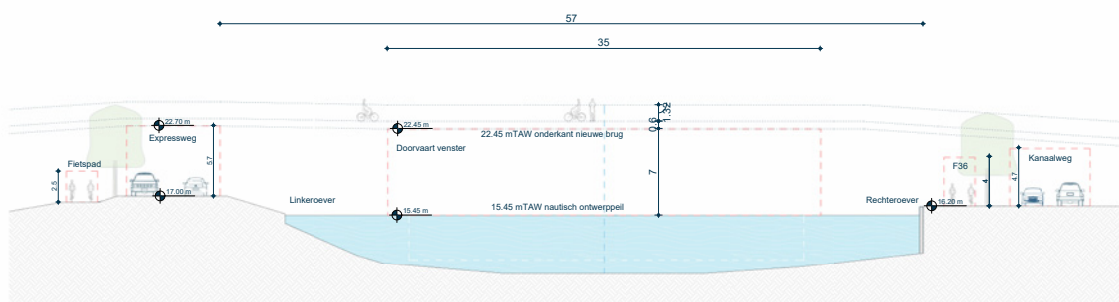
Participants should consider:

- The relationship between the bridge and the wider cycling network
- Connections to the F36 cycle highway
- Landscape and ecological integration
- Water management, considering the flood-sensitive zones
- User comfort and accessibility
- The spatial quality of the bridge landings

1.6.2. Technical Datasheet

Project-specific

PARAMETER	REQUIREMENT
Function	Cycling and pedestrian bridge
Navigation envelope	35 m wide × 7 m high
Nautical design level	+15.45 m TAW
Supports in navigation zone	Not permitted
Shifting road alignment	Kanaalweg: permitted / Expressway: not permitted
Free clearance above Kanaalweg	4.70 m
Free clearance above Expressway (N382)	5.70 m
Main cycling connection	F36 cycle highway
Free clearance above cycling connection	4.00 m
Maintenance access	Required
Design life	100 years



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1.7. General technical requirements

The following common requirements apply alongside the project-specific conditions.

1.7.1. Navigation

- Nautical design level: +15.45 m TAW
- Navigation envelope: 35 m wide × 7 m high
- No supports are permitted inside the navigation envelope.

1.7.2. Active mobility

- Minimum free height for cyclists: 2.50 m.
- The width should suit the leading cycle route. The minimum width for a bicycle bridge is 3.00 m, with an additional 0.75 m clearance near parapets.
- Towpaths are generally 2.50 m wide; local deviations are possible.
- The standard curve radius is approximately 15 m. At crossings or in constrained conditions, a minimum radius of 4 m may be used with curve widening.
- Gradients should be kept as low as possible and should respond to the height difference.
- For height differences above 5.00 m, an intermediate horizontal platform of approximately 25.00 m is recommended.
- For infrastructure shared by cyclists and pedestrians, a maximum gradient of 5% over 10.00 m is used as an accessibility-related value.

1.7.3. Accessibility

The design should provide comfortable and intuitive movement for all users, including:

- Step-free access
- Comfortable gradients
- Clear and legible routes
- Adequate visibility
- Safe transitions between the bridge and its surroundings

Stairs may complement the route but may not replace the accessible connection.

1.7.4. Parapets and safety

- Minimum parapet height: 1.35 m.
- Parapets should provide safety while maintaining views of the canal and its surroundings.
- Lighting should support safe use while limiting unnecessary light spill.

1.8. Ambitions, Design Standards and Preconditions

The assignment focuses on the design questions most relevant to this challenge: context, structure, movement, public space and user experience. It does not reproduce the full complexity of a professional infrastructure project.

Each team will develop one assigned bridge location and explain how it relates to the broader canal context. The datasheets provide the main technical boundary conditions for credible design thinking, not a complete engineering brief.

Each proposal should:

- Address one assigned bridge location
- Formulate a clear design position
- Demonstrate an understanding of the local context
- Respect the main navigation and road-clearance conditions
- Propose a credible structural strategy
- Address the bridge, its landings and the surrounding public space as one design
- Explain the relationship between shared design principles and local identity
- Show how the disciplines contribute to one coherent proposal

The alignment, materials and bridge typology are not fixed. Teams should justify their choices and consider sustainability, circularity and long-term resilience where relevant.

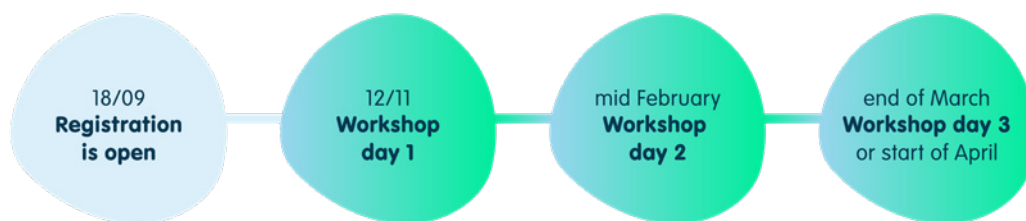
The jury does not expect a fully calculated engineering design. Proposals should nevertheless be credible in terms of:

- Span and structural behavior
- Load transfer
- Constructability
- Navigation clearance
- User comfort and accessibility
- Durability and maintenance
- Relationship with the site

Any deviation from the general design guidance should be clearly justified.

2. Programme

The SBE Student Challenge consists of **three workshop days** spread across the academic year. Each day addresses a different stage of the design process through short introductions, expert guidance and team-based design work. Participants may continue developing their proposal between workshops.



- **Workshop Day 1 | Understanding the Challenge (November 2026):**

Participants become familiar with the assignment, project locations and central design question. Working mainly from an urban-planning and landscape perspective, teams analyze the available information, identify opportunities and constraints, and formulate an initial design position. They consider both the character of their assigned site and the balance between shared principles and local identity.

- **Workshop Day 2 | Developing the Proposal (February 2027):**

Teams translate their initial design position into a concrete bridge proposal. They develop the structural concept, test spatial and architectural choices, select appropriate materials and detailing, and receive feedback from experts. Particular attention is paid to the relationship between architecture and structure.

- **Workshop Day 3 | Final Presentation & Jury (March/April 2027):**

Teams finalize their proposal independently during the morning and present it to a professional jury and the other participants in the afternoon. The presentation should explain the final design, the reasoning behind key decisions and the contribution of the different disciplines. The jury selects the winning team at the end of the day.

The in-person sessions allow direct exchange between participants, SBE experts and project partners. Catering and after-work drinks are provided. Exact dates will be published on the Student Challenge website and communicated during the workshops.

3. Practical information

3.1. Registration and teams

Students can register at www.sbestudentchallenge.be.

The competition is aimed primarily at students in civil engineering, industrial engineering, architecture, landscape architecture, urban design, mobility studies and related disciplines. The challenge is open to students from the third year of a Bachelor's programme onwards, including Master's students.

The participants work in multidisciplinary teams. Teams may register together, but students may also register individually and form a team during the first workshop day. Each team should actively combine the expertise of its members.

3.2. Deliverables

No fixed presentation format is imposed. Each team presents and defends its proposal during the final workshop day, taking the assessment criteria below into account. The jury values clarity, coherence and design reasoning over the quantity of drawings.

The duration of the presentation and Q&A will depend on the number of participating teams.

4. Evaluation and jury process

The jury will assess each proposal as an integrated whole. The final design matters, as do the analysis, design reasoning and collaboration between disciplines.

4.1. Assessment Criteria

4.1.1. Relationship between design and context

The proposal responds to the spatial, infrastructural and societal context of the selected location and translates site analysis into relevant design decisions.

4.1.2. Shared design principles and local identity

The proposal takes a clear and consistent position on the relationship between a possible family of bridges and the character of the selected location.

4.1.3. Relationship between architecture and structure

The architectural expression and structural logic form a coherent whole. Detailed calculations are not required, but the structural concept should be credible and understandable.

4.1.4. Relationship between infrastructure and user experience

The proposal addresses the comfort, safety, legibility and spatial experience of pedestrians, cyclists and other relevant users.

4.1.5. Integration of multiple disciplines

The disciplines contribute to one integrated design rather than a collection of separate solutions.

4.1.6. Consistency of concept and development

The concept is translated consistently into plans, sections, structure, materials, detailing and presentation.

4.1.7. Presentation

The oral and visual presentation communicates the design clearly and explains the reasoning behind key decisions.

5. Prizes and recognition

At the end of the final workshop day, the jury selects one winning team. The winning team receives:

- A cash prize of €2,000
- Recognition as the winner of the seventh SBE Student Challenge
- Publication of the project through the Student Challenge communication channels

All participants gain experience in addressing a real infrastructure challenge, collaborating across disciplines, receiving professional feedback and presenting to a jury. The challenge can also strengthen a student portfolio and develop design, teamwork and communication skills.

6. Legal information

Participation in the SBE Student Challenge implies acceptance of the competition rules and practical arrangements communicated by the organizers. The official competition regulations are available on the SBE Student Challenge [website](#).

Good luck!