Fachbereich:	**Network infrastructure**
Leiter/in der Bachelor-Arbeit (inkl. E-Mail-Adresse):	Prof. Dr. Bryan T. Adey (adey@ibi.baug.ethz.ch)
Betreuer/in der Bachelor-Arbeit (inkl. E-Mail-Adresse):	Arnor Elvarsson (elvarsson@ibi.baug.ethz.ch); Orlando Roman (roman@ibi.baug.ethz.ch);
Titel der Bachelor-Arbeit:	Transport system resilience to disruptive events and long-term trends: Chur 2050
Beschrieb der Bachelor-Arbeit:	Chur is changing. There is an increasing population. Changing ways of travel. Changing ways of working. A warming climate. These changes means that Chur may not be as ready for the future as it could be. If it isn't there may be undesirable consequences, e.g., clogged streets, excessive noise, sprawl. The potential negative consequences of these changes may be mitigated by modification to the infrastructure networks, e.g., improved connections to the highway, increased rail capacity, enhanced flood protection, improved rock fall protection. While you are not yet an urban planning specialist, but a hard working intelligent and curious person, you are convinced that you can analyse the situation and come up with good proposals that can then be developed further by experts. This is a situation in which many who are trying to provide global solutions to problems, find themselves. Your work will involve 1) conducting a situation analysis using publicly available information to clearly identify one or more problems, 2) formulating clear goals and constraints that will need to be taken into consideration when determining an optimal solution, 3) generating multiple possible solutions, 4) analyzing the solutions to determine which are feasible, and then 5) determining the optimal solution. Your work will end with a concrete proposal of how the infrastructure in the region should be modified to ensure, and perhaps improve, the quality of life in the years to come.
Besonderes: **(Bemerkungen zur Gruppenarbeit u.ä.)**	
Gruppenarbeit: **Anzahl Personen pro Gruppe:** **Total Anzahl Personen für Thema:**	Ja 2 6

Fachbereich:	**Infrastructure management**
Leiter/in der Bachelor-Arbeit (inkl. E-Mail-Adresse):	Prof. Dr. Bryan T. Adey
Betreuer/in der Bachelor-Arbeit (inkl. E-Mail-Adresse):	Yushu An (an@ibi.baug.ethz.ch), Josia Meier (meier@ibi.baug.ethz.ch), Steve Chuo (chuo@ibi.baug.ethz.ch), Simon Hässig (haessig@ibi.baug.ethz.ch)
Titel der Bachelor-Arbeit:	Estimation of financial needs and condition of the locks and weirs of Germany
Beschrieb der Bachelor-Arbeit:	Infrastructure managers, such as the Waterways and Shipping Authority of Germany, are required to build arguments for funding at the beginning of every budget period. To be well prepared, it is necessary to have solid estimates, even if general, of the condition of the infrastructure being managed, and the amount or work required to ensure that the infrastructure will provide an adequate level of service in the foreseeable future. To deal with the fact that there will be pressure to spend less, it is also useful to have arguments to explain quickly how the infrastructure will be affected if the requested amount of money is not made available.

In this project, you will learn how to build a solid argument to obtain the funding required. The work will involve 1) selecting a set of infrastructure assets from the Waterways and Shipping Authority of Germany, e.g., Locks, Weirs, together with the supervisors, 2) classifying the infrastructure, 3) identifying condition states for each class of assets, 4) modelling their deterioration processes, 5) determining the possible interventions on each of the assets as well which ones should be executed in which condition state, 6) estimating the effectiveness of the interventions, 7) determining a procedure to identify which should not be executed if funding is not available, and 8) developing appropriate informatic support, e.g., Excel or Python so that you are able to quickly demonstrate what will happen when there are budget changes. |
| **Besonderes:** (Bemerkungen zur Gruppenarbeit u.ä.) | |
| **Gruppenarbeit:**
 Anzahl Personen pro Gruppe:
 Total Anzahl Personen für Thema: | Ja
 2
 4 |