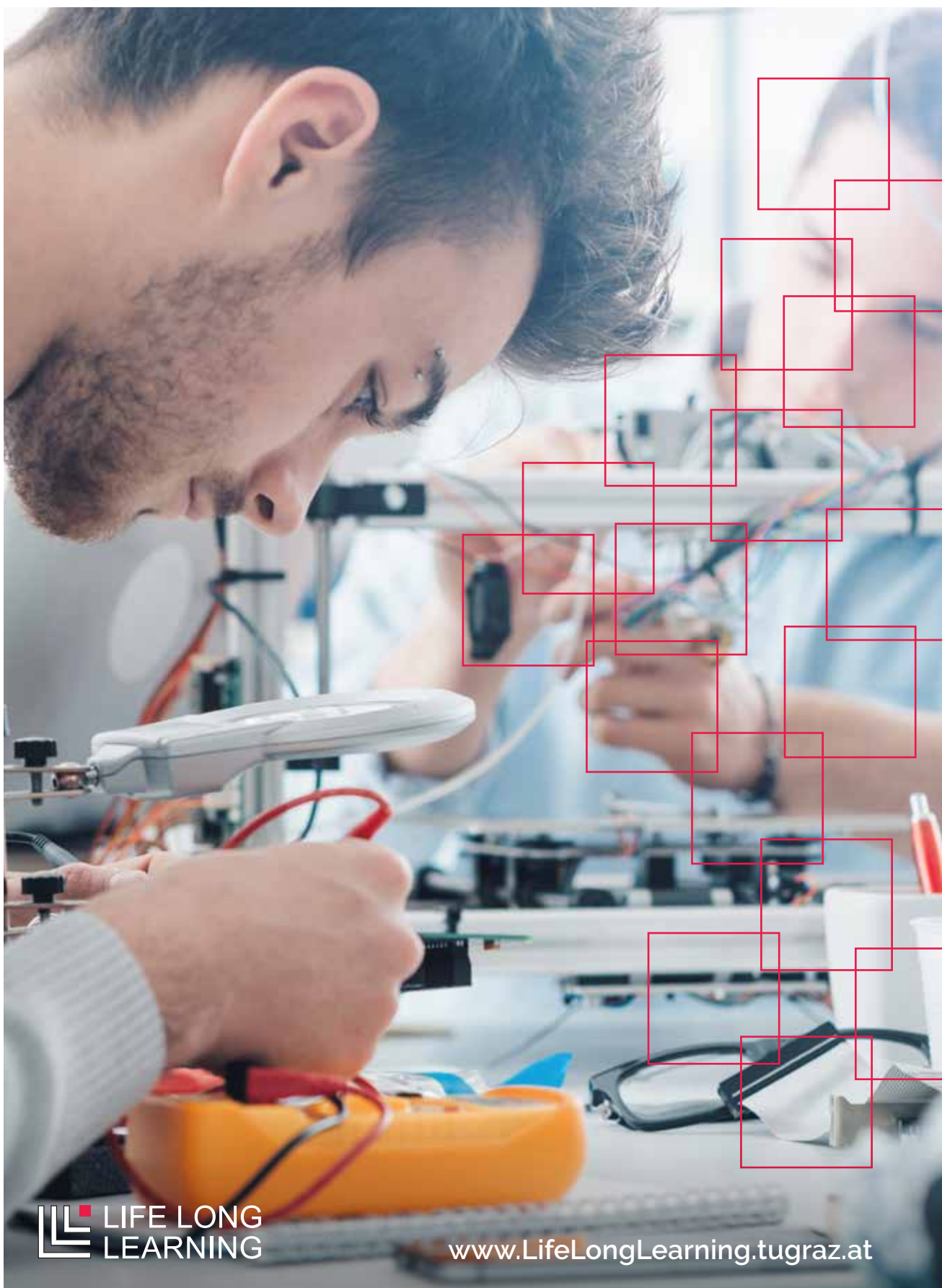


# We care about continuing education



> Programme | 2020



 LIFE LONG  
LEARNING

[www.LifeLongLearning.tugraz.at](http://www.LifeLongLearning.tugraz.at)

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Univ.-Prof.  
DI Dr.techn. Dr.h.c.mult.  
**Harald Kainz**  
Rector TU Graz

## Going new ways

Taking part in a continuing education programme is one of the most effective things you can do to build your knowledge and competence. At TU Graz we offer programmes where you can benefit from up-to-the-minute knowledge from lecturers who are outstanding in their fields – from our national and international network in academia and industry.

You will make new contacts and gain new interdisciplinary perspectives from discussions with your teachers and fellow programme participants. The latest teaching and learning technologies will help you fit your studies into a busy life. Make the most of our offerings and be prepared for challenges and new developments in your work. One of our programmes might give you ideas for new initiatives or even launch you on a whole new career path!



Univ.-Prof. DI  
Dr.techn.  
**Stefan Vorbach**  
  
Vice Rector  
for Academic  
Affairs TU Graz

## Beyond the garden fence

For the first time, it's my pleasure to welcome you here as Vice Rector for Academic Affairs. Like all the lecturers in our programmes, I love my subject and am passionate about teaching.

We want to make this a great place for you to learn and grow – whether it's about refreshing your existing knowledge or completely reinventing yourself professionally.

The seminars, courses and master's programmes of TU Graz Life Long Learning will give you many opportunities to escape from your bubble, to take a look around the corner and discuss future trends. Contact us - the TU Graz Life Long Learning team will always be happy to advise you!



Mag.phil.  
**Christine  
Stöckler-Penz**

Head of TU  
Graz Life Long  
Learning



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## Continuing Education at the University



## Nothing as constant as change

'The only constant in life is change', said the Greek philosopher Heraclitus 2,500 years ago. How true that seems in our time, which is serving us up a lot of challenges in all kinds of areas, not least in our professional lives – for example with trends such as Industry 4.0 and digitalisation.

Life-long learning and continuing education have become things no career can do without – and this is as true for science and engineering graduates as it is for people in other professions. Whether you are at the beginning or in the middle of your career, we offer opportunities for continuing education in relevant subjects with high levels of innovation – in more than 40 courses taught by experts from TU Graz, our partner universities and industry.

New in the 2020 programme are the master's programme in 'Lean Management in Civil Engineering' and the course 'AI Essentials'. Change can bring upheaval and worry, but in the best case also the chance of positive development. Our continuing education programme is here to help you to take your professional development to the next level and to enable you to proactively manage challenges that are coming down the line.

Every end is a beginning. In 2020, the leadership of TU Graz Life Long Learning will pass into new hands, and I will begin a new life phase that I am sure will also bring me exciting challenges. I will follow the progress of TU Graz Life Long Learning with great interest and am confident that the programme will be adding even more fascinating new subjects as time goes by.

All the best!



Life Long Learning is the first place you should come for continuing education in science and engineering at university level. We put the learning needs of our target groups first and design innovative course content and formats to meet those needs.

We create flexible learning settings using the latest teaching and learning technologies.

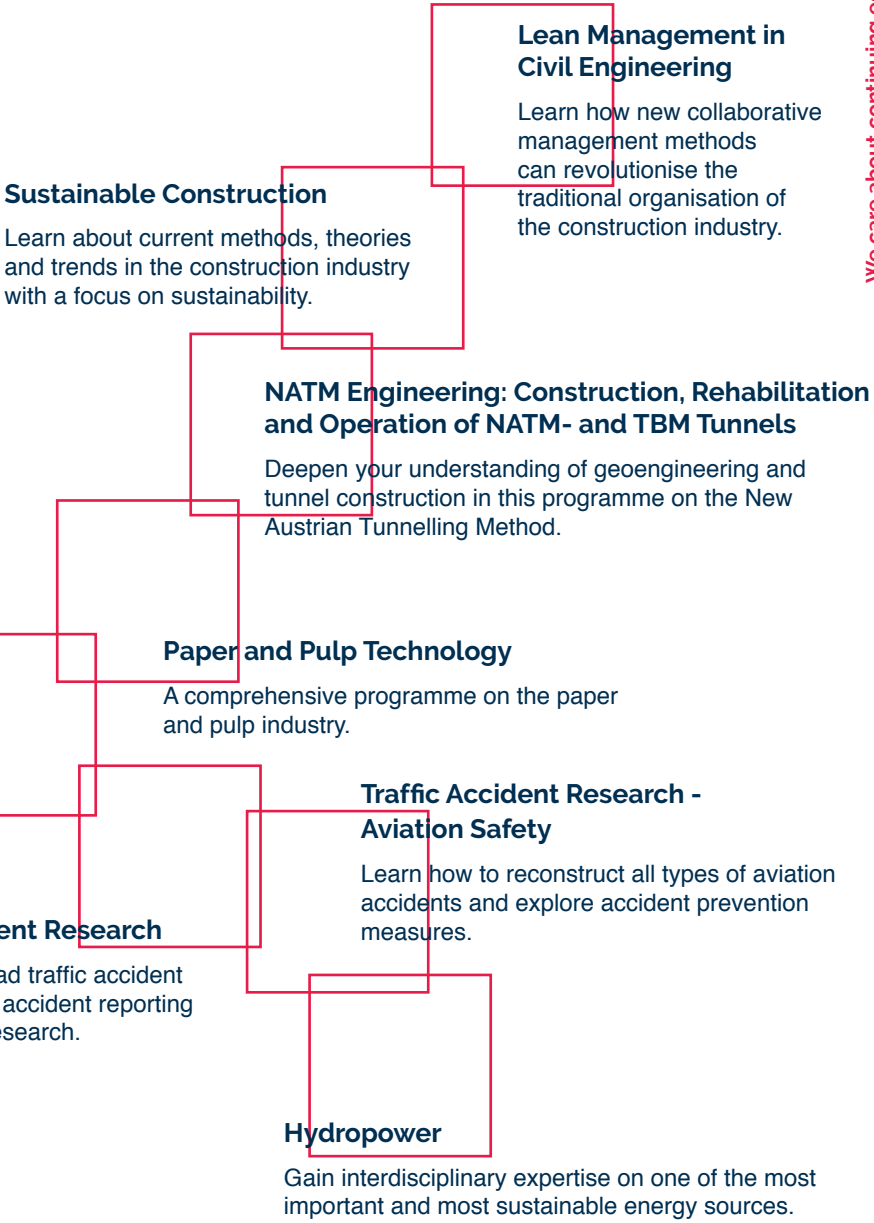
We consider ourselves a service organisation and develop continuing education to the highest standards. We ensure the satisfaction of our programme participants through professional support and organisation.

In addition we rely on service-oriented partnerships with academic and industry partners.

# Part-time Master's & Certificate Programmes

Our part-time master's & certificate programmes are ideal for graduates of related degree programmes and people with professional experience in relevant fields, to specialise or deepen their knowledge. The programmes are ideally designed for the learning needs of active professional people and we use the latest learning and teaching technologies to enable flexible learning settings. The programmes have a modular structure; some are internationally oriented and taught partly in English.

The programmes conclude with either a certificate, a qualification as an academic expert or the academic degree 'Master of Engineering'.



We care about continuing education.

< 30 ECTS-credits	> 60 ECTS-credits	90 - 120 ECTS-credits
<b>CERTIFICATE</b>	<b>ACADEMIC EXPERT</b>	<b>MASTER OF ENGINEERING (MEng)</b>
These programmes usually last two semesters in part-time format.	These programmes last three to four semesters in part-time format.	The degree programmes can be completed in five or six semesters in part-time format.





”

Helmut Jaberg,  
programme director  
'Hydropower'

This master's programme is designed as an internet-based distance learning qualification for experts in hydropower, in order to offer a wider and more thorough education in this area and also to offer an advanced qualification for people with professional experience in the sector.

”

Hermann Steffan,  
programme director  
'Traffic Accident Research' and  
'Traffic Accident Research – Aviation Safety'

I always enjoy meeting the students when they have completed the programme successfully. It is great to see that they not only enjoyed their time in the courses, but also that they have learned about essential aspects of accident reconstruction, which they will be able to use to great benefit in their daily work. Following the success of the master's programme in 'Traffic Accident Research', we were approached by specialists from the aviation sector asking if we could set up a similar programme for aviation. The master's programme 'Traffic Accident Research – Aviation Safety' was held for the first time in 2014, and like the other programme, brings together a team of internationally respected experts as instructors.



Ulrich Hirn,  
programme director  
'Paper and Pulp Technology'

With our university programme 'Paper and Pulp Technology' and the master's programme 'Process Engineering' we can offer both a full degree and a part-time qualification in the field of paper and pulp technology. A synergy effect comes from the fact that the participants in the university programme and the master's programme come into contact, which widens the perspectives of both and enriches their experience.

”

Otto Koudelka,  
programme director  
'SpaceTech'

Specialists from the space flight sector can use this part-time master's programme to expand their technical knowledge and also to prepare for a wide variety of leadership roles and modern business practices in an international environment.

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Gottfried Mauerhofer,  
programme director  
'Lean Management in Civil Engineering'

The construction industry is entering a massive transformation because increasing complexity means the traditional way of running construction projects is no longer efficient. TU Graz has responded to this by offering the first standalone master's programme in 'Lean Management in Civil Engineering' in the German-speaking countries. This programme shows what the construction management of the future will have to be like – covering lean management, building information modelling and state-of-the-art construction project management.

”

Thomas Marcher,  
programme director  
'NATM Engineering'

The programme in 'NATM Engineering' is well-established and known around the world. From 2019, we have updated the curriculum to include a number of new topics. My aim is to help the participants develop an advanced understanding of tunnelling – especially in NATM but also with a critical discussion of different sequential tunnelling methods used around the world. Both shallow and deep tunnelling methods, for both urban and inter-city high-speed transport, will be considered. Besides this I will review the latest developments in tunnelling, for example digitalisation, measurement technology and machine technology.

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## > Statements by the Programme Directors

”

Peter Maydl,  
programme director  
'Sustainable Construction'

Sustainable construction will substantially change the shape of competition among clients, architects and construction products. We have to assess buildings and civil engineering works in a holistic manner over their whole life cycle in terms of the environment, economics and socio-cultural factors. Awareness of these issues is growing rather slowly. But in future, factors such as energy efficiency, closed loop economy, life cycle costs and deep renovation of existing buildings will be just as important as safety, functionality or building culture.





Alois Bredl,  
graduate of the programme  
'Traffic Accident Research'

”

TU Graz is without doubt the right place to develop a high level of expertise in accident analysis, accident reconstruction and vehicle safety. The degree programme provides you with in-depth knowledge of this complex material as well as an insight into related scientific fields, meaning that you can carry out your work as a court-certified expert with the highest degree of proficiency. Successful and well-planned organisation made it possible for me to complete this programme while working.

”

Thomas Gaal,  
graduate of the programme  
'Hydropower'

I have been looking for a continuing education programme for a long time that offers exactly what Life Long Learning at TU Graz does. Attending a part-time programme that is perfectly tailored to my job 20 years after graduating from my basic study programme is a huge asset for me, both professionally and personally. Despite the additional burden of further education, I have not regretted my decision at any point.

”

Eugen Svoboda,  
graduate of the programme  
'SpaceTech'

The combination of lectures by distinguished internationally renowned personalities from the space community with the creation of a virtual start-up company made the study project a very unique experience. What made me as an Austrian entrepreneur choose this programme was that it makes such efficient use of lecture time while providing in-depth theoretical knowledge.

## > What our Alumni say

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Joachim J. Janezic,  
graduate of the programme  
'Traffic Accident Research – Aviation Safety'

The university programme offers a broad survey of the subject at a very high level, taught by internationally respected experts. It is the only programme of its kind in Austria. Personally, I have already benefited enormously from the programme and can warmly recommend it to everyone who has to deal with aviation accidents or flight safety in their work.



9

”

Wolfgang Leitner,  
graduate of the programme  
'Paper- and Pulp Technology'

This programme really helped me find my feet in the paper industry. It was more or less the starting point for my career progression and in combination with job-related experiences it opened the door to extremely interesting work in the paper industry.

”

Neil Bar,  
graduate of the programme  
'NATM Engineering'

The NATM engineering programme provides practical insight into all aspects of deep tunneling from geological investigations, rock mechanics to scheduling, construction and risk management. Being a geotechnical engineer who is largely involved in surface and underground mining, the NATM programme was very useful as the design aspects use systematic approaches for modelling ground conditions and conceptually understanding ground behavior for tunnels that are designed to remain serviceable for over 100 years, rather than say 5 to 10 years as is usually the case for mining. These approaches greatly supplement methods commonly used in the mining industry.

”

Tobias Hutter,  
graduate of the programme  
'Sustainable Construction'

The topic of sustainability has set in motion a decisive shift in values in construction. More and more people want to use buildings that have a positive relationship with the environment. This degree and university programme is a good starting point for dedicated people wishing to help design a better world.

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# University Courses, Courses and Seminars

Together with selected partners, TU Graz offers a continuing education programme with several types of courses. Our courses and seminars cover a wide range of subjects and a large practical component. The courses are designed for university and college graduates, experts from industry and TU Graz students.

## CERTIFICATES

On completion of these courses you receive either

- a certificate of attendance, confirming that you have taken the course or
- a TU Graz certificate, if the course ends with an examination.

### Electron Microscopy and Nanoanalysis: SEM

Learn to use a scanning electron microscope professionally, and how to interpret SEM images properly.

### Electron Microscopy and Nanoanalysis: EELS/EFTEM

A thorough introduction to the principles of EELS and EFTEM techniques.

### Food Chemistry and Technology

An advanced course in food chemistry and food technology to better understand your processes.

### Sensory Evaluation of Food: Introduction

Get to know the basics of sensory analysis and the key principle of sensory testing of food.

### Sensory Evaluation of Food: Advanced

Expand your knowledge about different techniques that can be applied in the field of sensory analysis, both in analytical and hedonic evaluation.



### Electrical Protection Technology: Fundamental Procedures and Applications

Find out how to improve the performance of your business with the right protection concepts and settings.

### Electromagnetic Compatibility: Introduction

Learn the fundamental principles of EMC design of circuits and circuit boards.

### Introduction to Electric Drive Systems

Learn about the current generation of electric drive systems and their practical applications.

### High Voltage Engineering: Principles and Practical Application

Learn the fundamental principles of high voltage engineering and how to apply them in your specific field of work.

### International Welding Engineer

A comprehensive course on all aspects of welding technology.

### Evaluation of Measurement Uncertainties

Learn how to estimate measurement uncertainties using consistent and reasoned methods.



### Applied Statistics as a Problem-Solving Tool in Industry and Business: Introduction

Learn about different types of statistical modelling and application of statistical methods.

### Applied Statistics as a Problem-Solving Tool in Industry and Business: Expert Course

A specialised course in practical modelling techniques using multiple linear regression, and experimental design.

### Programming in MATLAB: Fundamental Concepts

Learn the basics of the modern and versatile programming language MATLAB.



### Programming in MATLAB: Advanced Concepts

Acquire advanced understanding of the syntax of the MATLAB programming language.

### C# Fundamentals

Lay a foundation for professional work with C# and the .NET framework.

### Programming in MATLAB: Advanced Concepts

Acquire advanced understanding of the syntax of the MATLAB programming language.

### PYTHON in Numerical and Scientific Computing

Learn how to use PYTHON successfully to work with scientific libraries.

### PTC Creo: Introduction

Learn how PTC Creo can be used as a powerful and flexible CAD tool.

### AI Essentials

Learn the basics of artificial intelligence and how you can apply it in your business.

### PYTHON: Fundamental Concepts

Learn the fundamentals you need to use the PYTHON script and system language successfully.

### Big Data Essentials

Learn about all the important aspects of Big Data – fundamental principles, economic and legal aspects, technologies and methods of analysis.

### Data Science: The Way from Big Data to Smart Data

Widen your knowledge of statistical data analysis and modelling with a range of different analytical methods.

### Automotive Mechatronics

Learn how to carry out holistic evaluations of mechatronic systems in motor vehicles.

### Automotive Quality Manager (AQUA)

Build the competences you need to work on the functional safety, product and process quality of motor vehicles.

### Smart District Development in Small and Medium-Sized Cities

Deepen your knowledge of strategies for inner-urban development, integrated energy and spatial planning, and sustainable mobility.

### Housing and Psychology

Learn how to design living spaces in accordance with psychological principles.

### Restraint stresses and crack width control in structural concrete members

This course presents a mechanically consistent approach for crack width control in restrained concrete with regard to the real temporal behaviour of concrete and the deformation compatibility on structural level.

### Spatial Lighting Design

Learn about how architectural lighting solutions are developed and implemented.

## Company Courses

TU Graz offers companies the chance to bring their employees up to date on current developments in their fields of science, business and technology. Some of our continuing education courses can be delivered as in-house training, and can also be specifically adapted by the teachers to meet the needs of your company.









## TU Graz Locations

- |                         |                              |                           |
|-------------------------|------------------------------|---------------------------|
| 1. Rechbauerstraße 12   | 13. Steyrergasse 17-19, 21   | 25. Inffeldgasse 10       |
| 2. Technikerstraße 4    | 14. Stremayrgasse 10         | 26. Inffeldgasse 25       |
| 3. Mandellstraße 9-15   | 15. Stremayrgasse 9          | 27. Inffeldgasse 21a, 21b |
| 4. Lessingstraße 25, 27 | 16. Münzgrabenstraße 35a, 37 | 28. Inffeldgasse 21       |
| 5. Münzgrabenstraße 11  | 17. Krenngasse 37            | 29. Inffeldgasse 23       |
| 6. Kronesgasse 5        | 18. Lustbühelstraße 46       | 30. Petersgasse 136       |
| 7. Kopernikusgasse 24   | 19. Inffeldgasse 12          | 31. Inffeldgasse 11       |
| 8. Stremayrgasse 16     | 20. Inffeldgasse 16          | 32. Petersgasse 116-118   |
| 9. Petersgasse 10-12    | 21. Inffeldgasse 26          | 33. Inffeldgasse 13       |
| 10. Petersgasse 14      | 22. Inffeldgasse 24          | 34. Inffeldgasse 19       |
| 11. Petersgasse 16      | 23. Inffeldgasse 18          |                           |
| 12. Steyrergasse 30     | 24. Inffeldgasse 31          |                           |

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-  /TU Graz video
-  /net/tugrazlll

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