

GIK

graphic and interactive
communication

university study programme

chair of information
and graphic arts technology

2022/2023



University of Ljubljana
Faculty of Natural Sciences and Engineering

PRESENTATION, MISSION AND VISION OF THE FACULTY OF NATURAL SCIENCES AND ENGINEERING



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The Faculty of Natural Sciences and Engineering was created when the Faculty for Natural Sciences and Technology at the University of Ljubljana was reorganised in 1994. It hosts four departments:

- Department of Textiles, Graphic Arts and Design
- Department of Materials and Metallurgy,
- Department of Geology and
- Department of Geotechnology, Mining and Environment.

The study of mining and geology first began in 1919 with the foundation of the University of Ljubljana; an independent study programme of Metallurgy was launched in 1939 within this section, while the study of textiles began as part of the Department of Chemical Technology in 1956. Chemical education and computer sciences were launched in 1982. Since 1961, the Department of Textiles, Graphic Arts and Design has been offering Textile Technology studies; in 1979, this was expanded with Textile and Clothing Design and then Graphic Technology in 1996.

The Faculty is very diverse and offers a wide array of disciplines. It nurtures basic, applied and developmental research in geology, mining, geotechnology, material sciences, metallurgy, textile engineering, graphic technology, textile, fashion and graphic design and IT.

The intellectual and creative environment, provided and nurtured by the Faculty, enables the teaching and creation of new knowledge, which is then spread by graduates to different institutions and partners working in various research and industrial fields within the natural sciences, engineering, textile, clothing and other material design as

well as graphic and media technologies. Graduates take part in the industrial, scientific research and artistic environment both in Slovenia and abroad. In many areas, they are a truly competitive force on the international labour market. The mission of the Faculty of Natural Sciences and Engineering is to offer quality higher education and provide scientific research in all compatible disciplines, regardless of their differences. All developmental and research work is carried out for the common good of the Republic of Slovenia and for the wider environment; first and foremost, this includes growth of the Slovenian economy, preservation of the Slovenian natural environment, care for the well-being of the inhabitants of Slovenia and, consequently, care for the common good of both humanity and nature.

Our Faculty will do its part to place the University of Ljubljana among other world-class universities. By ensuring transparent business practices and cooperation in the areas of teaching and research, it will help enable the quality development of all disciplines and the preservation of study programmes. It will strengthen the academic community of professors, researchers, students and other associates and do its best to achieve recognition both at home and abroad. It will do everything in its power to raise the quality of the study programme, teaching, research and its public activities to the highest international level. It will widen its international cooperation and its collaboration with top-notch institutions and the economy in Slovenia and abroad; it will continue to ensure the employability of its graduates by constantly updating the content of its study programmes.

CHAIR OF INFORMATION AND GRAPHIC ARTS TECHNOLOGY



igt
chair
information
graphic arts
technology
history
activities

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The study of Graphic Arts and Chair of Information and Graphic Arts Technology is part of the Department of Textiles, Graphic Arts and Design, Faculty of Natural Sciences and Technology, University of Ljubljana. Our premises are located at Snežniška 5 in Ljubljana. Our professors, teaching assistants and technical staff are involved in a number of research and teaching activities. These include – but are not limited to – pre-press, press and postpress operations, graphic materials, printed electronics, packaging, image processing, information-communication technologies, photography, 3D modelling, colorimetry, typography, graphic design and ecology. Chair members are lecturers and assistants in the basic and optional courses that are part of the Bologna study

programmes of undergraduate level, postgraduate level (master's study programme) and doctoral study programme. As part of our study courses, we – together with our students – organise various exhibitions, presentations and other events. We also perform research work and host national and international conferences and symposia.

Our goal is to perform high-quality research work and education in the fields of graphic and interactive communications that will provide our students with fundamental theoretical and practical knowledge they will need when working in graphic arts, packaging and paper-making industry, design and advertising agencies, media, educational and research organisations.



HISTORY

Here are some important historical milestones of our chair:

- 1996: Start of Graphic Technics, the first higher educational professional study programme for the field of graphic technology in Slovenia
- 2000/001: First study year with a post-graduate study of graphic technology
- 2002/2003: Enrolment of the first generation of students to the university programme Graphic Technology
- 2006/2007: Start of the Bologna declaration study programmes

ACTIVITIES

R&D activities of our Chair are performed in a variety of fields of modern graphic and information technology as well as related fields, such as:

- Conventional, digital and 3D printing
- Substrate characterisation and print quality assessment: spectroscopic and microscopic methods, image processing/analysis
- Functional printing and printed electronics
- Automatic identification technologies: barcodes and 2D codes, radiofrequency identification (RFID)

- Colour science: colorimetry, colour management, colour appearance models, spectral colour acquisition and reproduction
- Modern graphic materials: recycled paper and board, synthetic graphic materials, UV printing inks, (smart) packaging, effect pigments
- Sustainability and eco-design of printed products and packaging
- Usability and legibility of typography in different media
- Typographic cultural heritage
- Eye tracking: evaluating user experience in conventional and digital media
- Web design and development for PC, Mac and mobile platforms – smart phones, tablet computers
- Digital photography and video
- 3D modelling and animation
- Microencapsulation
- E-learning
- Scientific and technical informatics

Current changes in study programmes are available on: www.ntf.uni-lj.si/igt.



STUDY PROGRAMME

STUDY PROGRAMME OF THE 1st LEVEL



study
1st level
gik
graphic
interactive
communications
curriculum

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GRAPHIC AND INTERACTIVE COMMUNICATIONS

The degree and type of study: Undergraduate study programme – university study programme

Duration: 3 years (6 semesters); 180 total ECTS credit points

Title: Bachelor of Science (B.Sc.)

Field of study according to ISCED classification: (21) Arts

Classification of the study programme according to KLASIUS-P: (2130) Auto-visual techniques and (multi)media production (broad programmes)

Classification of the study programme according to KLASIUS-SRV: (16204) Academic higher education (first Bologna cycle)

Scientific research discipline according to Frascati classification: Engineering and Technology

BASIC GOALS

The main goal of the Bachelor's degree study of Graphic and Interactive Communications is to qualify experts who will be able to manage the most demanding technological processes in graphics and media as well as the field of interactive communications. At the same time, the purpose of the study is also to offer graduates the relevant fundamental natural science knowledge and expertise to continue their education at the second level. In addition to knowledge in the field of graphic, media and interactive communications, graduates develop scientific approach abilities through selected skills in mathematics, physics and chemistry.

Graduates of this program acquire knowledge about graphic technology and graphic material used in the design and manufacturing of graphic products. In addition, graduates master the basics of visual and art language, techniques of artistic expression and ways of interpreting and designing the

art scheme of products. Graduates understand the technological realisation of graphically designed ideas, know how to solve ecological problems in the printing industry, are capable of creating new ideas and develop the abilities of interpersonal communication, negotiation, teamwork, leadership and creative thinking.

ENROLMENT CONDITIONS AND CRITERIA FOR SELECTION IN CASE OF LIMITED ENROLMENT

Enrolment in the programme shall be possible for:

- a) who have passed the general matura exam;
- b) any person who has passed the vocational matura in any secondary school programme and an examination in one of the matura courses; the chosen course cannot be a course that the candidate already passed on his/her vocational matura;
- c) who have prior to 1 June 1995 com-

pleted any four-year secondary school programme.

If the number of candidates applying for the programme exceeds the number of enrolment spaces, the candidates from items a) and c) shall be selected according to their:

- overall performance on the general matura or final examination (60%);
- overall performance in the 3rd and 4th years of secondary school (40%).

Candidates from item b) will be selected according to their:

- overall performance on their vocational matura (40%);
- overall performance in the 3rd and 4th years of secondary school (40%);
- performance in the chosen matura course (20%).

STUDENT OBLIGATIONS

For entry into a higher class, a student must have confirmed attendance in all courses, complete all practical classes and obtain the following number of ECTS credit points for entry into each individual class:

- a minimum of 54 ECTS credit points for entry into the 2nd year;
- 60 credit points from the first year and a minimum of 54 ECTS credit points from the second year for entry into the 3rd year.

To repeat a class, students must have:

- all practical classes and a minimum of 28 ECTS credit points for the 1st year;
- all practical classes and a minimum of 28 ECTS credit points for the 2nd year.

During the course of studies, a student can repeat a class once or change the study programme once for having failed to meet his or her obligations in the former study programme.

SELECTING EXTERNAL ELECTIVES

Students have the possibility of achieving 10 ECTS credit points through electives offered by other programmes at the Department of Textiles or by choosing courses at other faculties falling under the University of Ljubljana (for this, the student requires permission from his or her faculty).

MOBILITY

Students have the possibility of transferring 30 ECTS credit points (one study semester, regardless of the obligatory or optional units) from any programme in the field of graphic or media-related activities offered by universities and other institutions of higher learning in the CEEPUS, CUMULUS or Erasmus+ network.

CURRICULUM

1st year	Contact hours	ECTS
1st semester	450	30
1 Mathematics 1	90	6
2 Physics	90	6
3 Chemistry 1	90	6
4 Information technologies	90	6
5 Printing processes 1	90	6
2nd semester	450	30
1 Mathematics 1	90	6
2 Physics	90	6
6 Chemistry 2	90	6
7 Graphic materials	90	6
8 Graphic prepress	90	6
Total	900	60

2nd year	Contact hours	ECTS
3rd semester	450	30
9 Statistics	60	4
10 Typography	90	6
11 Theory of graphic processes	90	6
12 Interactive media tools	90	6
13 Basics of artistic expression	60	4
14 Photography and video	60	4
4th semester	450	30
15 Interactive media 1	90	6
16 Colour metrics in graphic arts	90	6
17 Printing plates	60	4
18 English for specific purposes	60	4
Optional course 1	90	6
Optional course 2	60	4
Total	900	60

2nd year optional courses		Contact hours	ECTS
19	Printing processes 2	90	6
20	Video	90	6
21	Information design	90	6
22	Basics of 3D modelling	90	6
23	Data structure and transfer	60	4
24	Packaging 1	60	4
25	Practical training		4

3rd year		Contact hours	ECTS
5th semester		450	30
26	Typography in various media	90	6
27	Interactive systems 1	90	6
28	Colour management	90	6
29	Artistic analysis of graphic products 1	60	4
30	Studio photography	60	4
31	Information sources and methodology of thesis work	60	4
6th semester		300	30
Optional course 3		90	6
Optional course 4		90	6
Optional course 5		60	4
Optional course 6		60	4
Diploma thesis			10
Total		750	60



3rd year optional courses		Contact hours	ECTS
32	Environmental protection in graphic arts	90	6
33	Design of sustainable packaging	90	6
34	Business information applications	90	6
35	Quality management	90	6
36	Media visualisation	60	4
37	Typeface design	90	6
38	Video	90	6
39	Printing processes 2	90	6
40	Graphic finishing	60	4
41	Packaging 2	60	4
42	Packaging design	60	4
43	User interface developing	60	4
44	3D technologies	60	4
45	Graphic engineering	60	4
46	Entrepreneurship	60	4
47	Basics of 3D animation and simulation	60	4
48	Practical training		4

OPTIONAL COURSES

Every year the Faculty gives a list of optional courses available in current academic year.



gik, 1st level, enrollment,
curriculum, optional courses,
mobility, diploma degree
www.ntf.uni-lj.si/igt



TUTORING



tutoring
advise
foreign students

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ERASMUS+ STUDENT EXCHANGE



erasmus+
exchange
coordinator

www.ntf.uni-lj.si/igt

Tutoring is systematic guidance to students in their studies and in their academic development.

The purpose of tutoring at the Faculty of Natural Sciences and Engineering is to:

- support students during their studies,
- increase the transfer of students to the next year,
- advise students in the selection of optional courses,
- assist in the study of individual courses or the mandatory practice
- encourage students to participate in extracurricular activities.

Student tutoring for foreign students helps foreign students to overcome possible cultural differences and adapt to the new environment. The priorities of foreign students are primarily: residence, student ID, transport. Possible cultural differences (language, habits, personal attitudes) might well influence the study performance of a foreign student. Tutors help them with everyday life challenges, to integrate into our environment, to overcome homesickness and with various administrative procedures.

Erasmus+ is a seven-year programme supported by the European Union. The principle aim of the programme is to improve the level of education, know-how, skills and creativity, which are the cornerstones of the European knowledge society.

Erasmus+ enables young people, students and adults to acquire experience and new skills during studies, training or volunteer work abroad. At the same time, the programme will lend support to institutions and organisations when it comes to cooperating with similar institutions in other countries in order to encourage innovation and update teaching practices and youth work. The Erasmus+ programme rests on five key pillars:

- Key Action 1 (KA1): Learning Mobility of Individuals;
- Key Action 2 (KA2): Cooperation for Innovation and the Exchange of Good Practices;
- Key Action 3 (KA3): Support for Policy Reform;
- the Jean Monnet programme and
- the Sports programme.

At the University of Ljubljana, the Office of International Cooperation and Exchanges is responsible for the implementation of KA1. The Office is responsible for foreign students who opt to do their exchange in Slovenia, while Slovenian students going abroad are offered similar support from offices belonging to host institutions.

Detailed information on student learning mobility is available in the guidelines **Erasmus+ Instructions for Students**. All official documents are available on the following website: [www.uni-lj.si/eng \(#erasmus+\)](http://www.uni-lj.si/eng/#erasmus+).

The Sectoral Coordinator for the Erasmus+ programme for Information and Graphic Arts Technology, the Coordinator of the Erasmus+ programme at the Department of Textiles, Graphic Arts and Design for industrial placement and the Coordinator of the Erasmus+ programme at the Faculty of Natural Sciences and Engineering are available on the Faculty website ([#erasmus+](http://www.uni-lj.si/eng/#erasmus+)).

LIBRARY AND STUDY MATERIALS



library otgo
books
journals
e-books
dikul
reading
study room

www.ntf.uni-lj.si/igt

It has been said that the way to the laboratory leads through the library. That statement is true. Without books, journals and information, there cannot be any work of professional value or any good learning, teaching or research results. Thus, the library in a way reflects the image of the institution in which it operates. This is especially true for faculty libraries, which must cooperate in teaching and scientific work. The library of the Department of Textiles, Graphic Arts and Design was founded in 1962 along with the department. As the department grew, the library grew with it. During the initial period, it collected material from the field of textile technology. When the Chair of Textile and Fashion Design was es-

tablished, the procuring of professional literature was extended to the areas of design, fashion and art, and with the introduction of the clothing and graphic programmes, it was extended further to include clothing, graphics, information technologies and media.

Towards the end of 2014, the library collection totalled 20,639 books, 3,777 graduation and thesis papers, 5,088 issues of journals, 363 units of unbound material and 644 standards. In 2014, the library subscribed to 88 foreign and Slovenian journal titles. Throughout the year, the library lent out 25,800 volumes of material to its students, professors and other users. Electronic sources are available on DIKUL, i.e. 31,900 e-books and eight databases.



PUBLISHING ACTIVITIES AND THE JOURNAL TEKSTILEC



publishing
monograph
textbooks
journal
tekstilec
rmz
geološki zbornik

www.ntf.uni-lj.si/igt

Department of Textiles, Graphic Arts and Design has since 1991 also organised publishing activities. Up to now, the department has published over 100 volumes in the areas of textiles, fashion design and graphic arts, in printed and electronic forms.

Department of Textiles, Graphic Arts and Design' publishing activity includes monographs, textbooks and other study materials, miscellanies of various contributions from scientific and professional symposiums and study material written for seminars.

The above-mentioned literature can be purchased on the ground floor at the reception desk.

When discussing publishing activities, it is worth mentioning that some departments also publish their own professional journals. The oldest such journal published by the Faculty is the **Mining and Metallurgy Quarterly** (*Rudarstvo-metalurški zborniki*), which first started being published regularly in 1953; today, four issues are published annually. In 1998, it changed its name to **RMZ – Materials and Geoenvironment** (*RMZ – Materiali in geokolje*). The journal *Geološki zbornik*, which is issued once in two years, is published by the Department of Geology. The **Tekstilec** journal, which has been regularly published since 1958, has been issued by the Department of Textiles, Graphic Arts and Design since 2007. Four volumes are released each year.

Tekstilec (ISSN: 0351-3386 print, e-ISSN 2350-3696 online) is the journal of Slovenian textile professionals. It provides fundamental and applied scientific information on physical, chemical and engineering sciences related to the textile industry. Its professional and research articles refer to fibres and testing, chemical and mechanical textile technology, technical textiles and their application as well as other fields associated with textile technology and design and the textile and clothing industry, e.g. development, application and manufacture of natural and man-made fibres, yarns and fabrics, design, marketing, ecology, ergonomics, education in textile sector, cleaning of textiles, etc. The journal is divided into two parts. In the first part, scientific contributions are published (they may also be published in the English language); i.e. fundamental research articles (original scientific and review, preliminary communication), short communications and technical articles. The second part, written only in the Slovenian language, includes short articles about textile-technology novelties from Slovenia and around the world, information on dry cleaning and washing technology from the viewpoint of textile materials and ecology, brief information about the Slovenian and worldwide textile and clothing industry as well as articles on textile design.

RESEARCH INFRASTRUCTURE CENTRE OF THE FACULTY OF NATURAL SCIENCES AND ENGINEERING



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research
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The Research Infrastructure Centre of the Faculty of Natural Sciences and Engineering (NTF) is a part of the Network of research and infrastructural centres at the University of Ljubljana (MRIC UL). Its performance is financed by the Slovenian research agency. RIC UL NTF offers research equipment of NTF that is located at the:

- Department of Geology (OG)
- Department of Mining, Geotechnology and Environment (OGRO)
- Department of Materials and Metallurgy (OMM)
- Department of Textiles, Graphic Arts and Design (OTGO)

RIC UL NTF:

- offers experts and instrumental support to research in the areas of production, functionalisation and characterisation of various organic and inorganic materials with emphasis on fibre making and other polymers (textile and graphic) as well as metallic, non-metallic and composite materials. With the support of the infrastructure centre, the processes of material synthesis as well as mechanical and chemical procedures can be performed. It provides remodelling and chemical modification of materials in the whole process chain. The equipment enables numerical modelling and planning of eco-friendly materials, products, procedures and technologies. It makes physical simulation of processes possible. Analytical equipment comprises apparatuses for the investigation of morphology and chemical composition of materials as well as examination

of their mechanical, physical, optical, thermo-gravimetric and functional properties in accordance with asserted standards.

- provides support to scientific research and pedagogical activities at the Faculty of Natural Sciences and Engineering and to other members of the University of Ljubljana as well as other Slovenian and foreign universities and institutes. Such collaborations are performed in the framework of various programs and projects and also as researcher, student and teaching staff exchanges.
- also cooperates in research results transference into the economy through development-research projects in the IRSPIN centre complex, The Slovenian Textile Technology Platform and The Steel Technology Platform. Through expert opinions, it supports development projects of the Slovenian textile, metallurgy, metal processing, mechanical and electrical industry and also various large and small companies.
- also provides support to government agencies and departments. It collaborates with various associations, organisations, institutions, museums and other users.

The equipment is known by its high quality in regard to performance accuracy as well as regular maintenance at the highest technological level. Because of regular use of some of the equipment, it is recommended that the research is planned and reservation of the equipment is made in time. The equipment responsible persons are always prepared to advise.

INSTITUTE OF TEXTILE AND GRAPHIC TECHNOLOGY AND TEXTILE DESIGN



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institute
research
analysis
textile technology
graphic technology
cooperation

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The Institute of Textile and Graphic Technology and Textile Design at the Ljubljana Department of Textiles, Graphic Arts and Design has a rich past and an important role in the area of scientific research and technical work.

Today, the Institute actively cooperates on various development projects and cooperates with government and non-governmental organisations on EU projects and the harmonisation of directives in the field of labelling textile and leather products; it also issues various publications for companies and consumers and much more. Collaboration between laboratories is naturally also very important: it has helped our current programme become much more extensive, now including personal protective equipment, toys, textile floor coverings, etc. Since the Institute can draw upon all the employees at the Department as well as enlist external collaborators, the professional nature of the work is never an issue.

General description

- Research and development activities:
The basic activities of the Institute include analyses, solving complaints

and providing professional opinions and assessments. The research and development work takes place in equipped laboratories belonging to the Department of Textiles, Graphic Arts and Design and includes the areas of textiles (mainly analysis of fibres, yarns, threads, flat textiles and toys), graphic technologies and design. Collaborating with other laboratories is also important, since it greatly expands our current programme of analyses, which now also includes personal protective equipment and toys.

- Cooperating with businesses:
The Institute cooperates with Slovenian businesses in the context of research-and- development projects, preparing studies and analysis with professional opinions.
- Education:
Educational courses are carried out at seminars that are organised at our Department or in facilities belonging to the client. The programme is carried out according to the client's needs.



STUDENT COUNCIL OF THE FACULTY OF NATURAL SCIENCES AND ENGINEERING



council
students
projects

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ALUMNI CLUB



alumni club
otgo
network

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The Student Council of the Faculty of Natural Sciences and Engineering is an official working body that represents the interests of students and is committed to achieving them. We try to ensure the quality of the academic process and diverse student life. The Student Council has become well-known for its good work among students and professors, who are increasingly turning to us with the desire for cooperation.

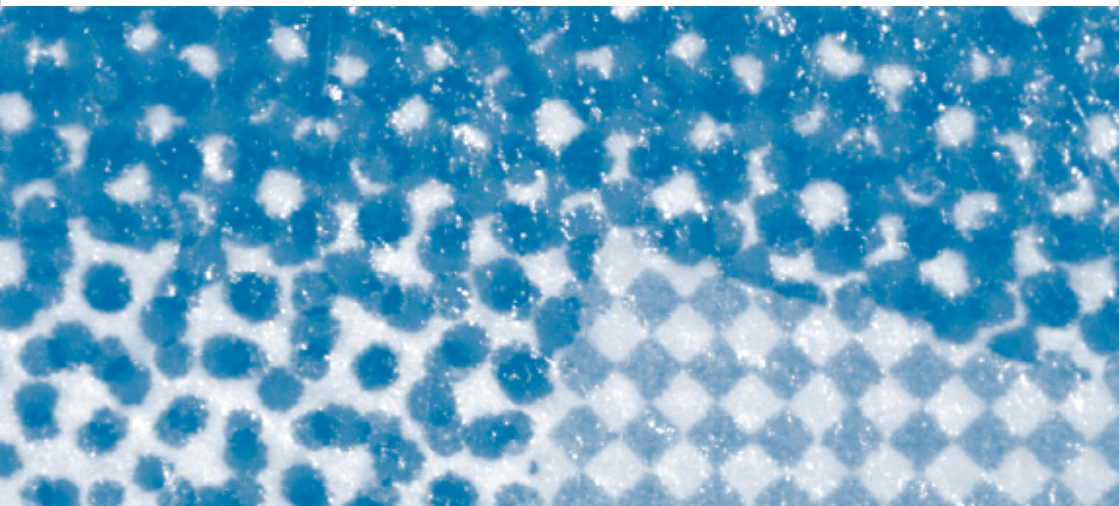
By prior arrangement, regular meetings are held every month where we discuss academic and current student issues and the appraisals of habilitation procedures

correlated with student surveys. The Student Council elects committed representatives in other working bodies of the faculty (Committees, Senate, Governing Board, Academic Assembly) who then report about the actions and work of other faculty members. We try to ensure all four departments of the Faculty of Natural Sciences and Engineering are represented equally.

The Student Council of the Faculty of Natural Sciences and Engineering operates autonomously and obtains the majority of its finances from the contributions of students upon enrolment.

The Alumni Club of the Department of Textiles, Graphic Arts and Design at the Faculty of Natural Sciences and Engineering of the University of Ljubljana brings together graduates of all generations who have graduated at this Faculty. As a member, you will be able to attend free professional, social and sporting

events and gatherings where you can meet successful individuals and gain new knowledge and contacts, enabling you to widen your social network as well as create new career opportunities. We kindly invite you to stay in touch with the Faculty even after your studies and join us at the NTF-OTGO Alumni Club.



CONTACTS



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