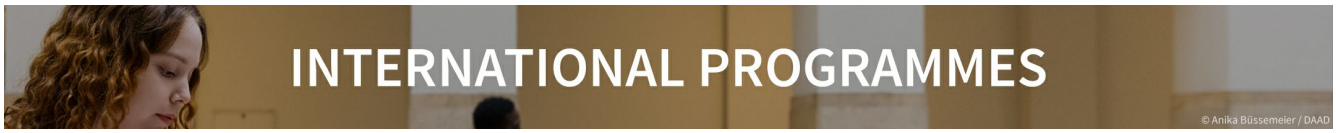
Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Master's degree

Non-Destructive Testing (MSc)

Dresden International University • Dresden





Overview

Degree	Master of Science
Teaching language	• English
Languages	Courses are held completely in English. The Master's thesis has to be written in English.
Full-time / part-time	• full-time
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	30 August for the following winter semester
Tuition fees per semester in EUR	5,370 EUR
Additional information on tuition fees	The overall tuition fee for all four semesters is 21,480 EUR. This includes a two-month German language class at the beginning of the course of study. Travel and the general cost of living are not included in the tuition fees.
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	Material Science The micro- and meso-structures of metallic, polymer and composite materials will be explained and the related properties will be described. The course delivers a general understanding of metallic, polymeric and composite materials and the interaction of elastic or electromagnetic waves considered in NDT with different kinds of materials structure. Measurement Techniques The module covers the physical and electrical basics of different measurement technology,

techniques and instruments, and the principles of their operation and application. The second part of the module deals with the statistical treatments of measuring results, measuring error, error propagation, and reliability.

Mechanics
The module includes the physics of waves in general, sound and vibration based on mechanical waves in the terms of vibration modes, guided waves and acoustic bulk waves as well as the determination of stresses and strains, fatigue and fracture in materials and components. Topics such as damage tolerance design, fatigue, fracture, notches, linear elastic and elastic-plastic material behaviour, crack propagation analysis, multi-axial stress-strain behaviour, and much more will be addressed. Hardware aspects will also be considered.

Numerical Methods & Signal Processing
The course objective is to repeat the fundamentals and to strengthen the skills in the numerical mathematics as well as to develop fundamental knowledge in signal processing.

Introduction to NDT & Quality Management
The module covers an overview on the different NDT techniques and gives an insight into standardisation and certification as well as quality management. Students acquire knowledge of standardisation, certification, and quality management processes involved in NDT as well as quality management process in general.

Acoustic Methods
The scope of the lectures is to impart complex knowledge about NDT of construction elements and materials with the aid of acoustic methods. The lecture content includes ultrasonic excitation, wave propagation in solids, beam focusing and directional intromission of ultrasound and deals with typical principles of ultrasonic transducers and measurement methods as well as phased array monitoring techniques.

Electromagnetic methods
The module covers the physical and electrical engineering basics of magnetic and electromagnetic test methods. It delves into the basics of eddy current and microwave magnetic test methods, including hardware and applications.

Radiological Methods
This module imparts the physical properties of several kinds of radiation and shows the relevant possibilities for materials characterisation and testing of components. This includes typical methods, testing systems and practical applications.

Optical Methods
This module imparts the physical properties of several kinds of radiation and shows the relevant possibilities for materials characterisation and testing of components. The module is also focused on the fundamentals of optoelectronics and thermography from a theoretical, numerical, and experimental point of view. A major focus will be on applications in electronics.

Thermal & Microscopical Methods
Students will learn fundamentals of microscopy and how to use this knowledge in NDT for the benefit of quality assurance.

Course Details

Course organisation

At the beginning of the programme, German classes may be attended, helping students prepare for daily life in Germany. A certificate can be issued by the TUDIAS language school.

The study is structured modularly. All modules will usually be offered and completed in a consecutive sequence.

In the first semester, students are taught in all the major fundamental disciplines such as material and polymer materials, measurement techniques, sound & vibration and fracture & fatigue, numerical methods & signal processing, and quality management.

In the second semester, the primary emphasis is on the different NDT techniques including

	acoustics, optics, electromagnetism, radiology and microscopy. The third semester is devoted to participating in the Basic Course of the German Society for NDT (DGZfP) and a research placement in a reputable research centre such as the affiliates of the different lecturers. These affiliates include BAM in Berlin and Fraunhofer as well as different companies and universities with a specific dedication to NDT. During the fourth and final semester, students work on their Master's theses, most likely with the institutions with which they have already undertaken their research placement. This programme is entirely conducted in English. The modules run consecutively as a block. The primary location of teaching is in Dresden, Germany. » PDF Download
A Diploma supplement will be issued	Yes
Certificates for specific modules are awarded	Yes
International elements	• International guest lecturers
Description of other international elements	The internship (time is allotted for this during the course of study) as well as the writing of the Master's thesis can be carried out in various countries at different institutions and companies.
Integrated internships	The third semester is devoted to participating in the Basic Course of the German Society for NDT (DGZfP) and a research placement in a reputable research centre such as the affiliates of the different lecturers. These affiliates include BAM in Berlin and Fraunhofer as well as different companies and universities with a specific dedication to NDT. Programme advisers will assist students with finding an appropriate research placement.
Course-specific, integrated German language courses	Yes
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	5,370 EUR
Additional information on tuition fees	The overall tuition fee for all four semesters is 21,480 EUR. This includes a two-month German language class at the beginning of the course of study. Travel and the general cost of living are not included in the tuition fees.
Semester contribution	Included in tuition fees
Costs of living	The cost of living depends on the lifestyle of each student. It can be calculated with 934 EUR per month according to the BAföG rate.

Funding opportunities within the university	No

Requirements / Registration

Academic admission requirements	• Master's or Bachelor's degree (four years or 180 credit points) preferably in mechanical engineering, electrical engineering, civil engineering, material sciences , geological science, applied physics or a related subject • Proficiency in the English language (level IELTS 6.0, TOEFL iBT79) • Practical experience in non-destructive testing (NDT) or even destructive testing is advantageous
Language requirements	Applicants must provide proof of their English language proficiency (on a level comparable to IELTS 6.0 or TOEFL 550 PBT / TOEFL 79 iBT).
Application deadline	30 August for the following winter semester
Submit application to	Please submit your application via e-mail to studyadvisory@di-uni.de (preferably in one PDF file).

Services

Possibility of finding part-time employment	It is generally possible to study full-time and work on a part-time basis. With a student visa, students have permission to work 120 days a year. The problem is that the lecture schedule is not identical every week, which makes it difficult to have regular working hours from week to week. In the past, students have found assistant part-time jobs in sales, production and cleaning services.
Accommodation	• Finding accommodation is a long process, so you need patience and start the search well in advance! • Should the search stress or trouble you, get a provisional accommodation (guesthouse/hotel/hostel) for the first few weeks! • Use your social networks and student groups to your advantage! • Gather your ideas, questions and wishes in advance and then get in touch with us for the best possible assistance! • Don't underestimate the process involved, as just with everything in Germany, searching for accommodation has more bureaucracy involved than you might expect!
Career advisory service	Career days, networking events
Support for international students and doctoral candidates	• Welcome event • Visa matters • Pick-up service • Help with finding accommodation • Support with registration procedures
General services and support	International Office

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Bata Nkirda Hena
MSc

The lecturers were highly qualified and well experienced in their respective disciplines. During the programme, all students get the chance to do an internship. I did mine at BAM in Berlin. Furthermore, I had the opportunity to participate in the maiden Student Challenge at the 11th Symposium on NDT in Aerospace 2019 in Paris-Saclay. The NDT MSc programme is highly educative, and it gave me the necessary knowledge and chance to add to my NDT experience. It made me eligible for a PhD programme.

Our Partners

Dresden International University

Meeting Hall DIU

Dresden International University (DIU) was established as a subsidiary university of Dresden University of Technology in April 2003.

Currently, more than 2,200 students are registered in 35 courses of studies.

The innovative courses of DIU offer clearly structured qualifications on a high academic level. The aims of these programmes are the improvement of academic knowledge and the acquisition of additional practical skills. DIU's Bachelor's and Master's programmes follow an interdisciplinary approach and can be completed either as full-time or part-time studies. Classes are held in English or German.

Specifically designed curricula for international students are clearly structured and offer a wide range of courses. Students are thus able to acquire a sound and diversified knowledge during seminars and workshops.

Given the interdisciplinary profile of DIU, every course comprises aspects of several academic disciplines. Therefore, the modules of a course deal with all aspects of a specific topic relevant for its comprehensive processing.

About 30% of DIU's students are foreigners from 30 nations. The intercultural competence of the students and staff, language training and international community life are some of the factors of DIU's internationalisation. Since 2003, DIU has intensified its international activities in order to attract foreign students to study in Dresden.

The enhancement of students' qualifications and competencies with a diverse and continuously expanding range of courses is connected to the requirements of the international job market.

Since 2011, a joint campus in Dresden's World Trade Centre has brought DIU and two further educational institutions – EIPOS and TUDIAS – together. They share infrastructure and back-office services. They also make joint use of the available seminar and meeting rooms and lecture theatre.

University location

With its many architectural masterworks, Dresden is the perfect place for people interested in art. The town has beautiful views both night and day, even in grey November weather. From the centrally located Theatre Square, one may view a whole array of architectural wonders such as the Italian Quarter, the Semper Opera House, the Zwinger buildings complex, the old town guardhouse, the castle, and the Catholic Court Church. In inclement weather, one may take advantage of the several museums located within these buildings. In the Zwinger art gallery, one will find works by Tizian, Rembrandt, Rubens and Raffael, and classical concerts take place here in the evening. The Old Slaughterhouse hosts rock concerts.

The town has an excellent public transport infrastructure, with modern trams and buses, and there is also the possibility of going on town tours on the special double-decker buses.

Not only do aficionados of the baroque style get something out of Dresden; the town also offers a lot of modern architecture, such as the town synagogue, the glass factory, the St. Benno Grammar School, the World Trade Centre - to name but a few buildings. Those interested in technology will find exhibitions at the Dresden University of Technology, the Technical Museum, the Museum of Transport, or the Tram Museum.

The nightlife in Dresden is similarly entertaining. For those interested in sports, one should experience a performance in the new stadium, in the sports centre in the Bodenbach Street or in the ice-skating rink, or in one of the many sports clubs.

Of special appeal in and around Dresden is the location on the Elbe River. The Elbe valley has many attractions to offer, all worth visiting, and giving the opportunity to meet local people. As well as museums and monuments, there are castles, mansions, stately gardens and parks affording insight into the history, geology and geography of the area. Castles in Moritzburg, in Meißen, and in Radebeul as well as the baroque garden in Großsedlitz are representative of the many places of outstanding beauty and interest.

The Saxon wine alley follows Germany's smallest and most northerly wine production region, with an 800-year viticultural heritage. The wine terraces lie idyllically beneath castles and fortresses. Several wine bars and cellars are open for wine-tasting sessions. The area is accessible by means of quiet pathways or by cycle paths.

It is worth partaking in a day trip into the Elbe sandstone mountains area, also known as "Saxonian Switzerland", where you have the opportunity for hiking and to climb unique rock formations. With its woods and hills of up to 800m in height, the Ore Mountains are an ideal place for walks in summer and skiing in winter.

Contact

Dresden International University
Competence Centre Natural and Engineering Sciences

Laura Byfut

Freiberger Str. 37
01067 Dresden

Tel. +49 35140470113
studyadvisory@di-uni.de
Course website: https://www.di-uni.de/studium-weiterbildung/ingenieurwesen/non-destructive-testing-int

https://twitter.com/diu_dresden

https://www.linkedin.com/school/diu-dresden/

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