

# Aerospace Engineering

**MSc**  
ENGINEERING



**FACHHOCHSCHULE  
WIENER NEUSTADT**

Austrian Network for Higher Education

**University of Applied Sciences**

[fhwn.ac.at](http://fhwn.ac.at)



## Key Facts

# A unique Master's programme in Austria & gateway to your career

### PREREQUISITES

- Bachelor's or Master's degree in Engineering (Aerospace eng., Applied eng. etc.),
- 30 ECTS or more in core engineering topics (mathematics, mechanics, thermo- and fluid dynamics etc.)
- Proof of English proficiency (TOEFL: 95 points; IELTS: 7.0; Oxford: 75)

### MODE OF STUDY

- Full-time

### APPLICATION PROCESS

You can find information and entry requirements here:

[fhwn.ac.at/aero/admission](http://fhwn.ac.at/aero/admission)

- Upload your application at: [onlinebewerbung.fhwn.ac.at](http://onlinebewerbung.fhwn.ac.at)
- Potential candidates will be invited to a personal interview or to an online interview via WebEx.
- Within a two-week period following the interview you will be notified whether or not your application was successful.

Aerospace has always been at the forefront of modern technological advances. This is particularly true for the active role privately-owned space companies are currently assuming in the development of state-of-the-art technology in projects and missions.

Technologies, processes and the working environment in general continue to change rapidly. Aircraft and space engineering are considered technology drivers, setting new benchmarks which are later assimilated by other engineering disciplines.

The Aerospace Engineering programme equips students with the best skills for participating in leading-edge developments and enables them to contribute to technologies which literally take us out of this world.



“You gain a broader understanding of your field: almost every course has a practical part where the taught concepts are put to the test. This is the right place for me.”

Tomas Hamann  
Aerospace Engineering Student



#### ACADEMIC DEGREE

Master of Science in Engineering, MSc



#### ECTS

120



#### DURATION

4 semesters



#### LANGUAGE

English



#### STUDY START

September



#### LOCATION

Wiener Neustadt Campus 1



# Aerospace at the FHWN: The frontier of engineering

In this day and age of rapidly changing technologies, the Aerospace Engineering department of the FHWN provides an excellent project environment for future aerospace engineers. Together with its research company (FOTEC GmbH) and many national and international partners, the AE department is involved in cutting-edge R&D.

In collaboration with its research partners, the FHWN investigates advanced space propellants for future space missions (dlr.de), develops new materials and manufacturing methods for aviation and space applications and develops on-site research utilisation technologies for future space stations.

As a part of an international consortium, the FHWN and FOTEC provide essential technologies for space missions such as the Magnetospheric Multiscale Mission (MMS, mms.gsfc.nasa.gov), which was flown by NASA in cooperation with ESA (European Space Agency). Under contract with ESA, the FHWN and FOTEC develop advanced chemical propulsion systems based on non-toxic ("green") propellants as well as high-performance electrical propulsion systems (FEEPs and PPTs).

### PARTNER



### HIGHLIGHTS

- A unique full-time study programme in Austria
- Taught entirely in English
- Cross-disciplinary and internationally focused
- Practice-oriented with an international scope
- Student projects parallel to lectures



### DETAILS

Further detailed information, all dates and deadlines of the study programme can be found at [fhwn.ac.at/aero](http://fhwn.ac.at/aero).



### HAPPY TO HELP!

#### Administration Services

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Head of Programme

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Dr Carsten Scharlemann, Head of Aerospace Engineering, Master's programme

## "A study programme with an international focus is a must-have for the air and space industry."

### THE ULTIMATE ENGINEERING DISCIPLINE

Aerospace is not only a truly fascinating subject – it's the ultimate engineering discipline! Aerospace technologies must have the lowest weight, the highest energy efficiency and remain maintenance-free for an extended period of time. Aerospace engineering offers a challenging, interdisciplinary and very international working environment.

### AN OUTSTANDING ENGINEERING EDUCATION

Aerospace Engineering is an outstanding education which combines many engineering disciplines, such as lightweight engineering, material sciences, thermodynamics, fluid mechanics and propulsion technologies.

The latest software packages such as CATIA for drawings and construction or ANSYS for finite-element simulations, STK, DRAMA, etc. for space mission planning and many others are taught with practical examples integrated into recent R&D topics. Due to the high educational standards required, Aerospace Engineering graduates are sought-after engineers not only for aerospace-related professions, but also in automotive or energy and environmental engineering.

Placements and thesis research in leading companies, research institutes and our in-house R&D team complement the education programme with practical experience.

### HANDS-ON EDUCATION

Both the active participation of aerospace industries in the development of our Aerospace Engineering curriculum and the teaching in the programme itself ensure an education which reflects the actual industry needs.

As a large percentage of our lecturers are from the industry and from research centres, our students have early contact with experts. Students are thus enabled early on to form relationships with them which then helps in developing diploma research ideas and future networks for jobs and careers.

The department offers numerous projects in which students can apply their knowledge and improve their skills. In the course of one such project, the FHWN CubeSat Programme, a nano-satellite was successfully launched in 2017. Several new satellite missions are in the development stage (for more information see [cubesat.fhwn.ac.at](http://cubesat.fhwn.ac.at)).

Our programme also benefits from the Aerospace Engineering department at FOTEC, the R&D company within the University of Applied Sciences Wiener Neustadt, where experts in the field of propulsion and new energy technologies carry out cutting-edge research for ESA, NASA and leading industries around the world.





# Aerospace Engineering experience at the FHWN

Aerospace Engineering studies at the FHWN are indeed a unique experience. Right from the beginning, the practical aspects of engineering are the focus of the education. The Aerospace Engineering department lecture staff consists in large part of professionals who are active in the industry, thus ensuring up-to-date lecture contents and methods.

Furthermore, large parts of the theoretical lectures are combined with hands-on exercises. Students are involved in projects such as the development of new aviation transport systems, advanced propulsion systems, sounding rockets or even in the development of a complete nanosatellite (as part of the QB50 consortium, details: [www.qb50.eu](http://www.qb50.eu)). Such projects offer ample opportunities to practice skills and develop competence important for the future careers of the students.

In order to optimally prepare the students for their future career, the Aerospace Engineering department cooperates with the major stakeholders in aerospace engineering and general engineering in Austria and worldwide.

## ALUMNI TESTIMONIALS

"The curriculum is really well structured with experienced lecturers coming from an industrial and academic background. Thanks to the limited number of students, the atmosphere is very friendly and allows a degree of interaction, personal feedback, support and guidance from the expert staff of the programme that cannot be found in other universities."

**Lionel Gury, MSc, Mechanical Engineer, Airbus Space and Defence**

"Coming from a more theory oriented physics background, the numerous group assignments offered great opportunity to learn a great deal on how to perform effectively in a team."

**David Jelem, MSc, Project Manager, TTTech**

"The knowledge acquired in this valuable Master programm has suitably prepared me to proactively fulfill the tasks of my job and positively contribute to the enhancement of space technology."

**Sara Pavesi, MSc, Development Engineer for Space System Studies, OHB**



## JOB CATEGORIES & CAREER OPPORTUNITIES

- Research & Development
- Design engineer
- Project manager
- Sales
- Consultant
- Innovation manager
- In the fields of Aerospace, Aircraft and Aeronautics Industries, Automotive, Communication and Mobility Industries or Medical Technologies

# Curriculum

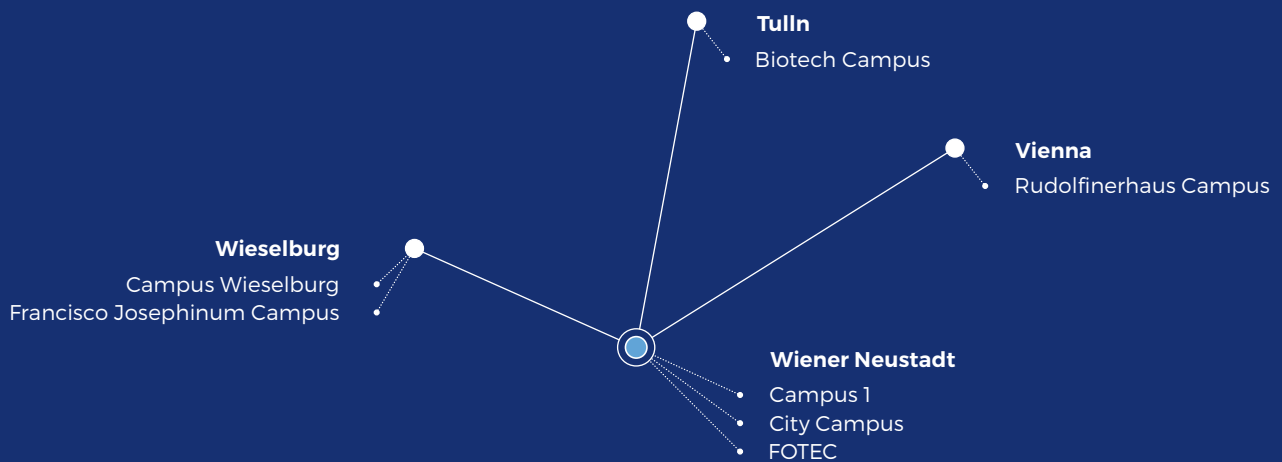
1st semester	ECTS	30	2nd semester	ECTS	30
Adv. Math., Statistics and Optimisation <sup>1)</sup>	6		Aerothermodynamics 1	3	
CAD for Aerospace Projects	5		Satellite Technologies	3	
Adv. Finite Element Computation <sup>1)</sup>	7		Aircraft Design <sup>1)</sup>	7	
Aerospace Project Management and System Engineering	2		Aircraft Systems and Technologies	4	
Quality Management in Aeronautics	2		Autonomy and Unmanned Aerial Vehicles	3	
Aerospace Players and Trends 1	2		Space Propulsion	3	
Physics of Flight	3		Junior Team Project	3	
Computational Fluid Dynamics	3		Lightweight Construction	3	
			Composites Manufacturing Processes	1	
3rd semester	ECTS	30	4th semester	ECTS	30
Aerothermodynamics 2	3		Master's Thesis / Seminar	3	
Air-breathing Propulsion	3		Master's Thesis	27	
Senior Team Project	5				
Space Applications (Telecom/Nav/RS)	3				
Space Mission Analysis and Design <sup>1)</sup>	7				
Dynamics of Flight and Flight Control	3				
Spacecraft Environment and Interactions	3				
Aerospace Materials and Processes	2				
Aerospace Players and Trends 2	1				

A detailed description of the study programme, subjects and content can be found on our website: [fhwn.ac.at/aero](http://fhwn.ac.at/aero). <sup>1)</sup>Includes 3 ECTS for practical/laboratory sessions.



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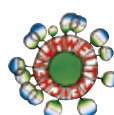
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Issue: 007 (01/2020) | Photo-Credits: FH Wiener Neustadt, FOTEC, istockphoto.com, FIXION – GWLNSOD, Amriphoto, Diamond Aircraft



Gedruckt nach der Richtlinie „Druckerzeugnisse“  
des Österreichischen Umweltzeichens,  
Print Alliance HAV Produktions GmbH, UW-Nr. 715