

Please note, this translation is provided for convenience only; in case of discrepancy, the German version shall prevail and is the only legally binding document.

Attachment 3: Guideline for the Industrial Internship

Guideline for the practical training of students in the Bachelor's and Master's Degree Program Aerospace at the Technical University of Munich

Department for Aerospace and Geodesy (ASG)
Technical University Munich

Valid for all students who start their studies during the winter semester 2021/2022 at the Department of Aerospace and Geodesy of the Technical University Munich.

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1. Educational Aim of the Practical Activity

¹Aerospace engineers work in various fields of research, development as well as in Service and Operations; they plan and they lead, supervise complex systems, coordinate their operation – including maintenance – and handle corresponding commercial and sales related tasks as well. ²Different disciplines and aspects form a synthesis, which is characteristic for their work. ³This synthesis should also be reflected in the industrial internships, by acquiring complementary professional knowledge and experience – particularly through workshops – in addition to their scientific engineering studies. ⁴It is not only a matter of getting to know certain techniques and processes, but also of gaining practical insights into activities and fields of work.

⁵Grasping the sociological side of processes within the institution is another essential aspect. ⁶The intern must also get to understand the company as a social structure and experience the relationship between managers and employees in order to correctly classify his/her future position as well as his scope of efficacy, often as a superior.

Overall, the internship training is an important component of experience needed for acting responsibly later on and is part of the training.

2. Industrial Internship

The whole industrial internship is made up of two parts, the pre-internship and the professional internship, which both have to be completed as part of the degree program.

2.1 Pre-Internship

¹The pre-internship aims at transmitting basic knowledge related to manufacturing, which can also be transmitted in internships carried out in smaller businesses. ²Experience in manufacturing is a prerequisite for understanding what is viable and feasible. ³Furthermore, the knowledge acquired in the pre-internship will facilitate understanding the lectures and the exercise modules for the design related classes in the bachelor degree program.

⁴As a rule the pre-internship will be carried out in industrial manufacturing, where essential basic knowledge is transmitted. ⁵Through guidance by technical supervisors, the intern should become familiar with the practical application and gain an overview of production equipment and processes. ⁶The intern should also gain insight into quality assurance and testing. ⁷The pre-internship may also be carried out in one of the other relevant aeronautic fields, such as either development, service or operations.

2.2 Professional Internship

¹The professional internship helps at gaining general insight into future professional life, into technical economic or organizational contexts as well as into the importance of technology and engineering in our society. ²In line with students' inclinations and the opportunities available this part of the internship allows for a high degree of freedom of choice based on substantial individual responsibility. ³Overall the 14 weeks of training (incl. pre- and professional internship) have to include two out of the three possible fields

- A) Manufacturing,
- B) Development or
- C) Service/Operations

with four consecutive weeks per individual internship.

⁴During the fifth semester enrolled in the current degree program (Fachsemester) students enrolled in the degree program Aerospace (B.Sc.) can intern for at least 6 weeks, which will be rewarded with 8 credits. ⁵Alternatively they may participate in a "project seminar" at one of the chairs, which lasts 6 weeks as well and will also be rewarded with 8 credits. ⁶When choosing the latter, the project seminar will be counted as its own field.

3. Length and Organization of the Industrial Internship

3.1 Length

¹The industrial internship includes a mandatory pre-internship of at least eight weeks. ²As part of the degree program Aerospace (B.Sc.) this is followed by a professional internship of at least six weeks. ³Students have to provide proof of an industrial internship with a duration of at least eight weeks in order to be accepted for the degree program Aerospace (M.Sc.).

⁴The training period in a single company must be at least one continuous week. ⁵In order to cover one of the fields enumerated in Nr. 2.2, students have to provide proof for four continuous weeks. ⁶The weekly working time is based on the collectively agreed working time valid in Germany.

3.2 Fields of Work

¹The requirements of the industrial internship (pre- and professional internship, minimum 14 weeks) are met, if the internships were carried out in at least two out of the three fields:

- A) manufacturing,
- B) development, and
- C) service/operations

²One field counts as covered, if at least four continuous weeks were carried out in that specific field.

3.3 Temporal Organization

¹The pre-internship with a duration of at least eight weeks is to be carried out before beginning the degree program. ²The proof of the completed pre-internship is a requirement in order to be accepted for the Bachelor degree program. ³In case one is admitted with the condition industrial internship, proof has to be presented within the first year of the studies. ⁴In order to be recognized in time the documents have to be handed in at least four weeks before the end of the second semester of enrollment in the degree program (Fachsemester).

4. During the Internship

4.1 Training Plan

¹The pre-internship and the professional internship do not differ in terms of content requirements.

²They can be completed in manufacturing as well as in development, or in the fields Service or “Operations”.

³However, activities typical during the pre-internship are assisting with:

- manufacturing processes such as casting, machining, joining and cutting processes, installation, integration and assembly,
- tasks in the fields of testing and quality assurance
- tasks in investigation, development, design, calculation and testing of technical concepts, machines, components, material, processes and methods
- production development and production planning
- service and maintenance

⁴During the professional internship tasks that specifically complement or extend university studies are recommended, such as assisting with, for example

- project management, i.e. planning, coordinating as well as technical and economic monitoring of project processes
- technical supervision and operation of complex plants and systems
- tasks related to sales and marketing of technical products
- drawing up complex technical offers
- technically oriented corporate planning
- investigating needs, requirements and effects of existing or planned technical systems and products with regard to the environment and society

⁵The above mentioned tasks can be found in medium-sized and larger companies and, to some extent, in public authorities and organizations. ⁶In addition to a certain degree of variety within the activities, the aim should be to carry out the internships in various positions in order for the intern to be confronted with different cultures within the various departments or companies. ⁷However, most of the listed activities require a certain training period on the job as a result meaningful cooperation often requires an internship with a duration of several continuous weeks.

⁸We generally recommend doing the professional internship only after the fourth semester.

⁹Irrespective of the chosen area of activity, an overview of the services and products provided by the respective company as well as the technical organizational classification of the visited departments, in which the internship is done, should also be obtained. ¹⁰This is to be reflected in the internship report.

¹¹The professional internship may be replaced - either in part or entirely - by a pre-internship as long as this one complies with this guideline regarding length and division.

4.2 Reporting and Proof of Internship

¹The successful completion of the internship, of its parts respectively, is proven by:

1. a report signed by the student, which indicates the field (A, B, or C) of the internship. For the pre-internship this report comprises about three to four pages (continuous text, work steps, sketches, particularities, ...); for the professional internship his includes not only the points mentioned in 4.1 regarding products and organizational depiction of the internship institution but also the depiction of all tasks that were carried out. (as a guideline: approximately 5 pages); the latter may be dispensed with if, instead, a technical report on the work that the student carried out, originally presented to the company providing the internship position, is submitted by the student for the internship period in question.

and

2. corresponding certificates from the companies, additionally a separate company certificate must at least indicate the time period, the activities carried out and the social behavior of the intern in the company

²The internship office will provide official recognition after the original certificates as well as the reports were submitted to the internship office.

5. The Intern in the Company

5.1 Training Companies

¹The knowledge about manufacturing processes to be gained by means of the internship, the observation of the economic way of working as well as getting to know the social side of work processes shall preferably be transmitted in industrial companies, that are also recognized by the Chamber of Industry and Commerce (IHK) as a training company (anerkannter Ausbildungsbetrieb).

²The student may intern in companies operating within the field of aerospace, mechanical engineering, the automotive industry, the electronics industry and the chemical industry, the mining industry, the German Federal Railway as well as larger craft businesses, provided that all conditions laid out in this guideline for the training are adhered to. ³Work at university and research institutions may be recognized, as long as they comply with the guideline.

5.2 Supervision of the Interns

¹As a rule a training manager, who ensures that the interns receive meaningful training in accordance with the training possibilities of the company as well as the regulations governing internships, supervises the interns in industrial enterprises. ²They also instruct the interns in conversation and discussions on technical issues.

³University interns are not required to attend vocational school (Berufsschule). ⁴Voluntary participation in lessons at the company school must not influence the time period of the internship in the specific departments, as that time is short already.

6. Legal and Social Status of the Interns

6.1 Applying for an Internship

¹Prior to starting his or her internship, the future intern should familiarize himself or herself with the regulations that exist regarding the execution of the internship, the reporting on the internship activity, etc., on the basis of this guideline or in special cases, by contacting the Internship Office of the Department of Aerospace and Geodesy. ²As internship positions are not arranged, the interns must contact the companies themselves inquiring about internship positions. ³The Departmental Student Council as well as the Internship Office of the TUM Department of Aerospace and Geodesy can provide assistance in this respect.

6.2 Internship Contract

¹By signing a contract of employment the internship becomes legally binding for both the company and the intern. ²The contract lays out all rights and obligations of the intern and the company as well as type and duration of the internship.

6.3 Federal Trainings Assistance Act (BAföG)

¹The internship, including the pre-internship (Section 2.3), is considered training in the tertiary education sector and is therefore eligible for support under BAföG. ²The intern shall apply to the competent authority in his/her place of residence for funding.

6.4 Compulsory Insurance

¹Questions of compulsory insurance are regulated by corresponding laws.

6.5 Holiday, Illness, Days off

¹Absences of more than three days during the industrial internship have to be made up. ²This includes working time lost to illness, vacation or any other hindrances. ³Similarly, days of company closure count as days of absence. ⁴Official public holidays are the only exception. ⁵In the event of absences, the intern should ask the providing company for an extension of the contract in order to be able to carry out the ongoing training period to the necessary extent.

⁶If the intern can by means of medical certificates substantiate that he/she is not able to fully carry out the prescribed training in the professional internship due to a long lasting or permanent physical disability or chronic illness, the missing time may be compensated by working in design offices, production planning, material testing and in laboratories after first having consulted the internship office.

7. Recognition of the internship

¹The Internship Office of the Department of Aerospace and Geodesy provides official recognition for the internship. ²For this, the original of the duly written activity report and the internship certificate must be submitted.

³The type and duration of the individual sections of activity must be clearly stated in the documents.

⁴The Internship Office decides to what extent the practical activity complies with this guideline and as a result can be recognized as an internship. ⁵Any training for which insufficient reports were submitted, because they are either incomplete or incomprehensible, will only be partly recognized in its corresponding duration. ⁶The Internship Office may stipulate additional weeks of training if internship reports and certificates do not show that individual parts of the internship were completed sufficiently.

8. Special Regulations

8.1 Vocational Training

¹Relevant work experience activities that meet the requirements of this guideline shall be credited towards the maximum duration of the internship of 14 weeks. ²Apprenticeships shall be recognized to the extent that they comply with this internship guideline.

8.2 Internships outside the Industrial Sector

General Provision

¹Internships outside the industrial sector require the prior approval of the Internship Office. ²Beyond that, the total of all activities in the non-industrial sector may not exceed 6 weeks.

Internship of Conscripts in the Bundeswehr (German Federal Armed Forces)

³It is the responsibility of the university applicant to apply for admittance in a suitable technical unit before starting their military service. ⁴Training periods that were completed in this setting can be credited to a maximum of 6 weeks after consultation with the internship office, if the activities are carried out in accordance with Section 3.1 of this guideline. ⁵For recognition, the relevant reports and certificates (ATN and military service certificate) must be submitted to the internship office. ⁶Per decree the Federal Minister of Defense has permitted the keeping of internship reports and the issuing of internship certificates (see Ministerial Gazette of the Federal Minister of Defense 1963, p. 291, in the version of July 12, 1967 VMBI 1967, p. 213).

⁷In addition to those performing basic military service, this crediting regulation applies mutatis mutandis to soldiers serving longer periods of time (temporary soldiers „Zeitsoldatinnen und -soldaten) as well as to those performing community and alternative service.

8.3 Other Industrial Employment Relationships

¹If the internship guideline is complied with, an activity as a working student (Werkstudent) or any other occupational activity may be recognized as an internship. ²However, a direct replacement of the course work to be completed in the course of further studies by a professional internship and vice versa is not permitted. ³As an internship is intended to provide insights into a broad spectrum of techniques and processes, student research projects require students to work on specific in-depth technical-engineering activities on an increasingly independent basis.

⁴If there are any uncertainties about the compatibility of an intended internship with this guideline the internship office should be consulted in advance.

8.4 Internships Abroad

¹It is advantageous for one's professional life to carry out parts of the internship abroad. ²By this the aspiring engineer not only increases his or her professional qualifications, but also gains insight into the cultural, social and economic structures of other countries. ³Hence, students can complete their industrial internship in suitable foreign companies, provided that the knowledge to be acquired in that company corresponds to the prescribed training plan. ⁴The reports shall be written in either German, English or bilingually (German plus national language). ⁵The internship certificate must be submitted in the respective official language as well as in a certified translation in German. ⁶Certificates in English are the exception to this rule. ⁷No translation is required in this case.

⁸A duration of up to 14 weeks is recognized.

9. Inquiries

Please address any questions and individual inquiries concerning this guideline to the internship office of the Department of Aerospace and Geodesy.

Address: Technical University Munich
Internship Office of the Department of
Aerospace and Geodesy (ASG)

Lise-Meitner-Str. 9

85521 Ottobrunn

Telephone: +49 89 289-55517

E-Mail: internship.asg@ed.tum.de

Comment

This guideline is valid for students enrolling in the Department of Aerospace and Geodesy starting with the winter semester 2021/2022.