

Going abroad as a Medical Engineer – what to keep in mind?

Info event WS24/25

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Overview



- Exchange options
- Application for the exchange
- Leave from studies
- Examinations at FAU
- Learning Agreement(s)
- Conversion of credits/grades
- Accreditation at FAU
- Erasmus formalities
- Integrating international experience into your CV

Exchange options

Study exchange:

- Erasmus (= Europe + some other countries): Exchange agreements of Med. Eng. and the departments INF, EEI, MB, WW, CBI (depending on the chosen field of study); contact: respective Erasmus coordinators → place for Erasmus exchange includes Erasmus scholarship (partial scholarship)
- Exchange agreements of the Faculty of Engineering (= non-European countries); contact: Christine Mohr
→ scholarship usually to be organized by yourself (e.g. via DAAD)
- FAU exchange agreements (= non-European countries or non-Erasmus countries); contact: see International Office website: <https://www.fau.eu/education/international/>
→ scholarship usually to be organized by yourself (e.g. via DAAD)

Exchange options

Research stays:

- As part of a thesis or a research internship (master)
- No exchange agreement with the FAU or degree program necessary
- Organization via personal contacts of the professor
- Usually very good academic performance required; ask the supervising professor which contacts exist and whether an exchange is possible
- No enrollment at the host university but usually intern status, i.e. no attendance of courses
- Scholarship to be organized by yourself (e.g. via DAAD)

Exchange options

Internships:

- Erasmus internship program: organize your own internship with companies in the Erasmus region, then apply for a scholarship (organized centrally via the FAU International Office)
- Application possible at any time, there are no deadlines
- Scholarship higher than for Erasmus study exchanges
- More information: <https://www.fau.eu/education/international/going-abroad/internships-and-placements-abroad/>
- Erasmus internship also possible directly after graduation!

Application for the exchange

In general: The procedure is different for each exchange program and possibly also for each Erasmus coordinator → please refer to the relevant websites!

The following generally applies to **Erasmus study exchanges**:

- Application by **January 15** of a year for the winter semester of the same year and the summer semester of the following year (i.e. 15.01.24 for winter semester 24/25 and summer semester 25), possibly application by **September 1** for remaining places in the following summer semester (01.09.24 for summer semester 25)
- Multiple applications to one or more coordinators are possible, in case of multiple acceptances cancel in time and make places available for fellow students!
- The following applies to the **Erasmus study exchange via Med. Eng.:**
 - Application via e-mail with CV, language certificates, current transcript of records from Campo and one-page letter of motivation (all documents in German) to studienberatung-medizintechnik@fau.de
 - One application for several host universities of Med. Eng. with prioritization possible
 - Among all formally correct applications places will be assigned by drawing lots.

Application for the exchange

Tips

- Inform yourself about your preferred country and university early on and take language courses.
- Obtain proof of language skills **on time**: “mobility test” at the Language Center (approx. 15 euros) or internationally recognized tests (TOEFL, DELE etc.)
- High school diploma / A-Level certificate, first degree in English, passed language courses etc. are not accepted as proof of language proficiency!

Leave from studies

- Generally recommended; does not count as a regular semester, but credits can still be earned abroad → “Safety net” for the worst case scenario
- Form for leave from studies (see website) has to be submitted to the Student Records Office before the start of the first day of lectures, submit certificate of enrollment abroad later
- Can be taken at most for the 8th bachelor's and 6th master's semester, but not for higher semesters
- If the number of ECTS credits accredited from the semester abroad reaches 30, you will be upgraded by one semester during accreditation.
- Important: **As a rule, no first attempts for examinations can be taken at FAU during the semester of leave (EXCEPTION, see next slide).**
- **Special case of modules with online examinations:** If you are going abroad and can still take individual modules online at FAU, it may be worthwhile not taking a leave from studies and taking examinations at both universities.

Examinations at FAU

- Exams registered at FAU from the previous semester (usually 2nd period of the previous semester) that are missed due to a stay abroad can be deactivated by Ms. Jahreis (submit proof of stay abroad); after returning to FAU, the exams can be reactivated and taken despite the leave from studies.
- For oral exams, an individual exam date may be possible for when you are still in Erlangen/in Erlangen again (you are not entitled to it, please ask your examiner kindly).

Learning Agreement – General information

There are two types of Learning Agreement (LA):

1. Digital Learning Agreement (DLA): EU document, mandatory for all Erasmus students, prerequisite for Erasmus scholarship
2. Learning Agreement for accreditation in the Med. Eng. program: Med.Eng.-specific internal document, not mandatory, but strongly recommended for a better planning of studies abroad (also for non-Erasmus stays)

- You usually have to list 20 - 30 ECTS in the DLA - depending on the specifications of the host university/coordinator.
- You are not obliged to complete or pass all modules listed in the DLA.
- You are not obliged to have your passed modules accredited at FAU (e.g. in case of unsatisfactory grades).
- **BUT: You must return with at least 10 passed credits, otherwise you will have to pay back the Erasmus scholarship (other scholarships may have different rules)!**

Digital Learning Agreement (DLA)

- Only for Erasmus mobilities
- Components: Table A (course attendance abroad), Table B (accreditation at home university), section “Changes” for changes during the stay
- Must be signed by Erasmus coordinator at FAU (Claudia Barnickel for partner universities of Med. Eng. or coordinators EEI, INF, MB, WW, CBI) and Erasmus coordinator of the host university; in the case of “changes” possibly several times
- Must usually be submitted quickly (deadline at FAU for WS: August 15, for SS: December 1; at the host university possibly even earlier) → **Problem:** Sometimes specific accreditation options have not yet been determined.
- **Workaround:** Enter “Freie Wahl Uni”/Free Choice Uni” in Table B → Erasmus-DLA can be signed immediately, concrete accreditation for the Med. Eng. program will be clarified internal Med. Eng. agreement later.

Med. Eng.- Learning Agreement

- At the latest 6 weeks before departure
- Guarantee: If you complete the courses listed in the Med.Eng.-LA, they will be 100% accredited as agreed (with the respective ECTS, in the respective module group, etc.).
- Process:
 - Send the required documents to the accreditation officer (Claudia Barnickel)
 - She will forward the documents to Med.Eng. lecturers for assessment
 - Possibly further documents are requested
 - Feedback from lecturers: rejections are communicated to you, acceptances are included in the Med.Eng.-LA
 - You will receive the Med. Eng-LA - save it on your computer! It will also be archived in the Study Service Center.

Learning Agreement – Possibilities for Accreditation Med.Eng.

Options:

1. Accreditation for Free Choice Uni): only criterion = **graded** achievement
2. Accreditation for Flexible Budget TechFak (M7) = **engineering** modules at **master's** level or **economics-related modules** → student names FAU lecturer from suitable department → lecturer decides positively → **accreditation with foreign credit value (ECTS or converted for non-ECTS-credits) and foreign/English module title**
3. Accreditation as compulsory subject or specific Med. Eng. module („**direct accreditation**“): **80% or more overlap** with the module description of the FAU module → FAU lecturer responsible for the module decides positively → **Recognition with FAU ECTS value and under FAU module title**
4. Accreditation as “**placeholder**“: foreign module has no equivalent in the Med.Eng. degree program, but fits thematically and qualitatively → accreditation as a placeholder for a module group (B8, M2, M3 etc.); student names Med. Eng. lecturer from suitable subject area → lecturer decides positively → **accreditation with foreign credit value (ECTS or converted for non-ECTS credits) and foreign/English module title**

Learning Agreement – Possibilities for Accreditation Med.Eng.

Accreditation as “placeholder“ – options:

Bachelor:

- Module group B8 (engineering modules on Bachelor level)
- Seminar Medical Engineering (seminar-like course: presentation and paper)

Master:

- M1 = medical specialization modules (medical content, if offered and available)
- M2 = Engineering core modules (usually no application to the medical field)
- M3 = Medical Engineering core modules (Med.Eng.-related)
- M5 = Medical Engineering specialization modules (specialization within Med. Eng.); difference between M3 and M5 is fluid → apply for accreditation for preferred module group or both
- M4 = Advanced seminar Medical Engineering (seminar-like course: presentation and paper)
- M6.1 = Academic Laboratory (laboratory courses, programming projects etc.)
- [M6.2 = Research Laboratory: seek co-supervision at FAU, have it booked as FAU credit - not a case for accreditation/Learning Agreement]

Med. Eng. Learning Agreement – Preparation

Preliminary orientation: Compare module descriptions from the university abroad - FAU **in terms of content** (not just titles) → e.g. mark identical content with a color

Send the required documents to the accreditation officer for Med. Eng. (Claudia Barnickel):

- Completed Excel spreadsheet (Med. Eng. website: Current Students → Accreditation of Academic Achievements)
- Detailed module descriptions for the modules at the university abroad in English or German (if necessary, translate with DeepL Translator); proof: module handbook as PDF or web links (if necessary, in the original language of the host country)
- If no or too brief descriptions are available: Contact lecturers at the host university, ask for lecture material, literature lists, etc.
- If nothing works: take the desired module anyway, keep documents from abroad (presentations, mock exams, project work, etc.) - clarify accreditation from abroad/after return

Excel table preparation for accreditation

Name, Vorname: Name der externen Universität: Studiengang:		Name der hiesigen Universität: Studiengang:			Friedrich-Alexander-Universität Erlangen Nürnberg Bachelor / Master of Science Medizintechnik, Studienrichtung: bitte anpassen!	
fremdsprachiger Titel der Lehrveranstaltung (bitte mit Weblink o. Modelhandbuch als PDF einreichen)	fremdsprachige Beschreibung der Lehrveranstaltung	Übersetzung des Titels (dt. oder engl.)- nicht erforderlich, wenn Original auf Englisch!	SWSECTS		Übersetzung der Beschreibung (dt. oder engl.)-nicht erforderlich, wenn Original auf Englisch!	Titel der ähnlichen Lehrveranstaltungen
Beispiel 1: Comportement Mécanique des Matériaux	<p>À l'issue de cette UE, l'étudiant aura étudié les lois de comportement des matériaux d'un point de vue phénoménologique. Il aura été initié aux techniques expérimentales qui permettent d'identifier les paramètres pilotant les modèles de comportement mécanique. En particulier l'étudiant aura vu les mesures de déplacement avec et sans contact (notion de mesure locale et de champ, capteurs mécaniques). Une partie sera spécialement consacrée aux méthodes de mesure de champ sans contacts :</p> <p>Mesure de champ de déplacements pour le calcul des déformations en statique :</p> <ul style="list-style-type: none"> - petits déplacements (dans le plan et hors plan) : granularité, diffraction, interférométrie et holographie - grands déplacements (dans le plan et hors plan) : suivi de marqueurs, phénomène de moiré. <p>Analyse des champs de contraintes : photoélasticité 2D. Recours à des techniques d'analyse et de traitement d'images : la photomécanique</p> <p>Notion de Corrélation d'images numériques, analyse de franges et le suivi de motif</p> <p>Introduction sur la mesure de champ de déplacements en dynamique.</p> <p>Discrétisation temporelle et analyse de franges en dynamique.</p>	Mechanisches Verhalten von Materialien	4	6	<p>Am Ende dieses Kurses werden die Kursteilnehmer die Gesetze des Verhaltens von Materialien aus einer phänomenologischen Sicht kennen. Es wurden experimentelle Techniken eingeführt, um die Modell-Parameter, die das mechanische Verhalten beschreiben, zu identifizieren. Insbesondere wird der Schüler Verschiebungs-Messungen mit und ohne Kontakt (Begriff der lokalen Messung und Feld mechanische Sensoren) gesehen haben. Ein Teil wird den Methoden der berührungslosen Feld-Messung gewidmet sein:</p> <p>Messung der Verschiebung Feld für die Berechnung der statischen Verformung:</p> <ul style="list-style-type: none"> - kleine Verschiebungen (in-plane and out of plane): Granularität, Beugung, Interferometrie und Holographie - große Verschiebungen (in-plane and out of plane) Trackingmarker, Moiré-Phänomen. <p>Analyse des Spannungsfeldes: 2D Spannungsoptik. Verwendung von Analyse- und Bildverarbeitungs-Techniken Konzept der digitalen Bild Korrelation, Analyse und Überwachung von Streifenmuster</p> <p>Einführung in die dynamische Messung einer Feldverschiebung. Zeitdiskretisierung und dynamische Analyse von Randzonen</p>	Charakterisierung u. Prüfung von W
Beispiel 2: Sensors for Measurement and Control	This course introduces the student to the principles and techniques used in the industrial measurement of pressure, level, density and temperature. Topics will include pressure and temperature transmitters, humidity transducers and nuclear density gauges. Labs will apply the principles of the above transducers and the latest in smart transmitter technology to various industrial and commercial applications.	Sensoren für Mess- und Regelungstechnik	3	5		Sensorik/BS.6

Conversion of Credits

Conversion of Credits in ECTS: $x = C_d (C_{FAU}/C_{Ausl})$

C_{FAU} = Credits FAU per Semester (30)

C_{Ausl} = Credits abroad per Semester

C_d = Credits abroad achieved per module

Grade conversion (Bavarian formula)

Grade conversion: $x = 1 + 3 \frac{(N_{\max} - N_d)}{(N_{\max} - N_{\min})}$

N_{\max} = best achievable grade abroad

N_{\min} = worst passing grade abroad

N_d = grade achieved abroad

For exceptions (e.g. best grade is never awarded, etc.), a conversion table is maintained by the Faculty of Engineering. If this case applies, please inform yourself about the grade conversion BEFORE taking the decision to study abroad. It is not possible to “negotiate” the grade conversion afterwards!

Accreditation at FAU

After your return, please submit these documents to the Accreditation Officer for Med. Eng. (Claudia Barnickel):

- Transcript of Records from abroad
- Med.Eng. Learning Agreement
- Completed and signed accreditation form (Med.Eng. website: Current Students → Accreditation of Academic Achievements)

Your application will be processed by the Accreditation Officer and forwarded to the Examinations Office. → Entry of grades in Campo within 4-6 weeks

Accreditation at FAU

- The accreditation of credits is generally possible until the end of your studies.
- You may be able to have unused credits that you have completed during a stay abroad in the Bachelor's program accredited later in the Master's program (e.g. Free Choice Uni)
- **Important: Modules abroad cannot be accredited for examinations that you have already passed or definitively failed at FAU!**

Accreditation at FAU

Vom Studierenden auszufüllen ¶ ¶ ¶ (bitte je Prüfung eine eigene Zeile verwenden) ¶				wird vom Anerkennungsbeauftragten ausgefüllt ¶		
Bisheriges Studium: ¶		Anerkennung als: ¶		ECTS ¶	Anerkennung (Note) ¶	Keine Anerkennung* ¶
Name der erbrachten Leistung: ¶	Note ¶	Name der anzuerkennenden Leistung an der FAU: ¶	Modular aus meinem Campus ¶			
••••• <u>Advanced System Programming</u> ¶	A ¶	••••• M2 ¶	••••• ¶	¶	¶	¶
••••• ¶	••••• ¶	••••• ¶	••••• ¶	¶	¶	¶
••••• ¶	••••• ¶	••••• ¶	••••• ¶	¶	¶	¶

Erasmus formalities

- Your Erasmus scholarship is financed by funds from the European Union. The Erasmus Agency requires you to submit various reports and to participate in surveys for its documentation and statistics. **You are obliged to submit these documents on time!**
- If you do not submit the required documents on time, the university will take legal action against you and reclaim your scholarship.
- Therefore, please read **all** e-mails you receive from mobility@fau.de carefully and follow the instructions given there. Also check your spam folder regularly!

Integrating international experience into your CV

Rosa Riera, Head of Employer Branding at Siemens: “A **global mindset** and **global experience** are important to us. It is therefore advisable to have at least one semester abroad on your CV or, for example, an internship at a company based outside Germany. Any other global connection is also valuable, be it family abroad, work and travel or active membership of an international organization.”

Integrating international experience into your CV

- Integrate a stay abroad in your CV: How does the stay fit in with you and your goals? E.g.:
 - Consciously choose specializations at the university abroad that interest you but are less present at FAU
 - Language courses in the language of the host country (also before/after)
 - Establish contacts on-site (later company internship, research internship in the master's program, etc.) → Erasmus also funds internships after graduation
 - Further develop intercultural skills after return:
 - FAU certificate “Intercultural Competence for Students”, involvement in international student initiatives (BEST, Technik ohne Grenzen, FAU Volunteers for Internationals, FAU Buddy Program), language tandem, etc.
 - Talking to international students at FAU, working in international study and project groups, attending courses in English
 - Maintain contact with Erasmus friends
- **Maintain an active global mindset, pass on positive experiences abroad at FAU**

Integrating international experience into your CV

Conclusion: A stay abroad not as a one-time international component in your CV, but internationalization of your CV through experience abroad

And enjoy yourself!!!

Questions?

