Programme Specifications

Intensive English Foundation in Engineering and IT – FEI1IE

Version 5.0 October 2026

Progression Degrees

BEng Electrical Engineering[b]
BEng Mechanical Engineering[b]
BEng Business Engineering[b]
BEng Applied Mechatronic Systems[b]
BSc Computer Science[a]
BSc Web Development[a]
BA Event Management

Foundation Overview

Duration	3 Semesters (40 teaching weeks)
Occurrence	October
Total teaching hours face to face	740
Total study hours	1600
Language	English

Foundation Modules

	Modules	**Codes**	**Semester**
1	Intensive English	IE01	1
2	Academic English for Communication	UG01	2
3	Critical and Creative Thinking	UG03	2
4	Maths	UG11	2
5	German language and culture 1	GL01	2
6	Academic English for Research and Writing	UG02	3
7	Introduction to Programming[a]	UG08	3
7	Physics for Engineers[b]	UG09	3
8	Society and Ethics	UG07	3
9	German language and culture 2	GL02	3

[a/b]Depending on Degree Programme

Name of Module/ Modultitel: Intensive English Preparatory Semester					
Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language/ Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
IEL01 English Intensive	Annually	1 Semester	English		Total study hours: 420 Taught hours: 240 Self-study: 180
Module Leader/ Modulverantwortliche(r)/ Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Weighting/ Prüfungsleistung**
		1. Final summative examination covering reading, listening, speaking and writing skills		Lectures, Seminars, Tutorials, Group work	1. Exam 100%

Module Description/ Constructive Alignment

With this module students will receive intensive language instruction to raise their overall level of language competency. The content covers the fundamentals of English language skills, such as tense construction, appropriate morphology, syntax, grammatical construction and speaking skills to prepare students for academic studies in English. The aim is to enable students to improve their English competency, in advance of the Foundation pathway programme, to meet the equivalent to of the level of IELTS grade 5.0, as assessed at the end of this semester.

Intended Learning Outcomes – Ability to act /transferrable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- To speak fluently and confidently about a wide array of topics
- Read and understand long-form complex texts in English
- Form opinions and speak fluently about their opinions
- Have improved listening capabilities, and be able to listen to and understand advanced-intermediate spoken English sources

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz

Upon completion of this module students will be able to:

- Demonstrate improved competence and confidence in the use and understanding of English grammar and pragmatics
- Follow lectures, seminars and study paths in English to prepare them for further academic study in English
- Demonstrate understanding of advanced intermediate English vocabulary

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module students will be able to:

- Speak for a prolonged period of time fluently
- Read and understand long form texts

- Listen to and ascertain spoken academic English and be able to understand nuances in spoken language
- Write competently in correct grammar

Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Upon completion of this module students will be able to:

- Work effectively both independently and as team member. Plan and deliver a presentations confidently in front of peers

Outline Content/ Lerninhalt

- **Reading techniques** - development of reading strategies including: reading for different specific purposes, identifying main points and topic sentences, predicting content of reading passages; note-taking and summarising content and evaluating writers' purpose and stance.

- **Advanced English tenses in use** - Intensive instruction on a broader array of tenses and aspects including perfect and continuous tenses in all three tense forms (past, present and future). Students will also be able to understand the nuances of tense usage, and develop an idea about the various implications that each tense has and mood implications (imperative, subjunctive…).

- **Conditionals** - Students will learn how to use and apply conditional forms in English, and how to apply them to written and spoken scenarios. They will also examine them in a variety of contexts, understanding the pragmatic usage of these forms.

- **Verb forms -** Students will be introduced to a wide array of verb forms in English, such as the gerund form.

- **Advanced sentence structure -** The course covers complex sentence structures, subordinate and embedded clauses and understanding adverb phrases, as well as noun phrases and their distinctions.

- **Writing -** Students will learn writing techniques and practice applying grammatical learning into written forms, paragraph construction, the fundamentals of English grammar within writing and written conventions in English.

- **Full linguistic immersion -** As an intensive preparatory course, students will be immersed in the English language and use it daily to improve and consolidate skills learned throughout the course. They will need to acclimate to everyday uses of English, and apply learned skills daily.

- **Speaking competence-** Regular attention will be given to ensuring a maximised speaking time for students in the form of group discussions based on set content, workshops and seminars will also form the basis of the work that will advance not just participants English, but also prepare them on the fundamentals of academic life.

- **Self-study -** Students will be encouraged to consolidate content outside of the classroom. With regular formative assessments, reviews, and

- **Listening and note-taking** - developing comprehension skills for listening to authentic spoke English and other academic spoken formats.

Recommended reading/ Empfehlungsliteratur

English Grammar in Use. 5th Ed. (2019) Raymond Murphy.
BBC Speakout! 3rd Ed. (2022).

Name of Module/ Modultitel: Academic English for Communication					
Course Information / Kursinformationen	**Frequency of delivery Häufigkeit des Angebots**	**Length / Dauer**	**Language / Sprache**	**ECTS points / ECTS-Punkte**	**Study hours / Studentische Arbeitsbelastung**
UG01 Academic English for Communication	Twice annually	1 Semester	English		Total study hours: 224 Taught hours: 104 Self-study: 120
Module Leader/ Modulverantwortliche(r) / Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Dr Brett Mills		1. Exam 50% 2. Presentation 50%		Lectures, Seminars, Tutorials, Group work	

Module Description/ Constructive Alignment

This module helps students develop their academic literacy and communication skills in preparation for undergraduate study and to understand the institutional culture, practices, norms and expectations of German higher education in an international academic context and community. Working in combination with UG02 which follows it, this module enables students to develop academic research and communication skills using contemporary resources and raises students' English language levels to the required entry point for undergraduate entry. By encouraging students to share knowledge in open class forums, the module also aims to develop and encourage academic communication skills such as listening, debating and presenting.

At the end of this Module students will have developed transferable skills of effective academic and professional communication to support their ongoing study as well as providing a basis to foster career and life-building skills. The module uses several practical activities to allow candidates to develop these essential skills. Assignments for UG01 focus on core academic skills of speaking and listening, as well as presenting and researching key information.

Intended Learning Outcomes – Ability to act /transferrable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- Demonstrate an ability to communicate various kinds of information verbally at an appropriate level;
- Demonstrate and enact the importance of self-study and reliance. This involves cultivating and developing a responsibility within each student to take responsibility for their own learning, initiative, effective time-management and self-discipline within academic and professional environments;
- Demonstrate an awareness of the need to function as reflective autonomous learners in a variety of environments, to work in teams in a variety of roles, forming, leading, building, problem solving and consolidating, and manage time and tasks effectively;
- Display an understanding of the concept of continuous improvement and objectivity in relation to an individual's academic performance.

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz
Upon completion of this module students will be able to: • Construct arguments with supporting evidence to establish a position on an issue; • Interpret, summarise and evaluate arguments, assumptions, data and concepts to make justified decisions or draw justified conclusions; • Be able to participate in group work and work co-operatively to produce academic work; • Be able to interpret, listen to and read academic English, and thus be prepared for undergraduate study.
Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz
Upon completion of this module students will be able to: • Search for, select and evaluate sources of information for research, and use appropriate citation and bibliography conventions, making full use of library and e-learning search (catalogue and bibliographic) resources; • Demonstrate an ability to understand and identify the key themes of a lecture, using appropriate comprehension, notetaking and summary writing skills; • Analyse and incorporate appropriate academic sources and data into various forms of communication; • Understand the principles and conventions of academic discourse including using sources correctly and avoiding plagiarism or misuse of technologies such as AI; • Proficiently use techniques and technology in the collation, interpretation and presentation of data in oral and written formats; • Build examination techniques and skills to support students for undergraduate entry.
Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz
Upon completion of this module students will be able to: • Work effectively as a team member and independently; • Plan and deliver a formal academic presentation to a group of peers on a topic relevant to the student's discipline and prepare and engage in meaningful academic discussions; • Demonstrate English language skills at an advanced level, read with and engage with complex texts and spoken English.

Outline Content/ Lerninhalt
• **Referencing & Plagiarism** – introduction and practice of referencing techniques and tackling plagiarism and use of AI generated text through paraphrasing, reporting verbs and transition signals • **Reading techniques** - development of reading strategies including reading for different specific purposes, identifying main points and topic sentences, predicting content of reading passages; note-taking and summarising content and evaluating writers' purpose and stance • **Research skills** – introduction to different methodologies, research design and methods. Data collection and analysis, including uses and application of information technology and Artificial Intelligence (AI) • **Presentations & Seminars** - Preparation for and planning of academic presentations and participation in seminars: fluency development in spoken academic language, development of verbal and non-verbal communication skills, use of visual aids and techniques of engaging with audience. Developing of interpersonal skills for successful groupwork • **Listening and note-taking** - developing comprehension skills for listening to authentic lectures and other academic spoken formats. Introduction and development of academic notetaking and summary strategies and skills for listening to lectures • **Effective Study Techniques** - development of the micro-skills needed for academic writing, including pre-writing, brainstorming, planning, text organisation, editing and rewriting; using drafts and formative peer and tutor feedback to feedforward; selecting and using research from multiple sources in writing; and developing referencing skills • **Self-reflection** – helps students to think about feedback provided on their own work and learning where individual improvements can be gained through further study

Name of Module/ Modultitel: Critical and Creative Thinking					
Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language/ Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
UG03 Critical and Creative Thinking	Twice annually	1 Semester	English		Total study hours: 112 Taught hours: 52 Self study: 60
Module Leader/ Modulverantwortliche(r)/ Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Dr Brett Mills		1. Essay 50% 2. Report 50%		Lectures, Seminars, Tutorials, Group work	

Module Description/ Constructive Alignment

This Critical and Creative Thinking module teaches students to create effective arguments through objectively assessing different types of information and literature. It is crucial for good degree outcomes and future employability to teach students to recognise logical fallacies, identify credibility and can make logical, rational arguments that avoid bias.

This module is designed to teach, reinforce, and practice independent learning and critical thinking, as opposed to rote memorisation. Teachers will use a range of techniques such as open discussion in class, presentations and individual research (e.g. on Fake news) to encourage critical thinking skills within daily, academic and professional-facing contexts. It will deepen the understanding and interpretation of processes, motives, argument, rationale, credibility of a wide range of studies.

Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- Demonstrate an ability to examine and comment on component parts of a particular argument to develop a structured and analytical response
- Analyse sources of information, regardless of format, and evaluate their relevance and reliability and use these appropriately in the development of an argument including reliability, argument mapping, and identifying fallibility

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz

Upon completion of this module students will be able to:

- Explain and communicate critical thinking approaches relevant for a variety of contexts (academic, business, science, legal, etc.).

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module students will be able to:

- Understand and evaluate the credibility of various types of evidence, inclusive of qualitative and quantitative approaches
- Define and critically assess arguments and evidence from a range of academic sources

Intdended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Upon completion of this module students will be able to:

- Describe how knowledge, evidence, and errors in thinking influence problem solving
- Define and explain bias

Outline Content/ Lerninhalt

This Module will apply different forms of thinking and creating critical thinking skills, and how to apply them:

- Developing Skills in Debating, Influencing, Negotiating, Gaining agreement
- Brainstorming / Mind-mapping / Scenario-building
- Fact vs Opinion / Objectivity vs Subjectivity
- Hypothesis Generation / Consideration of Alternatives
- Formulating Effective Arguments / Taking a Position / Critical Evaluation of Arguments
- Using Arguments in Writing (Effective Essay Structure)
- Evaluating Arguments I: Good - Clarity / logical consistency / structure
- Evaluating Arguments II: Poor - Identifying flaws in arguments: false assumptions, ambiguity, irrelevance and bias
- Types of Evidence: Primary / Secondary / Quantitative / Qualitative / Controlling Variables / Collecting / Using samples
- Critical Synthesis from Multiple Sources
- Pattern Recognition and fusing Data / Assessing the Credibility of Evidence
- Using & Presenting Data to Support an Argument

Information Classification: Public

Name of Module/ Modultitel: *Maths*					
Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language/ Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
UG11 Maths	Twice Annually	1 Semester	English		Total study hours: 112 Taught hours: 52 Self-study: 60
Module Leader/ Modulverantwortliche(r) / Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Swati Jeevan		1. Exam (90min) 50% 2. Exam (90min) 50%		Lectures, Seminars, Tutorials, Student-managed learning	Written exam 90min (20%)
odule Description/ Constructive Alignment					
Having successfully completed the module, students will have both consolidated and gained further necessary mathematical skills required to study at first year undergraduate level. Students will be able to carry out the basic and foundational mathematical manipulations and understand relevant key concepts through theoretical and practical teaching methods. The topics covered include a range of arithmetic skills, algebra, solving equations, probability and basic statistics, the focus is on building core skills and understanding key concepts.					
Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz					
Upon completion of this module, students will be able to confidently work with numbers, including the usage of a calculator where necessary. Students will also be able to apply fundamental mathematical principles throughout their other study modules, considering a variety of real-world contexts.					
Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz					
Upon completion of this module, students will be able to: • Define basic principles of Arithmetic and Calculus, Trigonometric functions, Linear and Non-Linear Equation, Statistics, Basic principles of probability, Polynomial division, Laws of Logarithms, Matrices and Integration and differentiation rules.					
Intended Learning Outcomes - Application and generation of knowledge / Methodenkompetenz					
Upon completion of this module, students will be able to:					

- Apply their mathematical knowledge to solve problems in the areas of Arithmetic and Calculus, Trigonometric functions, Linear and Non-Linear Equation, Statistics, Basic principles of probability, Polynomial division, Laws of Logarithms, Matrices and Integration and differentiation rules.

Intended Learning Outcomes – Communication and Cooperation / Sozialkompetenz

Outline Content/ Lerninhalt

This module covers an **introduction** to the following:

- Arithmetic and Calculus
- Trigonometric functions
- Linear and Non-Linear Equation
- Statistics
- Basic principles of probability
- Polynomial division
- Laws of Logarithms
- Matrices
- Number System and Base Conversions
- Vectors
- Integration and differentiation rules

Recommended reading/ Empfehlungsliteratur

Marecek, L., Anthony-Smith, M., & Mathis, A. H. Prealgebra 2e. OpenStax, Rice University. 2020 https://openstax.org/books/prealgebra-2e/pages/1-introduction

Name of Module/ Modultitel: German Language and Culture 1					
Course Information / Kursinformationen	**Frequency of delivery / Häufigkeit des Angebots**	**Length / Dauer**	**Language / Sprache**	**ECTS points / ECTS-Punkte**	**Study hours / Studentische Arbeitsbelastung**
GL01 German language and culture 1	Twice annually	1 Semester	German		Total study hours: 112 Taught hours: 52 Self study: 60
Module Leader / Modulverantwortliche(r) / Lehrende	**Credits / Leistungspunkte**	**Assessment / Prüfungsform**		**Teaching mode and methods / Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Fiona Godden		1. Exam 100%		Lecture, Seminar, Group work, Role Play, Peer to peer learning	

Module Description/ Constructive Alignment

The module is designed for students with little or no prior knowledge of German and provides an introduction to the language. Teaching is based on interactive language development tasks, including group work and role play, and incorporates the study of texts, speaking activities and listening comprehension exercises. Students are expected to consolidate their learning outside class by learning vocabulary and language structures, as well as by engaging with German through reading, watching, speaking and listening activities. Students will also develop the ability to use a range of learning resources across different media, such as reference grammars and bilingual dictionaries, to support their progress. These skills will help students advance more efficiently in accredited German courses as part of their future studies. The course is taught in German.

Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- Understand and use familiar, everyday German expressions and very simple sentences for basic needs;
- Comprehend key information in slow, clear speech related to personal details, family and daily life;
- Read and understand short, simple texts such as signs, forms and basic messages;
- Write simple texts, including notes, forms, and short messages or postcards;
- Introduce oneself and others using simple language;
- Ask and answer basic questions about personal information (e.g. name, origin, address);
- Participate in short, simple conversations when the other person speaks slowly and clearly;
- Use basic grammar structures and essential everyday vocabulary to communicate in predictable situations.

Intended Learning Outcomes - Knowledge and subject specific understanding /Fachkompetenz

Upon completion of this module students will be able to:

- Demonstrate a basic understanding of the German language system, including simple grammatical structures, sentence patterns and essential vocabulary for everyday communication;
- Recognise and use familiar everyday expressions and very basic phrases related to personal information, immediate needs and common daily situations;
- Understand simple spoken language on familiar topics when delivered slowly and clearly, including basic questions, instructions and short statements;
- Identify and interpret key information in short, simple written texts, such as signs, forms and basic messages;

- Produce simple spoken and written language, using memorised phrases and basic sentence structures to communicate personal information and immediate needs;
- Apply a limited range of vocabulary and formulaic expressions appropriately in predictable everyday contexts;
- Demonstrate awareness of basic pronunciation, spelling and structure of the German language;
- Show an introductory understanding of common communicative functions, such as introducing oneself, asking and answering simple questions, and responding in routine situations.

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module students will be able to:

- Apply basic learning strategies to understand and organise the German language system, including simple grammatical structures and sentence patterns;
- Use memorisation and repetition techniques to acquire and retain essential vocabulary and everyday expressions;
- Apply listening strategies (e.g. identifying key words, focusing on context) to understand simple spoken German in slow, clear speech;
- Use reading strategies (e.g. scanning for key information, recognising familiar words) to interpret short, simple texts such as signs and forms;
- Use guided speaking and writing techniques (e.g. sentence models, substitution patterns) to produce simple language for familiar situations;
- Select and apply basic vocabulary learning and usage strategies to communicate in predictable everyday contexts;
- Apply self-monitoring strategies to improve pronunciation, spelling and sentence formation;
- Use simple communication strategies (e.g. asking for repetition, using gestures, paraphrasing) to manage interactions and overcome gaps in language knowledge.

Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Upon completion of this module students will be able to:

- Participate in basic social interactions, such as greeting others, introducing themselves and saying goodbye in simple, appropriate ways;
- Ask and answer simple questions about personal information (e.g. name, origin, daily life) in a cooperative exchange;
- Engage in very short, simple conversations on familiar topics, relying on repetition, clarification and support from others;
- Respond appropriately in routine communicative situations, such as going to the gym, talking about food or talking about friend and family;
- Demonstrate basic conversational turn-taking, including listening, responding and using simple strategies (e.g. asking for repetition or help);
- Use polite forms and simple social conventions, such as “please”, “thank you”, and basic forms of address;
- Cooperate with others in simple communicative tasks by sharing basic information and reacting to others’ input;
- Show awareness of the social and cultural context of communication, including simple norms of interaction in German-speaking environments.

Outline Content/ Lerninhalt

- Language Skills and Grammar
- Introductions and Personal Information
- People, Family and Possessions
- Daily Life and Free Time
- Food, Shopping and Social Situations
- Time, Schedules and Experiences

Recommended reading/ Empfehlungsliteratur

Unterwegs A1.1, Cornelsen. 2025

Name of Module/ Modultitel: Academic English for Research and Writing					
Course Information / Kursinformationen	**Frequency of delivery / Häufigkeit des Angebots**	**Length / Dauer**	**Language / Sprache**	**ECTS points / ECTS-Punkte**	**Study hours / Studentische Arbeitsbelastung**
UG02 Academic English for Research and Writing	Twice annually	1 Semester	English		Total study hours: 224 Taught hours: 104 Self-study: 120
Module Leader/ Modulverantwortliche(r) / Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Dr Brett Mills		1. Exam 50% 2. Report 50%		Lectures, Seminars, Tutorials, Group work	Written exam 90min (20%)

Module Description/ Constructive Alignment

Developing skills established in UG01, this module continues student's development of their academic literacy and communication skills. It will enable students to develop academic research and communication skills using contemporary resources and raise students' English language levels to the required level for undergraduate entry. It also provides students with an understanding of a range of research methodologies and a solid grounding for research skills required in undergraduate study.

The module employs a variety of practical activities to allow students to develop these essential skills. Special focus is placed on expanding the skillset established in UG01, and the application of acquired skills into academic contexts, project planning, critical reception of academic and non-academic sources, and the formulation of ideas into written forms.

Intended Learning Outcomes – Ability to act /transferrable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- Demonstrate an ability to communicate qualitative and quantitative information effectively in writing at an appropriate level;
- Demonstrate their understanding of the importance of self-study and reliance. This involves cultivating and developing responsibility for their own learning, initiative, effective time-management and self-discipline within the academic and professional environments;
- Demonstrate awareness of the need to function as reflective autonomous learners in a variety of environments, work in teams in a variety of roles, forming, leading, building, problem solving and consolidating, and manage time and tasks effectively;
- Display an understanding of the concept of continuous improvement and objectivity in relation to their academic performance.

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz
Upon completion of this module students will be able to: • Demonstrate an ability to structure and produce an academic writing on a topic relevant to their discipline, including undertaking planning, writing and editing stages; • Develop and practise academic writing skills at the sentence, paragraph and discourse levels in appropriate written forms; • Be able to construct arguments with supporting evidence to establish a position on an issue; • Interpret, summarise and evaluate arguments, assumptions, data and concepts to make justified decisions or draw justified conclusions.
Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz
Upon completion of this module students will be able to: • Search for, select and evaluate sources of information for research, and use appropriate citation and bibliography conventions, making full use of library and e-learning search (catalogue and bibliographic) resources; • Demonstrate an ability to understand and identify the key themes of a lecture, using appropriate comprehension, notetaking and summary writing skills; • Select, read, digest, summarise and synthesise information material in a variety of forms, both qualitative and quantitative (text, numerical data and diagrammatic) and in an appropriate manner to identify and determine key facts/themes and relevance; • Analyse and incorporate appropriate academic sources and data into academic writing; • Understand the principles and conventions of academic discourse including using sources correctly and avoiding plagiarism and misuse of technologies such as AI; • Proficiently use techniques and technology in the collation, interpretation and presentation of data in oral and written formats.
Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz
Upon completion of this module students will be able to: • Work effectively both as a team member and independently; • Manage time and effectively communicate complex academic ideas and arguments.
Outline Content/ Lerninhalt
• **Academic writing conventions** - preparation for and production of academic written assignments in genres relevant to the discipline of study: argumentation, paragraph structure and cohesion, and introduction and practice of appropriate academic grammar and vocabulary to encourage greater linguistic accuracy. • **Referencing & Plagiarism** – introduction and practice of referencing techniques and tackling plagiarism and use of AI generated text through paraphrasing, reporting verbs and transition signals • **Reading techniques** - development of reading strategies including reading for different specific purposes, identifying main points and topic sentences, predicting content of reading passages; note-taking and summarising content and evaluating writers' purpose and stance. • **Research skills** – introduction to different methodologies, research design and methods. Data collection and analysis, including uses and application of information technology and Artificial Intelligence (AI). • **Effective Study Techniques** - development of the micro-skills needed for academic writing, including pre-

writing, brainstorming, planning, text organisation, editing and rewriting; using drafts and formative peer and tutor feedback to feedforward; selecting and using research from multiple sources in writing; and developing referencing skills.

- **Self-reflection** – helps students to think about feedback provided on their own work and learning where individual improvements can be gained through further study.

Name of Module/ Modultitel: *Introduction to Programming*

Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language/ Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
UG08 Introduction to Programming	Twice Annually	1 Semester	English		Total study hours: 112 Taught hours: 52 Self-study: 60
Module Leader/ Modulverantwortliche(r)/ Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Swati Jeevan		1. Exam (90 minutes) 50% 2. Presentation (10 minutes) 50%		Lecture, Seminar, Student Managed Learning	Oral exam 10min (20%)

Module Description/ Constructive Alignment

This module introduces students to basic concepts of programming, focusing on a programming language. Students will learn basic syntax, control structures, and functions, enabling them to write organized and efficient code. The course covers key topics such as data structures, file handling, error handling, and an introduction to object-oriented programming (OOP). Students will also apply basic algorithms to solve problems, and develop a portfolio of projects. Emphasis is placed on practical application, problem-solving, teamwork, and effective communication in a programming context. By the end of the module, students will have a solid foundation and be prepared to tackle more advanced topics in programming.

Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz

Upon completion of this module, students will be able to solve problems, write organized code, handle data and errors, apply object-oriented principles, develop algorithms, present projects, adapt to new tools, and collaborate effectively in a team.

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz

Upon completion of this module, students will be able to:

- Distinguish between the different paradigms of programming languages and their effect on language design

- Demonstrate knowledge of a range of programming paradigms and example languages.

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module, students will be able to:

- Apply programming concepts to create functional software applications that address real-world problems
- Develop and implement software projects from concept to completion, integrating various programming techniques and tools.
- Construct a portfolio of diverse projects demonstrating the practical application of programming skills and knowledge.
- Generate creative solutions by applying programming knowledge to novel situations and challenges.

Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Student will develop basic programming solutions using Python and Jupyter Notebook, document their work clearly, and work effectively with others on coding activities.

Outline Content/ Lerninhalt

- Introduction to Programming
- Basic Syntax and Variables
- Control Structures
- Functions
- Dictionaries
- Data Structures
- File Handling
- Error Handling
- Introduction to Object-Oriented Programming (OOP)
- Basic Algorithms and Problem-Solving
- Final Presentation and demonstration of portfolio

Recommended reading/ Empfehlungsliteratur

Sweigart, A. *Automate the Boring Stuff with Python: Practical Programming for Total Beginners*. 2nd Edition. 2019 No Starch Press. https://automatetheboringstuff.com/2e/

Severance, C. R. *Python for Everybody: Exploring Data Using Python 3*. 4th Edition. University of Michigan. 2024 https://www.py4e.com/book.php

Downey, A. B. *Think Python: How to Think Like a Computer Scientist*. 3rd Edition. Green Tea Press. 2024 https://greenteapress.com/wp/think-python-3rd-edition/

W3Schools. (n.d.). *Python Tutorial*. W3Schools. https://www.w3schools.com/python/

Name of Module/ Modultitel: *Physics for Engineers*					
Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language/ Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ StudentischeArbeitsbelastung**
UG09 Physics for Engineers	Twice annually	1 Semester	English		Total study hours: 112 Taught hours: 52 Self-study: 60
Module Leader/ Modulverantwortliche(r)/ Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods/ Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Swati Jeevan		1.Presentation (10 minutes) 50% 2. Exam (90 minutes) 50%		Lectures, demonstration, in-class exercises, laboratory experiments, group projects, student-managed learning.	Oral exam 10min (20%)

Module Description/ Constructive Alignment

This module provides students with a solid foundation in classical mechanics while developing the mathematical skills required for undergraduate engineering studies. Emphasis is placed on the relationship between mathematics and physics, including the interpretation of equations, dimensional analysis, unit consistency, graphical representation of physical phenomena, and mathematical modelling. Students develop the ability to translate physical situations into mathematical models and to interpret experimental observations through data analysis. Practical laboratory activities are integrated throughout the course to reinforce theoretical concepts and develop scientific communication skills. The module concludes with an introductory exploration of electrical engineering and hands-on lab experiences.

Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz

Upon completion of this module, students will be able to think critically and apply their knowledge and understanding of physics to establish the link between theory and physical observation and recognise the quantitative nature of physics and understand how mathematical expressions relate to physical principles. Students will also be able to apply the knowledge of measurement in different context and dimensional analysis and bring together knowledge to illustrate ways in which different areas of physics and engineering relate to each other.

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz

Upon completion of this module students will be able to:

- Interpret physical equations and variables from a mathematical perspective.
- Recall and define the physical laws that govern forces and motion and their relevance to engineering principles.
- Recall and describe the fundamental equations of kinematics and mechanics.
- Understand the conditions for equilibrium in simple statically determinate systems.
- Understand the role of friction in static and dynamic systems.
- Understand basic concepts of electricity and engineering applications.

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz
Upon completion of this module, students will be able to: • Analyze and apply qualitative and quantitative principles to physical phenomena. • Apply mathematical modelling techniques, including functions and dimensional analysis, to describe and verify physical relationships. • Proficiently use techniques and technology in the collection, interpretation, and presentation of experimental data in written formats.
Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz
Upon completion of this module, students will be able to: • Explain key physics concepts and theories. • Use appropriate scientific terminology and symbols when describing physical phenomena in reports, presentations and discussions. • Collaborate and value different approaches in problem-solving. • Develop communication and teamwork skills through group-based activities. • Deliver technical presentations effectively.
Outline Content/ Lerninhalt
• Physics as an experimental science • SI units and dimensional analysis • Mathematical language of physics and formula manipulation • Graphs and functions in physics • Experimental data collection and analysis • Scalars and vectors • Kinematics in one and two dimensions • Newton's laws • Forces and equilibrium • Friction and Elastic Force • Introduction to electrical engineering and Arduino
Recommended reading/ Empfehlungsliteratur
Giancoli, D. C. Physics: Principles with Applications (7th ed.). Pearson. 2014

Name of Module / Modultitel: Society and Ethics					
Course Information / Kursinformationen	**Frequency of delivery / Häufigkeit des Angebots**	**Length / Dauer**	**Language / Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
UG07 Society and Ethics	Twice annually	1 Semester	English		Total study hours: 112 Taught hours: 52 Self study: 60
Module Leader / Modulverantwortliche(r) / Lehrende	**Credits/ Leistungspunkte**	**Assessment/ Prüfungsform**		**Teaching mode and methods / Lehr- und Lernformen**	**Contribution to University Entrance Exam**
		1. Presentation 50% 2. Essay 50%		Lecture, Seminar, Group work	Oral exam 10min (20%)

Module Description/ Constructive Alignment

Society functions as a result of explicit and implicit rules and conventions, and notions of what is acceptable and unacceptable. In order to function as engaged and critical participants of society students need an understanding of approaches to decision-making processes taking into account themselves and others. To this end, ethics is many systems of moral principles that inform decision-making. In this module students will be encouraged to use critical thinking and research to discuss descriptive, normative and analytic approaches to ethics and ethical problems. Students will engage with and understand themselves as ethical agents in complex societies, with relevance to their current situation as students and future ones in employment and as citizens more broadly.

In this module students will investigate competing and often conflicting responses to social problems and critically engage with these to work towards reasonable conclusions. Through case study analysis and their own research, students will gain a broad understanding of how ethics can be applied to a variety of subject areas and the tools that can be used to draw evidenced and reasonable conclusions.

Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- Employ the tools of critical analysis in their thinking and communication through application of appropriate frameworks relevant to ethical analysis;
- Apply ethics to a variety of subject areas and contexts.

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz

Upon completion of this module students will be able to:

- Explain and communicate ethical issues and developments in a variety of contexts (academic, business, science, legal, etc.);
- Understand and discuss ethical frameworks associated with key thinkers (e.g. Kant, Plato, Mill).

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module students will be able to:

- Explain the relevance of ethical approval for different research and work practices;
- Discuss differing viewpoints and their ethical implications and apply these to case studies.

Intdended Learning Outcomes – Communication and cooperation / Sozialkompetenz
Upon completion of this module students will be able to: • Critically interrogate ethical norms and debates from a variety of different cultures and belief systems.
Outline Content/ Lerninhalt
• Introduction to ethics and key terms • Key ethical theories and thinkers (e.g. Aristotle, Kant, Plato) • Ethics and technology • Critical analysis • Science and education and ethical codes of conduct • Assessing risk in research studies • Relationships between psychology and ethics • Medical ethics • Environmental and Animal ethics • Legal ethics • Business ethics

Name of Module/ Modultitel: German Language and Culture 2					
Course Information / Kursinformationen	**Frequency of delivery / Häufigkeit des Angebots**	**Length / Dauer**	**Language / Sprache**	**ECTS points / ECTS-Punkte**	**Study hours / Studentische Arbeitsbelastung**
GL02 German Language and Culture 2	Twice annually	1 Semester	German		Total study hours: 112 Taught hours: 52 Self study hours: 60
Module Leader / Modulverantwortliche(r)/ Lehrende	**Credits / Leistungspunkte**	**Assessment / Prüfungsform**		**Teaching mode and methods / Lehr- und Lernformen**	**Contribution to University Entrance Exam**
Fiona Godden		Exam (Reading, Writing, Listening, Speaking) 100%		Lecture, Seminar, Group work, Role Play, Peer to peer learning	Oral exam 10min (20%)

Module Description/ Constructive Alignment

The module is designed for students having taken lessons based on German A1.1 and continues learning the basics of the German language. Teaching is based on interactive language development tasks, including group work and role play, and incorporates the study of texts, speaking activities and listening comprehension exercises. Students are expected to consolidate their learning outside class by learning vocabulary and language structures, as well as by engaging with German through reading, watching, speaking and listening activities. Students will also develop the ability to use a range of learning resources across different media, such as reference grammars and bilingual dictionaries, to support their progress. These skills will help students advance more efficiently in accredited German courses as part of their future studies. The course is taught in German.

Intended Learning Outcomes – Ability to act/ Transferable skills / Handlungskompetenz

Upon completion of this module students will be able to:

- Understand and use familiar, everyday German expressions and very simple sentences for basic needs;
- Comprehend key information in slow, clear speech related to personal details, family and daily life;
- Read and understand short, simple texts such as signs, forms and basic messages;
- Write simple texts, including notes, forms, and short messages or postcards;
- Introduce oneself and others using simple language;
- Ask and answer basic questions about personal information (e.g. name, origin, address);
- Participate in short, simple conversations when the other person speaks slowly and clearly;
- Use basic grammar structures and essential everyday vocabulary to communicate in predictable situations.

Intended Learning Outcomes - Knowledge and subject specific understanding /Fachkompetenz

Upon completion of this module students will be able to:

- Demonstrate a basic understanding of the German language system, including simple grammatical structures, sentence patterns and essential vocabulary for everyday communication;

- Recognise and use familiar everyday expressions and very basic phrases related to personal information, immediate needs and common daily situations;
- Understand simple spoken language on familiar topics when delivered slowly and clearly, including basic questions, instructions and short statements;
- Identify and interpret key information in short, simple written texts, such as signs, forms and basic messages;
- Produce simple spoken and written language, using memorised phrases and basic sentence structures to communicate personal information and immediate needs;
- Apply a limited range of vocabulary and formulaic expressions appropriately in predictable everyday contexts;
- Demonstrate awareness of basic pronunciation, spelling and structure of the German language;
- Show an introductory understanding of common communicative functions, such as introducing oneself, asking and answering simple questions, and responding in routine situations.

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module students will be able to:

- Apply basic learning strategies to understand and organise the German language system, including simple grammatical structures and sentence patterns;
- Use memorisation and repetition techniques to acquire and retain essential vocabulary and everyday expressions;
- Apply listening strategies (e.g. identifying key words, focusing on context) to understand simple spoken German in slow, clear speech;
- Use reading strategies (e.g. scanning for key information, recognising familiar words, reading for gist) to interpret short, simple texts such as signs and forms;
- Use guided speaking and writing techniques (e.g. sentence models, substitution patterns) to produce simple language for familiar situations;
- Select and apply basic vocabulary learning and usage strategies to communicate in predictable everyday contexts;
- Apply self-monitoring strategies to improve pronunciation, spelling and sentence formation;
- Use simple communication strategies (e.g. asking for repetition, using gestures, paraphrasing) to manage interactions and overcome gaps in language knowledge.

Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Upon completion of this module students will be able to:

- Participate in basic social interactions, such as talking about where you live, describing your work and give directions in simple, appropriate ways;
- Engage in very short, simple conversations on familiar topics, relying on repetition, clarification and support from others;
- Respond appropriately in routine communicative situations, such as shopping, talking about health or describing public transport;
- Demonstrate basic conversational turn-taking, including listening, responding and using simple strategies (e.g. asking for repetition or help);
- Cooperate with others in simple communicative tasks by sharing basic information and reacting to others' input;
- Show awareness of the social and cultural context of communication, including simple norms of interaction in German-speaking environments.

Outline Content/ Lerninhalt

- Language Skills and Grammar
- Places, Home and Accommodation
- Social and Professional Communication
- Health, Weather and Everyday Life
- Practical Texts and Real-Life Communication
- Travel and Transport

Recommended reading/ Empfehlungsliteratur

Unterwegs A1.2, Cornelsen. 2025