Programme Specifications

Premaster's Engineering and IT Management – PMEI

Version 5.0 October 2026

Progression Degrees

MEng Information Technology
MEng Engineering and Sustainable Technology Management
MSc Artificial Intelligence in Business
MEng Supply Chain Management
MEng Water Technology
MSc Digital Transformation management
MSc Supply Chain Management
MSc Supply Chain Management – Digital Supply Chain Management
MSc Supply Chain Management – Sustainable Supply Chain Management
MSc Biotechnology
MSc Health Informatics

Foundation Overview

Duration	1 Semesters (14 teaching weeks)
Occurrence	October, April
Total teaching hours face to face	312
Total study hours	616
Language	English

Premaster's Modules

	Modules	**Codes**
1	Academic English for Postgraduate Study	PG01
2	Principles of Business and Management	PG04
3	Advanced Maths	PG08
5	German language and culture	GL01/ GL02*

*German conversation – optional after progression

Name of Module/ Modultitel: Academic English for Postgraduate Study

Course Information / Kursinformationen	Frequency of delivery / Häufigkeit des Angebots	Length / Dauer	Language / Sprache	ECTS points / ECTS-Punkte	Study hours / Studentische Arbeitsbelastung
PG01 Academic English for Postgraduate Study	Twice annually	1 Semester	English		Total study hours: 280 Taught hours: 156 Self-study: 124
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. Report 40% 2. Presentation 30% 3. Exam 30%		Lectures, Seminars, Tutorials, Group work	

Module Description/ Constructive Alignment

This module enables students to develop their academic literacy and communication skills in preparation for post-graduate study at master's degree level and to understand the institutional culture, practices, norms and expectations of German higher education in an international academic context. It enables students to develop academic research and communication skills using contemporary resources and raises students' English to the required level for post-graduate entry. It also provides students with an understanding of a range of research methodologies and a solid grounding for research skills required in post-graduate study. By encouraging students to share this knowledge in an open class forum (small group tutorial presentations), the module develops and encourages the use of presentation skills in academic and professional contexts.

At the end of this Module, students will have developed transferable skills for effective and professional communication to support their ongoing study as well as providing a basis to foster career and life-building skills. The module utilises several practical activities to allow candidates to develop these essential skills. Assignments for each of the four skills of academic reading, writing, speaking and listening are included to confirm that students meet the appropriate levels of academic English proficiency.

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, both orally and in writing, at an appropriate level;
- Evidence 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 the academic and professional environments;

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 long-form academic writing on a topic relevant to the student's discipline, including planning, writing and editing;
- Develop and practice 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 a topic;
- 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 the 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.

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;
- Plan and deliver a formal academic presentation to a group of peers on a topic relevant to the student's discipline.
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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.
- **Academic argumentation and planning** – demonstrate the ability to construct and develop academic arguments and plan complex and long-form chains of thought over a prolonged period, preparing them for the demanding ideas and concepts inherent in post-graduate study and beyond.
- **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
- **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. Development therewith 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: *Principles of Business and Management*					
Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language / Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
PG04 Principles of Business and Management	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. Report and oral exam (1500 words) 50% 2. Presentation (10 Minutes) 50%		Lecture, Seminar, Group work, Problem based learning	

Module Description/ Constructive Alignment

This module provides students with the underpinning knowledge and understanding of business and management theory, principles and practice, and to provide a solid underpinning grounding for the more advanced content and comprehension required in postgraduate study.

The module provides an overview of key business and management areas including strategy, finance, marketing, human resource management and organisational culture. Using group work, presentations and discussion sessions, students will be able to fully appreciate the inter-disciplinary nature of contemporary business and management and how it fits in with global business environment and sustainability challenges.

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

Upon completion of this module students will be able to

- Apply to put into context the different business and management philosophies
- Identify different approaches and strategies and explain how these relate to the success of a business

Intended Learning Outcomes - Knowledge and subject specific understanding / Fachkompetenz

Upon completion of this module students will be able to:

- Recall and define key concepts and theoretical approaches relating to the context and functions of business
- Ability to demonstrate understanding of key business functions and management practices

Intended Learning Outcomes – Application and generation of knowledge / Methodenkompetenz

Upon completion of this module students will be able to:

- Apply basic business concepts to understand and evaluate business situations.
- Create and justify simple business solutions using evidence and analysis.

Intdended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Upon completion of this module students will be able to:

- Proficiently use techniques and technology in the collation, interpretation and presentation of data in oral and written formats.
- Ability to effectively retain and communicate knowledge and understanding of topics covered in the module in a comprehensive manner under timed conditions

Outline Content/ Lerninhalt

- Business and Management - a historical perspective
- Theories and principles of Business and Management
- Management philosophies
- Overview of how businesses function: HR, accounting and marketing
- People at work: Human Resource Management
- Financial information: Accounting, Budgeting and Cash flow
- Marketing: how to plan, research and understand customer behaviour
- Entrepreneurship
- Organisational structure and change management
- How are business embedded in external environment and corporate cultures
- Globalisation
- Ethics, corporate social responsibility and sustainability

Recommended reading/ Empfehlungsliteratur

Bright, D. S., Cortes, A. H., et al. *Principles of Management*. OpenStax, Rice University. 2019. https://openstax.org/books/principles-management/pages/1-introduction

Carpenter, M., Bauer, T., & Erdogan, B. *Principles of Management*. Version 1.1. Flat World Knowledge / Saylor Academy. 2010 https://saylordotorg.github.io/text_principles-of-management-v1.1/

Carpenter, M., Bauer, T., & Erdogan, B. *Principles of Management*. 2015 University of Minnesota Libraries Publishing. https://open.lib.umn.edu/principlesmanagement/

Name of Module/ Modultitel: *Advanced Maths*					
Course Information/ Kursinformationen	**Frequency of delivery/ Häufigkeit des Angebots**	**Length/ Dauer**	**Language/ Sprache**	**ECTS points/ ECTS-Punkte**	**Study hours/ Studentische Arbeitsbelastung**
PG08 Advanced 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**
		1. Exam (90 minutes) 50% 2. Exam (90 minutes) 50%		Lectures, Seminars, Tutorials, Student-managed learning	

Module Description/ Constructive Alignment

The Advanced Maths module provides students with the knowledge and skills needed to carry out complex mathematical tasks throughout their university studies. This amodule covers key mathematical concepts including algebra, calculus, linear and non-linear equations, probability, statistics, matrices, and vectors. It explores advanced topics such as trigonometric functions, polynomial division, integration, differentiation, differential equations, and numerical methods.

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

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

- work effectively with advanced number systems, equations and formulas. Students will also learn how to apply advanced mathematical principles throughout their other 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 principles of number theory, Non-linear equations, Laws of Logarithms, Trigonometric functions, Matrices and Vectors, Differential Equation and Numerical Methods.

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 number theory, Non-linear equations, Laws of Logarithms, Trigonometric functions, Matrices and Vectors, Differential Equation and Numerical Methods

Intended Learning Outcomes – Communication and cooperation / Sozialkompetenz

Outline Content/ Lerninhalt

This module covers an introduction to the following:

- Algebra and Calculus
- Linear and Non-Linear equations
- Statistics
- Basic principles of probability
- Polynomial division
- Non-linear equations
- Laws of Logarithms
- Trigonometric functions
- Matrices and Vectors
- Integration and differentiation rules
- Differential Equation
- Numerical Methods

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