Exported Modules

27013 - Issues and Risk Management (engl.)

27013 - Issues and Risk Management (engl.)

General information	
Module Code	27013
Unique Identifier	IssuesRiskMg-01-BM-M
Module Leader(s)	Ass. Prof. Fuglseth, Kristian (kristian.fuglseth@haw-kiel.de)
Lecturer(s)	Ass. Prof. Fuglseth, Kristian (kristian.fuglseth@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2018, V1) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Insight in the context and development of the risk society, risk communication, issues management and policy making Knowledge within the academic field of issues and risk management
Can apply models of issues and risk management
Multidisciplinary participation and cooperation within these subjects.
Candidates will be challenged to use theory and methodology on practical cases in order to apply these in future careers

HAW Kiel
Hochschule für Angewandte Wissenschaften Kiel
Kiel University of Applied Sciences

Content information

Content

Are you ready to tackle the unexpected challenges of a dynamic and ever-changing professional landscape?

This course kicks off with a workshop where students will brainstorm potential risks and crises they may face in their future careers. These scenarios could range from sustainability dilemmas and climate crises to conflicts, consumer issues, health risks, and other unpredictable challenges.

The results of this workshop will form the foundation of the students' final assessments.

Key Learning Objectives:
Insight into a Risky Society: Gain an understanding of the historical and contemporary contexts of the risk society, including how risks are communicated, issue management, and policymaking.
Master Core Concepts: Develop knowledge in crisis communication, corporate social responsibility (CSR), and public relations (PR), alongside the ability to apply both practical and theoretical models to real-world situations.
Practical Application: Use case-oriented learning to tackle realistic challenges and enhance problem-solving skills for future careers.
Multidisciplinary Understanding: Train your cross-disciplinary thinking. The course welcomes students with different perspectives from media-, communication programmes, other hamanistic or social sciences, but also natural sciences, health sciences, and beyond.

Course Structure:
Students will participate in case-oriented seminars, featuring short, visually engaging lectures that introduce the fundamental concepts of crisis communication, issue management, risk communication, social responsibility, and relations to the public. Case studies and practical examples will be at the heart of the teaching approach, ensuring that students can connect theory with actionable insights.

The course also incorporates Risk Society Theory, offering both a historical foundation and a contemporary lens through which to understand crises and risks. Students will explore how seemingly minor issues can escalate into significant risks or even full-blown crises. They will learn how effective issue management can transform these challenges into valuable learning opportunities and strategic advantages for organisations.

Why This Course Matters:
In an increasingly unpredictable world, where organisations are constantly navigating complex media landscapes and shifting societal expectations, issue and risk management has never been more relevant. For journalists, media professionals, communication officers, and PR managers, understanding the lifecycle of an issue—from its inception to its resolution—is critical.
This knowledge equips professionals to:
- Anticipate potential risks and crises before they escalate
- Design proactive strategies to address issues in alignment with organisational goals
- Build resilience and adaptability in both personal and professional contexts

Who Should Take This Course?
This course is ideal for students in media and communication studies, journalism, humanities, social sciences, natural sciences, health sciences, or any field where strategic communication and planning plays a vital role. Whether you are the watchdog journalist that investigates organisations, or if your aim is to lead or manage organisations, or navigate the complexities

Literature

Beck. (2016). Varieties of second modernity and the cosmopolitan vision. Theory, Culture & Society, 33(7-8), 257–270. https://doi.org/10.1177/0263276416671585

Fuglseth, K. (2020). Issues Management in Local Government: A Case Study of Risk Assessment and Issue Management in National Contingency Plans for Local Governments, In: Sabuncuoglu, B. (Volume editor) Themes in Issues, Risk and Crisis Communication: A Multi-Dimensional Perspective. Peter Lang. Berlin

Jaques, T. (2010) Embedding issue management as a strategic element of crisis prevention, in Disaster Prevention and Management: An International Journal, Vol. 19 Iss: 4, pp.469 – 482

Gillions, P. (2017): Issues Management, in: Tench, Ralph/Yeomans, Liz (Ed.): Exploring Public Relations, Pearson, p. 364-395

Heath. (1997). Strategic issues management?:organizations and public policy challenges. Sage Publications.

Heath. (2013). Issues management. I Heath (Red.), Encyclopedia of public relations Vol. 1: Bd. Vol. 1 (2nd ed., s. 495–499). Sage Reference.

Sørensen, M. P. (2016). Ulrich Beck: exploring and contesting risk. Journal of Risk Research, 21(1), 6- 16. https://doi.org/10.1080/13669877.2017.1359204

Woodman, Dan & Threadgold, Steven & Possamai-Inesedy, Alphia. (2015). Prophet of a New Modernity: Ulrich Becks Legacy for Sociology. Journal of Sociology. 51. 1117-1131. 10.1177/1440783315621166.

Additional literature:

Beck. (2002). The terrorist threat: World risk society revisited. Theory, culture & society, 19(4), 39–55. https://doi.org/10.1177/0263276402019004050

Diers-Lawson. (2020). Crisis communication: Managing stakeholder relationships (First ed., s. 300). Routledge. https://doi.org/10.4324/9780429437380

Dupras, & Williams-Jones, B. (2012). The expert and the lay public: reflections on influenza A (H1N1) and the risk society. American journal of public health, 102(4), 591–595. https://doi.org/10.2105/AJPH.2011.300417

Heath, & O'Hair, H. D. (2010). The significance of crises and risk communication. I Heath & H. D. O'Hair (Red.), Handbook of Risk and Crisis Communication (s. 5–30). Routledge Ltd - M.U.A. https://doi.org/10.4324/9780203891629

Hornmoen. (2018). "Environmentally friendly oil and gas production": Analyzing governmental argumentation and press deliberation on oil policy. Environmental Communication, 12(2), 232–246. https://doi.org/10.1080/17524032.2016.1149086

Ihlen, O., & Heath, R. L. (2018). The handbook of organizational rhetoric and communication (First ed., s. 3–12,385–448). John Wiley & Sons, Incorporated.

Ihlen, Ø., Toledano, M., & Just, S. N. (2021). Using rhetorical situations to

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
27013 - Hausarbeit	Method of Examination: Hausarbeit Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	General knowledge of the English language is required to participate.
Miscellaneous	Preparation for a reflection paper of between 1,200-1,600 words will start in the first session, with final submission about two weeks after the last session. Detailed information on the examination will be given in the first session.

60830 - Innovative Videos with Smartphones for Journalism & Content Creation: Instagram, TikTok & Co. (engl.)

60830 - Innovative Videos with Smartphones for Journalism & Content Creation: Instagram, TikTok & Co.

General information	
Module Code	60830
Unique Identifier	InnovVidInst-01-BM-M
Module Leader(s)	Dr. Möller, Christian (christian.moeller@haw-kiel.de)
Lecturer(s)	Dr. Möller, Christian (christian.moeller@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2018, V1) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Comprehensive, specialised, factual and theoretical knowledge within the field of mobile videography and online video, including technical, legal and aesthetical knowledge.
A comprehensive range of cognitive and practical skills in production and online distribution of videos with mobile devices.
New technologies in mobile video production and distribution will be learned, tested and evaluated for their practical relevance and against professional and ethical standards.

Content information	
Content	Technical innovations in the field of mobile internet and handheld devices (smartphones, tablets, etc.) enable new forms of mobile journalism („MoJo", Vertical Video, 9:16 etc.) and marketing, including the mobile production and online distribution of video content. New mobile video production on handheld devices is met by new and ever changing platforms for distribution, including blogs, YouTube, IGTV, Facebook, Twitch, TikTok etc. Livestreaming on platforms add real time video broadcast at unprecedented low costs and minimal technical barriers. In this course, students will… …analyze new forms of online video platforms, including YouTube, Facebook Live, Twitch, TikTok etc.; …learn how to produce videos with smartphones and tablets; …test and evaluate new technologies for mobile video production (microphones, racks, gimbals etc.); …practice and experiment with new forms of mobile video (Reels, TikToks, etc.); …produce journalistic and other videos and publish them online; …evaluate new production and distribution forms. Students are invited to bring their own devices and equipment. Additional equipment for mobile video production will be provided. Due to its practical nature, this course is addressing ambitious and self-starting students that are willing to experiment with new technologies in the field of mobile video production and online video distribution.
Literature	TBA.

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
60830 - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Miscellaneous	Detailed information on the examination will be given in the first session.

60890 - Online Journalism in Practice (engl.)

60890 - Online Journalism in Practice

General information	
Module Code	60890
Unique Identifier	JournPractWr-01-BM-M
Module Leader(s)	Dr. Möller, Christian (christian.moeller@haw-kiel.de)
Lecturer(s)	Dr. Möller, Christian (christian.moeller@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2018, V1) Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2026, V2) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Basic journalistic skills in writing, research, analysis, photography, social media and content management systems (Wordpress).
Creation of editorial structures and journalistic content.
Teamwork and self-organization in editorial work.
Understanding of the role of journalism in democratic society and basic knowledge of media ethics.

Content information	
Content	Participants will learn about different journalistic forms and writing skills for (online) media. The will produce English language online news articles for the FHEWS blog and social media (www.fhews.de). Participants will organize the editorial and newsroom structure, identify topics, do the editorial planning, research, writing and photography. Also video and other news formats –from audio slideshows to Instastories- are possible. This seminar is for journalistically interested, curious and self-starting students that like to write.
Literature	The Missouri Group: News Reporting and Wrting. 12th Edition. Macmillan. Additional literature will be provided.

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
60890 - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Good English writing skills.
Miscellaneous	The detailed description of the examination will be announced at the beginning of the semester.

61130 - Wordpress Theming (engl.)

61130 - Wordpress Theming

General information	
Module Code	61130
Unique Identifier	WPThem-01-BA-M
Module Leader(s)	Prof. Dr. Uhing, Franziska (franziska.uhing@haw-kiel.de)
Lecturer(s)	Prof. Dr. Uhing, Franziska (franziska.uhing@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2018, V1) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students extend their prior knowledge of frontend development. They explore the architecture of wordpress templates and plugins and by aplication within a project evaluate their prior skills.
By creating and discussing themes with fellow students the can identify problems, generate research questions and name possible solutions.
These can be presented in front of fellow students and external partners. Students can react to critique and feedback in a professional way and adapt their methods if required.
Students can evaluate their own methods critically, in relation to practical workflows.

Content information	
Content	Installing and configuring Wordpress on a webserver Designing a weblayout Creating themes based on php and CSS Extending the theme with Widgets Extending the theme with Plugins
Literature	de.wordpress.org

Teaching formats of the courses	
Teaching format	**SWS**
Übung	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
61130 - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Knowledge in HTML and CSS

61400 - Crisis Communication in the Digital Media Landscape (engl.)

61400 - Crisis Communication in the Digital Media Landscape

General information	
Module Code	61400
Unique Identifier	CriCommCorpB-01-BM-M
Module Leader(s)	Gille, MaxNiklas (maxniklas.gille@haw-kiel.de)
Lecturer(s)	Gille, MaxNiklas (maxniklas.gille@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2018, V1) Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2026, V2) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students can deepen their knowledge in the field of crisis communication. In doing so, they can acquire new knowledge and review and differentiate skills already acquired in previous semesters.
By dealing with various case studies and topic-specific problems, students can recognize and evaluate problems and develop suitable counter-strategies, either alone or in groups.
Students are prepared for dealing with stressful situations and critical conversations.
The students will learn the close relationship between scientific analyses and practical instructions at the interface between theory and practice.

Content information	
Content	The module deals with the basics of modern crisis communication for companies and brands. First of all, there is a brief differentiation from areas such as crisis communication for individuals and issue management. The course is based on current case studies and actual challenges that are triggered by various developments in the media, society and, not least, contemporary history (e.g. the Russian war of aggression in Ukraine). The underlying developments are analysed in order to develop suitable (communicative) counter-strategies. Case studies are used, some of which are analysed and discussed in joint discussions, others in group work. The aim is to ensure a professional assessment of a (communicative) crisis situation, including a suitable concept for countermeasures. Theoretical models on the course of crises and corporate communication strategies are used.
Literature	Tba in the first session

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
61400 - Hausarbeit	Method of Examination: Hausarbeit Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Essay

Miscellaneous	
Recommended Prerequisites	Bachelor 4th semester or higher, Master as of 1st semester
Miscellaneous	A detailed description of the module examination will be announced at the beginning of the semester.

61490 - Political communication in the European Union (engl.)

61490 - Political communication in the European Union

General information	
Module Code	61490
Unique Identifier	PolCommEurUn-01-BM-M
Module Leader(s)	Dubbert, Mathias (mathias.dubbert@haw-kiel.de)
Lecturer(s)	Dubbert, Mathias (mathias.dubbert@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Wahlmodul Semester: 3, 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2026, V2) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Upon completion of this module students will be able to understand the communication of the institutions of the European Union and the challenges of political communication on EU level. They have had the opportunity to review as well as compare and contrast some of the fundamental topics the European Union is working on by discussing particular case studies as well as looking into the political communication strategies of the EU-institutions, international businesses and European associations.
By way of case studies, individual students or small groups of students will be able to identify problems, formulate communication strategies and apply appropriate methods by attending discussion rounds with experts in Brussels.

The students can present and discuss their approaches and findings regarding the political communication in the European Union. They can manage to work in international teams and are aware of the need for businesses, institutions and associations to work on European topics and instruments of political communication.
The students are able to reflect critically upon their research by referring to good academic practices and professional standards and discuss that with EU-experts.

Content information	
Content	In the context of discussions with external experts in Brussels, the knowledge acquired is compared and expanded with the practical work of political communication at the European level.
Literature	European Commission (2025): The EU - what it is and what it does. Op.europa.eu. https://op.europa.eu/webpub/com/eu-what-it-is/en/ [access: 27.11.2025] Kaeding, M. (2024): Enlargement and the Future of Europe. Springer Cham Korkman, S. (2005): Economic Policy in the European Union. London: Palgrave Macmillan Nedergaard, P. (2007): European Union administration: legitimacy and efficiency. Boston: Nijhoff Kleine, M. (2013): Informal governance in the European Union: how governments make international organizations work. Ithaca: New York Cornell University Press

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
61490 - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Miscellaneous	An excursion to Brussels during the IDW (5.5.-8.5.) is the basis of this seminar. In addition - in consultation with the students – two online-meetings will take place in order to prepare for the excursion and for the examination. Students are responsible for travelling to and from Brussels as well as for their own accommodation and meals. Only a small part of their travel expenses can be reimbursed afterwards. It is recommended to arrive in Brussels on 5.5. and to leave on 8.5.. The appointments with experts in the EU institutions, company representatives and associations will take place during Wednesday morning and Thursday evening. Further information will be provided after successful registration. A detailed description of the module examination will be announced at the beginning of the semester.

61560 - Shortfilm (engl.)

61560 - Shortfilm

General information	
Module Code	61560
Unique Identifier	Shortfilm-01-BM-M
Module Leader(s)	Dipl.-Regisseur Mertens, Christian (christian.mertens@haw-kiel.de)
Lecturer(s)	Dipl.-Regisseur Mertens, Christian (christian.mertens@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: B.A. - MMP - Multimedia Production Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.A. - ÖuU - Öffentlichkeitsarbeit und Unternehmenskommunikation Module type: Wahlmodul Semester: 4, 5, 6, 7
Study Subject: B.Eng. - Ming - Medieningenieur/-in (PO 2018, V1 + PO 2021, V2) Module type: Verpfl. Wahlmodul, PVO §3 Semester: 4, 5, 6, 7
Study Subject: M.A. - AK - Angewandte Kommunikationswissenschaft Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2018, V1) Module type: Wahlmodul Semester: 1, 2, 3
Study Subject: M.A. - MK - Medienkonzeption (SoSe 2026, V2) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Upon completion of this module, students will be able to develop and deepen their professional competences in storytelling media. Their expertise corresponds to EQF/DQR Level 6. They gain a comprehensive understanding of project development, especially in short films. They learn to work in a creative environment and understand film production workflows. Themes include storytelling, casting, directing, scene breakdown, actor direction, film editing, and project finalization. Students also learn to use AI tools at every production step. They develop team leadership skills and collaborate effectively in small groups. They employ artistic and strategic approaches.

The students are introduced to the topics mentioned above. They then work in teams to create their own film narrative. During this process, they learn to solve problems both generally and specifically in an agile environment. They also develop good and quick decision-making skills. Additionally, they gain deep knowledge of film language, creative techniques, and teamwork. The experience can be transferred to all media productions.
Working on a film project involves a significant amount of communication. This includes interaction with external people and institutions. For example, it involves communicating with actors, technical service providers, or location owners.
The module enhances professional competencies in several areas. These include directing for the camera and pitching ideas. It also develops skills in production workflows, compromise, and decision-making under pressure. Students learn to work according to a timetable. The module deepens knowledge in film analysis and film studies. Additionally, it fosters networking with other departments at the University of Applied Sciences.

Content information	
Content	"Shortfilm" focuses on hands-on learning in short film production. Students work mainly in small groups to create a 5-10 minute film. The experience emphasizes storytelling, directing, and film editing while integrating AI tools in production.
Literature	"Directing – Film Techniques and Aesthetics" by Michael Rabinger (Focal Press, 2008 or younger), "So bekommen Sie Ihr Drehbuch in den Griff" by Bartosz Werner and Christian Mertens (Halem Verlag, 2022). Further literature will be issued during the semester.

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
61560 - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Prior knowledge in film production is advantageous but not necessary. The work will take place in small groups, and there will be individual supervision during the project, allowing different learning levels to be addressed. The written part of the portfolio exam will have a uniform level.
Miscellaneous	In this module, a fictional piece will be created, but any genre or hybrid forms are allowed and encouraged.

AAP - Advanced Application Programming

AAP - Advanced Application Programming

General information	
Module Code	AAP
Unique Identifier	AdvApplProg-01-MA-M
Module Leader(s)	Prof. Dr. Acker, Wolfram (wolfram.acker@haw-kiel.de)
Lecturer(s)	Prof. Dr. Acker, Wolfram (wolfram.acker@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2025, V20261) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Pflichtmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
After a successful completion of this module students - are proficient with object orientated programming techniques (C#). - are able to evaluate simple data types and the differences to other popular languages like JAVA. - can explain the use of lambdas and extension methods. - are able to choose the right level of complexity for a given problem.
- can evaluate the latest developments of Graphical User Interfaces using the example of the Windows Presentation Foundation. - can generate own programs using latest programming techniques. - can diskuss what it takes to succeed in working in a software development environment. - are able to justify additional effort and complexity to a future employer.
- explain the very concept of application development using object orientated methods to illustrate how it can be archived using modularization. - are qualified to create software on two different levels, the core functionality and user interface, using collaboration between different team members.

- can compare between the Model-View-Controller(MVC) and the Model-View/View-Model (MVVM) and argue some surprising limitations.
- are be able to judge for him- or herself which techniques to use in a professional work environment.

Content information	
Content	Introduction/Revision of Object Orientated Programming (e.g. Inheritance, Polymorphisms, Abstract Classes, Interfaces) using C# Simple data types Collections and Tuples LINQ Delegates and Lambda-Functions Serialization Threads Wrapper design Graphical User Interfaces (GUIs) using the Windows Presentation Foundation (WPF) Application Design (e.g. Model View Presenter and Model-View View-Model) Garbage Collection
Literature	Albahari,J.,Albahari,B.: C#7.0 in a Nutshell, O'Reilly, 2018

Teaching formats of the courses	
Teaching format	**SWS**
Labor	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
AAP - Laborprüfung	Method of Examination: Laborprüfung Weighting: 0% wird angerechnet gem. § 11 Satz 2 PVO: Yes Graded: No Remark: Regular laboratory exercises during the semester in which example programs are created and evaluated. Participation mandatory. Die in SoSe 2024 bestehende Teilprüfung "Übung" wird bei nicht abgeschlossener Modulprüfung auf die neue Teilprüfung "Laborprüfung" angerechnet.
AAP - Klausur	Method of Examination: Klausur Duration: 120 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Understanding of the concepts of object orientated Programming.
Miscellaneous	Students studying Master Information Engineering can use this module as a substitue for PM103.

AC++ - Advanced C++

AC++ - Advanced C++

General information	
Module Code	AC++
Unique Identifier	AdvCPP-01-MA-M
Module Leader(s)	Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Greve, Thomas (thomas.greve@haw-kiel.de)
Lecturer(s)	Greve, Thomas (thomas.greve@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students will acquire/deepen the following competences: Technical: Students who successfully complete this course will have a general understanding of programming according to the standards C++11 and beyond. They will deepen their C++ skills by learning how - to avoid programing and coding errors - to make programming more economical by generating and using reusable code - to optimize their programs Social: Knowledge will be exercised by lab projects, which are carried out in teams. Results will be presented by the group. Personal: Students will be able to assess their own programming skills at the beginning of the course relative to its end. Due to the exposure to the vastness of C++(11) they will have a more realistic perspective on their own programming skills and what is missing to become an expert (specialization).

Content information	
Content	- Components being added to the language and the Standard-Library by the standards pursuing C++11. - Differences in programming: pre- vs. post-C++11 - Errorless code: Categories of typical (often made) mistakes, Tools to detect those (linter, sanitizers, setup of static tests) - Reusable code: Benefits and pitfalls of code-reuse, Differences between reusable and application-specific code, Static and dynamic libraries, Sources of existing libraries, Setting up of own libraries - Optimizing code: Optimization for space vs speed, Necessity of measurement; 80/20-rule, data structures, algorithms and code patterns which may benefit most, Tools for measurement (timers and profilers)
Literature	A Tour of C++, 3rd ed.; Bjarne Stroustrup; Addison Wesley; 978-0-13-681648-5 Effective C++-Series; Scott Meyers - Effective C++, 3rd ed.; 978-0-321-33487-9 - More Effective C++; 978-0-201-63371-9 - Effective Modern C++; 978-149-190399-5 - Effective STL; 978-0-201-74962-5 Optimized C++; Kurt Guntheroth; O'Reilly; 978-1-491-92206-4 API-Design for C++; Martin Reddy; Morgan Kaufmann; 978-0-12-385003-4 Secure Coding in C and C++; Robert C. Seacord; Addison-Wesley; 978-0-321-82213-0

Teaching formats of the courses	
Teaching format	**SWS**
Labor	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
AC++ - Klausur	Method of Examination: Klausur Duration: 120 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Pre-requisites: Knowledge and practical experience of C++ and programming styles (procedural, object-oriented and generic).The level of module PIC) will be assumed.

ACC - Advanced Cloud Computing

ACC - Advanced Cloud Computing

General information	
Module Code	ACC
Unique Identifier	AdvCloudComp-01-MA-M
Module Leader(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de)
Lecturer(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Pflichtmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students know the fundamentals of cloud computing, virtualization, containers and cluster management. They know modern cloud platforms, cloud-native architectures and common cloud security issues.
Students can employ cloud platforms, cloud-native and containerization technologies for real-world problems.
Students have experience in organizing cloud computing projects, they can solve project tasks and present their results.
Students are able to perform professional work in the field of cloud computing and to assess challenges in cloud environments. Furthermore, they can understand and select relevant scientific literature concerning the field of cloud computing.

Content information	
Content	* Fundamentals of cloud computing * Virtualization, containers and cluster management (e.g. Docker and Kubernetes) * Cloud-native applications, microservices und serverless architectures * Cloud providers (e.g. Google Cloud Platform, Microsoft Azure, Amazon Web Services) * Monitoring of cloud services

Literature	- Nane Kratzke: Cloud-native Computing – Software Engineering von Diensten und Applikationen für die Cloud; Hanser - Douglas Comer: The Cloud Computing Book – The Future of Computing Explained; CRC Press - Sam Newman: Building Microservices – Designing Fine-Grained Systems; O'Reilly - Brendan Burns et al.: Kubernetes – Up and Running; O'Reilly

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag	2
Labor	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
ACC - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: The students work on a current cloud technology topic, write a project report and present their work.

Miscellaneous	
Recommended Prerequisites	- Knowledge about version control with Git - Familiar with command-line interfaces - Efficient use of at least one programming language

ADL - Applied Deep Learning

ADL - Applied Deep Learning

General information	
Module Code	ADL
Unique Identifier	ApplDeepLear-01-BA-M
Module Leader(s)	Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de)
Lecturer(s)	Ignatov, Marina (marina.ignatov@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.Eng. - E - Elektrotechnik (PO 2017, V3) Study Specialization: Technische Informatik Module type: Wahlmodul Semester: 6
Study Subject: B.Eng. - E - Elektrotechnik (PO 2023, V4) Module type: Wahlmodul Semester: 6
Study Subject: B.Eng. - Wing - Wirtschaftsingenieurwesen - Elektrotechnik (PO 2025, V2) Module type: Wahlmodul Semester: 6
Study Subject: B.Eng. - Wing - Wirtschaftsingenieurwesen - Elektrotechnik (PO 2017, V1) Study Specialization: Digitale Wirtschaft Module type: Wahlmodul Semester: 6
Study Subject: B.Sc. - INF - Informatik (PO 2021,V1) Module type: Wahlmodul Semester: 6
Study Subject: B.Sc. - INF - Informatik (PO 2021,V1) Study Focus: Künstliche Intelligenz Module type: Verpfl. Wahlmodul, PVO §3 Semester: 4

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
The aim of the course is to provide both fundamental understanding and practical knowledge of deep learning techniques for independently applying research and development in this important and growing branch of artificial intelligence. On successful completion of this course students will have knowledge on basic neural network and deep learning concepts and their main applications, e.g. in the field of image processing.

The given theoretical foundations in deep learning will be encouraged by a strong practical focus with various appropriate examples in the lecture and laboratory. After completing the course, successful students will be able to understand and apply basic deep learning techniques to a range of practical problems, like image classification or semantic segmentation. They can (1) identify and utilize an efficient approach for a given task, (2) design and implement a practical realization, (3) test the proposed implemented system for validity and (4) they are able to provide algorithmic refinement and maintenance.
On completing the course, students should have improved presentation and team working skills due to the cooperation in small project teams on given problems. They learn to follow design requirements by understanding of written questions and describe and interpret findings in a written report using scientific language.
On completing the course, students should be able to improve their working ethics through evaluating individual efforts and strictly avoiding plagiarism.

Content information	
Content	This course explains the theoretical and practical aspects of fundamental deep learning techniques and enables the independent development and enhancement of such systems. We will study basic neural network setup and training technology as well as some foundations in important application areas, like image processing. More specifically, this includes: • Learning algorithms, over- and underfitting, hyperparameters, validation, supervised / unsupervised learning, gradient-based learning • Deep feedforward networks: weight initialization, batch normalization, regularization, loss functions, backpropagation, mini-batching • Convolutional neural networks: convolution operation, layers, hyperparameters, receptive field • Practical applications
Literature	Rafael C. Gonzales, Richard E. Woods: Digital Image Processing. Prentice-Hall Inc., 2001, ISBN 0-130-94650-8. Ian Goodfellow et al., "DeepLearning", MIT Press, 2016 Michael Nielsen: „NeuralNetworks and DeepLearning", 2017

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag	2
Labor	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
ADL - Laborprüfung	Method of Examination: Laborprüfung Weighting: 0% wird angerechnet gem. § 11 Satz 2 PVO: Yes Graded: No Remark: verpflichtende Teilnahme. Die in SoSe 2024 bestehende Teilprüfung "Übung" wird bei nicht abgeschlossener Modulprüfung auf die neue Teilprüfung "Laborprüfung" angerechnet.

ADL - Klausur	Method of Examination: Klausur Duration: 120 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	- interest in neural networks and deep learning - conceptual and analytical skills - mathematical skills desired (linear algebra, analysis, calculus) - programming skills desired (e.g. Python language) - interest to work with software libraries (e.g. Python)

AMLEA - Advanced Machine Learning in Energy Applications

AMLEA - Advanced Machine Learning in Energy Applications

General information	
Module Code	AMLEA
Unique Identifier	AdvMachLearn-01-MA-M
Module Leader(s)	Prof. Dr. Hennig, Patrick (patrick.hennig@haw-kiel.de)
Lecturer(s)	Prof. Dr. Hennig, Patrick (patrick.hennig@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2025, V20261) Module type: Wahlmodul Semester: 1
Study Subject: M.Sc. - DS - Data Science Module type: Wahlmodul Semester: 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

Students can specifically (in terms of content)... - explain the concept of machine learning (ML) and classify it in the context of artificial intelligence (AI), - name, differentiate, describe and explain the concepts, methods and models of supervised and unsupervised learning, - understand the mathematical and statistical foundations as well as in-depth methods and models of machine learning, - name and explain basic and advanced methods of data analysis and data pre-processing, in particular procurement, transformation, cleansing, partitioning, scaling, visualization and static description, - describe the complete process of carrying out an ML project from the analysis and pre-processing of data to the application of methods and development of models through to the post-processing of data (e.g. model-based forecasting). Students have/are generally able to... - significantly deepened and expanded their knowledge, - define and interpret the special features and limitations of the methods and models, - develop, on the basis of existing knowledge, both research- and application-oriented develop and apply independent generalized and specialized ideas on the methods and models in a research and application-oriented manner, - weigh up the correctness of their extended and, if necessary, independently modified knowledge, taking into account scientific-disciplinary (e.g. mathematics and statistics) and methodological considerations, and solve scientific and practical problems on this basis.
Students can specifically (in terms of content) ... - identify and assess the application potential of AI or ML in different and possibly unknown application contexts, - solve specific problems largely independently using Python. Students can generally ... - integrate new information into the existing knowledge network and/or further process and develop existing knowledge and thus acquire new knowledge independently, - apply their knowledge, understanding and problem-solving skills in new, unfamiliar and unpredictable situations that are related to their field of study in a broader or multidisciplinary context by integrating existing and new knowledge in complex contexts, - deal with a high degree of complexity and intricacy with regard to scientific and practical tasks, - making scientifically sound decisions, - designing research questions from a purely scientific point of view, selecting well-founded research methods and interpreting research results critically.
Students can generally ... - engage in discussions with representatives of different academic and non-academic fields of activity as well as on alternative, theoretically justifiable solutions to problems, - integrate participants into tasks in a goal-oriented manner, taking into account the respective group situation, - recognize potential for conflict in cooperation with others and reflect on this against the background of cross-situational conditions, - ensure the implementation of solution processes appropriate to the situation through constructive, conceptual action

Students can generally ...
- develop a professional self-image that is oriented towards goals and standards of professional action both in academia and in professional fields outside academia.
- justify their own professional actions with theoretical and methodological knowledge and reflect on alternative approaches.
- judge their own abilities, make autonomous use of relevant freedom of organization and decision-making and develop these further under guidance.
- recognize situation-appropriate and cross-situational framework conditions for professional action and reflect on decisions in an ethical and responsible manner.
- critically reflect on their professional actions in relation to social expectations and consequences and further develop their professional actions.

Content information	
Content	- Advanced topics in machine learning with a strong application focus - Application examples are mainly, but not exclusively, from the energy sector e.g. - Electricity demand forecasts - Energy generation forecasts for wind power plants - Electricity price forecasts for the spot market - Exploratory data analysis and pre-processing - Reading and analysing original literature on the topics covered - Course draws on previous knowledge at Bachelor level and deepens the content - Content is taught and applied using practical examples and projects
Literature	Literature will be announced during the course.

Teaching formats of the courses	
Teaching format	**SWS**
Labor	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
AMLEA - Laborprüfung	Method of Examination: Laborprüfung Weighting: 0% wird angerechnet gem. § 11 Satz 2 PVO: Yes Graded: No Remark: Regular participation and collaboration
AMLEA - Präsentation	Method of Examination: Präsentation Duration: 30 Minutes Weighting: 0% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: No
AMLEA - Hausarbeit	Method of Examination: Hausarbeit Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	- interest in machine learning and neural networks - basic knowledge in machine learning recommended - conceptual and analytical skills - mathematical skills (linear algebra, analysis, calculus) - programming skills (e.g. Python) - interest to work with software libraries (e.g. Python)

ASE - Advanced Software Engineering

ASE - Advanced Software Engineering

General information	
Module Code	ASE
Unique Identifier	AdvSWEng-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1)
Module type: Pflichtmodul
Semester: 1, 2

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

After taking the course, students will be familiar with the latest state-of-the-art techniques for specifying the externally visible properties of a software system/component – that is, for describing a software system/component as a 'black box'. Participants will also know how to use the expertise acquired during the course to describe the requirements that a system/component has to satisfy and to define tests to check whether a system/component fulfils these requirements. With the acquired skills and know-how, students will be able to play a key role in projects involving the development of systems, components and software applications.

Students can:
- Analyze and assess the requirements for new or existing software applications and operating systems
- Design, develop, and test user-friendly software solutions in the field of user experience engineering
- Create specifications for, develop, implement, introduce, maintain, and refine complex software architectures and systems
- Evaluate, compare, plan, design, implement, and develop IT applications
- Plan, design, and carry out software tests
- Analyze, design, develop, implement, and test modern, user-friendly operating concepts and user interfaces
- dentify, analyze, and model complex issues and processes (on behalf of clients)
- Collaborate on, head, or supervise IT projects

Content information	
Content	The Advanced Software Engineering course focuses on contemporary techniques for the development of software systems, with an emphasis on the construction and management large and secure software systems. The course will also equip you with essential research, analytical and critical thinking skills. The course deals with the model-based specification of software systems and components as well as their verification, validation and quality assurance. The emphasis is on view-based specification methods that use multiple views, expressed in multiple languages, to describe orthogonal aspects of software systems/components. Key examples include structural views represented using class diagrams, operational views expressed using constraint languages and behavioural views expressed using state diagrams. An important focus of the course is the use of these views to define tests and extra-functional properties. Topics: - Software Quality - Software Reliability - Distributed Software Engineering - Aspect-Oriented Software Engineering - Service Oriented Architecture - SOA and Web services - Release Engineering - Optimization and Performance
Literature	Literatur Somerville: Software Engineering. Ludewig, Lichter: Software Engineering. dpunkt.verlag. Shepperd, Ince: Derivation and Evaluation of Software Metrics, Claredon Press. Wohlin, et. Al: Experimentation in Software Engineering, Springer. Proceedings of the International Symposium on Search-Based Software Engineering

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag	2
Projekt	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None

ASE - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Exam: - Assignments related to lecture topics - Elaborated during semester

AVDI - Audio/Video Design and Interaction

AVDI - Audio/Video Design and Interaction

General information	
Module Code	AVDI
Unique Identifier	AudVidDesInt-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Wintersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Study Focus: Computer Science for Media Module type: Verpfl. Wahlmodul, PVO §3 Semester: 1, 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Student are able to design sound, visuals and content of creative and technical areas Students develop a creative and technical installation or performance during the semester. The kind and technology of the installation used are freely selectable. The presentation of the project work at the end of the semester is basis for the grade.
Students are able to use various software for audio and visual production (e.g. processing, open frameworks, Unity, Puredata, Max / MSP). The idea here is experimenting with e.g. : - Techniques and methods for sound synthesis - Video and sound design - Interaction techniques with video, sound or light installations.

Content information	
Content	- Interactive media and creative applications - Interaction with sound and visuals - Media interaction based on -- Body/hand/eye tracking -- AR/VR/MR -- AI - Interaction with sound in 3D space - Practical consolidation with individual programming projects - Methods and strategies of generative design Possible topics: - Programming sounds and visual representations (visuals) - Programs for sound synthesis, sampling and processing - Use of interaction and network technology - Live coding of music and visuals - Programming mini-computers (e.g. Raspberry Pi) for generating sounds and visuals For the creative, experimental work, a surround music system (consisting of spatial loudspeaker system) and various mini computers (e.g. Raspberry Pi) for sound and video installations are available. Knowledge of composition or video production is not required.
Literature	- James R. Parker, Generative Art: Algorithms as Artistic Tool, Durvile, 2019 - Benedikt Gross, et al., Generative Design: Visualize, Program, and Create with JavaScript in p5.js, Princeton Architectural Press, 2018 - Matt Pearson, Generative Art - A practical Guide using Processing, Manning Publications, 2011. - Daniel Shiffman, The Nature of Code: Simulating Natural Systems with Processing, 2012 - Johannes Kreidler, Loadbang: Programmierung Elektronischer Musik in Pd, Wolke Verlag, 2009. - Andy Farnell, Designing Sound, MIT Press, 2010.

Teaching formats of the courses	
Teaching format	**SWS**
Projekt	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
AVDI - Präsentation	Method of Examination: Präsentation Duration: 30 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

HAW Kiel
Hochschule für Angewandte Wissenschaften Kiel
Kiel University of Applied Sciences

CSC - Computer Science Colloquium

CSC - Computer Science Colloquium

General information	
Module Code	CSC
Unique Identifier	CompSciCollo-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Acker, Wolfram (wolfram.acker@haw-kiel.de) Prof. Dr. Aßmuth, Andreas (andreas.assmuth@haw-kiel.de) Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Dipl.-Inform. Kopka, Corina (corina.kopka@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1)
Module type: Pflichtmodul
Semester: 3

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

After successful completion, the students have the following skills according to the second cycle of the qualification framework for German university degrees (HQR):
- the ability to present and discuss scientific findings
- Oral communication skills
- Power of persuasion
- Presentation skills

Content information	
Content	The colloquium is an oral examination at the end of the course in terms of content, in which the candidate should first briefly explain and represent the results of the thesis and, if necessary, also defend them. Above all, the candidate should then show that he or she is able to recognize other problems in their degree program related to the topic of the work and to point out possible solutions. The colloquium should take up the subject areas of the courses of all modules of the course. The candidate should show that he or she can apply the scientific and practical knowledge acquired during his or her studies to facts from the area of his or her future professional activity.

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	0

Workload	
Number of SWS	0 SWS
Credits	5,00 Credits
Contact hours	0 Hours
Self study	150 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
CSC - Kolloquium	Method of Examination: Kolloquium Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

CSMT - Computer Science Master Thesis

CSMT - Computer Science Master Thesis

General information	
Module Code	CSMT
Unique Identifier	
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Acker, Wolfram (wolfram.acker@haw-kiel.de) Prof. Dr. Aßmuth, Andreas (andreas.assmuth@haw-kiel.de) Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Dipl.-Inform. Kopka, Corina (corina.kopka@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1)
Module type: Pflichtmodul
Semester: 3

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

With regard to the analysis and solution of technical and economic problems, the students can independently apply the skills they have acquired during their studies and penetrate and use expanding scientific literature.

The students ....
... can work out open technical questions using scientific methods and basic rules of scientific work and present them in written document
... can independently investigate a topic, collect information, as well as evaluate and interpret it.
... can independently investigate a topic and fill information gaps
... can develop case-related solutions and develop and implement them based on the current state of science.
... apply research methods in practice and prepare the central research findings for publication in a target domain-specific manner.

The students can work purposefully and successfully with involved cooperation partners and their supervisors on the basis of empathy, the ability to deal with conflict and consensus, the ability to persevere and social openness. They are able to deal scientifically with the complexity and uncertainty of an open problem or unclear and contradictory situations or open problems. In this context, they are able to make and communicate proposals and/or decisions with incomplete information.
The students have sufficient learning ability and willingness to learn to acquire (technical) knowledge and apply skills and behavior in the context of writing the thesis. They are able to develop, implement and implement innovations, even if they require unknown or unfamiliar patterns of action. They are able to organize their own work. They know how to write a scientific work that is correctly structured in terms of both form and method on the topic they have worked on independently.

Content information	
Content	The Master thesis is considered the final work of the program. It serves to apply knowledge what has been learned during the program to real world problem. For this purpose, the Master thesis deals with a scientific questions in the field of the study program or similar subject areas. The student works independently and finally documents his work.

Teaching formats of the courses	
Teaching format	**SWS**
Keine Präsenzzeit	0

Workload	
Number of SWS	0 SWS
Credits	25,00 Credits
Contact hours	0 Hours
Self study	750 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
CSMT - Abschlussarbeit (Thesis)	Method of Examination: Abschlussarbeit (Thesis) Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Miscellaneous	Master Thesis procedures - see https://collab.fh-kiel.de/course/view.php?id=127

CSRP - Computer Science Research Project

CSRP - Computer Science Research Project

General information	
Module Code	CSRP
Unique Identifier	CompSciResPr-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Aßmuth, Andreas (andreas.assmuth@haw-kiel.de) Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Dipl.-Inform. Kopka, Corina (corina.kopka@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Wintersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Pflichtmodul Semester: 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Independent familiarisation of a new topic and/or deepening of existing knowledge through practical work. Application of theoretical knowledge to practical project. Scientific working, practical realization of scientific theories, creation and execution of experiments, improving problem solving competences. Improving communication skills, team work. Application of research methodologies in project work. Derivation scientific outcome.

Content information	
Content	Compulsory research oriented project work, which may be carried out either within the University or an external company. If carried out within the University it is desireable to be executed within a team of 4 people. In both cases, the research topic needs to be agreed upon with University staff prior to starting the project work. A written 2-4 page proposal needs to be provided prior to commencement , comprising: - Title and abstract - Research hypothesis / possible outcome - Separation into research and development components - Preliminary table of content - 4 relevant literature references The master research project requires independent and self-contained work on R&D projects to deepen the knowledge obtained from lectures. New research hypothesis may be developed independently. The project work typically includes: • Creation of literature surveys and comparative studies • Creation and assessment of methods according to standard research methodologies • Execution of experiments and documentation • Creation, implementation and documentation of tools and applications (development on a scientific basis) • Publishing research results The actual topic has to be discussed on an individual basis with a faculty member prior to commencement.

Teaching formats of the courses	
Teaching format	**SWS**
Projekt	0

Workload	
Number of SWS	0 SWS
Credits	15,00 Credits
Contact hours	0 Hours
Self study	450 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
CSRP - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

HAW Kiel
Hochschule für Angewandte Wissenschaften Kiel
Kiel University of Applied Sciences

DDIS - Distributed Databases and Information Systems

DDIS - Distributed Databases and Information Systems

General information	
Module Code	DDIS
Unique Identifier	DistDBInfSys-01-MA-M
Module Leader(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de)
Lecturer(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Pflichtmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
- Students know different data models, APIs and query languages for database systems and can select an adequate database system depending on the application scenario.
- Students can setup a distributed database system and configure it regarding aspects of replication, partitioning, and consistency. They understand the implications of their configuration choices. - Students can differentiate components for batch and stream processing.
- Students can express their opinion in technical discussions regarding databases. - Students can discuss design decisions for a distributed information system in a team.
- Students can evaluate and compare different distributed database systems, particularly regarding performance aspects and TCO.

Content information	
Content	- Horizontal scalability and the CAP theorem - Replication in distributed databases - Partitioning in distributed databases - Challenges caused by delayed network delays, clocks, and process pauses - Transactions, consistency, and concensus - Distributed batch and stream processing - Benchmarking of selected distributed database systems - Database-as-a-service in public cloud platforms

Literature	- Martin Kleppmann: Designing Data-Intensive Applications – The Big Ideas Behind Reliable, Scalable, and Maintainable Systems; O'Reilly - Tyler Akidau, Slava Chernyak, Reuven Lax: Streaming Systems – The What, Where, When, and How of Large-Scale Data Processing; O'Reilly - Alex Petrov: Database Internals – A Deep Dive into How Distributed Data Systems Work; O'Reilly

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag	2
Projekt	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
DDIS - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	- Knowledge about relational database modelling and transactions, HTTP and REST-APIs, version control with Git, Docker and Kubernetes - Familiar with command-line interfaces - Efficient use of at least one programming language
Miscellaneous	Students studying Master Information Engineering can use this module as a substitue for PM101.

DL - Deep Learning

DL - Deep Learning

General information	
Module Code	DL
Unique Identifier	DeepLearnA-01-MA-M
Module Leader(s)	Prof. Dr. Schneider, Stephan (stephan.schneider@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de)
Lecturer(s)	Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Study Focus: Artificial Intelligence Module type: Verpfl. Wahlmodul, PVO §3 Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students can specifically… • explain the term deep learning (DL) and classify it in the context of artificial intelligence (AI), • name, delimit, describe and explain the concepts, methods and models of supervised and unsupervised learning, • understand the mathematical and statistical foundations of the different types of artificial neural networks, • name and explain basic methods of data analysis and data pre-processing, especially acquisition, transformation, cleansing, partitioning, scaling, visualization and static description, • Describe the complete process of carrying out a DL project from analysis and pre-processing of the data to the application of the methods and development of models to the post-processing of the data (e.g. model-based forecast).

Students have/can generally... • Significantly expanded their knowledge at the level of university entrance qualifications, • demonstrate a broad and deep knowledge and understanding of the scientific foundations of content-related teaching areas (e.g. AI, DL, mathematics, statistics) based on the current state of research, • a critical understanding of the most important theories, principles and methods of the content-related teaching areas, • Critically reflect on technical and practice-relevant statements and check the plausibility of envisaged solutions to problems. Students can specifically (in terms of content)… • identify and assess the application potential of AI or DL in selected and mostly known application contexts, • solve specific problems using the R or Python languages and applications.
Students can generally... • formulate technical and factual solutions to problems within their actions and justify them in discourse with specialist representatives and non-specialists with theoretically and methodologically well-founded arguments, • communicate and cooperate with other subject representatives and non-specialists in order to solve a task responsibly, • Reflecting on and taking into account the different perspectives and interests of other participants.
Students can generally... • develop a professional self-image that is based on the goals and standards of professional action in professional fields that are primarily outside of science, • justify their own professional actions with theoretical and methodical knowledge, • Assess one's own abilities, autonomously reflect on factual design and decision-making freedoms and use them under guidance, • Recognize the framework conditions of professional action that are appropriate to the situation and justify their decisions in a responsible and ethical manner, • reflect critically on their professional actions in relation to social expectations and consequences.

Content information	
Content	1. Deep learning in the context of artificial intelligence 1.1. On the relationship between artificial intelligence (AI), machine learning (ML) and deep learning (DL) 1.2. Excursus: data and scale levels 1.3. Problem areas: regression, classification and clustering 1.4. General Types of Artificial Neural Networks (ANN) 2. General introduction to the structure and functionality of a unit as a component of an ANN 2.1. The neuron as a biological model 2.2. Mathematical description of the functional units of a unit 2.3. Mathematical description of learning an ANN using backpropagation and the gradient descent method 3. Multi-dimensional data structure (array) of the input layer as a passive data supplier 4. Exploratory data analysis and pre-processing of the data (pre-processing) 4.1. Procurement and Transformation 4.2. Statistical description and visualization 4.3. Missing Values 4.4. Runaway 4.5. dumbing down 4.6. Unbalanced amount of data 4.7. partitioning 4.8. scaling 5. Problems and optimization of an ANN 5.1. Overfitting and underfitting 5.2. Hyperparameter adjustment 5.3. Determination of forecast and model quality 6. Multi-Layer Perceptron (MLP) for regression 7. Multi-Layer Perceptron (MLP) for classification 7.1.1. Binary Classification 7.1.2. N-ary classification with single-label assignments 7.1.3. N-ary classification with multi-label assignments 8. Long Short-Term Memory (LSTM) for time series 8.1.1. regression 8.1.2. classification 8.1.2.1. scalar output 8.1.2.2. sequence output 9. Convolutional Neural Network (CNN) handling image data 9.1. Image classification 9.2. Object Recognition/Detection 9.3. semantic segmentation 9.4. instance segmentation 10. Self-Organizing Map (SOM) for clustering 11. Other model variants (autoencoder, generative adversarial networks (GAN) etc.)
Literature	• Haykin, Simon S. (1999): Neural Networks: A Comprehensive Foundation. 2. Aufl., 1999. Upper Saddle River: Pearson Education. • Haykin, Simon S. (2009): Neural Networks and Learning Machines. 3. Aufl., 2009. Upper Saddle River: Pearson Education. • Goodfellow, I., Bengio, Y., Courville, A. (2016): Deep Learning. 2016. Cambridge: MIT Press. More literature will be announced at lecture time.

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag	2
Labor	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
DL - Technischer Test	Method of Examination: Technischer Test Duration: 120 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

En_BusB2 - English for Business Purposes B2

En_BusB2 - English for Business Purposes B2

General information	
Module Code	En_BusB2
Unique Identifier	EnglBusPurB2-01-BM-M
Module Leader(s)	Willson, Elena (elena.willson@haw-kiel.de) Wilson, Kirk (kirk.wilson@haw-kiel.de) Kruse, Katie (katie.kruse@haw-kiel.de)
Lecturer(s)	Troy-Inniss, Ann (ann.troy-inniss@haw-kiel.de) Willson, Elena (elena.willson@haw-kiel.de) Wilson, Kirk (kirk.wilson@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.Eng. - IVE - Internationales Vertriebs- und Einkaufsingenieurwesen Module type: Wahlmodul Semester: 2, 3
Study Subject: B.Eng. - Wing - Wirtschaftsingenieurwesen - Elektrotechnik (PO 2017, V1) Module type: Wahlmodul Semester: 4
Study Subject: KA - OFK - Orientierungssemester Förde-Kompass Module type: Wahlmodul Semester: 1
Study Subject: KA - ZSIK - Wahlmodule des ZSIK Module type: Wahlmodul Semester:

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Die Studierenden können die Hauptinhalte komplexer Texte zu konkreten und abstrakten Themen aus der Geschäftswelt verstehen und wiedergeben. Die Studierenden können die meisten Nachrichtensendungen und Reportagen im Fernsehen verstehen (Standardsprache). Die Studierenden können die zentralen Regeln der Grammatik auf einem B2-Niveau anwenden.

Die Studierenden können sich zu einem breiten fachlichen Themenspektrum klar und detailliert ausdrücken, einen Standpunkt zu einer aktuellen Frage erläutern und die Vor- und Nachteile verschiedener Möglichkeiten angeben. Die Studierenden können Artikel und Berichte über Probleme der Gegenwart lesen und verstehen, in denen die Schreibenden eine bestimmte Haltung oder einen bestimmten Standpunkt vertreten. Die Studierenden können bei vertrauten Fachthemen auch komplexer Argumentation folgen. Die Studierenden können die persönliche Bedeutung von Ereignissen und Erfahrungen aus der Geschäftswelt deutlich machen. Die Studierenden können klare und detaillierte Darstellungen zu vielen fachlichen Themen aus eigenen Interessengebieten geben. Die Studierenden können Geschäftsbriefe schreiben und über eine Vielzahl von Fachthemen klare, detaillierte Texte verfassen.
Die Studierenden können sich so spontan und fließend verständigen, dass ein normales Geschäftsgespräch mit einem Muttersprachler recht gut möglich ist. Die Studierenden können sich in vertrauten Arbeitssituationen aktiv an einer Diskussion beteiligen und eigene Ansichten begründen und verteidigen.

Content information	
Content	Fokus auf wirtschaftsbezogene Fähigkeiten auf dem B2 Niveau (GER): -- schriftlicher Ausdruck, insbesondere Geschäftsbriefe und Berichte -- mündlicher Ausdruck -- Lese- und Hörverstehen -- Wortschatzarbeit -- prüfungsbezogene Anleitung
Literature	Kursbuch für dieses Modul muss von allen Teilnehmer(innen) angeschafft werden. Die ISB-Nummer wird am Anfang der ersten Lehrveranstaltung bekannt gegeben.

Teaching formats of the courses	
Teaching format	**SWS**
Sprachkurs	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	Erfüllung der Anwesenheitspflicht gemäß § 52 Abs. 12 HSG.
En_BusB2 - Präsentation	Method of Examination: Präsentation Duration: 15 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Inkl. Fragen nach der Präsentation und eine schriftliche Ausarbeitung (500-600 Wörter) zur Präsentation.

Miscellaneous	
Recommended Prerequisites	Teilnahme nur möglich nach einer Einstufung durch das ZSIK.
Miscellaneous	Nach erfolgreichem Abschluss verfügt jeder/jede Teilnehmer/Teilnehmerin über ein ausreichend breites Spektrum von Redemitteln, um in klaren Beschreibungen oder Berichten über sehr viele Themen aus der Geschäftswelt zu sprechen und eigene Standpunkte auszudrücken gemäß der 4. Stufe des Gemeinsamen Europäischen Referenzrahmens (GER). http://www.europaeischer-referenzrahmen.de/ Online unterstützt.

En_BusC1 - English for Business Purposes C1

En_BusC1 - English for Business Purposes C1

General information	
Module Code	En_BusC1
Unique Identifier	EnglBusPurC1-01-BM-M
Module Leader(s)	Willson, Elena (elena.willson@haw-kiel.de) Wilson, Kirk (kirk.wilson@haw-kiel.de) Kruse, Katie (katie.kruse@haw-kiel.de)
Lecturer(s)	Jones, Ryan (ryan.jones@haw-kiel.de) Willson, Elena (elena.willson@haw-kiel.de) Wilson, Kirk (kirk.wilson@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: B.Eng. - IVE - Internationales Vertriebs- und Einkaufsingenieurwesen Module type: Wahlmodul Semester: 2, 3, 4
Study Subject: B.Eng. - Wing - Wirtschaftsingenieurwesen - Elektrotechnik (PO 2017, V1) Module type: Wahlmodul Semester: 4
Study Subject: KA - OFK - Orientierungssemester Förde-Kompass Module type: Wahlmodul Semester: 1
Study Subject: KA - ZSIK - Wahlmodule des ZSIK Module type: Wahlmodul Semester:

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Die Studierenden können ein breites Spektrum anspruchsvoller, längerer Fachtexte verstehen und auch implizite Bedeutungen erfassen. Die Studierenden können längeren Redebeiträgen folgen, auch wenn diese nicht klar strukturiert und Zusammenhänge nicht explizit ausgedrückt sind. Kann ohne allzu große Mühe Nachrichtensendungen und aktuelle Fernsehbeiträge verstehen, selbst wenn Standardsprache nicht verwendet wird. Die Studierenden können komplexe Sachtexte verstehen und Stilunterschiede wahrnehmen. Die Studierenden können Fachartikel und längere technische Anleitungen verstehen, auch wenn sie nicht im eigenen Fachgebiet liegen Die Studierenden können die zentralen Regeln der Grammatik auf einem C1-Niveau anwenden.

Die Studierenden können sich klar, strukturiert und ausführlich zu komplexen Sachverhalten äußern und dabei verschiedene Mittel zur Textverknüpfung angemessen verwenden. Die Studierenden können sich spontan und fließend ausdrücken, ohne öfter deutlich erkennbar nach Worten suchen zu müssen. Die Studierenden können ihre Gedanken und Meinungen präzise ausdrücken und seine/ihre eigenen Beiträge geschickt mit denen anderer verknüpfen. Die Studierenden können komplexe Sachverhalte ausführlich darstellen und dabei Themenpunkte miteinander verbinden, bestimmte Aspekte besonders ausführen und ihren Beitrag angemessen abschließen. Die Studierenden können sich schriftlich klar und gut strukturiert ausdrücken und seine/ihre Ansicht ausführlich darstellen. Die Studierenden können in Geschäftsbriefen oder Berichten über komplexe Sachverhalte schreiben und die wesentlichen Aspekte hervorheben.
Die Studierenden können in eigenen schriftlichen Texten den Stil wählen, der für die jeweiligen Leser angemessen ist. Die Studierenden können sich spontan und fließend an allen fachlichen Gesprächen und Diskussionen beteiligen, ohne öfter deutlich erkennbar nach Worten suchen zu müssen.
Die Studierenden können die Sprache im beruflichen Leben oder in Ausbildung und Studium wirksam und flexibel gebrauchen.

Content information	
Content	Fokus auf allgemeinsprachliche Fähigkeiten auf dem C1 Niveau (GER): -- angemessener schriftlicher und mündlicher Ausdruck für den Berufsalltag -- Lese- und Hörverstehen -- Wortschatzarbeit auf dem entsprechenden Niveau -- Grammatik -- prüfungsbezogene Anleitung
Literature	Kursbuch für dieses Modul muss von allen Teilnehmer(innen) angeschafft werden. Die ISB-Nummer wird am Anfang der ersten Lehrveranstaltung bekannt gegeben.

Teaching formats of the courses	
Teaching format	**SWS**
Sprachkurs	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	Erfüllung der Anwesenheitspflicht gemäß § 52 Abs. 12 HSG.
En_BusC1 - Präsentation	Method of Examination: Präsentation Duration: 15 Minutes Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Inkl. Fragen nach der Präsentation und eine schriftliche Ausarbeitung (500-600 Wörter) zur Präsentation

Miscellaneous	
Recommended Prerequisites	Teilnahme nur möglich nach einer Einstufung durch das ZSIK.
Miscellaneous	Nach erfolgreichem Abschluss verfügt jeder/jede Teilnehmer/Teilnehmerin über ein breites Spektrum von Redemitteln, aus dem er/sie geeignete Formulierungen auswählen kann, um sich klar und angemessen über ein breites Spektrum beruflicher oder wissenschaftlicher Themen zu äußern, ohne sich in dem, was er/sie sagen möchte, einschränken zu müssen, gemäß der 5. Stufe des Gemeinsamen Europäischen Referenzrahmens (GER). http://www.europaeischer-referenzrahmen.de/ Online unterstützt.

ENG - Englisch

ENG - English

General information	
Module Code	ENG
Unique Identifier	Engl-01-BA-M
Module Leader	Willson, Elena (elena.willson@haw-kiel.de) Wilson, Kirk (kirk.wilson@haw-kiel.de) Kruse, Katie (katie.kruse@haw-kiel.de)
Lecturer(s)	
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	No
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: B.Eng. - Me (PO 2024) - Mechatronik (PO 2024, V5) Module type: Pflichtmodul Semester: 4
Study Subject: B.Sc. - INF - Informatik (PO 2021,V1) Module type: Pflichtmodul Semester: 1

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Entsprechend ihrem Niveau können die Teilnehmer: - Texte verstehen und auch implizite Bedeutungen erfassen. - Redebeiträgen folgen, auch wenn diese nicht klar strukturiert sind und wenn Zusammenhänge nicht explizit ausgedrückt sind. - Fernsehsendungen und Spielfilme verstehen, selbst wenn Standardsprache nicht verwendet wird. - Sachtexte und literarische Texte verstehen. - Fachartikel und technische Anleitungen verstehen, auch wenn sie nicht im eigenen Fachgebiet liegen - die zentralen Regeln der Grammatik anwenden.
Entsprechend ihrem Niveau können die Teilnehmer: - sich klar, strukturiert und ausführlich zu Sachverhalten äußern und dabei verschiedene Mittel zur Textverknüpfung angemessen verwenden. - sich spontan und fließend ausdrücken. - ihre Gedanken und Meinungen ausdrücken und seine/ihre eigenen Beiträge mit denen anderer verknüpfen. - Sachverhalte darstellen und dabei Themenpunkte miteinander verbinden, bestimmte Aspekte ausführen und ihren Beitrag abschließen. - sich schriftlich ausdrücken und seine/ihre Ansicht darstellen. - in Briefen, Aufsätzen oder Berichten über Sachverhalte schreiben und die wesentlichen Aspekte hervorheben.

Entsprechend ihrem Niveau können die Teilnehmer: - in eigenen schriftlichen Texten den Stil wählen, der für die jeweiligen Leser angemessen ist. - sich an allen Gesprächen und Diskussionen beteiligen.
Entsprechend ihrem Niveau können die Teilnehmer: - die Sprache im gesellschaftlichen und beruflichen Leben oder in Ausbildung und Studium gebrauchen.

Content information	
Content	Fokus auf allgemeinsprachliche Fähigkeiten auf dem B2, C1 oder C2 Niveau (GER): -- schriftlicher und mündlicher Ausdruck -- Lese- und Hörverstehen -- Wortschatzarbeit -- Grammatik -- prüfungsbezogene Anleitung
Literature	Kursbuch für dieses Modul muss von allen Teilnehmer:innen angeschafft werden. Die ISB-Nummer wird am Anfang der ersten Lehrveranstaltung bekannt gegeben.

Courses

Elective Course(s)

The following table lists the available elective courses for this module.

ENGB2 - Englisch B2 - Page: 62
ENGC1 - Englisch C1 - Page: 64
ENGC2 - Englisch C2 - Page: 60

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	Erfüllung der Anwesenheitspflicht gemäß §52 Abs. 12 HSG.
ENG - Präsentation	Method of Examination: Präsentation Duration: 5 Minutes Weighting: 40% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Plus Fragen nach der Präsentation
ENG - Klausur	Method of Examination: Klausur Weighting: 60% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Teilnahme nur möglich nach einer Einstufung durch das ZSIK.

Miscellaneous	Sprachverwendung Entsprechend dem Niveau B2/C1/C2 http://www.europaeischer-referenzrahmen.de/ Online unterstützt. Nach erfolgreichem Abschluss des Moduls können die Studierenden beim ZSIK ein Zertifikat über ihr Sprachniveau beantragen.

Course: Englisch C2

General information	
Course Name	Englisch C2 English C2
Course code	ENGC2
Lecturer(s)	Dr. Bubbers, Fiona (fiona.bubbers@haw-kiel.de) Willson, Elena (elena.willson@haw-kiel.de) West, Rob (rob.west@haw-kiel.de)
Occurrence frequency	Regular
Module occurrence	In der Regel im Wintersemester
Language	Englisch

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Die Studierenden können praktisch alles, was er / sie liest oder hört, mühelos verstehen. Die Studierenden können ohne Schwierigkeit, gesprochene Sprache verstehen, gleichgültig ob "live" oder in den Medien, und zwar auch, wenn schnell gesprochen wird. (Braucht nur etwas Zeit, sich an einen besonderen Akzent zu gewöhnen.) Die Studierenden können praktisch jede Art von geschriebenen Texten mühelos lesen, auch wenn sie abstrakt oder inhaltlich und sprachlich komplex sind, z. B. Handbücher, Fachartikel und literarische Werke. Die Studierenden können die zentralen Regeln der Grammatik auf einem C2-Niveau anwenden.
Die Studierenden können Informationen aus verschiedenen schriftlichen und mündlichen Quellen zusammenfassen und dabei Begründungen und Erklärungen in einer zusammenhängenden Darstellung wiedergeben. Die Studierenden können sich spontan, sehr flüssig und genau ausdrücken und auch bei komplexeren Sachverhalten feinere Bedeutungsnuancen deutlich machen. Die Studierenden können fließend sprechen und auch feinere Bedeutungsnuancen genau ausdrücken. Bei Ausdrucksschwierigkeiten können sie so reibungslos wieder ansetzen und umformulieren, dass man es kaum merkt. Die Studierenden können eine Darstellung logisch aufbauen und es so den Zuhörern erleichtern, wichtige Punkte zu erkennen und sich diese zu merken. Die Studierenden können Fachtexte und literarische Werke schriftlich zusammenfassen und besprechen.
Die Studierenden können sich mühelos an allen Gesprächen und Diskussionen beteiligen und sind auch mit Redewendungen und umgangssprachlichen Wendungen gut vertraut. Die Studierenden können anspruchsvolle Briefe und komplexe Berichte oder Artikel verfassen, die einen Sachverhalt gut strukturiert darstellen und so dem Leser helfen, wichtige Punkte zu erkennen und sich diese zu merken.
Die Studierenden können Sachverhalte klar, flüssig und im Stil der jeweiligen Situation angemessen darstellen und erörtern. Die Studierenden können klar, flüssig und stilistisch dem jeweiligen Zweck angemessen schreiben.

Content information	
Content	Fokus auf allgemeinsprachliche Fähigkeiten auf dem C2 Niveau (GER): -- schriftlicher und mündlicher Ausdruck -- Lese- und Hörverstehen -- Wortschatzarbeit -- Grammatik -- prüfungsbezogene Anleitung
Literature	Kursbuch für dieses Modul muss von allen Teilnehmer(innen) angeschafft werden. Die ISB-Nummer wird am Anfang der ersten Lehrveranstaltung bekannt gegeben.

Teaching format of this course	
Teaching format	**SWS**
Sprachkurs	4

Examinations	
ENGC2 - Präsentation	Method of Examination: Präsentation Duration: 7 Minutes Weighting: 40% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
ENGC2 - Klausur	Method of Examination: Klausur Duration: 120 Minutes Weighting: 60% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
Ungraded Course Assessment	No

Miscellaneous	
Miscellaneous	Erfüllung der Anwesenheitspflicht gemäß §52 Abs. 12 HSG. Teilnahme nur möglich nach einer Einstufung durch das ZSIK. Kompetente Sprachverwendung (C2) Nach erfolgreichem Abschluss verfügt jeder/jede Teilnehmer/Teilnehmerin über viel Flexibilität, Gedanken mit verschiedenen sprachlichen Mitteln zu formulieren, um feinere Bedeutungsnuancen deutlich zu machen oder um etwas hervorzuheben, zu differenzieren oder um Mehrdeutigkeit zu beseitigen, außerdem verfügt jeder/jede Teilnehmer/Teilnehmerin auch über gute Kenntnisse umgangssprachlicher und idiomatischer Wendungen gemäß der 6. Stufe des Gemeinsamen Europäischen Referenzrahmens (GER). http://www.europaeischer-referenzrahmen.de/ Online unterstützt

Course: Englisch B2

General information	
Course Name	Englisch B2 English B2
Course code	ENGB2
Lecturer(s)	Dr. Bubbers, Fiona (fiona.bubbers@haw-kiel.de) Willson, Elena (elena.willson@haw-kiel.de) West, Rob (rob.west@haw-kiel.de) Jones, Ryan (ryan.jones@haw-kiel.de)
Occurrence frequency	Regular
Module occurrence	In der Regel im Wintersemester
Language	Englisch

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Die Studierenden können die Hauptinhalte komplexer Texte zu konkreten und abstrakten Themen verstehen und wiedergeben. Die Studierenden können die meisten Nachrichtensendungen, Reportagen und Spielfilme im Fernsehen verstehen (Standardsprache). Die Studierenden können die zentralen Regeln der Grammatik auf einem B2-Niveau anwenden.
Die Studierenden können sich zu einem breiten Themenspektrum klar und detailliert ausdrücken, einen Standpunkt zu einer aktuellen Frage erläutern und die Vor- und Nachteile verschiedener Möglichkeiten angeben. Die Studierenden können Artikel und Berichte über Probleme der Gegenwart lesen und verstehen, in denen die Schreibenden eine bestimmte Haltung oder einen bestimmten Standpunkt vertreten. Die Studierenden können bei vertrauten Themen auch komplexer Argumentation folgen. Die Studierenden können die persönliche Bedeutung von Ereignissen und Erfahrungen deutlich machen. Die Studierenden können klare und detaillierte Darstellungen zu vielen Themen aus eigenen Interessengebieten geben. Die Studierenden können Briefe schreiben und über eine Vielzahl von Themen klare, detaillierte Texte verfassen.
Die Studierenden können sich so spontan und fließend verständigen, dass ein normales Gespräch mit einem Muttersprachler recht gut möglich ist. Die Studierenden können sich in vertrauten Situationen aktiv an einer Diskussion beteiligen und eigene Ansichten begründen und verteidigen

Content information	
Content	Fokus auf allgemeinsprachliche Fähigkeiten auf dem B2 Niveau (GER): -- schriftlicher und mündlicher Ausdruck -- Lese- und Hörverstehen -- Wortschatzarbeit -- Grammatik -- prüfungsbezogene Anleitung
Literature	Kursbuch für die Lehrveranstaltungen dieses Moduls muss von allen Teilnehmer(innen) angeschafft werden. Die ISB-Nummer wird am Anfang der ersten Lehrveranstaltung bekannt gegeben.

Teaching format of this course	
Teaching format	**SWS**
Sprachkurs	4

Examinations	
ENGB2 - Präsentation	Method of Examination: Präsentation Duration: 5 Minutes Weighting: 40% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
ENGB2 - Klausur	Method of Examination: Klausur Duration: 120 Minutes Weighting: 60% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
Ungraded Course Assessment	No

Miscellaneous	
Miscellaneous	Erfüllung der Anwesenheitspflicht gemäß §52 Abs. 12 HSG. Teilnahme nur möglich nach einer Einstufung durch das ZSIK. Selbstständige Sprachverwendung (B2) Nach erfolgreichem Abschluss verfügt jeder/jede Teilnehmer/Teilnehmerin über ein ausreichend breites Spektrum von Redemitteln, um in klaren Beschreibungen oder Berichten über die meisten Themen allgemeiner Art zu sprechen und eigene Standpunkte auszudrücken gemäß der 4. Stufe des Gemeinsamen Europäischen Referenzrahmens (GER). http://www.europaeischer-referenzrahmen.de/ Online unterstützt.

Course: Englisch C1

General information	
Course Name	Englisch C1 English C1
Course code	ENGC1
Lecturer(s)	Wilson, Kirk (kirk.wilson@haw-kiel.de) Dr. Bubbers, Fiona (fiona.bubbers@haw-kiel.de) Willson, Elena (elena.willson@haw-kiel.de) West, Rob (rob.west@haw-kiel.de)
Occurrence frequency	Regular
Module occurrence	In der Regel im Wintersemester
Language	Englisch

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Die Studierenden können ein breites Spektrum anspruchsvoller, längerer Texte verstehen und auch implizite Bedeutungen erfassen. Die Studierenden können längeren Redebeiträgen folgen, auch wenn diese nicht klar strukturiert sind und wenn Zusammenhänge nicht explizit ausgedrückt sind. Kann ohne allzu große Mühe Fernsehsendungen und Spielfilme verstehen, selbst wenn Standardsprache nicht verwendet wird. Die Studierenden können komplexe Sachtexte und literarische Texte verstehen und Stilunterschiede wahrnehmen. Die Studierenden können Fachartikel und längere technische Anleitungen verstehen, auch wenn sie nicht im eigenen Fachgebiet liegen Die Studierenden können die zentralen Regeln der Grammatik auf einem C1-Niveau anwenden.
Die Studierenden können sich klar, strukturiert und ausführlich zu komplexen Sachverhalten äußern und dabei verschiedene Mittel zur Textverknüpfung angemessen verwenden. Die Studierenden können sich spontan und fließend ausdrücken, ohne öfter deutlich erkennbar nach Worten suchen zu müssen. Die Studierenden können ihre Gedanken und Meinungen präzise ausdrücken und seine/ihre eigenen Beiträge geschickt mit denen anderer verknüpfen. Die Studierenden können komplexe Sachverhalte ausführlich darstellen und dabei Themenpunkte miteinander verbinden, bestimmte Aspekte besonders ausführen und ihren Beitrag angemessen abschließen. Die Studierenden können sich schriftlich klar und gut strukturiert ausdrücken und seine/ihre Ansicht ausführlich darstellen. Die Studierenden können in Briefen, Aufsätzen oder Berichten über komplexe Sachverhalte schreiben und die wesentlichen Aspekte hervorheben.
Die Studierenden können in eigenen schriftlichen Texten den Stil wählen, der für die jeweiligen Leser angemessen ist. Die Studierenden können sich spontan und fließend an allen Gesprächen und Diskussionen beteiligen, ohne öfter deutlich erkennbar nach Worten suchen zu müssen.
Die Studierenden können die Sprache im gesellschaftlichen und beruflichen Leben oder in Ausbildung und Studium wirksam und flexibel gebrauchen.

Content information	
Content	Fokus auf allgemeinsprachliche Fähigkeiten auf dem C1 Niveau (GER): -- schriftlicher und mündlicher Ausdruck -- Lese- und Hörverstehen -- Wortschatzarbeit -- Grammatik -- prüfungsbezogene Anleitung
Literature	Kursbuch für die Lehrveranstaltungen dieses Moduls muss von allen Teilnehmer(innen) angeschafft werden. Die ISB-Nummer wird am Anfang der ersten Lehrveranstaltung bekannt gegeben.

Teaching format of this course	
Teaching format	**SWS**
Sprachkurs	4

Examinations	
ENGC1 - Präsentation	Method of Examination: Präsentation Duration: 6 Minutes Weighting: 40% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
ENGC1 - Klausur	Method of Examination: Klausur Duration: 120 Minutes Weighting: 60% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
Ungraded Course Assessment	No

Miscellaneous	
Miscellaneous	Erfüllung der Anwesenheitspflicht gemäß §52 Abs. 12 HSG. Teilnahme nur möglich nach einer Einstufung durch das ZSIK. Kompetente Sprachverwendung C1 Nach erfolgreichem Abschluss verfügt jeder/jede Teilnehmer/Teilnehmerin über ein breites Spektrum von Redemitteln, aus dem er/sie geeignete Formulierungen auswählen kann, um sich klar und angemessen über ein breites Spektrum allgemeiner, wissenschaftlicher, beruflicher Themen oder über Freizeitthemen zu äußern, ohne sich in dem, was er/sie sagen möchte, einschränken zu müssen gemäß der 5. Stufe des Gemeinsamen Europäischen Referenzrahmens (GER). http://www.europaeischer-referenzrahmen.de/ Online unterstützt.

MADS-EMDM - Advanced Topics of Data Mining

MADS-EMDM - Advanced Topics of Data Mining

General information	
Module Code	MADS-EMDM
Unique Identifier	AdvTopDataMi-01-MA-M
Module Leader(s)	Prof. Dr. Doerfel, Stephan (stephan.doerfel@haw-kiel.de)
Lecturer(s)	Prof. Dr. Doerfel, Stephan (stephan.doerfel@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Irregular
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - DS - Data Science Module type: Wahlmodul Semester: 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students know - various typical tasks of data mining - various scenarios in which this methodology can be applied - different algorithms for solving such tasks, implementations, advantages and drawbacks
Students are able to - apply the discussed methodology to real-world problems - interpret their results, draw conclusions, consider limitations - learn about new methodology from literature and documentation
Students are able to - correctly interpret and communicate the approach and results both in technical and functional terms.
Students are able to - work professionally with standard data mining methodology.

Content information	
Content	Topics - Ranking Algorithms - Graph Algorithms - Descriptive Pattern Mining - Frequent Pattern Mining - Time Series Prediction Applications - Recommender Systems - Community Discovery - Association Rule Learning - Subgroup Discovery - Prediction and Analysis of Time Series
Literature	Lecture Slides + Exercises tba. during the lectures

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag + Übung	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MADS-EMDM - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Basic knowledge about data mining, s.a. - setting up machine learning experiments - evaluation of machine learning algorithms - usecases like clustering, regression, classification. Basic practical Python programming experience.

MADS-EMGAI - Generative AI

MADS-EMGAI - Generative AI

General information	
Module Code	MADS-EMGAI
Unique Identifier	GenAI-01-MA-M
Module Leader(s)	Prof. Dr. Prange, Michael (michael.prange@haw-kiel.de)
Lecturer(s)	Brede, Max (max.brede@haw-kiel.de) Klick, Alwin (alwin.klick@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - DS - Data Science Module type: Wahlmodul Semester: 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students - know the fundamentals of generative AI systems. - know various modern applications of generative AI systems. - know the theoretical foundations and practical applications of generative AI systems.
Students - are able to explain and apply various open-source language models. - are able to implement and utilize agent systems and their functionalities. - are able to understand and use embeddings and vector stores for semantic search and recommendations. - are able to explain and practically apply different methods for image generation. - are able to fine-tune large language models (LLMs) and diffusion models for specific tasks.
Students - are able to successfully organize teamwork for generative AI projects. - are able to report and present team solutions for practical project tasks. - are able to interpret and communicate the approaches in technical and functional terms.
Students - are able to work professionally in the field of generative AI systems. - are able to give and accept professional feedback to different topics of generative AI systems. - are able to select relevant scientific literature about generative AI systems.

Content information	
Content	Open Source Language Models - Overview of model lists - Ollama - Generation of synthetic text as training sets Agent Systems - Llamaindex, LangChain & Haystack - Function calling - Data analysis Embeddings and Vector Stores - Semantic Search - Retrieval-augmented generation - Recommendations AI Image Generators - Generative Adversarial Networks (GANs) - Variational Autoencoders / Diffusion Models - Generative approaches for image dataset augmentation Fine-Tuning of LLMs and Diffusion Models - Examples: LoRA, QLoRA, MoRA
Literature	Presentation slides

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag + Übung	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MADS-EMGAI - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Basic knowledge about Deep Learning and Natural Language Processing. Basic practical experience in Python programming.

MK119 - Unterwasser Techniken
MK119 - Underwater Techniques

General information	
Module Code	MK119
Unique Identifier	UnderwTechn-01-MA-M
Module Leader(s)	Prof. Dr. Badri-Höher, Sabah (sabah.badri-hoeher@haw-kiel.de)
Lecturer(s)	Prof. Dr. Badri-Höher, Sabah (sabah.badri-hoeher@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Study Specialization: Kommunikationstechnik und Embedded Systems Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2025, V20261) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Technical skills (Expertise) The main subjects of this course are: - Underwater sound propagation - Underwater acoustical data transmission - Underwater navigation and localization techniques - Sonar signal processing algorithms and their implementation in software.

The students - obtain specialized knowledge in the field of underwater sound transmission and detection matched to the master level in the area of electrical and information engineering - acquire skills to understand modern navigation and localization techniques. Sonal signal processing, underwater acoustical data transmission.
The course covers elements of a classical interactive online lecture/exercise, as well as team-working based on the handling of scientific papers and lab work. Therefore the students learn to solve problems both independently as well as team-oriented.
The students - learn to communicate in teams about scientific contents - learn to express and justify their opinion about suitable problem solutions in projects of underwater techniques.

Content information	
Content	Properties of sound in water: Absorption, scattering, multipath propagation, natural and artificial noise sources. Underwater acoustic positioning systems: Long-baseline (LBL), short-baseline (SBL), ultra-short-baseline (USBL), GPS intelligent buoys (GIB). Sonar principles: Sonar equation, single-beam and multi-beam sonar systems, beamforming Sonar signal processing: Localization and tracking of objects by means of 1D and 2D sonar signals. Sonar-based navigation, simultaneous localization and mapping (SLAM).
Literature	L. Brekhovskikh, Y Lysanov, Fundamentals of Ocean Acoustics. Springer, 2003. W. S. Burdic, Underwater acoustic system analysis. Prentice Hall, 1991. X. Lurton, An Introduction to Underwater Acoustics: Principles and Applications. Springer Praxis Publishing, London, 2010. D. Ribas, P. Ridao, J. Neira, Underwater SLAM for Structured Environments Using an Imaging Sonar. Springer, 2010.

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag	2
Übung	1
Labor	1

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None

MK119 - Übung	Method of Examination: Übung Weighting: 30% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes
MK119 - Klausur	Method of Examination: Klausur Duration: 90 Minutes Weighting: 70% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Miscellaneous	Students are asked to bring their own laptops to the laboratory classes. Laboratory assignments are encouraged to be solved in teams of two or three students. This module takes place in the technical faculty of the university of Kiel (CAU)

MM118 - Battery Management and Battery Diagnostics

MM118 - Battery Management and Battery Diagnostics

General information	
Module Code	MM118
Unique Identifier	BatMgmtBatDi-01-MA-M
Module Leader(s)	Prof. Dr. Weber, Christoph (christoph.weber@haw-kiel.de)
Lecturer(s)	Prof. Dr. Weber, Christoph (christoph.weber@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Eng. - BT - Battery Technologies Module type: Pflichtmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Study Specialization: Elektrische Energietechnik Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Study Specialization: Kommunikationstechnik und Embedded Systems Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2017, V3) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Eng. - MET - Elektrische Technologien (PO 2025, V20261) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

Deutsch:
Die Studierenden sind in der Lage, den Entwicklungsprozess von der Idee bis zur Implementierung softwarebasierter Funktionen in elektronischen Steuergeräten mechatronischer Systeme – am Beispiel eines realen Batterie-Management-Systems – praxisnah nachzuvollziehen und eigenständig umzusetzen. Sie analysieren modellbasierte Funktionen, testen ihre Lösungen mit Rapid Prototyping und Hardware-in-the-Loop-Systemen und wenden moderne Entwicklungswerkzeuge zur automatischen Codegenerierung und Echtzeittestung an. Zudem entwickeln sie modellbasierte Zustandsüberwachungsmethoden (Condition Monitoring) und sind befähigt, Lade- und Gesundheitszustände von Batterien mit systemtheoretischen Verfahren (z.?B.Kalman-Filter) sowie alternativen KI-Methoden zu schätzen und zu bewerten.

Englisch:
Students are able to critical evaluate and implement the complete development process from the initial idea to the software function implementation in electronic control units of mechatronic systems, using a real battery management system as an example. They independently apply software and hardware development requirements, analyze model-based functions, and validate their solutions using rapid prototyping and hardware-in-the-loop systems. They use state-of-the-art tools for automatic code generation and real-time testing. Furthermore, students develop model-based condition monitoring solutions by estimating system state variables and demonstrate competence in designing and comparing battery state-of-charge and state-of-health estimation methods using system equations (e.g., Kalman filter) and alternative artificial intelligence approaches.

Deutsch:
Durch die vorlesungsbegleitende Darstellung der Organisation von Projektteams lernen die Studierenden mögliche soziale Situationen kennen, können diese beschreiben und voneinander abgrenzen sowie die Bedeutung von Zeit- und Organisationsmanagementtools erläutern. Durch den im Modul gesetzten Schwerpunkt der Projektarbeit an einem Thema mit einem klaren Entwicklungsauftrag sind die Studierenden in der Lage, den sozialen Umgang in der Zusammenarbeit in einem Team von bis zu drei Studierenden zu trainieren: Sie erkennen ihre eigene Rolle im Team und können ihr Handeln durch die gemeinsame Verfolgung von Aufgabenpaketen in einem industrienahen Szenario richtig einschätzen.

English:
Through the lecture-based presentation of project team organization, students become familiar with possible social situations, are able to describe and differentiate between them, and explain the importance of time and organizational management tools. The module's focus on project work on a topic with a clear development mandate enables students to practice social interaction when working together in a team of up to three students. They recognize their own role within the team and can correctly assess their actions by jointly pursuing task packages in an industry-related scenario.

Deutsch:
Durch die Nutzung von Risikoanalysetools innerhalb von regelmäßigen Präsentationsterminen sind die Studierenden in der Lage, ihren Projektstand objektiv einschätzen und nach außen unter festen Zeitvorgaben verständlich kommunizieren zu können.

English:
By using risk analysis tools during regular presentations, students are able to objectively assess the status of their project and communicate it to the outside world in an understandable manner within fixed time constraints.

Content information	
Content	Deutsch: Die Inhalte der Vorlesung gliedern sich wie folgt: -Anforderungs-, Zeit- und Organisationsmanagementtools und Tools zur Risikoanalyse -systemtheoretische und informationstechnische Grundlagen -Prozesse zur Funktions- und Softwareentwicklung -Methoden und Werkzeuge in der modellgestützten Entwicklung Im Labor werden unter der grafisch-orientierten Programmiersprache Simulink® und dem Embedded Coder komplexe Funktionen für Steuergeräte entworfen, entwickelt, getestet und angewendet. Als Beispiel wird eine einfache Steuerung für ein Batteriemanagementsystem realisiert. Diese Aufgabe ist als Projekt innerhalb einer kleinen Gruppe zu lösen. Die Entwicklungsplattformen Raspberry PI, STM32-Controller und Matlab/Simulink dienen zur Implementierung eines echtzeitfähigen Batteriemodells zum Testen der selbst entwickelten Funktionen auf dem Batteriemanagementsystem. In einem weiteren Teil des Kurses wird Python eingesetzt, um KI basierte Methoden im Zusammenhang mit Batteriedaten zu erproben. English: The content of the lecture is structured as follows: -Requirements, time and organization management tools and risk analysis tools -system theory and information technology basics -Processes for functional and software development -Methods and tools in model-based development In the laboratory, complex functions for control devices are designed, developed, tested and applied using the graphic-oriented programming language Simulink® and the embedded coder. As an example, a simple control for a battery management system is implemented. This task is to be solved as a project within a small group. The Raspberry PI, STM32-Controller and Matlab/Simulink development platform are used to implement a real-time capable battery model for testing the self-developed functions of the battery management system. In a further aspect of the course, Python is used to develop AI based methods in the cotext of battery data.
Literature	1) VDI-Richtlinie 2206: Entwicklungsmethodik für mechatronische Systeme 2) Automotive Software Engineering, Schäuffele, Zurawka, Vieweg Teubner Verlag 3) https://de.mathworks.com/ (Installation von Matlab Simulink + Toolboxen, siehe Empfohlene Voraussetzung) 4) https://www.jetbrains.com/community/education/#students (Installation einer IDE zur Programmierung in Debugging von Python Skripten, siehe Empfohlene Voraussetzung) 5) https://www.python.org/ (Installation des Programmpaketes Python, siehe Empfohlene Voraussetzung) 6) Batteriemodell zur Prädiktion des Gesundheitszustandes von Lithium-Ionen-Batterien, Kohs, A., Springer-Verlag 7) Optimal State Estimation, Simon, D., Wiley-Verlag

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	2
Labor	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MM118 - Laborprüfung	Method of Examination: Laborprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Miscellaneous	Please install following software tool wehn you attend the course: 1) Matlab/Simulink (Campus-Licence available over your FH Kiel email address und password) https://de.mathworks.com/ Necessary Toolboxes: -Simulink Coder, Matlab Coder, Embedded Coder, Simulink Support Package for Raspbeerry PI, Embedded Coder Support Package for STM32 Microcontroller 2) Pycharm (IDE zur Programmierung von Python Scripten) https://www.jetbrains.com/community/education/#students 3) Python 3.10 https://www.python.org/ -Libraries: numpy scipy tensorflow keras matplotlib 4) Anaconda (Alternative to 2) and 3)) https://anaconda.org/ To establish a Jupyter-Notbook to emulate the Python Environment Deutsch: Der Schwerpunkt des Moduls bildet die selbstständige Funktionsentwicklung eines Batteriemanagementsystems mit der Modellierung, dem Software in the loop Test und dem anschließenden Hardware in the loop Test. Die Prüfungsleistung wird anhand der Durchführung der einzelnen Bestandteile des im Modul beschriebenen Entwicklungsprozesses im Rahmen eines technischen Tests erhoben. Es wird ein erster Einblick in die Methoden der Künstlichen Intelligenz gewährt, indem mit Hilfe von der Interpretersprache Python aus Batteriedaten Modelle zur Zustandsprognose von Batteriesystemen zu trainieren (Gesundheitszustand, Ladezustand). Das Modul wird in Englisch unterrichtet, wenn internationale Studierende das Modul besuchen. English: The focus of the module is the independent functional development of a battery management system with modeling, the software in the loop test and the subsequent hardware in the loop test. The examination performance is assessed based on the implementation of the individual components of the development process by means of a technical test described in the module. A first insight into the methods of artificial intelligence is provided by using the interpreter language Python to train models for the condition prediction of battery systems from battery data (state of charge, state of health) The module is taught in English, when international students are visiting the course.

MRP1 - Master Research Project - 1

MRP1 - Master Research Project - 1

General information	
Module Code	MRP1
Unique Identifier	ResProj1-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Method competences: Scientific working, practical realization of scientific theories, creation and execution of experiments, improving problem solving competences.
Social competences: Instructing other students, improving communication skills.
Professional competences: Independent familiarisation in a new topic and/or deepening of existing knowledge through practical work.

Content information	
Content	Independent and self-contained work on sub-topics of R&D projects, deepening knowledge obtained from lectures. New research hypothesis may be developed independently. By instructing other students knowledge and competences should be deepened and transfered to other students. The research assistantship may be carried out in parallel to lectures. It shall offer the opportunity to carry out team work or individual work and get acquainted with research areas and staff. Typical work topics would include: • Creation and assessment of methods • Execution of experiments and documentation • Creation, implementation and documentation of tools and applications • Mentoring other students • Creation of literature surveys • Assisting with lectures • Publishing and assisting with grant applications • Helping with start-up efforts • Setting up and maintaining open-source efforts The actual topic has to be discussed on an individual basis with a faculty member.
Literature	• Literature depends on the specific project.

Teaching formats of the courses	
Teaching format	**SWS**
Projekt	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MRP1 - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

MRP2 - Master Research Project - 2

MRP2 - Master Research Project - 2

General information	
Module Code	MRP2
Unique Identifier	ResProj2-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Method competences: Scientific working, practical realization of scientific theories, creation and execution of experiments, improving problem solving competences.
Social competences: Instructing other students, improving communication skills.
Professional competences: Independent familiarisation in a new topic and/or deepening of existing knowledge through practical work.

Content information	
Content	Independent and self-contained work on sub-topics of R&D projects, deepening knowledge obtained from lectures. New research hypothesis may be developed independently. By instructing other students knowledge and competences should be deepened and transfered to other students. The research assistantship may be carried out in parallel to lectures. It shall offer the opportunity to carry out team work or individual work and get acquainted with research areas and staff. Typical work topics would include: • Creation and assessment of methods • Execution of experiments and documentation • Creation, implementation and documentation of tools and applications • Mentoring other students • Creation of literature surveys • Assisting with lectures • Publishing and assisting with grant applications • Helping with start-up efforts • Setting up and maintaining open-source efforts The actual topic has to be discussed on an individual basis with a faculty member.
Literature	• Literature depends on the specific project.

Teaching formats of the courses	
Teaching format	**SWS**
Projekt	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MRP2 - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

MRP3 - Master Research Project - 3

MRP3 - Master Research Project - 3

General information	
Module Code	MRP3
Unique Identifier	ResProj3-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Method competences: Scientific working, practical realization of scientific theories, creation and execution of experiments, improving problem solving competences.
Social competences: Instructing other students, improving communication skills.
Professional competences: Independent familiarisation in a new topic and/or deepening of existing knowledge through practical work.

Content information	
Content	Independent and self-contained work on sub-topics of R&D projects, deepening knowledge obtained from lectures. New research hypothesis may be developed independently. By instructing other students knowledge and competences should be deepened and transfered to other students. The research assistantship may be carried out in parallel to lectures. It shall offer the opportunity to carry out team work or individual work and get acquainted with research areas and staff. Typical work topics would include: • Creation and assessment of methods • Execution of experiments and documentation • Creation, implementation and documentation of tools and applications • Mentoring other students • Creation of literature surveys • Assisting with lectures • Publishing and assisting with grant applications • Helping with start-up efforts • Setting up and maintaining open-source efforts The actual topic has to be discussed on an individual basis with a faculty member.
Literature	• Literature depends on the specific project.

Teaching formats of the courses	
Teaching format	**SWS**
Projekt	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MRP3 - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

MRS - Master Research Seminar

MRS - Master Research Seminar

General information	
Module Code	MRS
Unique Identifier	ResSem-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Acker, Wolfram (wolfram.acker@haw-kiel.de) Prof. Dr. Aßmuth, Andreas (andreas.assmuth@haw-kiel.de) Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
In the everyday work of a university graduate, research on specific topics is often necessary, the results of which often have to be presented in elaborations and lectures. In preparation for this, appropriate skills are taught in the seminar, e.g. the technical basics for independent scientific work in literature searches, lectures and elaborations are learned and deepened; practice working independently and presenting a topic for a specific target audience; learned presentation techniques and speaking in front of an audience; Gained experience in moderation and discussion; learned to question the content of literature and lectures; communicated the open but critical approach to current developments and new topics. In addition, in-depth knowledge and interdisciplinary aspects on special topics are conveyed.

Every participant - can prepare and present a lecture and an essay; - can moderate an event; - can participate in technical and methodological discussions; - is able to critically question scientific texts and lectures.
The students learn the ability to take criticism and a corresponding culture of discussion. Your involvement in the department is promoted by getting to know all the lecturers personally during the presentations and excursions. Depending on the topic, changing contact persons bring broad professional competence, promote interdisciplinary networking and are therefore good preparation for the thesis and the later professional field.
The students acquire skills to increase their own and professional professionalism, e.g. B. for later work as a manager or employee in companies in the upstream and downstream areas of agriculture as well as in consulting firms.

Content information	
Content	- All participants must create and present a lecture and an essay; moderate an event once; Participate in the discussions at all events. - Each event is then critically reviewed by the lecturers; some computer programs are created and evaluated. - Topic-centric interdisciplinary aspects of a general topic.
Literature	- subject-specific

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MRS - Präsentation	Method of Examination: Präsentation Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

MTA - Master Teaching Assistantship

MTA - Master Teaching Assistantship

General information	
Module Code	MTA
Unique Identifier	TeachAssist-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Aßmuth, Andreas (andreas.assmuth@haw-kiel.de) Prof. Dr. Ehlers, Jens (jens.ehlers@haw-kiel.de) Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de) Prof. Prieß, Malte (malte.priess@haw-kiel.de) Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de) Prof. Dr. Schramm, Hauke (hauke.schramm@haw-kiel.de) Prof. Dr. Woelk, Felix (felix.woelk@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Teaching Assisntants learn the basic requirements for preparing, teaching, and postprocessing master-level courses. By swapping from student to teacher perspective, they learn basic skills in education, communication of scientific facts and concepts, and experience basic challenges in academic work.
Teaching Assistants are able to prepare and teach laboratory and exercise courses, create, propose and process examination tasks for university courses, and work with student results and grades in an academic environment.
Along with the teaching experience, teaching assisntants improve their presentation and rhetoric skills, learn how to handle critical situations in teaching events, and get additional experience in time managment. All of this improves their self-awareness and professionality as scientists.

Content information	
Content	Depending on the module the teaching assistantship is held in, the contents may vary. Beyond that, all theaching assistantships include preparation, performance and postprocessing of academis courses, exercises, laboratories, seminars, lectures, or similar, under the guidance of a responsible academic staff member.

Teaching formats of the courses	
Teaching format	**SWS**
Labor	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MTA - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

NSS - Network Systems and Security

NSS - Network Systems and Security

General information	
Module Code	NSS
Unique Identifier	NetSysSec-01-MA-M
Module Leader(s)	Prof. Dr. Aßmuth, Andreas (andreas.assmuth@haw-kiel.de) Caspar, Florian (florian.caspar@haw-kiel.de)
Lecturer(s)	Caspar, Florian (florian.caspar@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Irregular
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
- After completing this course, students are able capable of explicating protocols and algorithms used in network security. - They can identify threats for network systems and develop countermeasures. - Through the common work on a network security topic students are able to take on different roles in teams and present the solution.
- Students will be able to work with common tools in the IT security field upon completion of the course. - They are able to evaluate existing processes with regard to their applicability and to design their own processes. - They are able to understand the mindset of an attacker and plan anticipatory countermeasures at different work levels.

Content information	
Content	- Firewalls - Network Attacks - Intrusion Detection Systems - Advanced Persistent Threats - Virtualization and Containerization - Security Architectures - Authentication & Authorization - Applied Cryptography
Literature	1. Schneier, B.: Applied Cryptography, John Wiley & Sons, Inc., ISBN 0-471-12845-7 2. Stallings, W.: Cryptography and Network Security: Principles and Practice, Prentice Hall, ISBN 978-0137056323

Teaching formats of the courses	
Teaching format	**SWS**
Labor	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
NSS - Laborprüfung	Method of Examination: Laborprüfung Weighting: 0% wird angerechnet gem. § 11 Satz 2 PVO: Yes Graded: No Remark: The examination assesses whether students are able to apply the techniques demonstrated in the lecture in practice. Die in SoSe 2024 bestehende Teilprüfung "Übung" wird bei nicht abgeschlossener Modulprüfung auf die neue Teilprüfung "Laborprüfung" angerechnet.
NSS - Klausur	Method of Examination: Klausur Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	BI127: Sicherheit in Netzwerken

PM101 - Advanced IT-Project-Management (Lecture and Laboratory)

PM101 - Advanced IT-Project-Management

General information	
Module Code	PM101
Unique Identifier	AdvITProjMgm-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Pflichtmodul Semester: 1, 2

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
On successful completion of this module students will be able to • Demonstrate a systematic acquisition and understanding of conceptual knowledge of professional standards– according to the "Eye of Competences" (IPMA – International Project Management Association) • Present behavioural, contextual and technical competences to organise, plan and manage projects in an international environment • Demonstrate practical application of this knowledge and the ability to communicate with PM experts • Start their IPMA-certification process (optional and after passing the external exam).
On successful completion of this module students will be able to - communicate in a professional manner within a team - describe issues within the project and discuss different solutions - give feedback - can deal with failures in a positive and learning way instead of blaming each other - use digital communication & collaboration tools in a proper and helpful way - visualise and discuss workload

Content information	
Content	Outcomes: On successful completion of this module students will be able to • Demonstrate a systematic acquisition and understanding of conceptual knowledge of professional standards– according to the "Eye of Competences" (IPMA – International Project Management Association) • Present behavioural, contextual and technical competences to organise, plan and manage projects in an international environment • Demonstrate practical application of this knowledge and the ability to communicate with PM experts • Start their IPMA-certification process (optional and after passing the external exam). Practice 1.01 Design 1.02 Requirements, objectives and benefits 1.03 Scope 1.04 Time 1.05 Organisation and information 1.06 Quality 1.07 Finance 1.08 Resources 1.09 Procurement and partnership 1.10 Plan and control 1.11 Risk and opportunity 1.12 Stakeholders 1.13 Change and transformation 1.14 Select and balance People 2.01 Self-reflection and self-management 2.02 Personal integrity and reliability 2.03 Personal communication 2.04 Relations and engagement 2.05 Leadership 2.06 Teamwork 2.07 Conflict and crisis 2.08 Resourcefulness 2.09 Negotiations 2.10 Result orientation Perspective 3.01 Strategy 3.02 Governance, structures and processes 3.03 Compliance, standards and regulations 3.04 Power and interest 3.05 Culture and values
Literature	• International Project Management Association (Ed.): IPMA Competence Baseline • IProject Management Institute (Ed.): A Guide to the Project Management Body of Knowledge (PMBOK Guide) • Software Engineering Institute/CMMI Institute (Ed.): CMMI materials • V-Model XT (English, www.v-modell.iabg.de) • Schwaber, Sutherland:The Scrum Guide (www.scrum.org)

Teaching formats of the courses	
Teaching format	**SWS**
Projekt	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
PM101 - Projektbezogene Arbeiten	Method of Examination: Projektbezogene Arbeiten Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Details see in module DDIS

Miscellaneous	
Miscellaneous	This course is not offered anymore. Students who still need this course have to choose module DDIS as a substitute.

PM103 - Advanced Modelling

PM103 - Advanced Modelling

General information	
Module Code	PM103
Unique Identifier	AdvMod-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Lüssem, Jens (jens.luessem@haw-kiel.de) Mielke, Michael (michael.mielke@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3)
Module type: Pflichtmodul
Semester: 1, 2

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

Students know how to
- elicit requirements
- analyse requirements
- document requirements
- validate requirements
- design requirements processes

Students know how to
- design (business) processes
- model (business) processes

Students know how to
- develop daabases
- use pattern for the development

This can be taught within an application domain like machine learning or data analytics.

Students are able to model complex (business) processes using specific tools like Enterprise Architect (UML) or languages like BPMN (BPM).
Students are able to design requirements engineering processes.
Students are able to find suitable ways to elicit and to gather requirements.
Student are capable of writing reports on complex requirements engineering issues.

This can be taught within an application domain like machine learning or data analytics.

Students are able to communicate in complex situations.
Students are able to communicate solutions to stakeholders.
Students are able to work in small teams in order to gather, document, model and implement requirements.

This can be taught within an application domain like machine learning or data analytics.

Content information	
Content	Requirements Engineering 1. Elicitation of requirements 2. Analysis of Requirements 3. Requirements Documentation 4. Requirements Validation 5. Design requirements processes Business Process Management: 1. Introduction to Business Process Management 2. Process Identification 3. Process Discovery 4. Process Modelling and Process Analysis. Data Management 1. Foundations of enterprise wide Data Management 2. Database Systems, Databases, Database Management Systems 3. Data Modelling 4. Patterns in Data Modelling The content can be presentetd / taught within an application domain like machine learning or data analytics.
Literature	Davenport, T. H. (1993): Process Innovation: Reengineering Work through Information Technology. 1993. Boston, Massachusetts: Harvard Business School Press. Dumas, Marlon; La Rosa, Marcello; Mendling, Jan; Reijers, Hajo: Fundamentals of Business Process Management, 2013, Springer-Verlag Berlin Heidelberg Goodfellow, I.: Deep Learning (2016), The MIT Press, Boston Elmasri/Navathe (2017): Fundamentals of Database Systems. 7. ed., 2017. Harlow: Pearson. Pohl, K.: Requirements Engineering: Fundamentals, Principles, and Techniques. Springer, Berlin (2010) Pohl, K.; Rupp, C.: Requirements Engineering Fundamentals. Rockynook, Santa Barbara (2011) Silverston (2001a): The Data Model Resource Book. 2001. Volume 1. Indianapolis: Wiley & Sons. Silverston (2001b): The Data Model Resource Book. 2001. Volume 2. Indianapolis: Wiley & Sons Silverston/Agnew (2009): The Data Model Resource Book. 2001. Volume 3. Indianapolis: Wiley & Sons

Teaching formats of the courses	
Teaching format	**SWS**
Übung	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits

Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
PM103 - Präsentation	Method of Examination: Präsentation Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Details see in module AAP

Miscellaneous	
Miscellaneous	This course is not offered anymore. Students who still need this course have to choose module AAP as a substitute.

UCM - Ubiquitous Computing & Media

UCM - Ubiquitous Computing & Media

General information	
Module Code	UCM
Unique Identifier	UbiqCompMed-01-MA-M
Module Leader(s)	Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de)
Lecturer(s)	Prof. Dr. Manzke, Robert (robert.manzke@haw-kiel.de)
Offered in Semester	Sommersemester 2026
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Sommersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Study Focus: Computer Science for Media Module type: Verpfl. Wahlmodul, PVO §3 Semester: 1, 2
Study Subject: M.Sc. - MCS - Computer Science (PO 2023, V1) Module type: Wahlmodul Semester: 1, 2
Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3) Module type: Wahlmodul Semester: 1, 2, 3

Qualification outcome
Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.
Students who successfully complete this course will have a general understanding of "Ubiquitous and Pervasive Computing" and its relation to multi-media applications. The course will cover relevant areas of hardware and software development, with a special focus on distributed multi-media computing, wireless sensor networks, mobile computing and real-time applications. Embedded systems development capabilities will be obtained. Application knowledge in the domain of Internet-of-Things, wearable computing and mobile computing will be deepened. Server- and cloud back ends will be used for sensor data processing.
Students will learn to realize embedded systems applications, wireless connectivity and distributed media applications.
Students will carry out projects, which will require team work of 3-4 people. Project management will be applied.
Students will be able to deepen their general scientific competencies (including formulation, presentation etc.).

Content information	
Content	- Ubiquitous Computing and trends - Distributed multi-media computing (audio and video) - Real-time media networking and synchronization of distributed systems (PTP, gPTP, QoS, AES67/Ravenna, AVB) - Context Aware Applications - Location Sensing - Multi-Sensor Systems, Sensor networks - Computer-Augmented Environments - Project-based learning - Internet-of-Things - Deepening embedded systems skills - Wireless sensor technologies Projects will encompass: - Work with embedded platforms such as ESP32, BeagleBone and Raspberry Pi as well as server back-ends and cloud end points - Real-time low latency applications - Real-time media networking using protocols such as AVB, AES-Ravenna, Ableton Link - Wireless technology such as WiFi, Bluetooth LE and LoRa / LoRaWAN - Protocols such as MQTT, OSC - Mesh networks (ESP32 Mesh) - Distributed media applications (audio and video) - Cloud backends for sensor data processing (e.g. AWS, Azure, ...)
Literature	- Stefan Poslad: Ubiquitous Computing: Smart Devices, Environments and Interactions, 2009, Wiley, ISBN 0470035609 - Amber Case, Calm Technology: Principles and Patterns for Non-Intrusive Design, 2015, O'Reilly Media, ISBN-13: 978-1491925881 - https://www.ravenna-network.com/what-is-aes67/ - https://www.ieee802.org/1/pages/802.1ba.html

Teaching formats of the courses	
Teaching format	**SWS**
Labor	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
UCM - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Satz 2 PVO: No Graded: Yes Remark: Mid-term test and project related work. Details will be presented in the lecture.