



# COURSE CATALOG

Summer semester 2025

within the project DILLUGIS

(Digital Labs & Lectures for Ukrainian, German & International Students)

Implemented with the support of the GERMAN ACADEMIC EXCHANGE SERVICE DAAD as the part of the «Ukraine digital: Ensuring academic success in times of crisis» initiative funded by the Federal Ministry of Education and Research (FMBF).



## About the project

The DILLUGIS (Digital Labs & Lectures for Ukrainian, German & International Students) project provides for the inclusion of students and lecturers of the NU «Zaporizhzhya Polytechnic», NTUU «Ihor Sikorsky Kyiv Polytechnic Institute», Odessa State Agrarian University, Kyiv National University of Construction and Architecture, Volodymyr Vynnychenko Central Ukrainian State University and Lesya Ukrainka Volyn National University in the digital training in the courses of the East Bavarian University Amberg-Weiden Digital Technology and Management program. Also, professors will work together to develop new digital courses and digital labs for students.

Also the project provides for the holding of two powerful events «Ukrainian-German Teaching Week» and «Workshop for lecturers: using digital technologies in educational process» with the possibility of lectures and students participation either in face-to-face or in online format

The project is implemented with the support of the German academic exchange service DAAD as part of the «Ukraine digital: Ensuring academic success in times of crisis» initiative.

## Інформація про проєкт

Проєкт DILLUGIS (Digital Labs & Lectures for Ukrainian, German & International Students) передбачає залучення студентів та викладачів НУ «Запорізька політехніка», НТУУ «Київський політехнічний інститут імені Ігоря Сікорського», Одеського державного аграрного університету, Київського національного університету будівництва та архітектури, Центральноукраїнського державного університету імені Володимира Вінниченка та Волинського національного університету імені Лесі Українки до цифрового навчання за окремими курсами освітньої програми «Цифрові технології і менеджмент» Східно-Баварського університету Амберг-Вайден.

Також проєкт передбачає проведення двох потужних заходів «Українсько-німецький навчальний тиждень» та «Майстерня для викладачів: використання цифрових технологій у навчальному процесі» з можливістю читання лекцій та участі студентів як в очному, так і в онлайн-форматі.

Проєкт реалізується за підтримки німецької служби академічних обмінів DAAD в рамках ініціативи «Ukraine digital: Ensuring academic success in times of crisis».

## Why this is important for Ukrainian students

- involvement in the international educational environment through online courses of the Digital Technology and Management program in East Bavarian University Amberg-Weiden (<https://www.oth-aw.de/en/>)
- the possibility of obtaining modern knowledge, skills and competences, that meet the requirements of the European labor market, from specialists of German technological companies (Siemens, OnraSens) and professors of a German university, whose courses have a significant practical orientation
- access to the digital educational materials and participation in digital labs and practical works
- getting the experience of participation in the academic mobility program and implementation of the international project DILLUGIS (Digital Labs & Lectures for Ukrainian, German & International Students) with the support of the German academic exchange service DAAD
- improvement of English language knowledge
- participation in multicultural educational process
- receiving a certificate from the East Bavarian University Amberg-Weiden (in case of successful completion of the course)
- the possibility of re-enrollment in Ukrainian university of the studied discipline (course) in accordance with the Regulation on academic mobility
- acquisition of knowledge and skills that go beyond the traditional educational program in frames of non-formal education
- familiarization with the educational environment of East Bavarian University Amberg-Weiden for the future continuation of studies within the framework of international academic mobility and internationalization of education.

## Чому це важливо для українських студентів

- долучення до міжнародного освітнього середовища шляхом онлайн-навчання за курсами програми «Цифрові технології і менеджмент» потужного німецького університету Східно-Баварського університету Амберг-Вайден (<https://www.oth-aw.de/en/>)
- можливість одержання сучасних знань, навичок і компетенцій, що відповідають вимогам європейського ринку праці, від фахівців німецьких технологічних компаній (Siemens, OnraSens) та професорів німецького університету, чії курси мають суттєву практичну спрямованість
- користування цифровим навчальним матеріалами та участь у цифрових лабораторних і практичних роботах
- досвід участі у програмі академічної мобільності та реалізації міжнародного проєкту DILLUGIS (Digital Labs & Lectures for Ukrainian, German & International Students) за підтримки Німецької служби академічного обміну DAAD
- досвід навчання в середовищі міжнародних студентів
- вдосконалення знання англійської мови професійного спрямування
- одержання сертифікату Східно-Баварського університету Амберг-Вайден (у разі успішного проходження курсу, із зазначенням модулів, змісту та тривалості курсу, отриманих компетенцій и навичок)
- можливість перезарахування в українському університеті вивченої навчальної дисципліни (курсу) відповідно до Положення про академічну мобільність
- здобуття знань та навичок, які виходять за межі традиційної освітньої програми в рамках неформальної освіти
- ознайомлення з освітнім середовищем Східно-Баварського університету Амберг-Вайден для продовження в перспективі навчання в межах міжнародної академічної мобільності та інтернаціоналізації освіти.

## About Digital Technology and Management program

Digitalization, connectivity, big data and AI, but also globalization have revolutionized the way companies are run. These megatrends impact not only the product and service offerings of companies. They are also fundamentally changing how companies develop, procure, produce and market, and how they earn money as a result.

## Про програму «Цифрові технології і менеджмент»

Цифровізація, комунікації, BigData та штучний інтелект, а також глобалізація кардинально змінили спосіб управління компаніями. Ці мегатренди впливають не лише на пропозиції компаніями товарів і послуг. Вони також докорінно змінюють те, як компанії розробляють, закупають, виробляють і продають, і як в результаті вони заробляють гроші.

### To master this transformation, we need graduates

- who think and act in an interdisciplinary, cross-functional and interfacing way;
- who have a deep understanding of digital technologies as well as management know-how;
- who possess language skills and intercultural competencies;
- who are creative and at the same time strong in implementation;
- who are able to familiarize themselves with ever new topics while still keeping an eye on the old.

### Щоб освоїти цю трансформацію, потрібні випускники:

- які мислять і діють у міждисциплінарний, міжфункціональний та взаємодіючий спосіб;
- які мають глибоке розуміння цифрових технологій, а також управлінські ноу-хау;
- які володіють мовними та міжкультурними навичками;
- які є креативними і водночас сильними у реалізації;
- які можуть знайомитися з постійно новими темами, в той же час володіючи старими.

These are exactly the competencies you will acquire in the Digital Technology and Management program!

Саме такі компетенції студенти отримують на програмі «Цифрові технології та менеджмент» Східно-Баварського університету Амберг-Вайден!





## **Disciplines/courses (volume of each course – 5 credits ECTS) Дисципліни/курси (обсяг кожного курсу – 5 кредитів ECTS):**

Business Simulation (Бізнес симуляція)

Communication Technology (Комунікаційні технології)

Ethics in Business and Technology (Етика в бізнесі та технологіях)

Industrial Engineering (Промисловий інжиніринг)

Medical Device Technology (Технології медичного обладнання)

Product Management (Управління продуктами)

### **The important organizational points**

1. The training will take place in an online format according to the courses of the «Digital Technology and Management» program of the East Bavarian University Amberg-Weiden.
2. The language of education and communication is English.
3. During the entire period of study, support from Ukrainian-speaking professors is provided.
4. The start of online classes – March 18, 2025, the end of classes and final assessment – July, 2025. Application deadline – 22.02.
5. Mandatory participation in at least 80% of online classes.
6. The number of students participating in the project is limited, so registration is on the principle of «first come, first served», on the condition of successful selection.

### **Важливі організаційні моменти**

1. Навчання відбуватиметься в онлайн форматі за курсами навчальної програми «Цифрові технології і менеджмент» Східно-Баварського університету Амберг-Вайден.
2. Мова навчання та комунікації - англійська.
3. Протягом всього періоду навчання передбачена підтримка з боку україномовних професорів.
4. Початок он-лайн занять – 18 березня 2025 року, закінчення занять і підсумкове оцінювання – липень 2025 року. Подача заявок до 22 лютого.
5. Обов'язкова участь у не менше, ніж 80% он-лайн занять.
6. Кількість студентів, що беруть участь у проекті, обмежена, тому зарахування, за умов успішного відбору, відбувається за принципом «той, хто перший прийшов».

## How to participate in the academic mobility program DILLUGIS project (Digital Labs & Lectures for Ukrainian, German & International Students)

1. Carefully read the information about the project and decide whether you need it.
2. Choose the courses/disciplines that you are interested in among those that will be studied online at the East Bavarian University Amberg-Weiden, after thoroughly familiarizing yourself with their structure, competencies and skills.
3. Fill out the application form with brief information about yourself, chosen courses and explaining of the importance of participating in the project (2-3 sentences).
4. Have a short interview with the project coordinators.
5. Receive a confirmation letter about enrollment in courses.
6. Take part in the organizational meeting and receive the class schedule.
7. Take part in online lectures and digital practical activities.
8. Pass the final assessment and receive a certificate.

## Як взяти участь у програмі академічної мобільності за проєктом DILLUGIS (Digital Labs & Lectures for Ukrainian, German & International Students)

1. Уважно прочитати інформацію про проєкт та прийняти рішення, чи потрібно тобі це.
2. Обрати цікаві для тебе курси/дисципліни, які будуть вивчатися он-лайн в Східно-Баварському університеті Амберг-Вайден, після ретельного ознайомлення з їх структурою, компетенціями та навичками.
3. Заповнити апікаційну форму з короткою інформацією про себе, обрані курси та обґрунтуванням важливості участі у проєкті (2-3 речення).
4. Пройти невелику співбесіду з координаторами проєкту.
5. Отримати лист-підтвердження про зарахування на курси.
6. Прийняти участь в організаційному зібранні та отримати розклад занять.
7. Взяти участь в он-лайн лекціях та цифрових практичних заняттях.
8. Пройти підсумкове оцінювання та отримати сертифікат.

# Business Simulation

Professor / Lecturer	Course Content
Prof. Dr. Julia Heigl	<p>Business game incl. repetition and deepening of theoretical basics and reflection. The students take on the role of the management board and compete in teams. Complex decision-making situations (including competitive strategies, portfolio management, defining product characteristics, price, sales and communication, production and resource planning, investment decisions and financing, personnel management, raw material purchasing and logistics) are prepared and processed with information support in the group.</p> <p>Decisions are made on the basis of business analyses (including financial reports: balance sheet, income statement, cash flow statement, segment report; cost accounting; management with key figures on profitability, liquidity, financing, asset structure) and calculations. The students receive or develop planning and control tools for this purpose.</p> <p>The students prepare elaborations on strategic decisions and capital market decisions. The business game concludes with the simulation of a general meeting.</p>

Teaching Methods	Number of Credits (ECTS)	Workload
Lecture, project work, practical applications using software	5	Contact time: 60 h Self-study: 90 h Total workload: 150 h

## Learning Outcomes

**After successful completion of the module, students will have acquired the following professional, methodological and personal skills and competencies:**

### Professional and Methodological Skills:

- Ability to apply central instruments of operational and strategic planning and control in the context of a business simulation
- systematically collect, interpret and evaluate relevant information
- Analyse company data and synthesise it logically and coherently
- Identify profitability problems and develop solutions based on the acquired knowledge of instruments
- use selected key figures to plan material and cash flows and marketing

### Personal Skills (Social Competence and Self-competence):

- Reflect on the actions of management ethically and in relation to diverse stakeholders.
- Work in groups, split tasks
- present and defend business decisions and actions in a professional manner

## Method of Assessment

Form of Examination	Type/Scope incl. Weighting	Learning Objectives/Competencies to be Assessed
Module work (ModA)	<p>Project Work in Groups</p> <p>50% Presentation, similar to board presentation at annual shareholder meeting</p> <p>50% written report, similar to Management's discussion and analysis of financial condition and results of operations (MD&amp;A)</p>	The group project is used to test the practical learning content and competence profiles, including teamwork and presentation skills.

# Communication Technology

Professor / Lecturer	Course Content
Prof. Dr. Kris Dalm	<p>in-depth study of the technologies and protocols involved in building the Internet-of-Things (IoT)</p> <p>understanding of wireless communication and link layer technologies, multiaccess and scheduling mechanisms, mobility models, routing in disconnected networks, energy-efficient edge networking, loss tolerant transport protocols, and their applications to emerging areas such as vehicular networks, RFID systems and smart buildings.</p> <p>IoT Security and data/content distribution, aggregation, and compression. This course also offers the possibility of an hands-on experience utilizing Raspberry Pi's, Arduino's, and NI software radio boards; for bonus system, a project focused on building a wireless based application such as indoor localization for IoT devices can be done.</p>

Teaching Methods	Number of Credits (ECTS)	Workload
Lecture; case studies; practical exercise; demonstration	5	Contact time: 60 h Self-study: 60 h Exam preparation: 30 h Total effort: 150 h

## Learning Outcomes

**After successful completion of the module, students will have acquired the following professional, methodological and personal skills and competencies:**

Students will be able to describe the components and functions of communications technology required for IoT, apply them to simple problems and critically reflect on them, especially with regard to security aspects.

## Method of Assessment

Form of Examination	Type/Scope incl. Weighting	Learning Objectives/Competencies to be Assessed
Written Exam (Kl90)	Written Exam, 90 minutes Information about multiplechoice questions and a possible bonus system will be provided starting in the semester the module is taught for the first time	With the exam and a possible bonus exercise, all of the above-mentioned competencies are tested.



# Ethics in Business and Technology

Professor / Lecturer	Course Content
<p><b>Georg Klampfl, M.Eng.</b> Institute for Sustainability and Ethics</p>	<p>This course explores the ethical challenges facing businesses and digital technology today, and how individuals and firms can address those challenges. The course aims to enhance the skills and expertise of participants through combining examination of ethical and managerial theory with discussion of common ethical problems in context. This achieved using real-world examples throughout the text and extended case studies at the end of each chapter. Course material includes individual moral theory, the development of ethical organizational culture, the development of ethical management systems designed to respond to ethical challenges, and wide-ranging discussion regarding major trends, challenges, and opportunities in the field of ethical business and technology ethics.</p>

Teaching Methods	Number of Credits (ECTS)	Workload
Lecture, seminar paper, presentations, summary video	5	Contact time: 60 h Self-study: 90 h Total workload: 150 h

## Learning Outcomes

**After successful completion of the module, students will have acquired the following professional, methodological and personal skills and competencies:**

• **Part A: Foundations of Business Ethics**

- define the term business ethics and understand its importance to business.
- be familiar with ethical theories in the context of business and be able to apply them to practice.
- develop an understanding for different market participants in terms of consumer, producer and investor ethics.
- explain the different forms of business ethics standards and concepts.
- be familiar with the difference between Corporate Giving and Corporate Volunteering.
- explain the different types of business ethics instruments.
- identify and apply suitable forms of ethical instruments for companies in practice.

• **Part B: Foundations of Technology Ethics**

- define the term and the associated subject area of technology ethics and relate it to the social challenges of new technologies.
- be familiar with ethical decision-making models in the context of technology ethics and apply these to case studies.
- develop and apply appropriate evaluation and consideration criteria for (new) innovative technologies.
- develop their own ethical position on technology ethics and apply it in ethical-argumentative discussions.
- understand the content of technology assessment and develop an understanding of future relevant developments in technology ethics.

## Method of Assessment

Form of Examination	Type/Scope incl. Weighting	Learning Objectives/Competencies to be Assessed
Presentations and summary video	50 % weighting each for business ethics and technology ethics: proven by seminar paper (written + oral) for freely selectable business and ethical issues: <ul style="list-style-type: none"> <li>- written elaboration (approx. 10 pages)</li> <li>- presentation of the results (30-minute presentation incl. discussion)</li> </ul>	With the exam and a possible bonus exercise, all of the above-mentioned competencies are tested.

# Industrial Engineering

Professor / Lecturer	Course Content
<b>Andreas Dörner,</b> Siemens researcher	Basic documents (drawings, parts lists, work plans) and essential tasks of order processing in manufacturing companies, i. a. from the areas of work planning, purchasing, production and assembly.

Teaching Methods	Number of Credits (ECTS)	Workload
Lectures with integrated practical demonstrations and exercises	5	Contact time: 60 h Self-study and exam preparation: 90 h Total workload: 150 h

## Learning Outcomes

**After successful completion of the module, students will have acquired the following professional, methodological and personal skills and competencies:**

### Professional Skills:

- Students will be able to explain the essential basics and core functions of operational performance (focus: production of goods) and their interrelationships.
- They can apply selected calculation methods.

### Methodological Skills:

- Students can comprehend technical contents and use them in a problem-oriented manner.

### Personal Skills (Social Competence and Self-competence):

- Students can participate in discussions on the topic using the specific vocabulary.

Method of Assessment		
Form of Examination	Type/Scope incl. Weighting	Learning Objectives/Competencies to be Assessed
Written Exam (Kl90)	Written Exam	With the exam and a possible bonus exercise, all of the above-mentioned competencies are tested.

## Medical Device Technology

Professor / Lecturer	Course Content
<b>PhD. Larisa Kalashnikova</b>	<p>Diagnostic systems in various functional areas in the hospital:</p> <ul style="list-style-type: none"> <li>- Functionality and areas of application of medical devices</li> <li>- Medical-clinical, technical and planning aspects of medical devices</li> <li>- Examples of specific systems such as ultrasound, endoscopy, monitoring, functional diagnostics, laboratory diagnostics;</li> <li>- Excursions to clinical users in the field of diagnostics.</li> </ul> <p>Basic knowledge of device technology in: X-Ray methods; computer tomography; magnetic resonance technology; positron emission tomography; ultrasound diagnostics; endoscopy systems; infrared imaging; ECG devices; functional diagnostics in pulmonology; devices and methods of neurophysiology; sleep diagnostic methods; Audiometry; ergometry.</p>

Teaching Methods	Number of Credits (ECTS)	Workload
Lectures with integrated practical demonstrations and exercises	5	Contact time: 60 h Self-study and exam preparation: 90 h Total workload: 150 h

### Learning Outcomes

**After successful completion of the module, students will have acquired the following professional, methodological and personal skills and competencies:**

- Knowledge and understanding of the basics, areas of application and limitations of diagnostic and therapeutic devices in medical technology as well as their clinical application
- Students can establish the connection between how medical devices work and biophysics/physiology.
- Development of an awareness of the direct connection between diagnostics and therapy and their interaction in the healthcare system
- Knowledge of the structure and function of diagnostic and therapeutic devices
- The students know medical devices that are used in everyday clinical practice.
- You are able to acquire skills to help develop technical design and solution options and to assess technical appropriateness.

### Method of Assessment

Form of Examination	Type/Scope incl. Weighting	Learning Objectives/Competencies to be Assessed
Written Exam (K190)	Written Exam, 90 minutes Information about multiple-choice questions and a possible bonus system will be provided via Moodle and explained in the first lecture.	With the exam, all of the above-mentioned competencies are tested.

# Product Management

Professor / Lecturer	Course Content	
<b>Tamer Güner, M.A.</b>	Definition of the role of product management with its tasks and objectives. Integration of product management into different product development models and its interfaces to other roles and areas in the company. Requirements and market analysis and ways to generate new product ideas. Product portfolio management Development and derivation of an appropriate product development strategy and product roadmap. Influence in the product marketing mix and establishment of marketing strategies. Participation and influence in the product development process and product life cycle. Product launch opportunities and subsequent control. Digital business transformation and its influence on product management. Different characteristics and lifestyles of product management in the enterprise: Startup vs. SME vs. corporation.	
Teaching Methods	Number of Credits (ECTS)	Workload
Lecture; class discussion; case studies; field trip; guest lecture	5	Contact time: 60 h Self-study: 60 h Module work preparation: 30 h Total effort: 150 hh

## Learning Outcomes

**After successful completion of the module, students will have acquired the following professional, methodological and personal skills and competencies:**

### Professional Skills:

- Students have knowledge of how product management fits into a modern, lean and agile corporate structure and are familiar with the interfaces to other areas and roles in the company.
- The students learn how to analyze and evaluate suitable markets for product launches. In addition, the students know possibilities for the collection of customer requirements in the area of requirements analysis.
- The students know possible product strategies and can apply them practically.
- The students know the gates and phases of the product development cycle from the product manager's point of view and know his task and influence in the entire product life cycle.

### Methodological Skills: Students learn methods...

- for idea generation and evaluation for new products.
- for market analysis and generation of a product launch strategy.
- for identifying, structuring and prioritizing customer requirements.
- and know its role and influence throughout the product life cycle.

### Personal Skills (Social Competence and Self-competence):

- Team-oriented processing of examples and case studies in the field of product management.
- Communication and presentation of results from individual and group work.

## Method of Assessment

Form of Examination	Type/Scope incl. Weighting	Learning Objectives/Competencies to be Assessed
Module work (ModA)	Group project with individual presentations: Elaboration of a topic/ case study	The group project is used to test the practical learning content and competence profiles, including teamwork and presentation skills.