

Template

SSC-based Objective-Module Matrix



TC 06

Engineering and Management – Bachelor Degree

Instructions for Creating the Objectives Module Matrix

An objective-module matrix – also known as *learning outcome-course matrix* – makes it possible to classify a study programme in two ways:

1. A simple objective-module matrix compares the learning outcomes (objectives) aimed for with a study programme with the modules (courses) that contribute to achieving this profile.
2. An SSC-based objective-module matrix is a tool for comparing the learning outcomes (objectives) of a study program to the learning outcomes defined by the ASIIN Subject-Specific Criteria (SSC). This matrix thus makes it possible to show how the ASIIN SSC are fulfilled in the learning objectives and the individual modules of the degree program.

In a first step, this "mapping" procedure helps to determine the extent to which learning outcomes of a degree programme reflect, supplement or deviate from the exemplary learning objectives of the SSC. The learning outcomes formulated in the SSC always represent the typical objectives of a degree program in the specified subject. Deviations from the SSC are possible depending on the profile and orientation of a degree program and can be explained by the university. Depending on the degree of subject orientation, learning outcome formulations from different SSCs can also be combined.

The second step is to reflect on the extent to which each individual module or course of a degree program serves to achieve one or more learning objectives or learning outcomes. The assigned overarching learning outcomes should then also be reflected in the respective module description or course syllabus. In other words, at degree program level it can be checked whether all learning objectives are covered by the assigned modules and at module level it can be checked whether the overarching learning objective at degree program level is reflected accordingly in the module objectives.

Please fill in the following matrix for the respective degree program. First, compare the learning outcomes of the degree program with the SSC. Then write down in which modules or courses the individual learning outcomes are implemented.

Note: Some of the SSC have been abbreviated to match the matrix below. For their full content, please refer to the Subject-Specific Criteria Document directly.

ASIIN Subject-Specific Criteria (SSC)	Learning Outcomes of the Study Program	Corresponding Modules
Knowledge and Understanding		
Graduates		
have a broad basic and overview knowledge in theory and practice in selected areas of mathematics, computer science, natural sciences and engineering with in-depth knowledge in an exemplary specialization (STEM knowledge: mathematics, computer science, natural sciences, technology)	R1, R2	Advanced Mathematics B (1), Advanced Mathematics B (2), Linear Algebra, Probability Theory and Mathematical Statistics, Fundamentals of College Computing
know the basics and laws of the selected engineering disciplines as well as the methods of engineering work	R1, R2, R3, R4, R11	Management A, Accounting A, Organizational Behavior, Human Resource Management A, Employee Career Management, Management Psychology, Social Security Studies
have acquired a sufficiently broad knowledge of the essential fundamentals of information technology	R2, R4, R5	Fundamentals of College Computing, Python Programming
have a broad basic and overview knowledge of the essential principles, theories and methods of business administration, economics and management with in-depth knowledge in an exemplary specialization. They can explain these principles, theories and methods and place them in a company-related context.	R1, R2, R4, R11	Management A, Microeconomics C, Macroeconomics C

know the essential tasks of the different business functions and understand the operational, economic and management-related processes as well as their interactions	R1, R7, R8, R11, R12	Operations Management B, Strategic Management
know the legal basics of business administration and management and utilize them for entrepreneurial action	R8, R9, R12	Theory of the Firm and Corporate Governance B, Digital Innovation and Entrepreneurship, Innovation and Entrepreneurship Education(1), Innovation and Entrepreneurship Education(2)
have a broad basic and overview knowledge of selected integration subjects that combine economic, technical as well as social aspects and processes	R2, R4, R5, R7	Statistics A, E-Commerce B, Marketing B
are familiar with technical, economic, ecological and social interrelationships and their interactions	R1, R3, R7	Financial Management B, Logistics B, Corporate Culture, Public Relations
understand concepts and methods from different disciplines and can combine them	R1, R2, R4, R7, R11	Microeconomics C, Macroeconomics C, Accounting A, Organizational Behavior, E-Commerce B, Marketing B, Logistics B
Application and Transfer – Application and Analysis		
Graduates will be able to		
use the STEM-related basics, theories, methods and tools for technical questions and problems and evaluate, differentiate and categorise them in a company-related context	R2, R4, R5	Social Survey, HRM Simulation: Sand Table Exercises, Digital and Intelligent HRM, Statistics A

use business, economic and management-related basics, theories, methods and tools for company-related questions and problems and evaluate, differentiate and categorise them in a company-related context	R2, R3, R6, R9, R10	Professional Orientation Internship, Social Survey, Human Resource Simulation Case Analysis, Professional Internship, Comprehensive Training in Human Resource Management, Literature Review and Thesis Writing B, Graduation Internship, Graduation Project (Thesis)
use legal basics for company-related questions	R2, R3, R6	Labor Relations and Labor Law, Compensation and Benefits, Social Security Studies
make effective use of modern information technologies	R2, R5, R10	Big Data Analysis and Application in Human Resources, Python Programming, Fundamentals of College Computing, Video Creativity and Production B
identify and classify economic-technical problems and to interpret and analyse interrelationships and interactions in complex economic, technical and social fields of application	R1, R4, R10, R11	Microeconomics C, Macroeconomics C, Management A, Organizational Behavior
systematically analyse and evaluate structures and processes	R3, R4, R7, R8, R10	Theory of the Firm and Corporate Governance B, Operations Management B, Strategic Management, Strategic Human Resource Planning
apply integrative, cross-functional and cross-disciplinary concepts and models in the development of integrated solutions to interdisciplinary problems	R1, R2, R3, R5	Accounting A, Statistics A, Marketing B, Logistics B, E-Commerce B

Application and Transfer – Evaluation and Design		
Graduates will be able to		
interpret and evaluate economic and/or technical problems in a business-related context	R1, R2, R4, R11	Microeconomics C, Macroeconomics C
assess, plan and select complex economic and/or technical systems	R2, R3, R4, R8, R12	Theory of the Firm and Corporate Governance B, Operations Management B, Strategic Management
interpret and evaluate legal problems in a business-related context	R2, R3, R6, R8	Labor Relations and Labor Law, Compensation and Benefits, Social Security Studies
interpret, evaluate and prioritize interrelationships in complex economic-technical and social fields of application	R3, R4, R6, R8	Strategic Human Resource Planning, Civil Service Management, Public Administration
develop, implement and evaluate scientifically sound models, concepts and approaches for cross-functional and cross-disciplinary problems	R1, R2, R4, R11	Management A, Statistics A, Organizational Behavior, Logistics B
recognize complex problems in a technical and economic context and to derive initial measures for improvement in an interdisciplinary, holistic and methodical manner (problem-solving and action competence)	R2, R3, R6, R9, R10	Professional Orientation Internship, Human Resource Simulation Case Analysis, Big Data Analysis and Application in Human Resources, HRM Simulation: Sand Table Exercises, Comprehensive Training in Human Resource Management

prepare project documents for cost planning as well as for the determination of area and volume, to draw up technical terms of a contract, to participate in the drafting of planning and construction contracts	R2, R3, R6, R7, R10	Professional Internship, Literature Review and Thesis Writing B, Graduation Internship, Graduation Project (Thesis)
develop and implement application-oriented solutions based on the specific analysis of data and processes	R2, R3, R4, R5, R10	Big Data Analysis and Application in Human Resources, Python Programming, Graduation Project (Thesis)
Application and Transfer – Organization and Management Graduates will be able to		
make rational and ethical decisions and think critically to find innovative and effective solutions to cross-cutting qualitative and quantitative problems (critical thinking skills)	R8, R12	Marketing B, Logistics B, Operations Management B, Accounting A, Statistics A, Financial Management B, Morality and Fundamentals of Law, Basic Principles of Marxism, Outline of Modern and Contemporary Chinese History, General Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics, Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics for a New Era, Situation and Policy (1), Situation and Policy (2), College Chinese B (with Technical Writing)

adopt different perspectives in the development and implementation of solutions in a company-related context		Management Communication, Public Relations, Organizational Behavior
realize synergies through collaboration with stakeholders in a technical, economic and social context	R1, R2, R3, R4, R11	Labor Relations and Labor Law, Theory of the Firm and Corporate Governance B, Strategic Management, Employee Career Management
select and apply strategies in business practice (competence to think, act and lead strategically)	R2, R3, R4, R8, R12	Theory of the Firm and Corporate Governance B, Operations Management B, Strategic Management
work both individually and as a member of international and/or interdisciplinary groups, to organize and carry out projects effectively and to grow into appropriate leadership responsibility	R1, R2, R3, R4, R11	Management A, Organizational Behavior, Management Psychology, Management Communication, Public Relations
Scientific Innovation		
Graduates		
know research approaches and perspectives in the technical, economic and integrative context and can use them	R1, R2, R4, R6, R9, R11	Microeconomics C, Macroeconomics C, Military Theory and National Security Education, National Defense Education and Orientation
are able to develop, optimize and implement application-oriented solutions based on the specific analysis of data and processes	R1, R2, R3, R5, R11	Logistics B, Big Data Analysis and Application in Human Resources, Python Programming

can conduct literature research and use specialist information sources for their work	R2, R5	Big Data Analysis and Application in Human Resources, Python Programming, Digital and Intelligent HRM
are able to collect, structure, evaluate and interpret relevant secondary and primary data in the technical and economic field according to scientific methods (basic knowledge of empirical research)	R2, R3, R6, R7, R10	Professional Internship, Literature Review and Thesis Writing B, Graduation Internship, Graduation Project (Thesis)
have the ability to comprehend and communicate research results and to take them into account in practical work, as well as to plan, carry out and evaluate their own experiments	R2, R3, R6, R7, R10	Professional Orientation Internship, Human Resource Simulation Case Analysis, Big Data Analysis and Application in Human Resources, HRM Simulation: Sand Table Exercises, Comprehensive Training in Human Resource Management, Literature Review and Thesis Writing B, Graduation Internship, Graduation Project (Thesis)
can apply relevant scientific methods and new findings of engineering and economics to practical problems, taking into account economic, ecological, technical and social requirements (scientific transfer competence),	R2, R3, R5, R7, R8, R9, R10, R11	Labor Relations and Labor Law, Digital Recruitment and Talent Assessment, Compensation and Benefits, Big Data Analysis and Application in Human Resources, Performance Management, Organizational and Job Design, Training and Development

are able to select and apply suitable modeling, simulation, planning and design methods in a well-founded manner	R1, R2, R3, R4, R5	Digital and Intelligent HRM, Big Data Analysis and Application in Human Resources, HRM Simulation: Sand Table Exercises, Comprehensive Training in Human Resource Management
Communication and Cooperation Graduates		
are familiar with oral and written communication techniques and can apply them in case studies and project work	R2, R3, R6, R7, R10	Management Communication, Professional Orientation Internship, Social Survey, Human Resource Simulation Case Analysis, Business Etiquette Training, Professional Internship, HRM Simulation: Sand Table Exercises, Comprehensive Training in Human Resource Management
are able to articulate themselves logically and rationally in oral and written form as well as to communicate about contents and problems of the respective discipline with specialist colleagues also in foreign languages and interculturality (communication competence)	R2, R3, R6, R7, R10, R12	Management Communication, Professional Orientation Internship, Social Survey, Human Resource Simulation Case Analysis, Business Etiquette Training, Professional Internship, HRM Simulation: Sand Table Exercises, Comprehensive Training in Human Resource Management, Literature Review and Thesis Writing B, Graduation Internship, Corporate Culture, College English (1), College English (2), College English (3), College English (4)

have the ability to communicate in a foreign language (usually English) about technological and economic matters both within and outside the company	R10, R12	College English (1), College English (2), College English (3), College English (4), Practice of English Application Ability
have basic knowledge of team organization and teamwork and understand the process of team building	R1, R2, R3, R4, R9, R10	Management A, Organizational Behavior, Management Psychology, Management Communication, Public Relations
can work effectively and constructively with other people in different situations and in an international environment (competence in cooperation and teamwork)	R1, R2, R3, R4, R9, R10	Management A, Organizational Behavior, Management Psychology, Management Communication, Public Relations, Corporate Culture
are able to work in an international team	R1, R2, R3, R4, R9, R10	Management Communication, Organizational Behavior, HRM Simulation: Sand Table Exercises, Labor Practice, Social Survey
have the prerequisites to take on management responsibility		Management A, Theory of the Firm and Corporate Governance B, Operations Management B, Strategic Management
Scientific Self-conception / Professionalism Graduates		

base their professional actions on a sound theoretical and methodological knowledge in the core areas of engineering and management	R2, R3, R5, R7, R8, R9, R10, R11	Digital Recruitment and Talent Assessment, Compensation and Benefits, Big Data Analysis and Application in Human Resources, Performance Management, Organizational and Job Design, Training and Development
build their professional self-conception on goal orientation, interdisciplinarity and a pronounced awareness of problem-solving	R8, R12	Employee Career Management, Career Development and Employment Guidance for University Students (1), Career Development and Employment Guidance for University Students (2)
take into account principles and values of business and corporate ethics in their decisions and are able to understand and assess the economic, political, social and legal context of business operations (evaluation competence in the social environment)	R6, R7, R8	Digital Innovation and Entrepreneurship, Corporate Culture, Strategic Human Resource Planning, Civil Service Management, Public Administration
are able to integrate themselves directly into the professional environment through sufficient practical relevance of their studies and to cooperate with partners at different levels (social competence)	R1, R2, R3, R4, R9, R10	Management A, Organizational Behavior, Management Psychology, Management Communication, Public Relations

learn and further educate themselves independently on the basis of their education (competence for independent, lifelong learning)	R6, R9, R12	Physical Education (1), Physical Education (2), Physical Education (3), Physical Education (4), Cultural Literacy Education Courses, Mental Health Education for College Students, Military Theory and National Security Education, Second Classroom, Career Development and Employment Guidance for University Students (1), Career Development and Employment Guidance for University Students (2)
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