Syllabus

Course Description

Course Title	Design and Development of Business Software
Course Code	47597
Course Title Additional	
Scientific-Disciplinary Sector	IEGE-01/A
Language	English
Degree Course	Master in Industrial Mechanical Engineering
Other Degree Courses (Loaned)	
Lecturers	Dott. Mag. Andrea Molinari, Andrea.Molinari@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/3420
Teaching Assistant	
Semester	Second semester
Course Year/s	1
CP	5
Teaching Hours	40
Lab Hours	20
Individual Study Hours	30
Planned Office Hours	18
Contents Summary	The course belongs to the type "affine o integrative" and is part of Advanced Topics in Software / Systems Engineering. The course belongs to the scientific area of Management Engineering and is focused on Business Intelligence and Enterprise Resource Planning Systems. It represents one of the related topics (affine/verwandt) for the study programme on Software Engineering for Information Systems. The course gives a general overview of the scientific basics of business and its objectives as well as the role software can play in it. During the course, the business application of the presented

	theoretical topics will be integrated by means of targeted application-oriented exercises and cases concerning the business environment, especially the manufacturing sector, and the data analysis of data produced by these processes through business intelligence tools. The learning objectives are to introduce students in the fundamentals of business software and business data analysis. Based on this, decision making and operational tools such as Business Intelligence and Enterprise Resource Planning Systems are discussed in detail alongside presentations of their real-world application in business. The students should acquire the competence to understand and evaluate business problems and outline an appropriate design for a business analytical solution to address the problem in terms of decision support or operational improvements in the manufacturing sector.
Course Topics	• Introduction to Business Software • Modelling business process • Enterprise applications: ERP, CRM, SCM • Database Management Systems (DBMS) and their role in business software • Business software modeling: from relational to snowflake schema • Querying DBMS - the SQL Language • Business intelligence (BI) • Dashboards and online analytic processing (OLAP) • Using BI software for Business: Power BI
Keywords	Business Software Systems Enterprise Applications (ERP, CRM, SCM) Business data modeling Database & SQL Management Business Intelligence & Analytics (Power BI, OLAP)
Recommended Prerequisites	Basic computer proficiency
Propaedeutic Courses	
Teaching Format	In person frontal lectures, laboratory activities, exercises
Mandatory Attendance	Recommended
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding: D1.2 To be able to analyze and solve even complex problems in the area of Software Engineering for Information Systems with

	particular emphasis on the use of studies, methods, techniques and technologies of empirical evaluation; D1.4 To know in depth the principles, structures and use of computer systems for the automation of information systems; D1.8 To be able to read and understand specialist scientific documentation, such as conference proceedings, articles in scientific journals, technical manuals. Applying knowledge and understanding: D2.3 To know how to apply the principles of software engineering to domains of different complexity, both IT and non-IT, in which software technology is of great importance, such as, for example, in the transport sector or in the medical field; Making judgments: D3.1 To be able to autonomously select documentation from a variety of sources, including technical books, digital libraries, technical scientific journals, web portals or open source software and hardware tools; Communication skills: D4.6 To be able to interact and collaborate during the implementation of a project or research with peers and experts; Learning skills: D5.3 In the context of a problem solving activity, to be able to extend knowledge, even if incomplete, taking into account the final objective of the project;
Specific Educational Objectives and Learning Outcomes (additional info.)	Practical skills on modeling, collecting, cleaning, analysis and visualizing business software data
Assessment	The assessment is based on ta practical exam on Business Intelligence analysis that requires solid knowledge provided by the theoretical parts of the course
Evaluation Criteria	The final mark is the sum of the scores of the various practical exercises (100%)

Required Readings	Subject Librarian: David Gebhardi, David.Gebhardi@unibz.it • Lecture slides and notes • Lab exercise slides and notes
Supplementary Readings	• Laudon, J. P, Laudon, K. C., (2018): Management Information Systems: managing the digital firm, 15th ed., Pearson Education, Upper Saddle River. • Magal, R. S., Word, J. (2009): Essentials of business processes and information systems, Wiley, New York. • Rainer, R. K., Watson, H., (2016): Management information systems: moving business forward, 4th ed., Wiley, Chichester. • Sauter, V. L., (2011): Decision support systems for business intelligence, 2nd ed., Wiley, Hoboken
Further Information	Software used: Software for Business analysis available for any computer or through the use of the virtualization service provided by Unibz (VMWare Horizon)
Sustainable Development Goals (SDGs)	Quality education, Industry, innovation and infrastructure, Gender equality