

Transilvania University of Braşov, Romania

Study program: Industrial Business Management

Faculty:	Technological Engineering and Industrial Management
Study period:	2 years (master)
Academic year structure:	2 semesters (14 weeks per semester)
Examination sessions (two):	winter session (January/February) summer session (June/July)

1st Year - Semester 1

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Financial management and economic activity analysis	IT.M.1.01.I	5	2	1	-	1

Course description (Syllabus): Introduction to enterprise finance; Financial analysis based on the balance sheet; Analysis of enterprise results based on the profit and loss account; Dynamic analysis of enterprise results; Financial analysis with rate method; Short-term financing of the company; Medium and long-term financing of the company; Investment financing; Financial planning; Profit distribution; Investments in the money market; Investments in the capital market.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Strategies in investment management	IT.M.1.02.I	5	2	1	-	1

Course description (Syllabus): Enterprise / Firm - the main form of organizing a business. Private business - forms of organizing. The financial performance valuation of the enterprises; Content and structure of the company's financial results. Analysis of the financial results of the enterprise; The cost of capital – mainly element in the adoption of the financing and investment decision; Strategic decision: the need to correlate financing and investment decisions; Strategic financing of the enterprise. Operational financing on the short term of the enterprise; International financing of investment projects. The interest rate. The cost of international financing. Risks of international financing; Financial balance management: financial strategy from to current activity; Investment strategy. Analysis of the external environment of the organization. Analysis of the internal environment of the organization; Strategic management of the organization; Strategic management models; Strategic control; Investment projects - strategies used in the selection process.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Mathematical and statistical models for experimental data analysis	IT.M.1.03.I	4	2	-	1	-

Course description (Syllabus): Numerical methods. Numerical derivation; numerical integration; Numerical solutions for first and second order differential equations; Polynomial interpolation; Spline functions; The least squares method; Probabilistic distributions used in engineering; Elements from the Theory of Errors; Statistical indicators; Confidence intervals; Statistical hypothesis testing; Regression and correlation; Operational research

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Strategies and policies of sustainable development in industry	IT.M.1.04.I	4	2	1	-	-

Course description (Syllabus): The concept of sustainable development; Natural environment, social and economic; Resources; Acceptable consumption and responsibility towards the environment; Development models; Eco-attitude and eco-industrial business; Sustainable development and business environment; Environmental management; Environmental performance of the enterprise, indicators and evaluation; Clean technologies and productions.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Academic Integrity and Ethics	IT.M.1.05.I	2	1	1	-	-

Course description (Syllabus): Introduction: The necessity of studying Academic Integrity and Ethics (AIE). The concepts of AIE. Deontology. Academic deontology. Academic responsibility. The Charter of Transilvania University of Braşov (TUBv). The Regulations concerning Student Professional Activity at TUBv.; Intellectual property. Copyright and Related (neighbouring) rights. Industrial Property. Patents. Registered Trademarks; Lack of academic integrity and ethics. Academic dishonesty. Academic fraud, facilitating fraud in academic assessment. Academic corruption and attempted corruption. Manufacturing data. Plagiarism. Paraphrasing and Citing. Proving plagiarism. Assessment and punishment. Breach of intellectual property. Other types of academic dishonesty; Forms of plagiarism. Procedures of plagiarism. Data management procedures. Data sharing; Identifying plagiarism. Clues. Electronic means. "anti-plagiarism" software. Identifying plagiarism by Google searches. Non-electronic methods for identifying plagiarism. Recommendations. Consequences; Citation rules. Devising References and Bibliography. Terms used in citations. Citation methods. Using word-processor facilities for references; Ethics in research and writing reports and dissertations. Rules of the institutions. Informing the participants and the host institution. Obtaining the institution's ethics approval. Ethical principles in quantitative and qualitative research. Questionnaires, observation and description. Interviews and focus groups.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 1	IT.MA.1.6.I	10	-	-	-	12

Course description (Syllabus): Identify and present the activities of an organization: Description of the field of activity, Identification of products / services, Drafting organizational scheme, Description of the level of information technology activities of the organization. Description of a representative product / service: Product / Service Characterization, Description of market conditions for the product / service, Overview of the manufacturing processes of the product / service delivery activities, Demand estimation (forecast) for the product / service analysed. Conclusions and directions of development.

1st Year -Semester 2

Optional pack: Industrial Business Management

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Intellectual property in industrial business	IT.M.2.01.O	4	2	-	-	1

Course description (Syllabus): Genesis, actuality and perspectives of inventics; Creative synthesis - a basic means for accelerating scientific and technical progress; Creative learning and inventics; Formulating creative themes; Techniques and methods used in the inventics; Conducting creative sessions; Patentability conditions; Structure of a description of the invention; Application and exploitation of inventions, National and international law on industrial property rights; Business with Intellectual Property.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Information systems for decision support	IT.M.2.02.O	5	2	-	1	1

Course description (Syllabus): Information systems in support of management decisions; Introduction to decision support systems; Decision support; Information systems for decision support; Structure of decision support systems; computer architectures; Computer systems for decision support based on models; Solving decision-making problems in certainty condition; Solving decision-making problems in risk condition; Solving decision-making problems in uncertainty condition; Data-driven decision support computer systems. Data warehouses; Elements of analytical processing and data exploration. Data mining.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Maintenance management	IT.M.2.03.0	6	2	1	-	2

Course description (Syllabus): Fundamentals. Reliability, Maintainability, Maintenance systems, Maintenance. General aspects. Types of maintenance, Importance of maintenance activities in industrial companies. Perspectives, Maintenance systems, Maintenance activities planning, Maintenance activities organization, Methods to optimize the planning and organization of maintenance activities, Management and efficiency of maintenance. Costs of maintenance, Technical and efficiency indicators of maintenance activities.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Management of robust design	IT.M.2.04.0	5	2	1	-	1

Course description (Syllabus): Design of robust systems; introduction to the method of arrays of experiments; quality loss function; signal to noise ratio; Taguchi methods in robust design; ANOVA dispersions analysis; Taguchi arrays for products; simultaneous multi-criteria optimization; analysis of robust systems performance.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 2A	IT.M.2.05.0	10	-	-	-	12

Course description (Syllabus): Research on designing a product / service / process / business. Identifying design needs; Analysis and description of the product / process; Choose and define the methodology and design resources; Designing the chosen solution. Product / process implementation. Establishing Activity Chart; Establish the resources needed for implementation; Highlighting the novelties / benefits of the product / design process. Conclusions and future directions of development.

1st Year - Semester 2

Optional pack: Entrepreneurship

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Fundamentals of Entrepreneurship	IT.M.2.06.0	4	2	-	-	1

Course description (Syllabus): Entrepreneurship in the 21st century; The entrepreneur - the central element of the business; The Idea- economic opportunity- business plan; Small and medium enterprises in the economy; Elements of entrepreneurial management and managerial innovation; Sources of funding; Evidence of entrepreneurial activity

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Sales Management	IT.M.2.07.0	5	2	-	1	1

Course description (Syllabus): sales, as a distribution component; sales concept; market place; identifying and understanding the buyer; types of sales; strategic planning in the field of sales; sales personnel management; sales and negotiation techniques; sales forecasting; price and sales; promotional activity and sales; sales on the international market.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Organizational communication	IT.M.2.08.0	6	2	1	-	2

Course description (Syllabus): Communication: structure and process. Models; Presentation types and techniques in organizations. Rhetoric, argumentation, training methods; Techniques of organizational communication by NLP (neuro-linguistic programming); Perceptions in organizational communication; Interpersonal communication in organizations; Organizational hierarchy. Vertical and horizontal communication; Small group and team organization; Leadership in organizations; Written communication within organizations.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Company recovery	IT.M.2.09.0	5	2	1	-	1

Course description (Syllabus): Overview of the discipline and evaluation requirements; The company and the environment; Market diagnosis (Demand/Supply/Competition analysis); Strategic and managerial diagnosis of the company's activity: Analysis of the objectives and their achievement, Analysis of the management; Diagnosis of company resources: Analysis of the technical resources, Analysis of the human resources, Analysis of the financial resources; The financial diagnosis of the company: Analysis of economic growth/ profitability/financial risk; The failure of a company and the probable causes; Company recovery strategies and models, implementation, effects; Optimal decisions in company management.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 2B	IT.M.2.10.0	10	-	-	-	12

Course description (Syllabus): Research on designing a product / service / process / business. Identifying design needs; Analysis and description of the product / process; Choose and define the methodology and design resources; Designing the chosen solution; Product / process implementation; Establishing Activity Chart (Gantt); Establish the resources needed for implementation; Highlighting the novelties / benefits of the product / design process. Conclusions and future directions of development.

2nd Year - Semester 1

Optional pack: Industrial Business Management

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Industrial business management	IT.M.3.01.0	6	2	2	-	1

Course description (Syllabus): Structure, methods and means in industrial business; types, stages and strategies in industrial business; managerial decisions; identification of competitive technological advantage; management and business development; industrial enterprises business; business management in services; methods for optimizing business processes; business process simulation; dynamic processes in industrial business.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Managerial Accounting	IT.M.3.02.0	4	2	1	-	-

Course description (Syllabus): The role of managerial accounting in performing managerial functions. Management information, logistical support of modern management; Normalization of managerial accounting in Romania. Practical aspects and current trends; Management of managerial accounting. The managerial decision, the profile and the role of the technical training specialist in the decision-making process; Costs and expenses in substantiating managerial decisions. Principles of organizing managerial accounting and costing; Trends in production cost accounting. New costing systems; Principles of budget network modeling. Modeling accounting for cost-based decisions; Financial

planning and budgeting of the company's activity. Revenue and expenditure budget; Organizing management control at the organization level; Exercise management control based on cost information. Management control tools.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Communication and negotiation in business	IT.M.3.03.0	5	2	-	1	1

Course description (Syllabus): Communication: structure and process. Questions as instruments in communication. Non-verbal communication; Communication in the business environment. Communication situation adequate for presentations. Structuring and delivering a presentation; Fundamental negotiation skills. Personality traits of a good negotiator; Negotiation styles I. Win-lose negotiations. Mutually beneficial negotiations. Win-win negotiations; The personal negotiation style; Choosing a negotiation strategy and rules for establishing the targets of negotiation; Negotiation techniques. Individuals/problems. Interests/positions. Mutually advantageous decisional variants. Impartial evaluation criteria. Opposition management.; Argumentation techniques. The 5-step argumentation method; Communicating and negotiating with clients. Building client loyalty and retention. Client portfolio; Communicating and negotiating with customers II. The sales discussion. Difficult customer types; Closing the deal, reaching an agreement. Glitches; Special cases of negotiations: complicated; international; with the opposite sex; over the phone; via the internet.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
International economic relations	IT.M.3.04.0	5	2	2	-	-

Course description (Syllabus): Introduction to international economic relations. The international flows of an open economy; International economic relations - specific and framework of manifestation; Cooperation - a modern form of international economic relations; Forms of competitive alliances. Forms of industrial cooperation; International trade transactions. International negotiation and contracting; The company in international transactions. Joint ventures; Engineering consultancy and assistance; International monetary relations. International financial relations. Powers center. Emerging economies; The technique of international payments. Complex business operations; Organizational administrative structures. Economic integration. The European Common Space; The place and role of international tourism in international economic relations; Trends in the development of international economic relations.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 3A	IT.M.3.05.0	10	-	-	-	12

Course description (Syllabus): Research on the current state in the dissertation thesis topic. Identification of significant works specific to the dissertation thesis theme; Identification of research directions and trends in the field; Synthesis of significant works; Identification of possible applications to be addressed in the dissertation thesis.

2nd Year - Semester 2

Optional pack: Industrial Business Management

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Informatics for managers	IT.M.4.01.I	5	2	-	2	

Course description (Syllabus): Introduction; Design of management informatics application; Develop managerial informatics applications using Microsoft Office; Develop managerial informatics applications using Google tools; Develop WEB managerial informatics applications; Develop risk managerial informatics applications; Records management.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Enterprise Digitalisation	IT.M.4.02.I	5	2	2	-	-

Course description (Syllabus): Digital Enterprise Concept; Design Digital Manufacturing; Business Model Management; Digital supply chain management; Data Analytics in Manufacturing; Augmented Reality in the Context of Industry 4.0; Virtual Enterprise; Digital Traceability; Oriented Software.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities and scientific research for Thesis elaboration	IT.M.4.03.I	10	-	-	-	8

Course description (Syllabus): The master students will have to complete the dissertation work in accordance with the work plan agreed with the thesis advisor.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 4A	IT.M.4.04.O	10	-	-	-	12

Course description (Syllabus): The project coordinator, according to the theme of the dissertation, determines specific content.

2nd Year - Semester 1

Optional pack: Entrepreneurship

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Development of industrial business	IT.M.3.06.O	6	2	2	-	1

Course description (Syllabus): Industrial business. Present and future. Analyses and diagnose of existing situation from industrial business; adopting the decision from the development of industrial firm. Methods and instruments. Functional development strategies. Human resources strategy. Knowledge strategy. Financial strategy. Supply-production strategy. Industrial businesses all over the world.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Property valuation for sale and divestiture	IT.M.3.07.O	4	2	1	-	-

Course description (Syllabus): Types of Industrial Business and their identification as subsystems . Criteria of cession and/or sell of Industrial Business. Evaluation of Industrial Business for cession and/or sell. Methods of comparison: methods of evaluations of enterprises quoted to bourse; methods of evaluation of enterprises that are not quoted in comparison with the ones that are quoted. The choice of evaluation methods; reconciliation of values and evaluator's opinion. The analysis of Industrial Business Market. Methods and information sources.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Risk management in industrial business	IT.M.3.08.O	5	2	-	1	1

Course description (Syllabus): Business risk concepts and types. Main business risk-types; General classification principles of business risks. Losses caused by risk in business; Risk – as economic concept. Risk types in different economic activity fields; Synthesizing risk management methods (risk management), stages and procedures of this process; Mathematical methods and instruments used by the identifying and estimating process of risks; Analyzing risks within companies. Financial, strategic and operational risks; Analysis and quantification of risks within companies; Probabilistic models applied in risk management; Risk modeling in decision theory. Decision in conditions of risk and

uncertainty; Risk simulation models and decision trees; Development of risk answering strategies. Business risk reducing methods.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Project management	IT.M.3.09.O	5	2	2	-	-

Course description (Syllabus): Objectives of project management (The everyday project manager); Project scope: defining requirements; Roles and responsibilities: defining and assigning role in a team; Planning project; Budgeting and cost management; Risk in project management: estimate, correlate and reduce.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 3B	IT.M.3.10.O	10	-	-	-	12

Course description (Syllabus): Research on the current state in the dissertation thesis topic. Identification of significant works specific to the dissertation thesis theme; Identification of research directions and trends in the field; Synthesis of significant works; Identification of possible applications to be addressed in the dissertation thesis.

2nd Year - Semester 2

Optional pack: Entrepreneurship

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Informatics for managers	IT.MA04.01.I	5	2	-	2	

Course description (Syllabus): Introduction; Design of management informatics application; Develop managerial informatics applications using Microsoft Office; Develop managerial informatics applications using Google tools; Develop WEB managerial informatics applications; Develop risk managerial informatics applications; Records management.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Enterprise Digitalisation	IT.M.4.02.I	5	2	2	-	-

Course description (Syllabus): Digital Enterprise Concept; Design Digital Manufacturing; Business Model Management; Digital supply chain management; Data Analytics in Manufacturing; Augmented Reality in the Context of Industry 4.0; Virtual Enterprise; Digital Traceability; Oriented Software.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities and scientific research for Thesis elaboration	IT.M.4.03.I	10	-	-	-	8

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Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Practical activities for Research and Design 4B	IT.M.4.05.O	10	-	-	-	12

Course description (Syllabus): The project coordinator, according to the theme of the dissertation, determines specific content.