

# Transilvania University of Braşov, Romania

## Study program: Economic Informatics

Faculty: Economics Science and Business Administration

Study period: 3 years (bachelor)

### 1<sup>st</sup> Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Microeconomics	MIC1	6	2	2		

**Course description (Syllabus):** The Economic Way of Thinking. Ten Principles of Economics; Interdependence and the Gains from Trade; The Market Forces of Supply and Demand. Elasticity; Consumers, Producers, and the Efficiency of Markets; Externalities, Public Goods and Common Resources; The Design of the Tax System; The Cost of Production; Firms in Competitive Markets; Monopoly, Oligopoly and Monopolistic Competition; Earnings and Discrimination.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Mathematical Analysis	AMA1	6	2	2		

**Course description (Syllabus):** Set. Figures. Relations; Sequences and series of figures; Functions. Limits. Continuity. Differentiation on  $R$ ; Functions. Limits. Continuity. Differentiation on  $R^n$ ; Sequences and series of functions; Improper integrals. Parameter integrals. Euler Functions; Linear Programming. Simplex algorithm and transport problem.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Algebra and probability theory	STP1	5	2	1		

**Course description (Syllabus):** Vector space; Linear maps, eigenvalues, eigenvectors; Matrices, determinants, linear equations; Probability, conditional probability, probabilistic schemas; Random variables, mean, variance, moments; Probability distributions; Sampling theory; Estimation theory; Confidence intervals.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Introduction to Computer Science	INF1	6	2		2	

**Course description (Syllabus):** Information, entropy, information system; Arithmetic and logical fundamentals of computer; Algorithms; Data structures; Programming languages; Personal computer architecture.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Business Law	DAF1	4	2	1		

**Course description (Syllabus):** Business law. General notions; Civil juridical norm and business law juridical norm; The normative documents regarding the business law; Application of law; Interpretation of law; Structure of the juridical relation; Notion and classification of the civil juridical act and the business juridical act; Conditions of the juridical act concluded between the trader and the consumer; Administrative law issues related public authorities with responsibilities for consumer juridical protection; The legislation regarding the protection of the banking services consumers.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 1	LST1	3	1	1		

**Course description (Syllabus):** Communication problems; Building relationships in business; International marketing. International brands; Defining success in business; Job satisfaction; Everyday risk vs. risk in business; E-commerce. The use of the internet.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 1	LST1	3	1	1		

**Course description (Syllabus):** Cours de conversation et de rédaction des textes sur les thèmes: Communication d'affaires; La monnaie, l'argent et la banque; Transports et livraisons; Management des ressources humaines; L'entité, la firme, l'entreprise; Comptes bancaires; Tourisme rural; Le rôle de la publicité dans la société de consommation.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Basic of Accounting	BCO2	5	2	1		

**Course description (Syllabus):** Introduction to accounting; The balance sheet; The income statement; Depreciation of fixed assets; The T- account. Double - entry bookkeeping; Accounting documents; Business valuation methods; Inventory; The trial balance; Transaction analysis and the accounting equation.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Macroeconomics	MAC2	4	2	1		

**Course description (Syllabus):** The Economic Way of Thinking; Major Topics of Study in Macroeconomics; Measuring GDP and Economic Growth; Monitoring Cycles, Jobs, and the Price Level; Aggregate Supply and Aggregate Demand; The Economy at Full Employment: The Classical Model; Money, Interest, Real GDP and Price Level. Inflation; The Business Cycle; Inflation and Unemployment: The Phillips Curve; Expenditure Multipliers: The Keynesian Model.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Economic Statistics	STE2	5	2	1		

**Course description (Syllabus):** Data analysis strategy; Types of variables; Univariate analysis; Bivariate analysis; The analysis of variance (ANOVA) and the t-test; Chi-squared test; Survey sampling.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Management	MAN2	4	2	1		

**Course description (Syllabus):** Management – science and art; Evolution of managerial thought; Managers and their roles in organizations; Management functions: planning, organizing, staffing, control and assessment; Decisional system of the organization; Informational system and communication in organizations; Change and innovation management; Basics in human resource management; Basics in strategic management.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Database	BDL2	5	2		2	

**Course description (Syllabus):** Database - general concepts; Database models; Relational Database; Relational algebra; SQL (Structured Query Language); Normalization of Database (1NF, 2NF, 3NF, BCNF).

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Information Technology – Internet	TIN2	4	2		2	

**Course description (Syllabus):** History of the Internet. TCP/IP. Computer networks; Basic servers in the Internet; Security on the net; Search engines; Content management systems; Intranet and extranets; Portals and personalization within organizations; Internet of things; Multimedia on the net.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 2	LST2	3	1	1		

**Course description (Syllabus):** Team building. Successful team working; Ways of raising money; Customer service. Dealing with complaints; Crisis management; Management styles. Do's and don'ts for managers; Takeovers and mergers; The future of business.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 2	LST2	3	1	1		

**Course description (Syllabus):** Correspondance d'affaire: lettres de recommandation; lettre d'offre; lettre de réclamation; contrat d'achat-vente, etc. Textes de spécialité économique: La concurrence; La Bourse; Le marketing et le marché; Les relations publiques; Présentation pour un interview de travail ; L'emploi et l'employeur, etc.

## 2<sup>nd</sup> Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Operation Systems	SIO3	4	2		1	

**Course description (Syllabus):** Place of the operating system in a computer system; evolution of operating systems; structure and general functions of the operating system. Process management (creation and destruction processes; the status of a process; parallel processes; synchronization processes; classical problems of coordination processes; execution planning processes; interlocking processes, threads). Memory management (physical memory; virtual memory; static memory allocation; dynamic allocation of memory; memory page allocation; segmented memory allocation; paging algorithms). File system (concept of file; file organization; the concept of directory; file allocation disk space; free space on the disk track). Peripheral device management (organizing system I / O; direct administration of I / O with periodic testing (polling); operations management I / O interrupt oriented; projection in memory I / O; direct memory access; use of buffer zones ("buffering"). Case Studies: Windows, Linux.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Algorithms and Data Structures	ASD3	4	2		1	

**Course description (Syllabus):** Basic algorithms; Basic data structures; Greedy technique; Divide et Impera Algorithms; Backtracking Algorithms; Special data structures and special algorithms.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Marketing	MKN3	4	2	1		

**Course description (Syllabus):** Marketing: Definition and Evolution; The Marketing Environment; Selecting Target Markets; Consumer Behaviour; Developing the Marketing Mix: The Product; Product Life - Cycle Strategies; Pricing Products; Placing Products: Distribution Channels; Promoting Products: Communication ; Promotion Mix.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Business Statistics	STA3	4	2	1		

**Course description (Syllabus):** Data analysis strategy; Linear regression; Correlation; Non-parametric methods; Time Series Analysis; Spatial analysis; Indices.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Computer Programming	PRC3	5	2		2	

**Course description (Syllabus):** History of computers and their evolution. Hardware and software components; Programming languages; Algorithms and logical schemes; Introduction to C# and its blocks. Operators; Variable and constants; C# statements (if, while, for, case); Methods and functions; Arrays and lists; Introduction to OOP.

Course title	Code	No. of credits	Number of hours per week			
			Course	seminar	laboratory	project
Finance	FIN3	4	2	1		

**Course description (Syllabus):** The financial system; Public goods; The system of public expenditure; The measures of public expenditure; The public expenditure for economic objectives; The system of public revenue; The flat tax system versus progressive taxation; Considerations about taxes; Tax evasion; International double taxation; The main objective of the firm; Financial approach; The investment decision.

Course title	Code	No. of credits	Number of hours per week			
			Course	seminar	laboratory	project
Econometrics	ECM4	4	2	1		

**Course description (Syllabus):** Economic and econometric model. Simple Regression Model – Ordinary Least Squares' Method (OLS). Assumptions Underlying OLS (Classical Linear Regression Model). Properties of estimators. Statistical hypotheses. Statistical tests. Statistical inference. Testing Hypotheses. Multiple regression models. Estimating the regression coefficients. Variance-Covariance Matrix of Estimators. Analysis of Variances. F-Test for Global Significance of Regression. Testing the Coefficients. Adding New Variables. Chow Test. Multicollinearity and Selection of Explanatory Variables. Partial Correlation. Coefficients of Partial Correlation. The causes of errors' autocorrelation. The nature of errors' autocorrelation. Consequences and Remedies of errors' autocorrelation. OLS estimators in errors' autocorrelation presence. Forecasting with the econometric model.

Course title	Code	No. of credits	Number of hours per week			
			Course	seminar	laboratory	project
Windows Applications Programming	PRW4	4	1		2	

**Course description (Syllabus):** Introduction in .net and C#; Classes, namespaces, methods, events; Basic Windows controls – forms, label, textbox, button; Advanced Windows controls – list controls, grids and others; Windows forms – menus, dialog forms, exchanging objects between forms; Accessing databases with ADO.NET.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Software Packages	PPC4	4	2		2	

**Course description (Syllabus):** Information System: Design, Implementation, and Operation; Information Systems Development and Documentation Techniques; Information Systems Reliability; Payroll Cycle and The Human Resources Management; Development Strategies for Information Systems.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Object Oriented Programming	POB4	5	2		2	

**Course description (Syllabus):** Concept of abstract data; Main principles of OOP: polymorphism, inheritance, encapsulation; Main Java OOP principles: generic types, collections, streams; graphical user interface: swing; Defining without ambiguities of a problem and creating the object oriented model in order to solve it Analysing the OOP model, coding, testing.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Computer Networks	RCL4	4	2		1	

**Course description (Syllabus):** General concepts of networks (need for networking, main types of networks, network topologies, network architecture). The physical layer (media communication, coding data into signals, the network card). Operation of a local network (Project 802, MAC address, cable data transmission, protocols, local area network technology, reliability of data transmission). Inter-network (IP addresses, packet structure, secure data transmission, routing packets, CIDR protocol. IP V6 protocol). Application layer protocols (DNS, HTTP, ICMP, DHCP, etc.). Standard network applications. Network data security (encryption and decryption of data, authentication, digital signature, network security protocols).

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 3	LST3	2	1	2		

**Course description (Syllabus):** Business Organisations; Marketing; Describing Performance; Money and Banking; Funding the Business; Accounting; Auditing; Mergers and Takeovers; Transport and Delivery; Selling and Buying.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 3	LST3	2	1	2		

**Course description (Syllabus):** Cours pratique de grammaire française: Le verbe – applications dans des exercices ayant un vocabulaire spécialisé, économique; L'Indicatif; La voix passive; Le Si conditionnel; Le Subjonctif; Le participe passé et son accord; La concordance des temps.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 4	LST4	2	1	1		

**Course description (Syllabus):** Format of business letters; Letter of complaint. Replying to a letter of complaint; Letter of enquiry. Replying to a letter of enquiry; Orders. Accepting/ declining orders; Letter of application. Accepting/ turning down an application; Invitation. Accepting /declining an invitation; Personal recommendation; Contracts; Report. Memo; Proposal. Minutes.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language 4	LST4	2	1	1		

**Course description (Syllabus):** Textes de spécialité économique: La publicité et le marketing; La Roumanie dans les journaux de l'Europe; Termes généraux du marketing; La sociologie du tourisme; La déontologie professionnelle; Traditions culinaires européennes; Le langage non verbal du client etc.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Business Ethics	ETA3	3	2	1		

**Course description (Syllabus):** Ethical principles – introductory notions; The concept of business ethics; Fundamentals of corporate social responsibility; The evolution of corporate social responsibility; The components of corporate social responsibility; Interferences between business strategy and ethical principles; Ethical principles regarding marketing

policy; Consumer protection – component of corporate social responsibility; Environmental ethics – component of corporate social responsibility; Protection of employees. Ethical codes.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Consumer Behaviour	COC4	3	2	1		

**Course description (Syllabus):** Introduction to consumer behaviour; Perception; Learning, memory and product positioning; Motivation; Personality; Attitudes and influencing attitudes; Lifestyle; External influences: Group influences on consumer behaviour; Consumer decision process; Consumer research methods.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Economic and Financial Analysis	AEF4	3	2	1		

**Course description (Syllabus):** Significance of the Financial Analysis and Diagnosis at the Company's level; timing, reasons, in and outside company players, expected outcome. Methodology of the Financial and Economic Analysis. Qualitative and Quantitative methods. Other methods. Analysis of the internal resources of the company. Analysis of the Human Resources. Analysis of the Material resources. Performance analysis through specific indicators. Past and future performance analysis. Analysis of the turnover, value added and commercial margin. Factorial models of the performance indicators. Cost analysis. Dynamic, structure and analysis of fixed costs, variable costs, direct and indirect costs. Analysis of the total expenses, salary expenses, depreciation and financial expenses through factorial models. Results analysis based on the Income statement. Factorial models of the Operations Result, Gross and Net Profit. Return ratios analysis – factorial models. Commercial profitability ratio, Return on Assets, Return on Equity, Total expenses profitability ratio. Analysis of the financial situation of the company based on financial reports (balance sheet and annexes). Structure ratios analysis. Financial Stability analysis. Solvency and liquidity ratios analysis.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Internship	PR4	4				1

**Course description (Syllabus):** Presentation of the company; Accounting documents preparation; Recording business transactions – in a month; Prepare the trial balance.

### 3<sup>rd</sup> Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Web Design	WEB5	4	2		2	

**Course description (Syllabus):** Specifying and organizing information on the WEB. Web Design – basic principles. GIMP image editing program. The mark-up languages HTML4 vs. HTML5. The new semantic tags in HTML5 for better structuring and presenting the content of a Website. Cascading Style Sheets CSS3 that specifies how the information from an associated HTML document displays. JavaScript language to add interaction in the Website. XML mark-up language and HTML5. The <canvas> element in drawing graphics in HTML5. VRML – Virtual Reality Modelling Language included in HTML5. Games made with GREENFOOT-environment included in HTML5.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Information Systems. Analysis and Design	PSI5	5	2		2	

**Course description (Syllabus):** Information system – definition, objectives, classification; Information system development methodologies; Computer aided information system tools; Information system analysis; Information system design; Information system object oriented analysis and design; Unified Modelling Language.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Operational Research and Economic Modelling	MOD5	5	2		2	

**Course description (Syllabus):** Operations research modelling approach; The modelling and simulation to support for management decision; Formulating and solving linear programming models; Network optimization models; The transportation and assignment problems; Queuing models. Inventory models; Economic models solved by fuzzy techniques; Multi-attribute decision models; Monocriteria models in solving decision problems; Optimizing with QM (Quantitative Management).

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
E-Commerce	CCY5	5	2		1	

**Course description (Syllabus):** E-business vs. E-commerce; Electronic markets and electronic payments. Online security; Online marketing. Marketing strategies on the web; Web 2.0 and social networks. E-Government; Online web applications in Romania; Document and content management applications for organisations; Business Intelligence.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Programming in DBMS Oracle	PSO5	5	2		2	

**Course description (Syllabus):** Introduction to Oracle DBMS; SQL statements and single-row functions. Joins and data aggregation; Queries and sub-queries; Data manipulation with INSERT, DELETE, UPDATE. Transaction management; PL/SQL – variables, statements (IF, while, for); Implicit and explicit cursors; Exception management; Stored procedures and user-defined functions.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
omic Processes Simulation	SIP6	5	2		1	

**Course description (Syllabus):** Concepts of modelling; Concepts of simulation; Statistical method applied in economic processes simulation; Methods and algorithms for generating the discrete random variables; Methods and algorithms for generating the continuous random variables; Applications of methods for generating the random variables (midterm exam); Scenario analysis models in economic processes simulation; Sensitivity analysis models in economic processes simulation; Case studies of economic processes simulation models; Applications of economic processes simulation (final exam).

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Macroeconomic Statistics	STM6	5	2	1		

**Course description (Syllabus):** Territorial series; Indices methods variation analysis of a complex phenomenon; Economic indicators of external transactions; Macroeconomic results statistics; External debt statistics; Life quality statistics; Country risk analysis; Macroeconomic analysis.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Business Administration	MNA6	5	2	2		

**Course description (Syllabus):** The approach of business; Partners and clients; Organizational structures and business efficiency; Typology of business partners and customers; Corporate objectives and business planning. Decision-making; Strategic business decision. Business blunders; Regional and multinational business strategy; Research, development, and innovation in business; Ethics and the natural environment.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Company Evaluation and Diagnostic Analysis	ADE6	5	2		1	

**Course description (Syllabus):** The necessity of diagnostic analysis; Juridical diagnostic; Technical diagnostic; Human resources diagnostic; Managerial diagnostic; Commercial diagnostic; Economic and financial diagnostic; The company valuation.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Web Technologies and Applications	TWB6	5	2		2	

**Course description (Syllabus):** Introduction to ASP.NET web forms. Web page life cycle; Methods and events for web controls. Control life cycle; Advanced web controls; Exchanging data between pages. Objects between requests; Working with databases and web controls; Database access with datasets and data readers; Data validation.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Preparation of Bachelor Thesis	ELI6	5				5

**Course description (Syllabus):** The discipline "Preparation of bachelor thesis" has the following objectives: to get bachelor students accustomed with the essential issues of the dissertation thesis; to train and develop graduate skills of developing projects; to assist students in using correct methods, techniques and models of analysis necessary to address the chosen theme; to help students in substantiation of conclusions and proposals specific to each topic; to guide students to identify innovative solutions to solve the proposed thesis theme.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Insurance Mathematical Models	MMA5	3	1	1		

**Course description (Syllabus):** The basic deterministic model; The life table; Life annuities; Life insurance; Insurance and annuity reserves; Fractional durations; Continuous payments; Select mortality; Multiple life contracts; Expenses.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Business Communication and Negotiation	CNI5	3	1	1		

**Course description (Syllabus):** The negotiation – main communication form in business; Types of negotiation; Types of negotiators. Negotiation styles; Negotiation tactics, technics and structures; Negotiation deployment; Negotiators' training. Negotiators' team; Price fixing in business negotiation.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Environment Management	MNM5	3	1	1		

**Course description (Syllabus):** Introduction. Basic concepts regarding the environment and management. The evolution of environmental management. The establishment (founding) of environmental management. The nature of environmental management. Laws of ecology. Environmental management and business. Standards, monitoring, modelling, eco-auditing. Environmental Management Systems EMS and ISO 14001. Sustainable development and Environmental Management. Ecosystem management. Pollution and Environmental Management. Corporate Social Responsibility (CSR) and Environmental Management.