

	MINISTERUL EDUCAȚIEI, CERCETĂRII ȘI TINERETULUI Universitatea POLITEHNICA din București Facultatea de Inginerie în Limbi Străine		
	<i>Splaiul Independenței nr.313, 060042 București, ROMÂNIA</i>		
	Telefon: +4021 402 95 90; +4021 402 98 89		

Prezentarea programului de studii universitare de master începând cu anul universitar 2018-2019

1. Denumirea programului de master: Business Administration and Engineering (în limba engleză)

2. Tipul programului de master - Complementar

3. Durata programului de master: 4 semestre

4. Obiectivele programului

- Asigurarea unei pregătiri bazate pe planuri de învățământ și programe de curs analoage celor utilizate în cele mai importante instituții de învățământ superior europene, care să faciliteze integrarea firească într-o piață a muncii globalizată și facă posibilă recunoașterea studiilor și echivalarea diplomelor.

- Dezvoltarea legăturilor bilaterale și multilaterale cu universități din țările avansate, în vederea asigurării unui transfer rapid al cunoștințelor pedagogice și de specialitate, a întăririi cunoașterii reciproce și a creării condițiilor pentru recunoașterea diplomelor.

- Asigurarea, în continuare, a unui modul de învățământ superior de excelență, care să contribuie la reînnoirea continuă a metodelor și conținutului, în acord cu cerințele dezvoltării cooperării internaționale și creșterea nivelului tehnologic.

- Posibilitatea invitării unor specialiști străini și români de prestigiu pentru a prezenta în profunzime anumite subiecte de interes, la nivelul cercetărilor economice la zi.

5. Competențe generale și competențe specifice.

Competențe generale:

Capacitatea de analiză și rezolvare a unor probleme economice, financiare și manageriale care apar în firme în condițiile reale ale pieții globalizate actuale și care cer soluții imediate și eficiente, cu un înalt grad de complexitate și creativitate, dezvoltarea unor competențe cerute și transferabile pe piața muncii și lărgirea paletei de perspective în cariera profesională.

Competențe specifice:

Cunoștințe permițând utilizarea eficientă a resurselor economice, financiare și manageriale pentru succesul în afaceri și dezvoltarea profesională individuală.

Studiile de administrarea afacerilor oferă studenților posibilitatea înțelegerii mai bune a mecanismelor pieții, asimilării unor noi concepte, tehnici de lucru și de comunicare.

Metodologiile de prelucrare a informației, de extragere și de folosire a cunoștințelor sunt esențiale pentru diferite domenii de activitate, contribuind la eficientizarea companiilor și a întreprinderilor.

Studiile antreprenoriale au ca scop pregătirea absolvenții pentru a iniția afaceri proprii, independente, care să genereze noi locuri de muncă și oportunități, pentru a se evita ca tinerii să devină la terminarea școlii simpli competitori pe piața muncii, pentru locurile de muncă oferite de companiile existente.

6. Grupuri țintă (potențialii candidați vizați de programul de master).

Absolvenți ai ciclului de licență din diferite facultăți ale unor universități tehnice, universități generale sau academii de științe economice, precum și studenți străini; absolvenți ai ciclului de licență care doresc obținerea unor poziții cheie în companii naționale sau multinaționale, sau inițierea unui business propriu.

7. Personalul didactic existent în facultate (facultăți) care va fi implicat în programul de master.

Cadrele didactice de specialitate implicate în realizarea planului de învățământ provin de la Universitatea "Politehnica" București (UPB), precum și cadre invitate din străinătate sau de la diferite companii românești și străine.

Prof. Cezar SCARLAT (UPB, Management),
Prof. Gheorghe MILITARU, (UPB, Management),
Prof. Sorin GRIGORESCU (UPB, Management),
Conf. Dana DESELNICU (UPB, Management),
Conf. Ana-Maria NEAGU (UPB, DILS),
Conf. Maria DASCALU (UPB, DILS),
Conf. Bujor PĂVĂLOIU (UPB, DILS),
S.I. Cristian POPESCU (UPB, Management),
S.I. Dan DUMITRU (UPB, Management),
S.I. Cristian MUSTAȚĂ (UPB, DILS),
S.I. Stefan POPA (UPB, AII)
Dr. Alin ALECU

8. Baza materială care va susține programul de master

Va fi asigurată de Departamentul de Inginerie în Limbi Străine, care dispune de sălile și de unele din laboratoare necesare. Anumite laboratoare vor fi organizate în colaborare cu companiile partenere.

Vor fi folosite laboratoarele din UPB:

1. CJ103, Business Simulation

2. Virtual Reality and Complex Systems Simulation, CJ202 (24 locuri)

3., 4. Basic Programming, JA001A and JA001B (50 locuri). LAN FastEthernet, ,
ecrane proiectoare.

Software licențiat (Microsoft .net, etc...)

9. Programe de cercetare care pot constitui suportul pentru programul de master.

Acest master nu este implicat un proiect de cercetare, dar se vor folosi experiența și resursele obținute în parteneriate din proiecte ca:

„Un student consiliat și orientat profesional, un tânăr pregătit pentru piața muncii – CONPROF”, POSDRU / 161 / 2.1 / G / 137369

Aceste proiecte au drept scop dezvoltarea parteneriatului pe termen lung între universitățile, institutele de cercetare și IMM-urile din România și din Uniunea Europeană în domeniile ingineresti și de afaceri. Scopul lor este creșterea vizibilității internaționale a cercetării performante din România în acest domeniu și integrarea sa în programele Europene și internaționale, inclusiv pregătirea unei propuneri de proiect de cooperare științifică.

10. Planul de învățământ conform anexei (program de master de complementar, 4 semestre)

11. Descrierea disciplinelor din planul de învățământ.

Planul de învățământ acoperă direcțiile de pregătire fundamentale pentru un MBAE de calitate și a fost verificat în cei douăzeci de ani de funcționare anterioară. Noul program propus a fost completat cu câteva discipline menite să întărească utilizarea tehnicilor de calcul în conducerea și managementul afacerilor și să îmbunătățească pregătirea absolvenților cu aspecte legate de construcția asigurarea funcționării unitare a echipelor de lucru pentru diferite sarcini specifice.

Absolvenții provenind de la secția de Master în Conducerea Afacerilor se bucură de o înaltă apreciere locurile de muncă pe care și le-au ales. Conform unei statistici urmărind evoluția profesională a absolvenților din anii precedenți, 10% își continuă studiile în străinătate cu studii de MBAE sau doctorate în economie, 50% lucrează la firme străine sau românești cu capital străin din România, 10% lucrează în străinătate, 30% lucrează la firme autohtone de succes. Unii absolvenți sunt cadre didactice în învățământul universitar. Programa propusă urmărește îndeaproape domeniile economice pe care studenții le vizează. Deoarece aproximativ 50% din ei sunt implicați în IT în poziții “tehnice”, se urmărește specializarea lor în partea economică, financiară, pentru o integrare rapidă în echipele care lucrează la aplicații economice prin discipline ca *Management of Information Systems*. Se urmărește o apropiere de partea IT a tuturor studenților, atât ca utilizatori de software, cât și ca realizatori ai lui prin discipline ca: *Management Information Systems* și *Numerical Methods for Economic Systems*.

Statistica celorlalți 50% studenți ne arată că 10% provin de la Universitate, 20% de la profile tehnice altele decât cele legate de IT și 20% au studii superioare cu profil economic. Pentru toți sunt organizate cursuri pentru îmbunătățirea capacităților manageriale esențiale *Strategic Management* sau cele cu aspect financiar *Financial Management*. Studenții capătă și își perfecționează noțiunile de marketing modern la *Industrial Marketing* și de comerț internațional la *International Trade Transaction* deoarece ei vor lucra foarte probabil în mari companii, cu valențe multinaționale.

Atât proiectele de semestru, cât și tezele de dizertație încearcă să răspundă unor probleme reale și se bazează pe cerințele și datele unor companii cu care studenții sau cadrele didactice colaborează, sau unde studenții sunt angajați.

Aproximativ 20% din studenți nu sunt angajați la data admiterii la această secție de Master. Atât datorită faptului că programa școlară răspunde foarte bine cerințelor de pe piața forței de muncă, cât și datorită faptului că predarea cursurilor și a aplicațiilor se face

în limba engleză, ei își găsesc un loc de muncă convenabil chiar înainte de terminarea studiilor (unde de obicei își realizează teza de dizertație), cu excepția celor care își continuă studiile în străinătate.

Decan,
Prof. dr. ing. Adrian VOLCEANOV

Responsabil program master,
Conf. dr. ing. Bujor PĂVĂLOIU

STUDIES PROGRAMME: Master
NAME: Business Administration and Engineering -
Administrarea și Ingineria Afacerilor (în limba engleză)
TYPE: Complementary

First year – semester I

No	Subject Name	Semester I - 14 weeks							
		C	S	L	P	Indiv. Study	CP	Eval (E/C/V)	Code
1.	Industrial Marketing	2		1	0	3	4	E	UPB.12.01.O.01-01
2.	Financial Management	2		1	1	3	4	E	UPB.12.01.O.01-02
3.	Management of Information Systems	2			1	3	4	E	UPB.12.01.O.01-03
4.	Event Driven Dynamic Systems	2		1		3	4	E	UPB.12.01.O.01-04
5.	International Trade and Transactions	2		1	0	2	4	E	UPB.12.01.O.01-05
6.	Scientific Research 1	14 weeks x 12 hours per week					10	V	UPB.12.01.O.01-06
	Total = 16 Class+12 Res+14 Study	10		4	2	14	30		

First year – semester II

No	Subject Name	Semester II - 14 weeks							
		C	S	L	P	Indiv. Study	CP	Eval (E/C/V)	Code
1.	Strategic Management	2		2		4	5	E	UPB.12.02.O.01-01
2.	Numerical Methods for Economic Systems	2		1	1	3	5	E	UPB.12.02.O.01-02
3.	Data and Signal Processing for Business	2		1	1	4	5	E	UPB.12.02.O.01-03
4.	Business Cultural Models and Diversity Management	2		2		3	5		UPB.12.02.O.01-04
5.	Scientific Research 2	14 weeks x 12 hours per week					10	V	UPB.12.02.O.01-05
	Total = 16 Class+12 Res+14 Study	8		6	2	14	30		

Second year – semester I

No	Subject Name	Semester III - 14 weeks							Code
		C	S	L	P	Indiv. Study	CP	Eval (E/C/V)	
1.	Technology Entrepreneurship	2		2	0	3	5	E	UPB.12.03.O.01-01
2.	Project Management	2		1	1	4	5	E	UPB.12.03.O.01-02
3.	Prediction of System Evolution	2		1	1	3	5	E	UPB.12.03.O.01-03
4.	Modeling of Complex Systems	2		1	1	4	5	E	UPB.12.03.O.01-04
5.	Scientific Research 3	14 weeks x 12 hours per week					10	V	UPB.12.03.O.01-05
	Total = 16 Class+12 Res+14 Study	8		6	2	14	30		

Second year – semester II

No	Subject Name	Semester IV - 14 weeks							Code
		C	S	L	P	Indiv. Study	CP	Eval (E/C/V)	
1.	Research, practice research and dissertation preparation	14 weeks x 16 hours per week					28	E	UPB.12.04.O.01-01
2.	Etics	1					2		
	Total = 28 Res						30		

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**

Subject Title: **Industrial Marketing**

Subject Instructor: **Cristian-Aurelian POPESCU**

Master Type: **Complementary**

Lectures length: **28 hours**

Applications length: **14 hours**

Number of credits: **4**

Semester: **1**

Prerequisites: Completion of basic management and marketing courses

2. COURSE OBJECTIVES

- This course is designed to provide students with a broad exposure to the principles of industrial (business-to-business – B2B) marketing, and to gain valuable knowledge in this area of marketing. More specifically the course aims to:
 - identify the industrial, marketing, and business terms and concepts that are significant within the field of industrial marketing
 - understand the relationships of these concepts to each other and their relationship to marketing and/or business principles and practices
 - introduce students to differences between consumer and business-to-business markets
 - understand marketing mix and its creation in conditions of business-to-business markets
 - understand the environmental factors affecting the business-to-business markets
- The seminars intend to make students apply the theoretical knowledge from lectures by working with case studies and developing the individual marketing plan projects for selected companies. Additionally, class discussions and project presentations will enhance the communications and presentations skills.

3. SKILLS

Upon completion the student will:

- be able to understand the differences between industrial and consumer markets
- be able to design a marketing plan
- be capable of making decisions regarding organization marketing strategies
- be able to apply the knowledge of B2B marketing in real business life

SILLABUS

a. Lectures:

Ch.	Content	# hs
1	Introduction to industrial marketing The marketing process; Business markets and business marketing; The marketing concept; Marketing mix; B2B demand; Trends and changes in business marketing	2
2	Classifying the B2B market Types of organizational customers; Producers types; The macroenvironment; The legal and political environment; Forms of competition in industrial markets	3
3	Organizational Buying and Buyers Behavior The consumer buying decision; Organizational buying factors influencing buying process	3
4	Marketing research The marketing research process; Techniques of data collection in marketing research	3
5	Industrial market segmentation Basis for segmenting business markets; Steps in segmenting a market; Strategies for selecting target markets	3
6	Pricing policies Cost-based vs. Value-based pricing; Customers perception of value and evaluated price; Pricing strategies	3
7	Product policies Product planning and positioning; Branding; Packaging; Product warranties; Innovation and competitiveness	3
8	Distribution policies B2B Selling; Basic channels forms; Physical distribution (Business logistics)	3
9	Communicating with the market The elements of promotional mix; Promotional methods in B2B marketing; Public relations, trade shows, conferences, and corporate advertising; Internet and web communication in B2B marketing	3
10	Ethics and social responsibility Ethical behavior in business; Corporate social responsibility	2
	Total	28

b. Laboratories:

1	Analyzing a case study	2
2	Writing a report and making effective presentations	2
2	Group study case presentations & discussions	5
3	Marketing plan individual projects presentations& discussions	5
	Total	14

4. EVALUATION

a) One exam over class materials	30%
One individual marketing plan project report and presentation	20%
One group case study written report and presentation	20%
Individual case studies written reports and class participation	<u>30%</u>
Total	100%

b) Minimum requirements to pass

- 50%

c) Final grading

> 92% is 10; 84-91% is 9; 74-83% is 8; 64-73% is 7; 54-63% is 6; 50-53% is 5;
<50% is Fail

5. TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures, class presentations and discussions on case studies and projects.

The class is designed so that participation plays an integral role in the learning process.

6. REFERENCES

1. R. Vitale, J. Giglierano, *Business to Business Marketing, Analysis and Practice in a Dynamic Environment*, South-Western College Publishing, 2002
2. C.W. Lamb, F.F. Joseph, M. Carl, *Marketing*, 3rd Ed., International Thomson Publishing, 1996
3. C-A. Popescu, *Teaching notes*

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR

Cristian-Aurelian POPESCU

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Financial Management**

Course Instructor: **Prof. dr. ing.ec. Gheorghe MILITARU**

Master Type: **Complementary**

Lectures length: **28h**

Seminars length: **28h (14h laboratory + 14h project)**

Number of credits: **4**

Semester: **1**

COURSE OBJECTIVES

This course's objective is the formation of a large master-level management culture through the transmission of knowledge from the financial management domain, and the development of appropriate competencies and skills required of managers in the competitive global economy.

SKILLS

At the end of the course, students will have basic financial notions and will be able to: conduct economic and financial analysis by applying qualitative and quantitative methods; make decisions based on analysis of the company's financial reports; to analyze investments and make the most effective investment decisions, including in the domain of technology transfer.

SYLLABUS

Course:

Chapter	Content	No. of hours
1	Introduction. Course structure and grading system. The functions of Finance. Financial and managerial accounting	2
2	Economic concepts (microeconomics, macroeconomics). Economic transition.	2
3	Accounting conventions. Balance sheet. T accounts.	2
4	Financial ratios: liquidity, profitability, activity, and leverage.	4
5	Financial planning. Budgets.	2
6	Principles of economic efficiency.	2
7	Cost accounting and analysis.	2
8	Break-even analysis.	2
9	Mathematics of interest. Present and future values.	2
10	Cash flow management.	2
11	Elements of financial analysis. Qualitative and quantitative methods.	2
12	Investment decisions. Investments in new technology and intellectual property (technology transfer)	4
	Total:	28

Laboratory:

The course has practical activities and a project: developing a draft budget.

EVALUATION

Activity at the laboratory	20%
Project	30%
Written examination	50%

Minimum requirements to pass: according to current university rules. The project must be submitted on time.

Final grading: according to current university rules.

TEACHING METHODOLOGY

- The presentation of the course lectures will be held in an amphitheater with multimedia facilities.
- Applications will be held in the management laboratory.

REFERENCES

1. CAREY, O.L., ESSAYYAD, M.M.H. *The Essentials of Financial Management*. Research and Education Association, New Jersey, 1994.
2. KOLB, B. A., DEMONG, R. F. *Principles of Financial Management. Second Edition*. IRWIN, Homewood, Illinois.
3. HALPERN, P., WESTON, J.F., BRIGHAM, E.F. *Finanțe manageriale*. Editura Economică, București, 1998.
4. POPA, I. *Bursa (vol.I, II)*. Colecția Bursa, 1994.
5. SCARLAT, C. *Managementul activităților financiar contabile*. Editura Printech, București, 2004. Reeditare 2005.
6. SPIRO, H. T. *Finance for the Nonfinancial Manager. 3rd edition*. John Wiley and Sons. New York.
7. STANCU, I. *Finanțe – Teoria piețelor financiare. Finanțele întreprinderilor. Analiza și gestiunea financiară*. Editura Economică, București, 1997.
8. VĂCĂREL, I. ș.a. *Finanțe publice*. Ed. Didactică și Pedagogică, București, 1994.

MASTER STUDIES CHAIR,**DISCIPLINE COORDINATOR****Conf. dr. ing. Bujor PĂVĂLOIU****Prof. dr. ing.ec. Gheorghe MILITARU**

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Management of Information Systems**

Course Instructor: **Conf. dr. Maria DASCALU**

Master Type: **Complementary**

Lectures length: **28 h**

Applications length: **14 h**

Number of credits: **4**

Semester: 1

Prerequisites: Completion of Microeconomy and basic courses of Management

2. COURSE OBJECTIVES

The objective of the lecture is to give the students knowledge about transforming business and management under the impact of information and communication technologies and particularly about the strategic role of information systems in today economy. The students will learn about current approaches in implementation and evaluation of ICT infrastructure as support for MIS, as well as evaluation, security and control.

3. SKILLS

Upon completion the student will:

- be able to analyze and make decisions regarding the information systems
- choose methodologies, architectures and instruments for MIS
- apply the knowledge of information systems, e-business and e-commerce management in real life
- be able to manage MIS

4. SYLLABUS

a. Lectures

1. Transforming business and management under the impact of information and communication technologies (ICT)
2. Information, management, and decision making
3. The strategic role of information systems (IS)
4. The architecture of IS and modeling in management
5. New technologies in the design and development of IS
6. ICT for applications integration in IS for management
7. Approaches to MIS building ; methodologies and instruments

8. Approaches in implementation and evaluation of ICT infrastructure as support for MIS :

- Data processing infrastructure
- Communication infrastructure
- System software
- Application software
- DBMS and KBMS

9. Evaluation, security and control in MIS

10. e-Business and e-Commerce environment

11. Managing contemporary MIS

b. Group project and laboratory :

*The use of standard software for planning and control activities

*Knowledge transfer about the management of virtual and event-driven enterprises

*Research a business by visiting the sites of the companies from Fortune magazine or annual reports, and analyse how the companies are using MIS to pursue their strategies (3 students per group, and presentation of their findings to the class and exam.)

5. EVALUATION

- | | |
|--|-----|
| a) One exam over class materials | 40% |
| One individual industry analysis written report and presentation | 20% |
| Project | 40% |
- b) Minimum requirements to pass
- 50%
- c) Final grading – Rounding to the nearest integer for grades higher than 5, else considering failure.

6. TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures, class presentations and discussions on case studies and projects.

The class is designed so that participation plays an integral role in the learning process.

7. REFERENCES

1. Guran Marius : Sisteme informationale pentru management (Cours notes in digital form), 2007.
2. Keneth C. Laudon, :Management Information Systems.Prentice-Hall, 2002.
3. Linthicum S. David : Enterprise Application Integration.Addison- Wesley, 2003
4. Vivek Ranadive : The Power of Now.McGraw-Hill, 1999.
5. Lungu I., Sisteme informatice, Ed.Economica, 2003.
6. Guran Marius : The Architecture of Virtual Industrial Enterprise - A New Paradigm in Distributed Data Processing and Communications, Proceedings of 15-th Int. Conf. CSCS, 2005.
7. Senn A. James : Information Systems in Management, Third Edition, Wadsworth Publ. Comp., 1999.

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR

Conf. dr. Maria DASCĂLU

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Event Driven Dynamic Systems**

Course Instructor: **Conf. dr.ing. Bujor PĂVĂLOIU**

Master Type: **Complementary**

Lectures length: **28h**

Applications length: **14 h**

Number of credits: **4**

Semester: 1

Prerequisites: None

2. COURSE OBJECTIVES

In this course the focus is on using a model-based framework to simulate, analyze, optimize and execute discrete event systems. The course covers recent research in control of discrete event systems, mainly modeling, analysis and synthesis aspects.

Several modeling formalisms are discussed, such as automata, max-plus algebra, formal languages, statecharts and Petri nets. Several algorithms are discussed, including search algorithms and mixed integer linear optimization techniques.

The lecture offers insight into how simulation modeling can aid in effective decision-making. The bulk of the time in the course is spent on discrete event simulation modeling. Simulation model building aspects of discrete systems (such as manufacturing and logistics facilities, supply-chains) are covered in detail. It is also demonstrated how computer simulation can be used to successfully model, analyze and improve systems under study.

3. SKILLS

Upon completion the student will:

- to design and conduct experiments, as well as to analyze and interpret data
- to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, manufacturability, and sustainability.
- apply the knowledge of DEDS in real business problems

4. SYLLABUS

Lectures

Models of Discrete Event Systems

Markov Chain Model of an Untimed DES

Formal Languages and Automata DES Models

Max - Plus Algebra Representation of Timed Discrete Event Systems

Petri Nets Models

Modeling and Controllability of Discrete Event Systems

Timed and stochastic models

Discrete event systems and its applications- Game Theory
Discrete event systems and its applications- Auctions

Laboratories

The laboratories will follow the content of the lectures. Simulations will be made in Matlab and in acknowledged DES simulators. A project to solve a real-life problem will be completed.

5. EVALUATION

a) The assessed activities and their share:

It is evaluated the active presence to the lecture and applications, the homework and it is given a grid test at the end of the subject.

The homework will be due at the beginning of class on the day specified. They are worth 70% credit if turned in up to a week late, 50% for the next week and 0% afterwards

b) The minimal requests for passing:

At least 50% for each activity.

c) Final grade is computed as:

Participation (not presence) at lectures and applications:	10%
Homework and activity in lab:	40%
Grid test:	20%
Final examination:	30%

6. TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures, class presentations and discussions on case studies and projects. The lectures will be given as presentations using video projections.

7. REFERENCES

- Paul Cristea, Discrete Event Systems, - Article #2237 in the area on Circuits & Systems Part II: Analog & Digital Signal Processing, vol. 5, pp. 612-630, J.G. Webster (Ed.), Wiley Encyclopedia Of Electrical And Electronics Engineering, John Wiley & Sons, Inc., Publishers, 1999.
- C. G. Cassandras and S. Lafortune, Introduction to Discrete Event Systems, Kuwer Academic Publishers, ISBN 0-7923-8609-4
- J. Banks, J. S. Carson B. L. Nelson, and D. M. Nicol, Discrete-Event System Simulation. Prentice Hall, Inc., 2000, ISBN 0-13-217449-9.
- Law, A.M. & Kelton, W.D, Simulation Modeling and Analysis, McGraw Hill Inc. 1991
- Fishwick, P.A., Simulation Model Design and Execution : Building Digital Worlds, Prentice Hall Inc., 1995

MASTER STUDIES CHAIR,

DISCIPLINE COORDINATOR

Conf. dr. ing. Bujor PĂVĂLOIU

Conf. dr. ing. Bujor PĂVĂLOIU

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**

Course Title: **International Trade and Transactions**

Course Instructor: **Conf. dr. Dana DESELCU**

Master Type: **Complementary**

Lectures length: **28 h**

Applications length: **14 h**

Number of credits: **4**

Semester: **1**

Prerequisites: none

2. COURSE OBJECTIVES

The subject intends to meet the needs of student who seek knowledge about doing business in an international framework. It provides opportunities for students to understand the framework of international trade and to build a solid base for continuous self development for an international trade career in their field of specialization.

General course objective: Understanding and learning of theoretical and practical aspects of international trade and transactions.

Specific course objectives:

- Deepening the theoretical knowledge and practical skills that support students' abilities regarding international trade and transactions;
- Familiarization to legal requirements in international trends and international terms and regime for doing trade in nowadays global business environment; exposure to various international trade negotiations and risk avoidance strategies and techniques;
- Acquiring knowledge on international business financing used in today's international business practice.

3. SKILLS

At the completion of this course students should be able to:

- Define concepts and principles specific to the field of international trade and transactions;
- Describe the major features of current and recent patterns in world trade;
- Describe and analyze the main foreign entry modes;
- Explain the stages of international business strategy;
- Analyze the multicultural negotiation techniques used in international trade;
- Analyze the risk assessment and containment techniques used in international trade;
- Develop psychosocial, negotiation, communication skills in business contexts;
- Development of the ability to work in teams;
- Apply the knowledge of international trade in real business life.

4. SYLLABUS

Lectures and Applications:

- **Introduction to international trade.** Globalization and free trade. Costs and benefits of globalization. Costs and benefits of free trade. The role of developing countries in global trade. Recent trends and changes in the global economy.
- **Legal framework of international trade on a national and international level.** Steps in order to be able to conduct international trade. Foreign trade mechanism. Trade policy of Romania. Tariff trade policy. Non - tariff trade policy. Promotional and exports - incentive trade policy.
- **Export strategy.** Foreign entry modes. Export. Direct export – advantages and disadvantages. Main types of direct export. Indirect export – advantages and disadvantages. Main types of indirect export. Maximizing profits: offshore companies and tax heavens for companies and individuals.
- **The international trade contract.** Types of contracts. Characteristics of international contracts. Contract clauses. International contracts terms and conditions. Marking and packaging terms. Terms referring to the quality of goods. International delivery terms - INCOTERMS 2010. International transports and logistics. Payment terms. Methods of payment. Payment instruments.
- **Multicultural negotiations of contracts.** Inter- and intra-groups negotiations. Negotiations strategies and techniques. Negotiators' profile in multicultural contexts. Multicultural negotiation teams.
- **Risks in international trade transactions.** Risk assessment and evaluation. The risk index. Types of risks in international trade. Techniques to prevent and protect against risk. Contractual techniques. Extra-contractual methods and techniques.
- **International business financing and investments.** Transnational corporates. Financing techniques.
- **Analysis of the main countries profiles in international world trade.** Import and export structure. Dynamics of trading. Current trends and forecasts in global international trade.

5. EVALUATION:

1. One exam over class materials - 40%;
2. Group project - 20%;
3. Individual project - 30%;
4. Course attendance and participation - 10%;

Minimum requirements to pass - 50%. Final grading – rounding to the nearest integer for grades higher than 5, else being considered failure.

6. TEACHING METHODOLOGY

The subject will include: lectures, class presentations, analyses and discussions on case studies and projects. The class will be split in workgroups, in order to stimulate initiative and cooperation, as well as competition among students for better results in the learning process.

7. REFERENCES

- Baicu, Mariana – Managementul afacerilor economice internationale, Ed. Fundatiei Romania de Maine, 2007.
- Ciobanu, Gheorghe et al. – Tranzacții economice internationale, Ed. Ardealul Cluj Napoca
- Feenstra, Robert - Advanced International Trade: Theory and Evidence, University of California, Davis, and National Bureau of Economic Research, 2012.
- Gordon, J.S. and Arnold J.R. - Profitable Exporting: A Complete Guide to Marketing Your Products Abroad, John Wiley and Sons.
- RBS – Guide to International Trade, 2012.
- United Nations - Manual on Statistics of International Trade in Services, 2013.
- Websites of major organizations and agreements for international trade, such as: World Trade Organization (WTO) - <http://www.wto.org/>, European Treaties (EUR-lex) - <http://eur-lex.europa.eu/> etc.
- Weiss, Kenneth D. - Building an Import/Export Business - Revised and Expanded Edition, John Wiley and Sons, Inc.

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR

Conf. dr. Dana DESELNICU

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**

Course Title: **Scientific Research 1**

Course Instructor: **Instructors from BAE subjects, dissertation advisers**

Master Type: **Complementary**

Lectures length: **0**

Applications length: **168 h**

Number of credits: **10**

Semester: **1**

Prerequisites: **None**

2. COURSE OBJECTIVES

Together with the student teachers who supervise the research will identify major issues and potential optimization of companies or research laboratories of the departments known for her period of practical and basic bibliographic material necessary to solve these fundamental problems.

3. SKILLS

After browsing a research discipline students an overview on how they can start or optimization approach to solve a specific aspect of a company or research laboratories of the departments.

4. SYLLABUS

Chapter	Content	Hours
1. Field research	Research in some companies or research laboratories	12
2. Establishing areas of analysis and optimization problems	Establishing areas of analysis and optimization problems	14
3. Bibliographic research	Bibliographic research	90
4. Research Meetings	Discussions with adviser	14
5. Writing Research Report	Writing Research Report	36
6. Report presentation	Report presentation	2
		Total: 168 hours

5. EVALUATION

a) Assessed activities and share (according to the Graduating Regulations):

- Presentation with commission 100%

b) Minimum requirements for promotion

- Obtaining 50% of the total;

c) Final scoring

The grade is admissible if the conditions listed above

6. TEACHING METHODOLOGY

Powerpoint presentation, discussions, case studies, examples.

7. REFERENCES

Literature in the chosen field

MASTER STUDIES CHAIR,

DISCIPLINE COORDINATOR

Conf. dr. ing. Bujor PĂVĂLOIU

COURSE FICHE

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Strategic Management**

Course Instructor: PhD.eng. Cristian-Aurelian POPESCU

Type: **Complementary**

Lectures length: 1 semester/28h

Seminars length: 1 semester/28 h

Number of credits: 5

Semester: 2

Prerequisites: Completion of Microeconomy, and basic courses of Management, Managerial Finance and Accounting, and Marketing

2. COURSE OBJECTIVES

- This course is designed to provide students with a broad exposure to strategic management, from both a theoretical and managerial perspective. It focuses on analyzing and evaluating external and internal organization environment, identifying and building its competitive advantage, formulating and implementing the appropriate strategies. Its aim is to develop strategic thinking by making students learn and understand of terminology, concepts, and techniques of strategic management. Also, it is the course goal to build analysis, diagnosis, communications and presentations skills, and to work in group effectively. The course relies upon suggested textbooks and teacher notes.
- The seminars are accompanying and complementing the course, and are planned to make possible the use of concepts, models, and tools learned. These are accomplished through individual and group study cases analysis, presentations, and debates, and through individual industry analysis projects.

3. SKILLS

Upon completion the student will:

- be able to analyze internal and external organization environment
- make decisions regarding organization strategic movements
- apply the knowledge of strategic management in real business life

4. SYLLABUS

a. Lectures

Ch.	Content	#hs
1	Course introduction. The process of strategic management <ul style="list-style-type: none"> Defining the business. Establishing strategic objectives. Formulating strategy 	2
2	Industry and competitive analysis. The firm's own situation <ul style="list-style-type: none"> Industry structure; industry attractiveness The Porter's Five Forces Model of Competition SWOT analysis 	6
3	Business Strategies <ul style="list-style-type: none"> Generic business strategies: strategy of low-cost, strategy of differentiation, focus/specialization strategy Combinations of generic business strategies for different types of industry environments and competitive situations 	6
4	Building and defending Competitive Advantages <ul style="list-style-type: none"> Achieving competitive advantage via low-cost, differentiation, and focus strategies; pitfalls of generic strategies Offensive and defensive strategies to protect competitive advantages 	4
5	Corporate Strategies <ul style="list-style-type: none"> Concentration on a single business The strategy of vertical integration The strategy of diversification Abandonment and liquidation strategies Corporate turnaround, retrenchment, and portfolio restructuring strategies 	4
6	Techniques for Analyzing Corporate Diversification Strategies <ul style="list-style-type: none"> BCG matrix GE matrix 	4
7	Implementing strategy <ul style="list-style-type: none"> Matching organization structure to strategy; functional organization structure; geographic forms of organization; decentralized business units; strategic business units; matrix forms of organization; Creating commitment, corporate culture, support systems, and leadership 	2
	Total	28

b. Applications: Project and case studies presentations and discussions

1	Analyzing a case study	2
2	Writing a report and making effective presentations	2
3	Group study case presentations and discussions	12
4	Industry analysis individual projects presentations and discussions	12
	Total	14

5. EVALUATION

d) One exam over class materials	50%
One individual industry analysis written report and presentation	20%
One group case study presentation	15%
Individual case studies written reports and class participation	<u>15%</u>
Total	100%

- e) Minimum requirements to pass
- 50% of each above quotes;

f) Final grading

> 91% is 10; 84-91% is 9; 74-83% is 8; 64-73% is 7; 54-63% is 6; 50-53% is 5;
<50% is Fail

6. TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures, class presentations and discussions on case studies and projects.

The class is designed so that participation plays an integral role in the learning process.

7. REFERENCES

4. A. A. Thompson & A. J. Strickland, *Strategic Management. Concepts and Cases*, 4th Ed., IRWIN, Homewood, Illinois, 1987
5. L. W. Rue & P.G. Holland, *Strategic Management. Concepts and Experiences*, 4th Ed., McGraw-Hill Book Co., 1986
6. C-A. Popescu, *Teaching notes*

MASTER STUDIES CHAIR

Conf. dr. ing. Bujor PĂVĂLOIU

COURSE COORDINATOR

Cristian-Aurelian POPESCU

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Numerical Methods in Economic Systems**

Master Title: **Master in Business Administration**
Master Type: Complementary
Course Instructor: **Prof.Dr.Ing. Sorin Dan GRIGORESCU**
Lectures length: **28 h**
Applications length: **28 h**
Number of credits: **5**
Semester: **2**

Prerequisites: **Elementary Programming (Matlab)**

COURSE OBJECTIVES

The purpose of the course is to give students the required knowledge to implement numerical computation in solving economic problems. It refers to an extended range of methods for numerical solving; the economic issues are being presented in a form implementable in mathematical models to be used for the analysis and resolution. Applications cover the problems like: game theory, financial, institutional organization and economic organization for agriculture.

SKILLS

On completion of this course students will be able to tackle economic problems by analyzing them in order to find the most appropriate mathematical model, or the range of models which fulfils the problem requirements, mathematical implementation of the algorithm and numerical solving of the problem. Are considered, where appropriate, the ability to solve the same problem in multiple ways in order to find an optimum and to better analyze the result sensitivity in varying input parameters.

SYLLABUS

Lectures

- General considerations about numerical analysis- the convergence rates of the numerical analysis algorithms and computing errors. Error analysis.
- Solutions for systems with linear equations, decomposition methods, LU, QR and Cholesky, Gauss-Jacobi, Gauss-Seidel.
- Solving nonlinear equations- intersections method, Newton's method, Broyden updates, hybrid method Powell, homotropy methods and continuity.
- Function approximation- orthogonal polynomials, Splines, interpolation method.

- Numerical quadrature and Monte Carlo simulation- uni and bidimensional integration methods; Monte Carlo simulation method. Various applications.
- Differential equations, integral and functional- methods to solve simple or complex equations arising in dynamic economic models. Dynamic optimization applications.
- Numerical dynamic programming- programming solutions for deterministic and stochastic problems using approximation techniques, integration and optimization.

Laboratories

Using MATLAB to solve economic problems:

- Optimization with MATLAB. Understanding of the utility for optimization with numerical examples;
- Optimization problems with or without restrictions
- Various economic optimization problems, the problem of salesman, the problem of partition.
- Models for the problems of nutrition and diet.
- Problems for developing agricultural farms
- Models for natural resources.
- Problems of interregional trade and spatial equilibrium models.
- Making a small studio of Monte Carlo type for the estimator of least squares.

Project

Will have been encouraging students to make final project at their own choice. The idea is to take a project from their current activity or interest and to identify the applicability of concepts acquired in class in order to model and solve a certain problem. The problem will have three stages:

- Identification- localization and definition of optimization problems or other form of numerical computation in the chosen field. 4-6 pages to explain the scope and identify specific mathematical problems.
- Primary results- using the methods studied at the laboratory and course, students will make a plan for their solution. Here will be presented preliminary results and the programs written for solving them.
- Final report- will combine the first two stages and other research and the results obtained in the analysis of the problem and the numerical solution.

EVALUATION

Laboratory	25%
Project	25%
Final examination	50%

Minimum requirements to pass - 50% for all activities.

TEACHING METHODOLOGY

Courses, laboratory platforms, PC with MATLAB, course and laboratories notes.

REFERENCES

1. Kenneth L. Judd, Numerical Methods in Economics, MIT Press, 1998.
2. Dorfman, Robert, Paul A. Samuelson, and Robert M. Solow. Linear Programming and Economic Analysis, New York:Dover Publications, Inc., 1987.

3. G. Dumitrascu, D.Deleanu, D.Micu, Matematici aplicate in economie, Ed. EX PONTO Constanta 2002, ISBN:973-8227-72-0.
4. M. Ciocan, A. Vasilescu, programarea matematica folosind MS Excelsolver, Management Scientist, Matlab, Editura Alabastra,2000, ISBN:973-9443-87-7.
5. <http://bucky.stanford.edu/econ288>
6. <http://www.econ.ku.dk/tmp/understand/understandingbusinesscycles.htm>
7. <http://www.math.utah.edu/lab/ms/matlab/matlab.html>

MASTER STUDIES CHAIR,
Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR
Prof. dr. ing. Sorin GRIGORESCU

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Data and Signal Processing for Business**

Course Instructor: **Conf.dr.ing. Bujor PĂVĂLOIU**

Master Type: Complementary

Lectures length: **28 h**

Labs length: **28 h**

Number of credits: **5**

Semester: **2**

Prerequisites: None

COURSE OBJECTIVES

The subject techniques borrowed from Signal and Data Processing (such as the envelope, the instantaneous frequency, the averaging function, data representation, time series) can help with the analysis of financial data. This lecture helps the students to understand Data processing methods and to apply them in business analysis.

SKILLS

After completion of the subject, the student will:

- choose the right tools regarding a particular problem
- be able to analyze economic data and systems using digital means
- apply the knowledge of Data and Signal Processing in real business life

SYLLABUS

Lectures

- Digital Signals
- Digital Signals Representations
- Digital Data Processing
- Charting Financial Data
- Analyzing and Computing Cash Flows
- Pricing and Analyzing Equity Derivatives
- Portfolio Analysis (construction, analyzing, optimization)
- Interest-Rate term structure
- Equity Binary Trees
- Financial Time Series Forecasting

Laboratories and Project

- Laboratories will closely follow the lecture, providing computer familiarity and practical understanding of the subjects. The students will make an individual project that will show their skills in the field.

EVALUATION

Homeworks	30%
Project	30%
Report presentation	40%

Minimum requirements to pass - 50% for the project and for the written examination

Final grading – Rounding to the nearest integer for grades higher than 5, else considering failure.

TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures using video projections, printed materials, web information and discussions on case studies and projects.

The class is designed so that participation plays an integral role in the learning process. The adaptive learning site <http://www.e-learning.dsp.pub.ro> will play an important role in the instruction of the students.

REFERENCES

- Rodica TUDUCE, Signal Theory, Editura Bren, 1998
- Ben FRY, Visualizing Data: Exploring and Explaining Data with the Processing Environment, O'Reilly Media, 2008, ISBN 0596514557
- Carl FRENCH, Data Processing and Information Technology, Cengage Learning Business Press, 1996, ISBN 1844801004

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR

Conf. dr. ing. Bujor PĂVĂLOIU

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Business Cultural Models and Diversity Management**

Course Instructor: **Conf.dr.ec. Ana-Maria Neagu**

Master Type: **Complementary**

Lectures length: **28 h**

Applications length: **28 h**

Number of credits: **5**

Semester: **2**

Prerequisites: **None**

2. COURSE OBJECTIVES

The course takes the students through such matters as selecting the place for the negotiations to recognizing and managing the many cultural differences that will be encountered and need to be overcome in an international deal.

3. SKILLS

After completion of the subject, the student will:

- Understand the importance of global negotiation tactics and strategies
- Be able to prepare contracts and meetings with foreign partners
- Consolidate the ability to renegotiate contracts
- Demonstrate the knowledge and understanding of working in multicultural environments

4. SYLLABUS

Lectures

1. Introductions, Course Overview, Theoretical Underpinnings of Diversity, Dimensions of Diversity
2. Changing Demographics, Organizational Culture
3. Organizational Structures & Systems; Policy & Practice
4. Multiculturalism and barriers for global deal making
5. Negotiation models, evaluating the models steps for preparing global deal making
6. Principles for global negotiation
7. Strategies for negotiation in international contracts
8. American Business models. Working with Americans
9. Latino American Business models. Working with Latino Americans
10. Asian Business models. Working with Asians
11. European Business models. Working with Europeans
12. Mending international deals

13. Inclusive Corporate Cultures

Laboratories and Project

- Laboratories will closely follow the lecture, providing multiple case studies examples of good practice discussions on certain negotiation tactics. The students will make an individual project that will show their skills in the field.

5. EVALUATION

- Students are required to summarize **five** current articles on issues of diversity for class discussion. The purpose is to increase awareness of diversity issues in our world, nation, state, or local community.

Students are required to present a project with a hypothetical situation of international contract dealing with foreign partners. 40%

Exam 60%

Minimum requirements to pass - 50% for the project and for the written examination

Final grading – Rounding to the nearest integer for grades higher than 5, else considering failure.

6. TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures using video projections, printed materials, web information and discussions on case studies and projects.

7. REFERENCES

1. Acuff Frank L. 2008, How to Negotiate Anything with Anyone Anywhere Around the World, Third Edition, American Management Association, AMACOM Editorship
2. Burdus Eugen, Management comparat internațional
3. Graham John L.; Mintu Alma T.; Rodgers Waymond, Explorations of Negotiation Behaviors in Ten Foreign Cultures Using a Model Developed in the United States, MANAGEMENT SCIENCE/Vol. 40
4. Harvey, Carol and Allard, June M., 2012, Understanding and Managing Diversity, Readings, Cases and Exercises
5. Moss, G 2011, Lessons on profiting from diversity. Basingstoke: Palgrave Macmillan Basingstoke
6. Salacuse Jeswald W.2003 - The Global Negotiator: Making, Managing and Mending Deals Around the World in the Twenty-First Century Society for Human Resource Management Reports
7. Yu-Te Tu A Comparison on Intercultural Business Negotiations of Asia's Four Little Dragons *International Journal of Business and Social Research (IJBSR), Volume -3, No.-4, April, 2013*
8. Marion Keil, Badrudin Amershi, Stephen Holmes, Hans Jablonski, Erika Lüthi, Kazuma Matoba, Angelika Plett and Kailash von Unruh, 2007, Training Manual for Diversity Management (International Society for Diversity Management – idm)
9. Galdo M.E, Nielsen J., 1996, International User Interfaces, Wiley Computer Publishing
10. Kenneth R.Ahern , Daniele Daminelli, Cesare Fracassi, 2012, *Lost in translation? The effect of cultural values on mergers around the world*, Journal of Financial Economics (2012), <http://dx.doi.org/10.1016/j.jfineco.2012.08.006>

11. Li, K., Griffin, D., Yue, H., Zhao, L., 2011. *National culture and capital structure decisions: evidence from foreign joint ventures in China*. *Journal of International Business Studies* 42, 477–503.
12. Sylvie Chevrier, Michael Viegas-Pires 2013, *Delegating effectively across cultures*, *Journal of World Business* 48, 431–439
13. Ingmar Geiger, Jennifer Parlamis, 2014, *Is there more to email negotiation than email? The role of email affinity*, *Computers in Human Behavior* 32, 67–78
14. Robert Wilken, Frank Jacob, Nathalie Prime 2013, *The ambiguous role of cultural moderators in intercultural business negotiations*, *International Business Review* 22, 736–753
15. Swee-Hoon Chuah, Robert Hoffmann, Jeremy Larner 2014, *Chinese values and negotiation behaviour: A bargaining experiment*, *International Business Review* 23, 1203–1211
16. Florian Bauer, Kurt Matzler, Stefan Wolf, 2014, *M&A and innovation: The role of integration and cultural differences— A central European targets perspective*, *International Business Review*

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Scientific Research 2**

Course Instructor: **Instructors from BAE subjects, dissertation advisors**

Master Type: **Complementary**

Lectures length: **0**

Applications length: **168 h**

Number of credits: **10**

Semester: **2**

Prerequisites: **None**

2. COURSE OBJECTIVES

The students will continue their research in the major issues and optimization problems for the companies they study. They will continue with their advisers the bibliographic research, sketching solutions for the given problems.

3. SKILLS

After browsing the Scientific Research 2 discipline, the students an overview on how they can solve or optimize a specific aspect of a company or research laboratory from the faculty.

4. SYLLABUS

Chapter	Content	Nr. Ore
1. Field research	Research in some companies or research laboratories	120
3. Bibliographic research	Bibliographic research	70
4. Writing Research Report	Writing Research Report	60
5. Report presentation	Report presentation	2
		Total: 252 hours

5. EVALUATION

- a) Assessed activities and share (according to the Graduating Regulations):
- semester activity 60%

- final Colloquium 40%

b) Minimum requirements for promotion

- Obtaining 50% of the total;

c) Final scoring

The grade is admissible if the conditions listed above

6. TEACHING METHODOLOGY

Powerpoint presentation, discussions, case studies, examples.

7. REFERENCES

Literature in the chosen field

MASTER STUDIES CHAIR,

DISCIPLINE COORDINATOR

Conf. dr. ing. Bujor PĂVĂLOIU

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**

Course Title: **Technology Entrepreneurship**

Course Instructor: **Sl. dr. ing. Cristian Mustață**

Master Type: **Complementary**

Lectures length: **28 h**

Applications length: **28 h**

Number of credits: **5**

Semester: **3**

Prerequisites: Basic curricula of Economy, Targeted Students: Technical, English language capability.

1. COURSE OBJECTIVES

Outline: This course has been put together by the Intel and UC Berkeley University to provide students with a high-level understanding of the field of Entrepreneurship. The course provides students perspectives and insights by prominent entrepreneurs from organizations at various stages of development and representing a broad range of industries and topics.

Understanding the situation in Central Eastern Europe, this course has been adopted to help students understand what is needed to become an entrepreneur, what issues will come up and how they should go about addressing these issues in the CEE environment.

2. SKILLS

At the end of the course the students will understand what entrepreneurship is, how the entrepreneurial eco-system works and how they need to maneuver in this environment.

The course cannot teach someone to be an entrepreneur, but certainly the skills needed and how to be part of an entrepreneurial team.

Special focus had been given also on developing soft-skills (presentation skills) with video feedback and team and individual coaching.

Simulations and case studies go along with the study.

3. REFERENCES

- Timmons, Jeffrey and Spinelli, Sphen. *New venture creation: entrepreneurship for the 21st century*. 6th ed. New York: McGraw-Hill; 2004, ISBN: 0072875704.
- Chesbrough Henry, *Open Innovation – The new Imperative for Creating and Profiting from Technology*, Harvard Business School Press, 2003, ISBN 1-57851-837-7
- Annalee Saxenian, *Regional Advantage*, Harvard University Press, 1996, ISBN 0-674-75339-9
- Stephen Gary Blank, *The Four Steps to Epiphany – Successful Strategies for Products that Win*, CafePress.com, 2005, ISBN 0-9764707-0-5

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR,

Sl. dr. ing. Cristian MUSTAȚĂ

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Project Management**

Course Instructor: **Prof. dr. ing. Cezar Scarlat**

Master Type: **Complementary**

Lectures length: **28h**

Seminars length: **28h (14h laboratory + 14h project)**

Number of credits: **5**

Semester: **3**

COURSE OBJECTIVES

The course is designed to give the students an in depth insight into the principles of professional project management and its application in practice, including:

- Basic principles, concepts and components of project management
- Methods of defining the project structure, creating interaction plans and establishing the communication structure (reporting plan)
- The different types of resources and strategies of using them
- Functional analysis and the design of the network plan
- Milestone based vs. task list based strategies
- Coordination of resources

EVALUATION

Activity at the laboratory	20%
Project	30%
Written examination	50%

Minimum requirements to pass: according to current university rules. The project must be submitted on time.

Final grading: according to current university rules.

TEACHING METHODOLOGY

- The presentation of the course lectures will be held in an amphitheater with multimedia facilities.
- Applications will be held in the management laboratory.

MASTER STUDIES CHAIR,

DISCIPLINE COORDINATOR

Conf. dr. ing. Bujor PĂVĂLOIU

Prof. dr. ing. Cezar SCARLAT

University POLITEHNICA Bucharest
Faculty of Engineering in Foreign Languages

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Prediction of System Evolution**

Course Instructor: **Dr. ing. Alin ALECU**

Master Type: **Complementary**

Lectures length: **28 h**

Applications length: **28 h**

Number of credits: **5**

Semester: **3**

Prerequisites: None

COURSE OBJECTIVES

The course introduces the master students to the domain of data forecasting. It is a high level lecture, using nature inspired and innovative computing, integrating classical models with emerging technologies to predict the evolution of complex systems. This course provides knowledge for various aspects of artificial neural networks (ANNs), with emphasis on the trainable systems. Topics include linear and nonlinear neurons, multi-layer networks, supervised and unsupervised learning algorithms (including back-propagation), Hopfield networks, advanced neural network architectures and training algorithms, as well as evolutionary methods for machine learning. Theories and real-world application examples will be covered. Practical experience with ANNs is integrated into the laboratory and a project concludes the achievements of the lecture.

SKILLS

Upon successful completion of this course of study a student:

- has a solid understanding of basic neural network techniques,
- knows how to use a neural network to solve real-world problems,
- understands the principles of various learning algorithms and neural network architectures,
- understands the advantages and limitations of neural networks,
- has programming and working experience with neural networks, for prediction the evolution of complex systems, including the economical ones..

SYLLABUS

- Machine learning
- The perceptron, the perceptron training algorithm
- Logic functions modelling using NNs
- Linear Networks, Widrow-Hoff learning algorithm
- Multiple Layer Perceptron, the Backpropagation Algorithm
- Continuous Function Approximation
- Competitive Learning, Self-Organizing Feature Maps
- Genetic Algorithms
- Hopfield Networks
- Neural Networks Knowledge Extraction

Laboratory:

- Perceptron Training Rule
- Backpropagation
- Competitive Learning
- Kohonen Maps
- Hopfield Networks
- Genetic Algorithms
- Time Series Prediction

Project:

- Time Series Prediction – Economic data
- Regression Problems
- Classification Problems
- Adaptive filtering
- Optimization Problems
- Knowledge Eliciting Problems

EVALUATION

Homeworks	20%
Project	30%
Written examination	50%

Minimum requirements to pass - 50% for the project and for the written examination

Final grading – Rounding to the nearest integer for grades higher than 5, else considering failure.

TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures, class presentations and discussions on case studies and projects. The labs and the homeworks follow the lectures, and the project validates the students knowledge in the domain..

REFERENCES

- Robert W. Hahn and Paul C. Tetlock, editors. Information Markets: A New Way of Making Decisions. AEI-Brookings Press, 2006.
- Amir Ronen and Lyron Wharmann. Prediction games. In Workshop on Internet and Network Economics, 2005.
- M. Spann and B. Skiera. Internet-based virtual stock markets for business forecasting. Management Science, 49(10):1310–1326, 2003
- George Tziralis and Ilias Tatsiopoulos. Prediction markets; An extended literature review. Journal of Prediction Markets, 1(1), 2006.

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR

Dr. Alin ALECU

SUBJECT DATASHEET

OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**

Course Title: **Modeling of Complex Systems**

Course Instructor: **SL. dr. ing. Stefan POPA**

Lectures length: **28 h**

Applications length: **28 h**

Number of credits: **5**

Semester: **3**

Prerequisites: **None**

COURSE OBJECTIVES

Complex systems field studies the common properties of systems considered complex in nature, society and science, because of the number of individual components that interact in a strongly nonlinear fashion. The key problems of such systems are difficulties with their formal modeling and simulation. Economic system is a typical evolutionary complex system with uncertainty, which is usually complicated and dynamic. In spite of the advantage in dynamic behavior simulation of economic system, differential dynamic model has the drawback of low precision since it represents complex economic system using the rigid structure.

One aspect of this line of research that needs to be mentioned is its heavy use of numerical simulations and other computational tools. The models obtained are often mathematically intractable, so that qualitative and, to some extent, quantitative, understanding of their behavior is sought from computer simulations

SKILLS

On successful completion of this module, the student should be able to:

- Demonstrate a good understanding of principles of complexity and behaviour of complex systems.
- Apply this understanding to modelling, analysis and problem solving in a variety of natural and man-made complex systems.
- Students should have basic math and computer modeling skills, so that they understand the uses and limits of these approaches and can implement their own simple models

SYLLABUS

Lectures

- Introduction and objectives. Definition and fundamentals of complexity. Emergent behaviour of equilibrium and non-equilibrium systems. Examples.
- Phase transition between order and chaos. Spontaneous self-organisation and support for generalised computation. Examples.
- Critical phenomena. Phase transitions. Power law. Scale invariance. Behaviour at critical points. Fractal dimension. Self-organized criticality (SOC). Examples.
- Autocatalytic networks. Sub and supercritical connectivity, and behaviour in the phase transition region. Catalytic closure. Emergent and self-sustainable behaviour of Boolean, chemical, and other networks, and how life may have started. Examples.
- Genetic circuits and attractors of spontaneous order. Infinite genome spaces versus finite cell types. Examples.
- Genotype spaces and fitness landscapes. Diminishing returns. The limits of selection driven evolution. The coupling of selection and self-organisation. Examples.
- Design of organisms and artefacts through search of fitness landscapes. Learning curves. Examples.
- Self-organisation and tuning of economical and technological systems. Origins and avalanches of extinction. Examples.
- Self-organisation and dynamics of companies, economies, and political systems. Homogeneous and heterogeneous systems, and systems in the phase transition. Examples.
- Self-sustained expansion and unfolding of technological frontiers. The driving forces of technological and economic growth. Examples.
- Integration and formulation of principles of Complexity. Conclusions
- Agent-based models

Laboratories

The laboratories will make the students use a computer as a modeling tool, enriching directly the knowledge offered by the lectures.

- Students use a computer system to simulate and control external systems/events.
- Students select appropriate systems for modeling
- Students assemble, operate, and explain the operation of simple open-and closed-loop systems

EVALUATION

Homeworks	30%
Project	30%
Written examination	40%

Minimum requirements to pass - 50% for the project and for the written examination

Final grading – Rounding to the nearest integer for grades higher than 5, else considering failure.

TEACHING METHODOLOGY

In order to accomplish course objectives the classes include the following procedures: lectures, class presentations and discussions on projects themes. Computer simulations in the lab will accompany extensively the lecture materials.

REFERENCES

- Zhang, W.B. (1999). Capital and knowledge-Dynamics of economic structures with non-constant returns. Berlin: Springer.
- Zhang, W.B. (2000). A theory of international trade—Capital, knowledge and economic structures, Berlin: Springer.
- Yaneer Bar-Yam, Dynamics of Complex Systems, New England Complex Systems Institute, 1997
- John H. Holland, Hidden Order: How Adaptation Builds Complexity, Addison-Wesley, 1996

MASTER STUDIES CHAIR,

Conf. dr. ing. Bujor PĂVĂLOIU

DISCIPLINE COORDINATOR

SL. dr. ing. Stefan POPA

SUBJECT DATASHEET

1. OPENING DATA

Master Program: **Business Administration and Engineering (în limba engleză)**
Course Title: **Scientific Research 3**

Course Instructor: **Instructors from BAE subjects, dissertation advisers**

Master Type: Complementary

Lectures length: **0**

Applications length: **168 h**

Number of credits: **10**

Semester: 3

Prerequisites: None

2. COURSE OBJECTIVES

Through this discipline, the students and their advisors will find the optimal solutions for major problems and optimization approaches from the companies or research labs.

3. SKILLS

After Scientific Research 3, the students will have an optimal solution for a real-life problem and will be able to expose it systematically and defend the subject.

4. SYLLABUS

Chapter	Content	Nr. Ore
1. Field research	Research in some companies or research laboratories	30
3. Bibliographic research	Bibliographic research	40
4. Writing Research Report	Writing Research Report	68
5. Report presentation	Report presentation	2
		Total: 140 hours

5. EVALUATION

a) Assessed activities and share (according to the Graduating Regulations):

- semester activity 60%
- final Colloquium 40%

b) Minimum requirements for promotion

- Obtaining 50% of the total;

c) Final scoring

The grade is admissible if the conditions listed above are met

6. TEACHING METHODOLOGY

Powerpoint presentation, discussions, case studies, examples.

7. REFERENCES

Literature in the chosen field

MASTER STUDIES CHAIR,

DISCIPLINE COORDINATOR

Conf. dr. ing. Bujor PĂVĂLOIU