Informatica per il Management (2022)

58463 - Internet Law

PDF, ADOC.

Learning outcomes

Basic knowledge of Internet Law: the legal profile of electronic commerce and IT security.

Course contents

At the end of the course, students are familiar with the main legal issues related to economic activities carried out on the Internet. They are aware of some legal profiles of computer security. They are able to make an initial assessment of the conformity of an electronic commerce project with the applicable regulation.

The law applicable to legal acts performed via the Internet

Competent jurisdiction

The contract as the main instrument of innovation and legal regulation on the Internet

Network access contracts, electronic commerce contracts (between businesses and between businesses and consumers), IT contracts (development contract, user licence contract, etc.), new atypical contracts, cloud computing

Digital and electronic signatures

Protection of personal rights on the Internet

Processing of personal data: privacy, anonymity and information needs

Infringement of personality rights via the internet: precautionary protection and compensation for damages

The protection of computer assets (software, databases, multimedia works, etc.) between copyright, patent and sui generis right

Legal profiles of computer security

Computer crimes

37458 - Business Economy

PDF, ADOC.

Learning outcomes

At the end of the course the student has the essential tools for understanding the structure and functioning of firms, to analyze economic and financial consequences of business decisions and interpret the information system comprising the financial statements. Students learn the criteria for the analysis of recurring decisions such as the choice of the selling price of a product, the levels of production capacity and choices for the internalization or externalization of production activities.

Course contents

Company and its context

Company structure

Stakeholders

Administrative Department

Financial Statements

Objective and Users

Accounting Systems

Accounting entries

Accounting adjustments

Exercises

Financial Statement Analysis

Objective and Users

Analysis of Balance Sheet and Income Statement, Financial ratios

IT aspects

Exercises

Management Control

Objective and Users

Contribution Margin

Break-even point

Unbundling - brief outline

Exercises

Planning and budgeting - brief outline

58423 - Internet Architecture

PDF, ADOC.

Learning outcomes

Learning the Internet architecture, its organizazion, its communication protocols and prominent applications (i.e., web)

Course contents

Internetworking concepts and fundamentals

Communication protocols for LAN, WAN, MAN

MAC, Transport, and Application Layers

Internet structure

Routing in Internet

Internet applications

Ethernet, IEEE 802.11, HDLC, PPP, ARP, RARP, IP, TCP, UDP,

HTTP, SMTP, POP, IMAP, ICMP, TELNET, FTP

World Wide Web, Email, news, Chat, Client/Server, P2P

file-sharing

Internet2 and QoS

Wireless Networking

Wireless Internet

74843 - Organization Theory

PDF, ADOC.

Learning outcomes

The student should know the different organizational models, the way to organize them and the role of the IT. The student should even know how to diagnostic and find positive solutions in cases of failure of the organizational systems. The student should even know the main elements of the retribution and of work contracts.

Course contents

1. organizations and organizational theory 2.Strategy, planning and effectiveness 3. Basic elements of the organizational structure 4. Inter-organizational relations 5. Organizational culture and ethical values 6. Innovation and change 7. Decision-making processes (outline) 8. Empowerment 9. Social Network Analysis: theory and applications 10. Applications [team work] 11. Discussion [team work]

04521 - Business Finance

PDF, ADOC.

Learning outcomes

The aim of the course is to provide a basic education in corporate finance. At the end of the course the student will be able to evalute both the profitability of an investment project or of a business and to take appropriate decisions on how to finance it. The capital markets and behavioural finance will be highlighted with a focus on the balance between financial resourses and investments. All students from foreign universities are kindly requested to introduce themselves to the teacher before taking the exam or attending the classes

Course contents

Present Value and the Opportunity Cost of Capital

How to Calculate Present Values

The Value of Common Stocks

Why Net Present Value Leads to Better Investment Decisions

Making Investment Decisions with the Net Present Value Rule

Introduction to Risk, Return, and the Opportunity Cost of Capital

Risk and Return

Capital Budgeting and Risk

Where Positive Net Present Value Comes From

Financing Decisions and Market Efficiency

Does Debt Policy Matter?

How Much Should a Firm Borrow?

Fundamental and Technical Analysis

TEXT BOOK CORPORATE FINANCE BY Brealey Meyers 8th edition customized by Emilio Tomasini

69176 - Numerical Methods for Computation

PDF, ADOC.

Learning outcomes

The general ideas and concepts of scientific computation and error analysis are introduced. The lessons are mostly concerned with the treatment of traditional mathematical problems and the aspects which are of importance for the design of algorithms are examined in Matlab/Octave environment

Course contents

Some general principles of numerical calculation, how to obtain and

estimate accuracy in numerical calculations. Approximation of

functions and solution of the approximation of experimental data by polynomial interpolation. Finding roots of a nonlinear equation,

numerical integration and numerical

methods for the solution of systems of linear equations. The theoretical topics will be supported by a laboratory activity in which the Matlab / Octave system will be used for testing the proposed methods.

09446 - Microeconomics

PDF, ADOC.

Learning outcomes

Upon completion of the course, the student has gained a detailed knowledge of:

- the methodology of Microeconomics and the objects of its analysis;
- Consumption theory (budget constraint, preferences, choice, revealed preferences, Slutsky equation, buying and selling);
- Consumption under uncertainty (expected utility, risk attitudes);
- Hints on welfare economics (1st and 2nd theorems of welfare economics).

Course contents

MODULE 1

Introduction

Consumer theory under certainty, individual and market demands, Notes on choice under uncertainty.

Intertemporal choices and activity markets.

Consumer surplus, revealed preferences and the Slutsky equation.

Individual and market demand, exchange.

MODULE 2

Technology: cost minimization, cost curves.

Firm and industry supply.

Competitive equilibrium.

Monopoly.

72534 - Numerical Methods of Statistics

PDF, ADOC.

Learning outcomes

At the end of the course the student has acquired:

-the knowledge of software tools for the data analysis

- the definition and the main characteristics of continuous and discrete distributions with their moments

-The Maximum Likelihood method for parameters estimation

- some numerical methods for linear regression and its application in economy
- the main concepts of Statistical Learning for regression and classification

Course contents

Definitions and examples on probability. Discrete and

continuous distributions. Descriptive statistics. Points and

interval estimations. Hypothesis test. Least squares data

approximation: linear regression, polynomial functions of higher

order and nonlinear least squares. Numerical methods for the solution of the discrete linear

least squares problem.

Simulations and programming environment R. Principal functions for

graphics and data analysis. Guided exercises on examples with

simulated and real data.

Introduction to statistical learning. Classification task.

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37459 - Business Strategy

PDF, ADOC.

Learning outcomes

This course aims at introducing the student to the main strategic issues at the business level. At the end of the course the student knows what a strategy is and how a competitive advantage can be achieved through the analysis of the industry and of the internal resources and capabilities. He/She understands the importance of business models, including the role of organizational structures and technological innovation. The student is able to define a business strategy and to evaluate a business strategy by situating the business in its context

Course contents

Strategy and results

Sector structure and company positioning

Sector dynamics and strategic change

Strategy evaluation

Strategy evaluation in the multi-business enterprise

11929 - Algorithms and Data Structures

PDF, ADOC.

Learning outcomes

Students will learn basic concepts about the fundamental algorithms to solve well knwon computational problems, and the basic data structures and abstract data types, as well as

techniques for evaluation of computational complexity of algorithms (and computation complexity classes P, NP, NP-hard) and space complexity of algorithms execution (memory space). The course will offer the illustration of trade-offs and sinergies between algorithms and data structures, and a training on methodologies to realize the design of efficient algorithms and correspondingly appropriate data structures to solve both generalized and specific instances of computational problems, under pre-defined assumptions and requirements.

Course contents

Basic data structures (List, Queue, Stack, Trees…)

Computational Complexity

Searching and Sorting Algorithms

Sets, Dictionaries, Trees, Binary search, RB trees

Heaps, Hash tables, Priority queues, Union-Find data structures

Algorithmic techniques: divide et impera, greedy algorithms,

dynamic programming

Graphs and graph algorithms: depth-first visit and breadth-first

visit

Elementary graph algorithms, shortest paths algorithms

Introduction to NP-completeness theory

70155 - Data Bases

PDF, ADOC.

Learning outcomes

At the end of the course the student: - knows the relational data model and the SQL language; - is able to design and develop a relational database; - is capable of processing a project to implement an information system.

Course contents

The course program is structured in four parts, addressing complementary topics in the area of database and information systems. In the first part, we introduce the main concepts of the course (e.g. data, information, database), the characteristics of the relational model and of relational DBMS tools, and the main functionalities of data languages used to perform CRUD operations. To this concern, we illustrate and detail the characteristics of the SQL language for the creation, update and query of a relational database. We also introduce alternative approaches to the relational model (NoSQL database), and technologies for big-data management. The second part illustrates the

most popular methodologies and tools used for database design, from the analysis of requirements till the final implementation. More specifically, we present all the steps related to database engineering, i.e. requirements analysis, conceptual design, logical design, performance evaluation of E-R models, normalization techniques. The third part provides a (brief) overview of algorithms and techniques for data-mining (DM), focusing on supervised and unsupervised methods to deploy classification and prediction models from the information contained in a relational database. Example of applications of DM techniques in industrial and business use-cases are discussed. Finally, the fourth part of the course presents the characteristics and architectures of recent DMBS (MySQL and MongoDB), and also provides an overview of server-side scripting languages to deploy Web Information Systems (WIS). In the following, we provide a brief summary of the course program:

Introduction to Database Management Systems (DBMS)

Model and Languages

The relational model

Characteristics of relational Database Management Systems (DMBS)

SQL Language: CRUD operations, transactions

Alternatives to the relational model, NoSQL technologies, big-data technologies

Database design

Conceptual design: requirements analysis, E/R model, model evaluation

Logic design: translation of the E/R model into a relational model

Physical design: indexes and storage techniques

Normalization techniques: normal forms (Boyce-Codd, TFN) and decomposition algorithms

Introduction to data-mining

General definitions and use-cases

Classification and clustering algorithms

SQL for Applications

Examples of DBMS: MySQL, MongoDB, Cassandra

SQL and server-side scripting languages (PHP+MySQL)

66858 - Software Engineering

PDF, ADOC.

Learning outcomes

This is a software engineering course concerning software development processes and practices, with a focus on those useful for the requirement and the design of software systems.Specifically, the students will learn the main design techniques and the UML language. They will also learn the principles underlying the development of high-quality software systems.

Course contents

Introduction to Software Engineering

The software process model

The analisys model

Introduction to UML

UML: Use case

UML: Classes

Analisys model – domain model

UML: Activities

UML: Interactions

Robustness analysis

OO principles

GRASP

Specification

Design Patterns

Agile software development

Modern patterns and frameworks

84226 - Strategy and Economic Organization

PDF, ADOC.

Learning outcomes

The aim of the course is to provide students with the skills to analyze the competitive structure of industries and to accordingly develop corporate strategies. In particular, the course focuses on decisions concerning growth strategies, diversification, make/buy decisions, pricing and entry or

exit from industries.

Course contents

1) Introduction. Cost functions and quantity in perfect competition.

2) Production and growth strategies with scale and learning economies.

3) Diversification strategies.

4) Vertical integration/disintegration. Make or Buy decisions.

4.1 - Transaction cost theory.

4.2 - Property rights theory (Grossman, Hart e Moore).

5) Markets and Competition

5.1 - The Basics of Competitor Identification.

5.2 - Monopolistic Competition.

5.3 - Oligopoly: Cournot Quantity Competition.

5.4 - Oligopoly: Bertrand Price Competition.

6) Industry Entry and Exit

6.1 - Bain’s Typology of Entry Conditions.

6.2 - Entry-Deterring Strategies: Limit Pricing.

6.3 - Entry-Deterring Strategies: Predatory Pricing.

6.4 - Strategic Bundling

7) Dynamic of Competition

7.1 - Strategic Commitment.

7.2 - Stackelberg model.

7.3 - Tough and strong commitments. A taxonomy of commitment strategies.

7.4 - Dynamic pricing rivalry and Tit-for-Tat pricing.

7.5 - Impediments to price coordination.

Readin

66860 - Mobile Applications Laboratory

PDF, ADOC.

Learning outcomes

At the end of the course, the student knows methodological and technological aspects, and application development tools for mobile devices both under iOS (iPhone, iPad, iPod Touch) and Android platforms. Students will understand the management of devices with innovative user interfaces, multi-touch, event management, ObjectiveC programming, Xcode and Cocoa Touch, Eclipse and Android SDK, design patterns, I/O, sensors and geo-localization/maps APIs, networking services, debugging and testing of applications. In addition, students will understand the basic issues of applications' execution in wireless mobile scenarios, and will experience the most relevant platforms for mobile applications' development, APIs of internal devices, multimedia management, iPhone and Android SDK and design of applications under a Model-View-Control pattern.

Course contents

Introduction:

overview of technologies for iPhone, iPod Touch e iPad (and iOS in general).

overview of Android Technology

iOS Module:

iOS technology layers: Core OS, Core Services, Media, Cocoa Touch.

iOS e iOS SDK. Development tools for iOS: Xcode, Storyboard, Simulator.

Swift and Swift UI language (notes on differences with ObjectiveC).

Model-View-Controller.

Target, Action, Outlets.

Foundation Framework and UIKit (Cocoa Touch), user interface, UIWindow e UIView.

UIViewController and MultiViews, controllers and views.

Touch events and Multi-touch, gestures.

Debugging and Testing of iOS apps incrementally developed in classes.

Android Module:

Thehistory of Android versions

Installing the Android SDK

The Android Architecture

Java and Kotlin

The Android Resources System

Android Activities and Fragments

Android Intents

Android Layouts, Widgets and Events

Android Menu, Dialog and Toasts

Android Services and Background

Android Data Management

Android Google Maps Support

Android Network

Android Design guidelines and patterns

Android Navigation

Android System Services (alarms, sensors, vibration, audio)

Hybrid development framework

44763 - Teory of the Firm

PDF, ADOC.

Learning outcomes

Upon completion of the Course the student has gained a detailed knowledge of: Firm Theory (technology, costs, profit maximization) Industry boundaries and concentration. Pure and discriminating Monopoly Static and Dynamic Oligopoly.

Course contents

MODULE 1

1) Basic concepts.

Introduction.

Some useful microeconomic ideas.

Market structure and market power

Technology and production costs.

2) Market power

Price discrimination under monopoly: linear pricing.

Price discrimination under monopoly: non-linear pricing.

Product variety and quality under monopoly.

3) Oligopoly and strategic interaction.

Static games and Cournot competition.

Price competition.

Sequential competition.

MODULE 2

4) Anticompetitive strategies.

Limit pricing and entry deterrence.

Predation: recent developments.

Collusion and repeated games.

Collusion: how to identify and fight it.

5) Non-price competition.

Advertising, market power, competition and information.

Research and Development and patents.

6) Complementary Topics.

Networks

Regulation and liberalization

86716 - Entrepreneurship - Bologna

PDF, ADOC.

Learning outcomes

The main aim of the course is to give a practical orientation to entrepreneurship through the development of the personal capabilities, leadership and the supply of operational and conceptual tools for the launching of an entrepreneurial innovative venture.

Course contents

Entrepreneurship and leadership

Business Model Canvas: how to develop your business idea

Principles of Marketing and Brand Management

Public Speaking and pitch: how to present a project

Project Management: basic principles

Corporate and social: B corp and benefit companies.

Women's businesses

How to be supported and what are the initiatives they support and the UNIBO ecosystem.

86807 - Italian language Lab L1 - Bologna

PDF, ADOC.

Learning outcomes

At the end of the course students: recognize constitutive elements of a «text» (coherence, cohesion, etc.); summarize and rewrite an argumentative text; organize ideas and informations with a concept map; use dictionaries (monolingual, synonyms); use readability testing tools.

Course contents

- reading the text,
- writing as a process,
- punctuation,
- tools: how to use dictionaries,
- rewritings.

86673 - Soft Skills to be Effective at Work - Bologna 3

PDF, ADOC.

Learning outcomes

The training course on soft skills aims to create awareness of the importance of soft skills in working contexts and the most appropriate strategies for their development and/or consolidation in university students. These skills are actually essential means, in combination with the specific

knowledge and skills of the disciplines in which participants have chosen to specialize, to deal as effectively as possible with the challenges of their future profession and, even before, the steps functional to the entry into the world of work (for example, selection procedures).

Specific Objectives:

The objectives of the course already described are declined in the following specific objectives:

Acquire awareness of the value of soft skills for job placement

Recognize soft skills and their applicability to different contexts and circumstances

Develop the ability to self-assess their soft skills

Encourage the acquisition and/or enhancement of soft skills

Acquire the ability to accurately define an action plan aimed at developing the weakest skills

Course contents

Lessons (18 hours) will be focused on the following three areas:

Analysing/understanding the situation, which includes the ability to gather information/data, to analyse and interpret circumstances and relationships, and to process this information/data in order to identify a proper solution;

Addressing/solving the problems, which is the ability to plan, manage and implement a targeted action plan, to make consistent decisions and to effectively manage changes. This area is further developed through the attendance of the MOOC named "Change management";

Collaborating/interacting with others, which includes the ability of self-presentation, working within teams, interacting effectively with others, being aware of inter-individual dynamics and conflict management.

Moreover, students will be involved in e-learning activities (duration: 6 hours) aimed at encouraging active participation, self-awareness and self-assessment of the soft skills and their importance for job placement.

This e-learning activity will include:

Videos of some interviews with different figures (e.g., HR Directors of large companies) of the importance of soft skills to achieve in the laboru market;

Questionnaires for soft skills self-assessment;

Exercise for reflecting on classroom activities, participation in MOOCs and output of online questionnaires;

A development plan to fill for describing the soft skills ownened, discussing personal career goals and action plans for strengthening the soft skills emerged as crucial for job placement and/or accessing advanced training courses.

The topics will be analyzed/presented in terms of inclusive industrialization, multiculturality, innovation and diversity management too, as indicated by the UN Sustainable Development Goals.

86675 - Soft Skills to be Effective at Work - Bologna 4

PDF, ADOC.

Learning outcomes

The course aims to develop students' awareness concerning the importance of soft skills in work contexts and the most suitable strategies for their enhancement and/or consolidation among university students. These skills, in fact, represent essential means, combined with the knowledge and specific skills of the scientific fields chosen by the participants, to tackle efficiently the challenges involved in their future career path, as well as the steps essential when entering the labour market (for instance, during the recruitment procedure).

Specific aims: The aims of this course already described correspond to the following specific purposes:

Becoming aware of the role played by soft skills when entering the labour market;

Recognizing one’s soft skills and their suitability to different contexts and situations;

Developing the ability to assessment one’s soft skills;

Promoting the development and/or enhancement of one’s soft skills;

Developing the ability to define a specific plan aimed at fostering those skills that seem to be weaker on inadequate.

Course contents

Through the implementation of an active teaching method, based on team works requiring the translation of soft skills in order to face concrete situations similar to typical job search activity (for example, tackling job interviews and in-basket exercises.

Specifically, these exercises will be focused on three areas of expertise:

To read/understand each situation, which includes the ability to gather information/data that allow to analyse and interpret circumstances and relationships, to process this information/data in order to identify a proper solution;

To address/solve the situations, including the ability to plan, manage and implement a targeted action plan, the ability to make consistent decisions and to effectively manage changes. This area of expertise is further developed through the MOOC named "Change management";

To collaborate, which includes the ability to present oneself, to work within teams, to interact effectively with others, being aware of inter-individual dynamics and conflict management. The

activities in class (integrated by MOOCs) address specific areas of expertise. Moreover, students will attend a e-learning platform (this activities will take above 6 hours) aimed at encouraging involvement, active participation, awareness of the importance of soft skills for work placement and the ability to self-evaluate one's own skills.

This e-learning activity will be defined in the following specific contents:

Presentation and description of the role of soft skills through the interviews with different figures pertaining to the labour market (e.g., HR Directors of large companies);

Self-assessment of one's soft skills;

Integration of this self-assessment activity with classroom activities, participation in MOOCs and the outputs of online questionnaires;

Summary of one's soft skills. This profile will allow photographing the skills already developed, those that should be enhanced, and a detailed description of a plan aimed at strengthening those skills emerged as critical for job placement activities and/or accessing advanced training courses.

The topics will be analyzed/presented in terms of inclusive industrialization, multiculturality, innovation and diversity management too, as indicated by the UN Sustainable Development Goals.

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