PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

HARMONIZATION

MASTER TRAINING OFFER

ACADEMIC/PROFESSIONAL

Establishment	Faculty / Institute	Department
Mohamed Seddik Benyahia University Jijel	**Exact sciences and computer science**	**Computer science**

Domain: Mathematics and Computer Science

Field: Computer Science

Specialty: Information Systems and Decision Support

Academic year: 2016/2017

الجمهورية الجزائرية الديمقراطية الشعبية

وزارة التعليم العالي والبحث العلمي

مواءمة

عرض تكوين ماستر

أكاديمي/ مهني

المؤسسة	الكلية/ المعهد	القسم
جامعة محمد الصديق بن يحيى جيجل	كلية العلوم الدقيقية و الإعلام الآلي	الإعلام الآلي

الميدان : رياضيات و إعلام آلي

الشعبة : إعلام آلي

التخصص : أنظمة المعلومات و المساعدة على اتخاذ القرارات

السنة الجامعية: 2016/2017

Contents

I – Master’s identity card

1 - Location of the training:

Faculty (or Institute): Exact Sciences and Computer Science
Department: Computer Science

2- Training partners *:

- other university establishments:

- companies and other socio-economic partners :

- International partners:

3 – Context and objectives of the training

A – Conditions of access

- Access to the first year of M1 is open to candidates holding a bachelor's degree (LMD) in computer science or another recognized equivalent diploma.

B - Training objectives

This training allows students to acquire knowledge in two fields whose demand continues to increase: information systems and decision-making. In the information systems area, this training will broaden the spectrum of knowledge to include new representations of information within advanced databases (objects, multimedia, etc.) and the deepening of information systems development methods. In the decision-making area (decision-making information systems), the knowledge acquired will enable the holder to model decision-making problems, including decision theory and multi-criteria decision-making, and to analyze data for decision-making purposes. master the multidimensional modeling of decision-making data which dominates in data warehouses, to extract knowledge from data, in particular by data mining techniques and return data (reporting).

C – Targeted job profiles and skills *:*

At the end of this training, two opportunities are possible:

- Integrate the world of research in the field of information systems and in particular decision-making systems.

- Apply acquired knowledge to the benefit of the job market. Indeed, in an era where material technologies are becoming accessible to everyone, competitiveness is measured by the added value of services and by making appropriate decisions at the right time. In this regard, the master's degree holder can contribute by:

    - Analysis and development of information systems through a quality approach and using proven techniques

    - Develop decision-making solutions (modeling, implementation and operation).

D- Regional and national employability potential of graduates

This Master's degree is a research-based program that offers professional and academic opportunities. Students with this Master's degree are naturally placed in:

- Functional services of companies (decision support, IT, organization);

- Consulting companies or design offices;

- Research centers and laboratories;

- Higher education with the possibility of preparing a doctorate at the University of Jijel or in another establishment;

- ….

E – Gateways to other specialties

- Master in Computer Science
- Master in Operational Research

F – Training monitoring indicators

The student's assessment will be done in two ways:

- Final exam which will take place at the end of each semester
- Continuous assessment of knowledge (written questions, practical work, presentations, participation, individual work, etc.).

The final exam lasts 1 hour and 30 minutes and will be marked out of 20 points. Continuous assessment will include tutorials, practical work, attendance, presentations, and homework.

The final average for the subject concerned will be calculated as follows:

Average subject = (2* final exam + average continuous assessment)/ 3

A catch-up session will also be planned for students who failed the regular session.

G – Supervision capacity (give the number of students that can be supported)

30 students

4 – Specific material resources available

A- Educational Laboratories and Equipment: Sheet of existing educational equipment for the practical work of the planned training (1 sheet per laboratory)

Laboratory title: Computing center

No.	Equipment name	Number	observations
	Practical work rooms (20 microcomputers each)	**09**	
	Internet rooms	**04**	
	Distance Learning Room	**01**	
	Videoconferencing room	**01**	
	Language lab	**01**	

B- Internship and in-company training sites:

Internship location	Number of students	Duration of the internship

C- Laboratoire(s) de recherche de soutien au master :

Chef du laboratoire
N° Agrément du laboratoire
Date : 17 MARS 2016 Avis du chef de laboratoire : مدير مخبر البحث د.ا/ بوهالي عمر

Chef du laboratoire
N° Agrément du laboratoire
Date : 21 MARS 2016 Avis du chef de laboratoire:

D- Projet(s) de recherche de soutien au master :

Intitulé du projet de recherche	Code du projet	Date du début du projet	Date de fin du projet

E- Personal work spaces and ICT:

- A reading room with 1,200 seats in the faculty library and a large room in the central library with more than 3,000 seats.

- A search block.

- Rooms with office PCs.

- Internet rooms.

- Distance learning rooms.

- Language laboratory.

- Videoconferencing room.

II – Half-yearly teaching organization sheet

1- Semester 1:

Teaching Unit	HVS	WH				Coeff	Credits	Assessment method	
	14-16 weeks	C	DW	PW	Others			Continuous	Exam
Fundamental TU									
FTU1	**450 h**	**6h00**	**1h30**	**6h00**	**4h30**	**9**	**18**		
Database and Internet	100 h	1h30		1h30	3h40	2	4	✓	✓
Data warehouses	150 h	1h30	1h30	1h30	5h30	3	6	✓	✓
FTU2									
Advanced Software Engineering	100 h	1h30		1h30	3h40	2	4	✓	✓
Simulation and prototyping	100 h	1h30		1h30	3h40	2	4	✓	✓
Methodology TU									
MTU1	**225h**	**3h00**	**3h00**	**1 h**	**8h00**	**5**	**9**		
Data Analysis	125 h	1h30	1h30	1 h	4h20	3	5	✓	✓
Modeling in decision support	100 h	1h30	1h30	--	3h40	2	4	✓	✓
Discovery TU									
DTU1	**47h30**	**1h30**	**1h30**	**--**	**12h10**	**2**	**2**		
Business management and organization	62h30	1h30	1h30	--	12h10	2	2	✓	✓
Transversal TU									
TTU1	**10h30**	**1h30**	--	**--**	--	**1**	**1**		
Foreign language	10h30	1h30	--	--	--	1	1	--	✓
Total Semester 1	**745 h**	**12h**	**6 h**	**7 h**	**24h40**	**17**	**30**		

2- Semester 2:

Teaching Unit	HVS	WH				Coeff	Credits	Assessment method	
	14-16 weeks	C	DW	PW	Others			Continuous	Exam
Fundamental TU									
FTU3	**450 h**	**6h00**	**4h30**	**3h00**	**4h30**	**9**	**18**		
Service-oriented architecture and emerging technologies	100 h	1h30	1h30	--	3h40	2	4	✓	✓
Distributed operating systems	150 h	1h30	1h30	1h30	5h30	3	6	✓	✓
FTU4									
Stochastic optimization	100 h	1h30	1h30	--	3h40	2	4	✓	✓
Meta-heuristics	100 h	1h30		1h30	3h40	2	4	✓	✓
Methodology TU									
MTU2	**225h**	**3h00**	**3h00**	**1 h**	**8h00**	**5**	**9**		
Data mining	125 h	1h30	1h30	1 h	4h20	3	5	✓	✓
Models and methods for solving scheduling problems	100 h	1h30	1h30	--	3h40	2	4	✓	✓
Discovery TU									
DTU2	**10h30**	**1h30**	--	**--**	--	**1**	**1**		
Expert systems (optional)	10h30	1h30	--	--	--	1	1	✓	✓
Introduction to e-business (optional)	10h30	1h30	--	--	--	1	1	✓	✓
Transversal TU									
TTU2	**47h30**	**1h30**	--	**1h30**	**12h10**	**2**	**2**		
Technical reports	47h30	1h30	--	1h30	12h10	2	2	--	✓
Total Semester 2	**745 h**	**12 h**	**7h30**	**5h30**	**24h40**		**30**		

3- Semester 3

Teaching Unit	HVS	WH				Coeff	Credits	Assessment method	
	14-16 weeks	C	DW	PW	Others			Continuous	Exam
Fundamental TU									
FTU5	**450 h**	**6h00**	**6h00**	**1h30**	**4h30**	**9**	**18**		
Networks & Telecom	150 h	1h30	1h30	1h30	5h30	3	6	✓	✓
Information systems security	100 h	1h30	1h30	--	3h40	2	4	✓	✓
FTU6									
Information systems, advanced methods	100 h	1h30	1h30	--	3h40	2	4	✓	✓
Advanced Databases	100 h	1h30	1h30	--	3h40	2	4		
Methodology TU									
MTU3	**225 h**	**4h30**	**1 h**	**1h30**	**8h00**	**5**	**9**		
Multi-criteria decision support	125 h	3h00	1 h	--	4h20	3	5	✓	✓
Documentary research	100 h	1h30	--	1h30	3h40	2	4	--	✓
Transversal TU									
TTU3	**70h00**	**3h00**	**1h30**	**--**	**12h10**	**3**	**3**		
Project management and entrepreneurship	47h30	1h30	1h30	--	12h10	2	2	--	✓
Corruption and work ethics	10h30	1h30	--	--	--	1	1	--	✓
Total Semester 3	**745 h**	**1h30**	**8h30**	**3h00**	**24h40**		**30**		

4- Semester 4:

Domain : Mathematics & Computer Science
Field : Computer Science
Specialty : ISDS

End-of-study project culminating in a dissertation and a defense.

	HVS	Coefficient	Credits
Personal Work	170	6	12
Practical Internship	210	9	18
Seminars	/	/	/
Other (specify)	/	/	/
Total Semester 4	390	15	30

5- Overall summary of the training:

TU / HV	FTU	MTU	DTU	TTU	Total
Course	270	157.5	45	90	562.5
DW	180	105	22.5	22.5	330
PW	157.5	52.5	/	22.5	232.5
Personal work	742.5	360	2.5	5	1110
Internships	130	47	/	/	177
Total	1480	722	70	140	2412
Credits	72	36	6	6	**90+30**
% Credits/TU	60%	30%	5%	5%	100%

III - Detailed program by subject

Master's title: Information Systems and Decision Support
Semester: 1
TU title: FTU1
Subject title: Databases and the Internet

Credits: 4
Coefficients: 2

Teaching objectives

The objectives, after reminders on the main objects which define a relational schema with procedural extensions, are on the one hand to acquire the main notions linked to the XML model and finally to overview the SGBD and Web servers and the way to link the two.

Recommended prior knowledge

- Database foundations, Merise, SQL. Java

Content of the subject

Chapter 1: Relational DBMS
- The main objects of a relational schema (tables, constraints, views)
- Procedural extensions (triggers, stored procedures).

Chapter 2: Databases and XML
- The objectives are on the one hand to acquire the main
- Concepts related to the XML model
- Typing (DTD, XML- schema)
- Transformation or query languages (Xpath , XSLT, XQuery)
- The links between databases and XML.

Chapter 3: RDBMS and the Web
- General principles of web servers
- General principles of DBMS servers
- Linking a DBMS to a WEB server.
- Dynamic page management (CGI, ASP, JSP, Servlet, PHP)
- The Java approach through Servlets, JSPs and EJBs using JDBC
- Administering a J2EE server

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References *(Books and handouts, websites, etc.).*

- First Web 2.0 applications with Ajax and PHP: January 2008 Editions Eyrolles,
- PHP 5 - MySQL 5 – AJAX: 1st edition, 12/2007 Editions ENI, ISBN13: 978-2-7460-4057-1 ISBN13: 9782212120905

Master's title: Information Systems and Decision Support
Semester: 2
TU title: FTU1
Subject title: Data warehouses

Credits: 6
Coefficients: 3

Teaching objectives

This course covers data warehouses on a theoretical level by presenting the foundations, and on a practical level by presenting the associated tools and techniques.

Recommended prior knowledge

- License databases
- The relational model

Content of the subject

- Decision-making systems and data warehouses
- Multidimensional modeling
- The ETC process
- OLAP analysis
- Data warehouse administration

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Data Warehouses: A Practical Guide to Dimensional Modeling. R. Kimball and M. Ross, 2002.
- A. Berson and SJ Smith (2004), Ed. TATA McGraw- Hill: Data warehousing, Data Mining, & OLAP

Master's title: Information Systems and Decision Support
Semester: 1
TU title: FTU2
Subject title: Advanced Software Engineering

Credits: 4
Coefficients: 2

Teaching objectives
This course is divided into two parts. The first presents advanced design techniques, while the second focuses on generative design and programming techniques through model-driven engineering.

Recommended prior knowledge

Software engineering courses (Software Engineering 1 and Software Engineering 2, respectively from the 2nd and 3rd year of the degree.

Content of the subject

Part 1 : **Advanced Design Techniques**

- The objective is to offer students the discovery of a set of techniques and best practices allowing better mastery of software development.

Part 2 : **Model-Driven Engineering**

- The objective is to raise awareness among students about model-driven engineering

The course outline follows the implementation of a model-driven approach :

- specification of the business domain in the form of a metamodel to enable modeling specific to business needs,
- specification of the implementation technology in the form of a metamodel to introduce implementation details use of code generation to produce all or part of the system implementation .

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Christopher Alexander. The origins of pattern theory: The future of the theory, and the generation of a living world. IEEE Software, 16(5):71–82, September / October 1999.
- Giuliano Antoniol , Bruno Caprile , Alessandra Potrich , and Paolo Tonella. Design-code traceability recovery: Selecting the basic linkage properties. Science of Computer Programming, special issue on program understanding, 40(2–3):213–234, July 2001.

Master's title: Information Systems and Decision Support
Semester: 1
TU title: FTU2
Subject title: Simulation and prototyping

Credits: 4
Coefficients: 2

Teaching objectives

The objective of this course is to allow the student to simulate a process and to see the behavior of his system through the prototype produced.

Recommended prior knowledge

- Master a graphical programming language like C++

Content of the subject

- Modeling tools: state of play
- Declarative modeling
- State-based approaches: finite-state automata and Markov chains
- Finite event automata
- Hybrid approaches: Petri nets and state charts
- Simulation Method
- Application to real cases.

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Xiren Cao. Some common misconceptions about performance modeling and validation. Performance Evaluation Review , 21(2), 1993.
- Luc Devroye. Non-Uniform Random Variate Generation. Springer-Verlag, New York, NY, USA, 1986.

Master's title: Information Systems and Decision Support
Semester: 1
TU title: MTU1
Subject title: Modeling to support decision-making

Credits: 4
Coefficients: 2

Teaching objectives

This course addresses the modeling of various decision-making problems. Its objective is to develop students' ability to develop and implement relevant models in decision-making situations.

Recommended prior knowledge

- Concepts of operational research from the license (linear programming, etc.)

Content of the subject

- Presentation of non-trivial modeling of decision problems using various modeling frameworks (graphs, linear programming, etc.).
- Presentation of modeling and resolution tools (modelers and solvers).

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- HP Williams. Model building in mathematical programming. J. Wiley, New York, 1999. 4th edition
- Ph. Vallin and D. Vanderpooten . Decision support: a case-based approach. Ellipses, Paris, 2002, 2nd edition

Master's title: Information Systems and Decision Support
Semester: 1
TU title: MTU1
Subject title: Data analysis

Credits: 5
Coefficients: 3

Teaching objectives

Data analysis is a set of methods that allow us to describe and explain phenomena. The objective of this subject is to familiarize the student with common data analysis techniques.

Recommended prior knowledge

- Concepts of probability and statistics

Content of the subject

- Chapter 1: Descriptive Methods
  - principal component analysis)
  - AFC (factor analysis)

- Chapter 2: Structuring Methods
  - Hierarchical classification
  - Examples

- Chapter 3: Structuring Methods (continued)
  - Non-hierarchical classification
  - Examples

- Chapter 4: Explanatory Methods
  - Linear regression
  - Discriminatory analysis

Assessment method: *final exam with continuous assessment of knowledge*

References

- J. Benzekri , “Data Analysis”
- G. Saporta “Statistics and Data Analysis”
- Chadon and Pinson “Typological Analysis”, Ed. Amod , 1981
- Jambu “Data Classification”.

Master's title: Information Systems and Decision Support
Semester: 1
TU title: DTU1
Subject title: Management and business organization

Credits: 2
Coefficients: 2

Teaching objectives

Understand the different ways companies are organized, particularly the organizations of Information Systems departments

Recommended prior knowledge

Content of the subject

- Organizational Theory
- Structures and dynamics of organizations
- The role of information systems in organizations

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Mintzberg H. Structure and dynamics of organizations, Editions d'Organisation, 1982.

Master's title: Information Systems and Decision Support
Semester: 1
TU title: TTU1
Subject title: Foreign language

Credits: 1
Coefficients: 1

Teaching objectives

Learn to use a foreign language (e.g. English) in order to be able to read specialist computer magazines.

Recommended prior knowledge

Basic English for the degree

Content of the subject

- Reading scientific articles and papers
- Drafting documents

Assessment method: Exam + continuous assessment

References

- Scientific articles in the field
- Scientific communications
- Current Affairs Documents

Master's title: Information Systems and Decision Support
Semester: 2
TU title: FTU3
Subject title: Service-oriented architectures and emerging technologies

Credits: 4
Coefficients: 2

Teaching objectives

Deepen knowledge of new system architectures and associated technologies.

Recommended prior knowledge

- Bachelor's degree web technology courses
- Bachelor's degree network courses

Content of the subject

- Introduction to service-oriented architectures.
- Web services: vision and underlying technology.
- Standards around SOAP-based architectures (WS-*, WS-I Standards, etc.).
- Service composition, choreography vs orchestration, BPEL.
- REST and related services (Google Maps , FlickR , Yahoo! Geocoding , etc.).
- Application integration through the user presentation layer: AJAX, service *mashups .*

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- *Service-Oriented Architecture Compass - Business Value, Planning and Enterprise Roadmap* IBM Press Books by Pearons plc. ISBN 0-13-187 0 02-5
- Berg (Martin van den), Bieberstein (Norbert), Ommeren (Erik van), *SOA for Profit: A Manager's Guide to Successful SOA* , Sogeti and IBM, 2007

Master's title: Information Systems and Decision Support
Semester: 2
TU title: FTU3
Subject title: Distributed operating systems

Credits: 6
Coefficients: 3

Teaching objectives

To introduce the issue of parallelism in operating systems and to study the implementation of synchronization and mutual exclusion mechanisms in a distributed environment. To teach the student the basic concepts and tools of distributed systems .

Recommended prior knowledge

- Operating system concepts covered in the bachelor's degree.

Content of the subject

Introduction to parallel architectures + Concept of parallel architecture + Typology

Generalities on distributed systems + definitions

Fundamental problems in distributed systems + maintaining a global invariant

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- JP VERJUS et al., "Synchronization of parallel programs - Expression and implementation in centralized and distributed systems " BORDAS, 1983
- M. RAYNAL, " Distributed systems and networks : concepts, tools and algorithms" EYROLLES, 1987
- M. RAYNAL "Algorithmics of parallelism : the problem of parallel exclusion " DUNOD, 1984

Master's title: Information Systems and Decision Support
Semester: 2
TU title: FTU4
Subject title: Stochastic optimization

Credits: 4
Coefficients: 2

Teaching objectives

Know the techniques related to stochastic optimization such as static and dynamic modeling, dynamic programming, etc.

Recommended prior knowledge

Content of the subject

- Stochastic Dynamic Programming: Theory and Applications
- Stochastic Linear Programming: robust solution, simulation and scenario analysis
- Chance constraint model
- Two-stage recourse model, equivalent deterministic model, multi-stage model
- Edmundsen-Madarsky formulas
- Mixed integer recourse models, stochastic Lagrangian relaxation, stochastic branch and bound

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Michalewicz, Z. and Fogel, DB (2000), *How to Solve It: Modern Heuristics* , Springer-Verlag, New York.

Master's title: Information Systems and Decision Support
Semester: 2
TU title: FTU4
Subject title: Meta-Heuristics

Credits: 4
Coefficients: 2

Teaching objectives

Know the different concepts: genetic algorithms, neural networks, etc.

Recommended prior knowledge

Basics of Operational Research

Content of the subject

- Genetic algorithms and unitary human systems
- Neural networks
- Cellular automata
- Swarm algorithms

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Neural networks By DAVALO .E , NAÏM .P, published by EYROLLES.
- Neurocomputing: picking the human brain, NIELSON. H, IEEE Spectrum. 1988.

Master's title: Information Systems and Decision Support
Semester: 2
TU title: MTU2
Subject title: Models and resolution methods for scheduling problems

Credits: 4
Coefficients: 2

Teaching objectives

Present models and methods used in practice to solve workshop and service scheduling problems.

Recommended prior knowledge

Content of the subject

- The scheduling function in business
- Presentation of scheduling and optimization software.
- Branch and Bound Procedures: Application to the Job Shop Scheduling Problem
- Constraint programming and scheduling: application to single-machine and job shop problems.
- Mathematical modeling and scheduling: application to timetable problems.

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Group GOTHA, Models and Algorithms in Scheduling, Ellipses, 2004
- P. Esquirol and P. Lopez, scheduling, Economica, 1999.
- P. Brucker, Scheduling algorithms, Springer, 1998.
- M. Pinedo, Planning and Scheduling in Manufacturing and Services, Springer, 2005.

Master's title: Information Systems and Decision Support
Semester: 2
TU title: MTU2
Subject title: Data mining
Credits: 5
Coefficients: 3

Teaching objectives

Learning to mine large databases through supervised and unsupervised learning.

Recommended prior knowledge

- Databases
- Statistics
- Probabilities

Content of the subject

- Chapter 1: Introduction to data mining (definitions, processes, applications, models, etc.)
- Chapter 2: Statistics reminders (types of variables, graphical representations, etc.)
- Chapter 3: Automatic Classification
- Chapter 4: Searching for Association Rules
- Chapter 5: Decision Trees
- Chapter 6: Bayesian Networks

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Hans-Hermann Bock, Edwin Diday (January 2000): Analysis of Symbolic Data . Exploratory methods for extracting statistical information from complex data. Springer Verlag , Heidelberg, 425 pages, ISBN 3-540-66619-2. (Second edition)
- E. Diday , Y. Kodratoff , P. Brito, M. Moulet (2000): "Digital symbolic induction from data". Cépadues . 31100 Toulouse. www.editions-cepadues.fr. 442 pages.

Master's title: Information Systems and Decision Support
Semester: 2
TU title: DTU2
Subject title: Expert systems
Credits: 1
Coefficients: 1

Teaching objectives

This subject aims to introduce students to intelligent decision support systems. It will allow them to learn about a range of applications that exploit human reasoning mechanisms. This integration of human cognition is particularly relevant in situations where the information available to make a decision is either uncertain or incomplete.

Recommended prior knowledge

Information systems

Content of the subject

1. Introduction to expert systems (definition, architecture, typology, examples of SE, etc.)
2. Cognition (forward chaining, backward chaining, mixed reasoning)
3. The fact base, the rule base and inference
4. Uncertainty in expert systems.
5. Knowledge-based systems.

Assessment method: Subject Average = Exam Grade

References *(Books and handouts, websites, etc.).*

- Pierre Lévine , Jean-Charles Pomerol, Interactive decision support systems and expert systems, ed. Hermès, Paris, 1989.
- H. Farreny , Expert Systems, principles and examples, ed. Cepadues , 1985.

Master's title: Information Systems and Decision Support
Semester: 2
TU title: DTU2
Subject title: Introduction to e-Business
Credits: 1
Coefficients: 1

Teaching objectives

The aim of the module is to introduce the concepts of E-commerce and E-marketing.

Recommended prior knowledge

Content of the subject

- E-commerce
- E-marketing

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Michelle JEAN-BAPTISTE, Creating and Operating an Electronic Commerce Business, Editions LITEC, 1998 (ISBN 0-7111-2924-X)
- Michelle and Philippe JEAN-BAPTISTE, *Online Marketing Legal and Practical Guide* , Editions Eyrolles, 2008 (ISBN 978-2-212-53982-0)
- Love, Daniel, The E-Business (R)Evolution , 2nd Edition , Prentice Hall, New York, 2002, (ISBN 0130670391)

Master's title: Information Systems and Decision Support
Semester: 2
TU title: TTU2
Subject title: Technical reports

Credits: 2
Coefficients: 2

Teaching objectives

The course mainly covers two aspects: one is about reading technical documents, the other is related to their writing. The student will learn how to analyze a scientific document and compare it to other content in the same field. He will also learn how to write and present high-level, good-quality manuscripts.

Content of the subject:

I. Reading a technical report

- ✓ Analysis of technical scientific content
- ✓ Comparison methods

II. Writing a scientific document

- ✓ Using LATEX
- ✓ Creation and management of bibliography with LATEX
- ✓ Creating a document with LATEX
- ✓ Creating a presentation with LATEX

Assessment method: Average Subject = exam grade

References

- L. Chan-Sun. LaTeX Tutorial, June 2004. http://www. supinfoprojects.com/fr/2004/latex/ .
- T. Nemeth. Course document on the use of Latex2e, Dec. 2000. http://www.commentcamarche.net/ccmdoc/index.php3?Mot=latex .
- C. Rolland. LaTeX through practice. O'Reilly , 1999. ISBN 2841770737.

Master's title: Information Systems and Decision Support
Semester: 3
TU title: FTU5
Subject title: Networks and Telecoms

Credits: 6
Coefficients: 3

Teaching objectives

This course is a continuation of the degree course, and allows you to explore network concepts in greater depth: IP networks, ATM, Mobiles, etc.

Recommended prior knowledge

- Bachelor's degree network courses

Content of the subject

- Chapter 1: IP Networks - 267
- Chapter 2: X-25 Networks and 303 Relays
- Chapter 3: Ethernet Networks - 325
- Chapter 4: Telecom networks: ATM and MPLS - 357
- Chapter 5: Mobile Networks – 367
- Chapter 6: Wireless Networks

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References *(Books and handouts, websites, etc.).*

- Networks and telecoms course with corrected exercises, PUJOLLE .G , published by EYROLLES
- Networks, TANENBAUM .A , published by PEARSON EDUCATION
- The architecture of TCP/IP networks services – uses – implementation – administration – security, PHILIPP .J , published by ELLIPSES
- Architecture of the DROMARD .D , SERET .D networks, published by PEARSON EDUCATION

Master's title: Information Systems and Decision Support
Semester: 3
TU title: FTU5
Subject title: Information systems security

Credits: 4
Coefficients: 2

Teaching objectives

The aim of the course is to introduce and handle the concepts of information systems security management systems.

Recommended prior knowledge

- Information systems concepts
- Network concepts

Content of the subject

- Concepts of risks and security within an IS
- Definition of information system security (ISS)
- Information system security master plan (SDSSI)
- Current concepts, standards and methods
- Information Security Management Systems (ISMS)
- Crisis management and major crisis (security scenario, emergency plan, recovery plan)

Assessment method: Examination and continuous assessment

References

- Jacques Clavier, Computer Security - Information Systems Security and Internet Security **,** Publisher: Jci , Collection: Computer Science, Publication: 11/20/2002, Number of pages: 180
- Michel Lafitte , Information systems security and risk management, Published on: 01/02/2003, Publisher: Revue Banque , Collection: the essentials of banking , Number of pages: 127 pages
- Simon and Schuster, Security of Information Systems and Networks , Collection: Computer Science, Macmillan France (September 30, 2004), 469 pages.

Master's title: Information Systems and Decision Support
Semester: 3
TU title: FTU6
Subject title: Information systems, advanced methods

Credits: 4
Coefficients: 2

Teaching objectives

Learn a method based on the object and UML approach, namely 2TUP (Two -Track Unified Process)

Recommended prior knowledge

- The basic concepts of information systems and development methods.
- Basic UML diagrams (classes, use cases, deployment, etc.)

Content of the subject

Chapter 1: Reminders on information systems
Chapter 2: Preliminary study
Chapter 3: Capturing Functional Requirements
Chapter 4: Capturing Technical Needs
Chapter 5: Analysis
Chapter 6: Generic Design
Chapter 7: Preliminary Design
Chapter 8: Detailed Design

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

– UML 2, Charroux, Osmani and Thierry- Mieg , Edition Pearson Education, 2005.
– UML 2, Analysis and design, Gabay and Gabay, Dunod, 2008.
– UML in action, Roques et Vallée, Eyrolles, 4th Ed, 2009.
– UML 2, modeling a web application, Roques, Eyrolles, 4th ed.

Master's title: Information Systems and Decision Support
Semester: 3
TU title: FTU6
Subject title: Advanced databases

Credits: 4
Coefficients: 2

Teaching objectives

This course complements the database course in the bachelor's degree. It allows students to acquire and practice new concepts in databases, namely object modeling of data, database administration, and advanced queries (decision-making queries).

Recommended prior knowledge

Database Courses

Content of the subject

- Object-oriented programming and databases
- Database administration

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

– G. Gardarin , *Databases* , Eyrolles, 2003
– CJ Date, *Introduction to Databases* , Vuibert, 2004
– R. Ramakrishnan, J. Gehrke, *Database Management Systems* , McGraw Hill, 2008
– H. Garcia-Molina, J. Ullman, J. Widom, *Database systems: the complete book* , Prentice Hall, 2002
– G. Weikum , G. Vossen , *Transactional Information Systems* , Morgan Kaufmann, 2002

Master's title: Information Systems and Decision Support
Semester: 3
TU title: MTU3
Subject title: Multi-criteria decision support

Credits: 4
Coefficients: 2

Teaching objectives

Know and apply the different techniques for modeling decision problems

Recommended prior knowledge

Content of the subject

Chapter 1: General Introduction

- Single-criteria approach vs. Multi-criteria approach
- Multi-criteria Analysis Process (Methodology)

Chapter 2: Notions of Action, Criterion and Preference

Chapter 3: Analysis of Consequences and Determination of Criteria

Chapter 4: Multi-criteria Analysis: Performance Aggregation and Evaluation

- Weighted Sum Model
- Relational Preference Model
Upgrade Model

Chapter 5: Illustration of ELECTRE Type Multi-Criteria Methods

Chapter 6: Aggregation Functions for Decision

Chapter 7: Social Choice Theory (or Voting Theory)

Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References (*Books and handouts, websites, etc.).*

- Ph. Vincke, Multi-criteria Decision Support, University of Brussels Editions - Ellispses Editions , Brussels, 1989.
- B. Roy and D. Bouyssou , Multicriteria Decision Support : Methods and Cases. Economica, Paris, 1993.

Master's title: Information Systems and Decision Support
Semester: 3
TU title: MTU3
Subject title: Documentary research

Credits: 4
Coefficients: 2

Teaching objectives

1. Find relevant sources of information from different types of documents. 2. Be able to assess the quality of the sources found. 3. Search on SNDL.

Recommended prior knowledge

- Databases

Content of the subject

I. Documentary Methodology
- ✓ Objectives and aims of the research
- ✓ Prepare his research
- ✓ Define, Identify, Formulate, Restrict or Broaden the subject

II. Selecting information sources
- ✓ Types of documents: Dictionaries and encyclopedias, Books or monographs, Periodicals, Theses, dissertations, research reports, Specific documents, Official documentation
- ✓ Resource Types: Library Catalogs, Bibliographic Databases, Factual Databases, Text Corpora, Web Resources
- ✓ Searching and locating documents: Terminology, Notions of noise and silence, Search techniques, Search operators

III. Advanced concepts
- ✓ Evaluate the quality and relevance of sources
- ✓ Implement automated document monitoring
- ✓ Plagiarism
- ✓ Reference managers

Assessment method: Average Subject = exam grade

References *(Books and handouts, websites, etc.).*

– B. BASCHWITZ, MA KETELE, JM. GODELET, How do I document myself?: trainers, teachers, students, ed. De Boeck, Belgium, 2010.
– Documentary Methodology : Research, Consult, Write in the Internet Age, De Boeck, Belgium, 2005.

Master's title: Information Systems and Decision Support
Semester: 3
TU title: TTU3
Subject title: Project management and entrepreneurship

Credits: 2
Coefficients: 2

Teaching objectives
The main objectives are to acquire a global vision of the projects, to provide practical tools for anticipating cost, deadline and performance drifts on industrial projects,

Recommended prior knowledge

Content of the subject
Chapter 1: Introduction to Project Management

- Project and Management Definition
- Project Life Cycle Models - Information System (IS) Project Management - Cost Estimation: Case of the COCOMO Model

Chapter 2: Timeline Planning Techniques - Gantt Chart - PERT Network
Chapter 3: Quality Control and Risk Management
Chapter 4: Launching and Managing a Startup
- Human Composition and Economic Model - International Development - Finance and Legal - Incubators/Accelerators/Nurseries/ FabLab - Coworking Spaces - Mentoring/Financing/ Business Angels - Venture Capital
Chapter 5: Computer systems and networks in the enterprise
Assessment method: Subject average = (Test mark*2+ Work mark)/ 3

References

- Guy Kawasaki (2009), *The Reality of Entrepreneurship* , Diateino , 2009
- Catherine Léger- Jarniou and Georges Kalousis , *Building Your Business Plan* , Dunod , 2007
- Alain Fayolle (2004), *Entrepreneurship: Learning to undertake* , Dunod, 2004

Master's title: Information Systems and Decision Support
Semester: 3
TU title: TTU3
Subject title: Corruption and work ethics

Credits: 1
Coefficients: 1
Teaching objectives

Inform and raise awareness among students about the risk of corruption and encourage them to contribute to the fight against corruption.
Recommended prior knowledge
Content of the subject

1. Concept of corruption:
2. Types of corruption:
3. Manifestations of administrative and financial corruption
4. The reasons for administrative and financial corruption
5. The effects of administrative and financial corruption
6. The fight against corruption by local and international bodies and organizations
7. Methods of treatment and means of combating the phenomenon of corruption
8. Models of the experience of certain countries in the fight against corruption

Assessment method: *exam*
References

- الفقي , مصطفى. **الفساد الإداري والمالي بين السياسات والإجراءات**
http://www.cipe-egypt.org/articles/art0900.htm
- محمود , مهيوب خضر . **من معالم المدرسة العمرية في مكافحة الفساد** .
http://www.hetta.com/current/mahyoob23.htm
بزاز , سعد . **حملة ضد الفساد**
http://www.saadbazzaz.com/index.asp?fname=articles%5C7540.htm&code=display
- طه , خالد عيسى . **ملاحقة الفساد الإداري**
http://www.azzaman.com/azzaman/articles/2004/03/03-29/802.htm
- **الفساد الإداري وجرائم إساءة استعمال السلطة الوظيفية**
http://news.naseej.com.sa/detail.asp?InSectionID=1431&InNewsItemID=123076
- السيف , خليفة عبد الله . **متى نرى آلية صحيحة لمحاربة الفساد**
http://www.alwatan.com.sa/daily/2002-10-19/resders.htm
-**الفساد الإداري والمالي (1)**
http://www.mof.gov.kw/coag-news11-4.htm
-**الفساد الإداري والمالي (2)**
http://www.mof.gov.kw/coag-news11-5.htm
إدارة التغيير والموارد البشرية .
http://www.ituarabic.org/11thHRMeeting/doc6.doc

V- Accords or conventions

NO