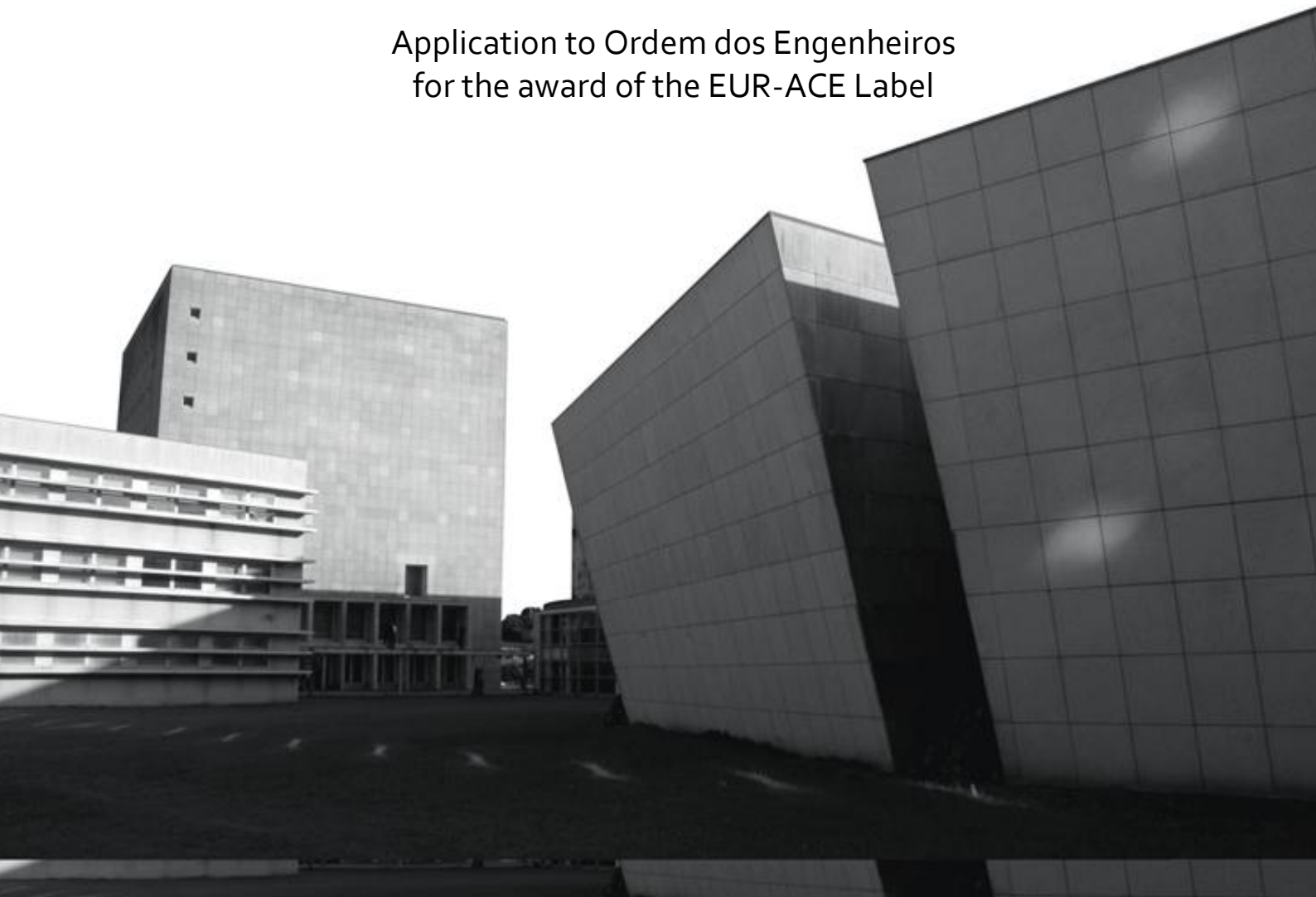
Faculty of Engineering of the University of Porto

U.PORTO

FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

Integrated Masters Programme in Informatics and Computing Engineering

Application to Ordem dos Engenheiros
for the award of the EUR-ACE Label



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INDEX

Table of contents

Table of contents iii
List of Figures viii
List of Tables x
List of Acronyms xiii
S1 - Introductory data about the institution: Part A 3
S1.1 - Governing bodies 3
S1.2 - Teaching and Non-Teaching Staff 3
S1.3 - Number of students in the Academic Year 4
S1.4 - Address 6
S2 - Introductory data about the institution: Part B 9
S3 - Introductory data about the institution: Part C 13
S3.1 - Summary of institution's history 13
S3.2 - Description of main premises 15
S4 - Course formalization - PR1 19
S4.1 - Proof of course's legitimacy 19
S5 - HEI strategy concerning the course R1 23
S5.1 - Historical roots of the course 23
S5.2 - Special features of the course compared with others of a similar nature 24
S5.2.1 - Educational and professional objectives 25
S5.3 - Competitive Advantages 26
S5.4 - Threats 27
S5.5 - Programme Sustainability 28
S5.5.1 - Economic and Financial Study 29
S6 - Cooperation with other institutions - R3 33
S6.1 - Protocol & partnership agreements with other institutions/organizations 33
S6.1.1 - ERASMUS and Other Programmes 33
S6.1.2 - ERASMUS Internships (student OUT) 36
S6.1.3 - Corporate and ERASMUS Dissertations (2009/2010) 37
S6.1.4 - Partnership agreements with corporations 37
S6.2 - Interface institutions and the way they operate in conjunction with the HEI 39
S7 - General information about the course: Part A - R4 45
S7.1 - Programme working/structure 45
S7.2 - Contact time (hours per week) 45
S7.3 - Number of students in the last 5 years 45
S7.4 - Course general outcomes 46
S8 - General information about the course: Part B - R4 51
S8.1 - Outcomes (Competences and skills) per scientific area: 51
S8.1.1 - Computer Architecture 51

S8.1.2 - Industrial Automation 51
S8.1.3 - Social and Professional Issues 52
S8.1.4 - Software Engineering 52
S8.1.5 - Physics 53
S8.1.6 - Programming Fundamentals 53
S8.1.7 - Artificial Intelligence 53
S8.1.8 - Interaction and Multimedia 54
S8.1.9 - Mathematics 54
S8.1.10 - Quantitative Methods and Management 55
S8.1.11 - Programming 55
S8.1.12 - Information Systems 56
S8.1.13 - Operating Systems and Networks 56
S8.1.14 - Multidisciplinary subjects 57
S9 - Programme plan - R5 61
S10 - Course sheet – R5/R6 69
S11 - Complementary Activities - R5/R6 77
S11.1 - RoboCup – Robotic Soccer 77
S11.1.1 - Identification 77
S11.1.2 - Aims, Characterization 77
S11.1.3 - Characterization of objectives and program 78
S11.1.4 - Assessment Procedure 78
S11.2 - UP Young Researchers (IJUP Conference) 80
S11.2.1 - Identification 80
S11.2.2 - Aims, Characterization 80
S11.2.3 - Characterization of objectives and program 81
S11.2.4 - Assessment Procedure 81
S11.3 - NeES - Student Interest Group in Software Engineering 81
S11.3.1 - Identification 81
S11.3.2 - Aims, Characterization 82
S11.3.3 - Characterization of objectives and program 83
S11.3.4 - Assessment Procedure 83
S11.4 - NeCG - Student Interest Group in Computer Graphics 83
S11.4.1 - Identification 83
S11.4.2 - Aims, Characterization 84
S11.4.3 - Characterization of objectives and program 84
S11.4.4 - Assessment Procedure 85
S11.5 - FEUP Open Week 85
S11.5.1 - Identification 85
S11.5.2 - Aims, Characterization 85

S11.5.3 - Characterization of objectives and program 86
S11.5.4 - Assessment Procedure 86
Adendum to S11 ..... *Add.* S11-1
S11.6 - JuniFEUP ..... *Add.* S11-3
S11.6.1 - Aims, Characterization ..... *Add.* S11-3
S11.6.2 - Characterization of objectives and program ..... *Add.* S11-4
S11.6.3 - Assessment Procedure ..... *Add.* S11-4
S11.7 - Scientific Meetings Organization ..... *Add.* S11-5
S11.7.1 - Aims, Characterization ..... *Add.* S11-6
S11.7.2 - Characterization of objectives and program ..... *Add.* S11-7
S11.7.3 - Assessment Procedure ..... *Add.* S11-7
S11.6 - FEUP's Cross-cutting Activities 87
S11.6.1 - Groups 87
S11.6.2 - Services/courses 95
S11.6.3 - Events 96
S12 - Outcomes - R7 101
S13 - List of teaching staff: permanent staff - R8 107
S14 - List of teaching staff: non-permanent staff - R8 113
S15 - List of staff in charge - R8 117
S16 - Programme Director Sheet - R8 149
S16.1 - Current Director 149
S16.2 - Previous Director 149
S17 - Teaching Staff Sheet - R8 153
S18 - Teaching staff perspective - R9 159
S19 - Movement of students - R10 165
S19.1 - Prerequisites 165
S19.2 - Access to Public Higher Education 165
S19.2.1 - Entry conditions 165
S19.2.2 - Application process 166
S19.2.3 - *Numerus Clausus* 166
S19.3 - Application for Higher Education Graduates 167
S19.3.1 - Applicants 167
S19.3.2 - Numerus Clausus 167
S19.3.3 - Applications 168
S19.3.4 - Legislation 169
S19.4 - Application for Change of Programme and Transfers 170
S19.4.1 - Applicants 170
S19.4.2 - *Numerus Clausus* 171
S19.4.3 - Applications 171

S19.4.4 - Legislation 175
S19.5 - Transfers to the course (from outside) 175
S19.6 - Students movement with reference to the beginning of the year 175
S19.7 - Graduate leavers 176
S20 - Students' and employers' evaluation - R11 179
S20.1 - Introduction 179
S20.2 - Methodology 180
S20.3 - Graduate's population characteristics: 180
S20.4 - Employers' and supervisors' population characteristics: 181
S20.5 - Overall results 181
S20.5.1 - Skills evaluation 182
S20.5.2 - Shortcoming identification 183
S20.6 - Closing remarks 185
S21 - Suitability of premises - R12 189
S22 - Pedagogic facilities - R13 197
S22.1 - Teaching Laboratories 197
S22.1.1 - I007/I008 - Digital Systems and Microprocessors (61+83 m²) 197
S22.1.2 - I011 - Computer Laboratory - extra classes (56 m2) 198
S22.1.3 - I320/321 - Communication Networks (42 + 63 m2) 199
S22.1.4 - B107 - Operating systems, Computer graphics and Multimedia (61 m2) 200
S22.2 - Research Laboratories 201
S22.2.1 - I120 - Laboratory of Robotics (67 m2) 201
S22.2.2 - I121 - Laboratory of Artificial Intelligence and Computer Science (86 m2) 202
S22.2.3 - I122 - Laboratory of Software Engineering (86 m2) 202
S22.2.4 - I123 - Laboratory of Information Systems and Computer Graphics (60 m2) 203
S22.2.5 - I124 - SAPO Laboratory (52 m2) 203
S22.3 - Support Services and Facilities 205
S22.3.1 - Library 205
S22.3.2 - Computer Center (CICA) 213
S22.3.3 - Other Support Facilities 215
S23 - Course monitoring: rates of success - R14 219
S23.1 - Subjects 219
S23.2 - Summary 222
S24 - Course monitoring: design/project work - R14 225
S25 - Course monitoring: self-control - R14 233
S25.1 - Institutional analysis of course's generic indicators 233
S25.2 - Institutional Analysis Of Indicators Concerning Students 233
S25.2.1 - Student Population 233
S25.2.2 - New students 235

S25.2.3 - Academic Progression 237
S25.2.4 - Results 239
S25.2.5 - Graduates 242
S25.2.6 - Student Mobility 244
S25.2.7 - Student Surveys 246
S25.2.8 - Teacher Evaluation 251
S25.2.9 - Self-assessment of students 256
S26 - Quality plan - R15 261
S26.1 - Statutes of the Integrated Masters Programme leading to the degree of Masters in Informatics and Computing Engineering 261
S26.1.1 - Legal framework 261
S26.1.2 - Integrated Masters Programme 261
S26.1.3 - Management bodies 262
S26.1.4 - Integrated Masters Programme Director 262
S26.1.5 - Integrated Masters Programme Scientific Committee 263
S26.1.6 - Integrated Masters Programme Monitoring Committee 264
S26.2 - Programme Monitoring - Quality Assurance 265
S26.2.1 - Overall procedure 266
S26.2.2 - Report Structure 267
S26.3 - Relevant documents (in Portuguese) 268
ANNEX A - Legal Documentation 271
ANNEX A1 - Dispatch no. 14 437/2006 273
ANNEX A2 - Resolution no. 1092/2006 275
ANNEX A3 - Resolution no. 1835/2009 281

List of Figures

Figure 1.1 – Teaching and Non-Teaching Staff (as of 01/02/2012) 3
Figure 1.2 – Evolution of 1st time registration 4
Figure 1.3 – Evolution of total registered students 4
Figure 1.4 – Evolution of number of graduates per civil year, per programme 5
Figure 3.1 - FEUP's former facilities at Rua dos Bragas 14
Figure 3.2 - Panoramic view of campus from the Library building 15
Figure 3.3 – FEUP's Campus aerial view 16
Figure 11.1 – a) teams at work; b) overall view of the game field 79
Figure 11.1 – Some of the RoboCup players 79
Figure 25.1 – Evolution of the number of students 233
Figure 25.2 – Cumulative percentage distribution by number of registrations 234
Figure 25.3 – Distribution of students by status 234
Figure 25.4 – Population evolution by gender 235
Figure 25.5 – Trends in demand / supply 235
Figure 25.6 – 'GIES' candidates placed in the 1st option vs. number of vacancies 236
Figure 25.7 – New students' access options 236
Figure 25.8 – Access grade distribution 237
Figure 25.9 – Average registration in courses per student, per year 237
Figure 25.10 – Students' distribution per years of the programme 238
Figure 25.11 – Global statistics 239
Figure 25.12 – Average rating per year of the programme 240
Figure 25.13 – Distribution of positive average ratings 240
Figure 25.14 - Top 10 worst values approved / evaluated in 2009/10 241
Figure 25.15 - Top 10 worst values approved / enrolled in 2009/10 241
Figure 25.16 - Percentage distribution of the duration of the programme 242
Figure 25.17 - Percentage distribution of the average grades of the programme 243
Figure 25.18 - International ECTS rank distribution 244
Figure 25.19 – ERASMUS students – IN 244
Figure 25.20 – ERASMUS students - OUT 245
Figure 25.21 – Evolution of the exchange of ERASMUS students 245
Figure 25.22 - Scope and Transversality of the Contents (1S) 246
Figure 25.23 - Scope and Transversality of the Contents (2S) 246
Figure 25.24 - Assessment Methodologies in the Curricular Unit (1S) 247
Figure 25.25 - Assessment Methodologies in the Curricular Unit (2S) 247
Figure 25.26 - Study Support materials (1S) 248
Figure 25.27 - Study Support materials (2S) 248
Figure 25.28 - E-learning (1S) 249
Figure 25.29 - E-learning (2S) 249

Figure 25.30 - Overall Assessment (1S) 250
Figure 25.31 - Overall Assessment (2S) 250
Figure 25.32 - Learning Processes and Academic Value of Classes (1S)..... 251
Figure 25.33 - Learning Processes and Academic Value of Classes (2S)..... 251
Figure 25.34 - Teacher's Commitment and Methodology (1S) 252
Figure 25.35 - Teacher's Commitment and Methodology (1S) 252
Figure 25.36 - Organization and Clarity (1S)..... 253
Figure 25.37 - Organization and Clarity (2S)..... 253
Figure 25.38 – Teacher Interaction (1S)..... 254
Figure 25.39 – Teacher interaction (2S)..... 254
Figure 25.40 – Teacher Relationship (1S) 255
Figure 25.41 – Teacher Relationship (2S) 255
Figure 25.42 - Student Involvement (1S)..... 256
Figure 25.43 - Student Involvement (2S)..... 256
Figure 25.44 - Student self-assessment of the Curricular Unit (1S).....257
Figure 25.45 - Student self-assessment of the Curricular Unit (2S) 257
Figure 26.1 – Quality Assurance information flow..... 266

List of Tables

Table 1.1 – FEUP's Governing Bodies 3
Table 2.1 – Undergraduate Programmes - 2009/2010 9
Table 2.2 – Integrated Master Programmes - 2009/2010 9
Table 2.3 – 2nd Cycle Programmes - 2009/2010 9
Table 2.4 – 3rd Cycle programmes - 2009/2010 10
Table 3.1 – FEUP campus deployment description 15
Table 6.1 – Exchange protocols 33
Table 6.2 – Erasmus internships 36
Table 6.3 – Corporate and ERASMUS dissertations 37
Table 6.4 – Partnership agreements with corporations in the past few years 37
Table 7.1 – Programme Working Structure 45
Table 7.2 – Contact Time 45
Table 7.3 – Number of students in the past years 45
Table 8.1 - Outcomes per scientific area: Computer Architecture 51
Table 8.2 - Outcomes per scientific area: Industrial Automation 51
Table 8.3 - Outcomes per scientific area: Social and Professional Issues 52
Table 8.4 - Outcomes per scientific area: Software Engineering 52
Table 8.5 - Outcomes per scientific area: Physics 53
Table 8.6 - Outcomes per scientific area: Programming Fundamentals 53
Table 8.7 - Outcomes per scientific area: Artificial Intelligence 53
Table 8.8 - Outcomes per scientific area: Interaction and Multimedia 54
Table 8.9 - Outcomes per scientific area: Mathematics 54
Table 8.10 - Outcomes per scientific area: Quantitative Methods and Management 55
Table 8.11 - Outcomes per scientific area: Programming 55
Table 8.12 - Outcomes per scientific area: Information Systems 56
Table 8.13 - Outcomes per scientific area: Operating Systems and Networks 56
Table 8.14 - Outcomes per scientific area: Multidisciplinary subjects 57
Table 9.1 – 1st year syllabus, contact hours per semester 61
Table 9.2 – 2nd year syllabus, contact hours per semester 61
Table 9.3 - 3rd year syllabus, contact hours per semester 62
Table 9.4 – 4th year syllabus, contact hours per semester 63
Table 9.5 – 5th year syllabus, contact hours per semester, specialization in Building Construction 64
Table 10.1 – 1st year syllabus, contact hours per week 69
Table 10.2 – 2nd year syllabus, contact hours per week 69
Table 10.3 – 3rd year syllabus, contact hours per week 70
Table 10.4 – 4th year syllabus, contact hours per week 71
Table 10.5 – 5th year syllabus, contact hours per week, specialization in Building Construction 72

Table 11.1 – Activity characterization and support staff 77
Table 11.2 – Activity characterization and support staff 80
Table 11.3 – Activity characterization and support staff 81
Table 11.4 – Activity characterization and support staff 83
Table 11.5 – Activity characterization and support staff 85
Table 12.1 – 1st year syllabus outcomes 101
Table 12.2 – 2nd year syllabus outcomes 101
Table 12.3 –3rd year syllabus outcomes 102
Table 12.4 – 4th year syllabus outcomes 103
Table 12.5 – 5th year syllabus outcomes 104
Table 13.1 – Permanent teaching staff 107
Table 14.1 – Non-permanent teaching staff 113
Table 15.1 – List of teaching staff in charge (spans through multiple pages) 117
Table 17.1 – Academic Staff's Curriculum Vitæ 153
Table 18.1 - Teaching staff perspective 159
Table 19.1 – numerus clausus forholders of an higher education degree 167
Table 19.2 – *Numerus clausus* for changes of programme and transfers 171
Table 19.3 - Transfers to the course (from outside) 175
Table 19.4 -Students movement with reference to the beginning of the year 175
Table 19.5 - Graduate leavers 176
Table 20.1 - Sample distribution, by programme. 181
Table 20.2 - Overall assessment and expectation of the employer regarding the group of skills presented (from supervisors' perspective - Table 16 in the full report) 182
Table 20.3 - Evaluation by employers (Directors / Presidents of companies) regarding FEUP Engineers (number of answers - Table 17 in the full report) 183
Table 20.4 - shortcomings in FEUP's *alumni*: list of categories (arranged from 'most to least frequent') from the content analysis of comments regarding the weaknesses that graduates perceive in the training offered by FEUP (Table 18 in the full report) 184
Table 21.1 – Available teaching spaces (spans through multiple pages) 189
Table 22.1 – Library's features 206
Table 22.2 – Computer rooms under CICA's management – Buildings B/D (follow links for more information) 214
Table 22.3 – Computer rooms under CICA's management - Departments (follow links for more information) 214
Table 23.1 – Courses' success rates 219
Table 23.2 – Overall success rates 222
Table 24.1 – Project work 225
Table 25.1 – Evolution of number of students and graduates in the past few years 233

Addendum Table List

Addendum table 11-1 - Activity characterization and support staff .....*Add*. S11-3
Addendum table 11-2 - Activity characterization and support staff .....*Add*. S11-5
Addendum table 11-3 - Activity characterization and support staff .....*Add*. S11-5
Addendum table 11-4 - Activity characterization and support staff .....*Add*. S11-6
Addendum table 11-5- Activity characterization and support staff .....*Add*. S11-6

List of Acronyms

Institutions / Organizations

ACM	Association for Computing Machinery
ACS	American Chemical Society
AENOR	Spanish Association for Standardisation and Certification
AIP	American Institute of Physics
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BEST	Board of European Students of Technology
CCDRN	Commission of Coordination and Regional Development of the North
CEFT	Transport Phenomena Research Center
CERN	European Organization for Nuclear Research
CNAES	National Commission for access to higher education
CRC	Chemical Rubber Company
ENQA	European Association for Quality Assurance in Higher Education
EPO	European Patent Office
ESN	Exchange Erasmus Student Network
ESTIEM	European Students of Industrial Engineering and Management
FAP	Academic Federation of Porto
FADU	Academic Federation of University Sports
FCT	National Foundation For Science And Technology
FCUP	Faculty of Sciences of the University of Porto
FEUP	Faculty of Engineering of the University of Porto
GIES	Higher Education Admission Office
IAEST	International Association for the Exchange of Students for Technical Experience
IEEE	Institute of Electrical and Electronics Engineers
INCM	National Press Mint
INEGI	Institute of Mechanical Engineering and Industrial Management
INPI	National Institute of Industrial Property
IPP	Polytechnic Institute of Porto
IPQ	Portuguese Institute for Quality
ISO	International Organization for Standardization
IST	Instituto Superior Técnico
LCM	Laboratory of Catalysis and Materials
LSRE	Laboratory of Separation and Reaction Engineering – Associate Laboratory
LEPAE	Laboratory for Process, Environmental and Energy Engineering
LEA	Laboratory for Teaching and Learning
UMBC	University of Maryland - Baltimore County
UP	University Of Porto
UPIN	University Of Porto Innovation
UPTEC	University Of Porto Technology Park

Departments

DEC	Civil Engineering Department
DEEC	Electric and Computer Engineering Department
DEF	Physics Engineering Department
DEI	Informatics Engineering Department
DEM	Mechanical Engineering Department
DEMEGI	Mechanical Engineering and Industrial Management Department
DEMM	Metallurgical and Materials Engineering Department
DEQ	Chemical Engineering Department

Programmes

DEGT	Doctoral Program in Transport Engineering and Management
DEIG	Doctorate in Industrial Engineering and Management
DLIT	Doctoral Program in Leaders for Technological Industries
LCC	Licenciatura in Communication Sciences: Journalism, Public Relations, Multimedia
LCEEMG	Licenciatura in Engineering Sciences - Mining and Geo-Environmental Engineering
LCINF	Licenciatura in Information Science
MAP-T	Doctoral Program in Telecommunications
MCI	Master in Information Science
MDI	Master in Industrial Design
MEB	Master in Biomedical Engineering
MEMG	Master in Mining and Geo-Environmental Engineering
MESG	Master in Services Engineering and Management
MESHO	Master in Occupational Safety and Hygiene Engineering
MIB	Integrated Master in Bioengineering
MIEA	Integrated Master in environmental Engineering
MIEC	Integrated Master in civil Engineering
MIEEC	Integrated Master in electric and computer Engineering
MIEIC	Integrated Master in Informatics and Computing Engineering
MIEIG	Integrated Master in Industrial Management Engineering
MIEM	Integrated Master in Mechanical Engineering
MIEMM	Integrated Master in metallurgical and Materials Engineering
MIEQ	Integrated Master in Chemical Engineering
MIET	Master in Innovation and Technological Entrepreneurship
MM	Master in Multimedia
PDEEC	Doctoral Program in Electrical and Computer Engineering
PDEMGR	Doctoral Program in Mining and Geo-Resources Engineering
PDEMM	Doctoral Program in Metallurgical and Materials Engineering
PDEQB	Doctoral Program in Chemical and Biological Engineering
PDERPQ	Doctoral Program in Engineering of Refining, Petrochemistry and Chemistry
PDMA	Doctoral Program in Applied Mathematics

PDMAPI	Doctoral Program in Computer Science
PDMD	Doctoral Program in Digital Media
PDSSE	Doctoral Program in Sustainable Energy Systems
PRDEIG	Doctoral Program in Industrial Engineering and Management
PRODEB	Doctoral Program in Biomedical Engineering
PRODEC	Doctoral Program in Civil Engineering
PRODEF	Doctoral Program in Physics Engineering
PRODEI	Doctoral Program in Informatics Engineering
PRODEM	Doctoral Program in Mechanical Engineering

Groups

ADEMEC	Former Mechanical Students Association
ADEMM	Metallurgical and Materials Former Students Association
AEC	Alumni Association of Civil Engineering, Faculty of Engineering of Porto University
AEFEUP	FEUP Student Association
JE	Engineering Journal
ER	Engineering Radio
NAAM	Nucleus of Aeronautics, Aerospace and Modelling
NEACM.	ACM Student Group
NUIEEE	IEEE Student Group
TEUP	Engineering's Tuna
TUNAFE	Engineering's Feminine Tuna

Other

AA	Suitable Area
ANA	Non-Suitable Area
ATM	Automated teller machine
BII	Research initiation Grants
BSc	Bachelor of Science
CAP	Academic Championships in Porto
CDIO	Conceiving - Designing - Implementing - Operating
CICA	Computer Center (named after Professor Correia de Araújo)
CN	Natural Sciences (scientific areas)
CNU	University National Championships
CPA	Academic Background Grade
CS	Social Sciences (scientific areas)
CTEQ	Technological Sciences – Chemical Engineering (scientific areas)
CTO	Technological Sciences – Other (scientific areas)
CTP	Technological Sciences – Project (scientific areas)
EA	Energy and Environment
EC	Civil Engineering
ECE; EEC	Electrical and Computer Engineering
ECTS	European Credit Transfer and Accumulation System
EGI	Industrial Management Engineering

EIC	Informatics Engineering
EM	Mechanical Engineering
EMG	Minning and Geo-environmental Engineering
EMM	Metallurgical and Materials Engineering
EICxxxx	Curricular Unit Code (where x is a number)
FOLDOC	Free On-line Dictionary of Computing
GADUP	University of Porto Sports Office
GAE	Entrepreneurs' Support Office
GEST	Contract Regime
HEI	Higher Education Institution
HR	Human Resources
ID	Identification
IJUP	Young Researchers of the University of Porto
LBG	Local BEST Groups
LC	Local Committee
NASA	National Aeronautics and Space Administration (EUA)
OE	State Budget or Ordem dos Engenheiros
PEJENE	Internship Program for Young Higher Education Students in Business
PMR	Programme Monitoring Report
PP	Processes and Product
REF	Theme Type
RP	Own Revenues
SIGARRA	FEUP Information System
SO	Strategic Objectives
SWOT	Strengths, weaknesses, Opportunities and Threats (analysis)
UAD	Management Support Unit
UC	Curricular Unit
US; USA	United States of America

INTRODUCTORY DATA ABOUT THE INSTITUTION:

PART A

S1 - Introductory data about the institution: Part A

S1.1 - Governing bodies

Table 1.1 – FEUP's Governing Bodies

Dean	**Carlos Albino Veiga da Costa**
President of Teaching Standards Committee	Carlos Albino Veiga da Costa
President of Academic Board	Carlos Albino Veiga da Costa

S1.2 - Teaching and Non-Teaching Staff

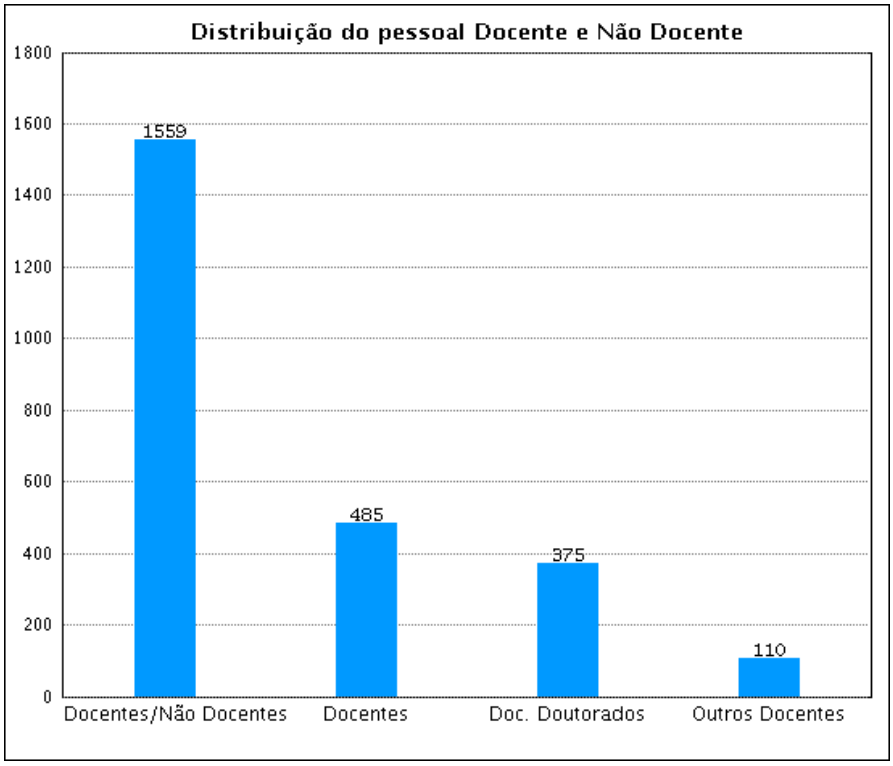

Figure 1.1 – Teaching and Non-Teaching Staff (as of 01/02/2012)

S1.3 - Number of students in the Academic Year

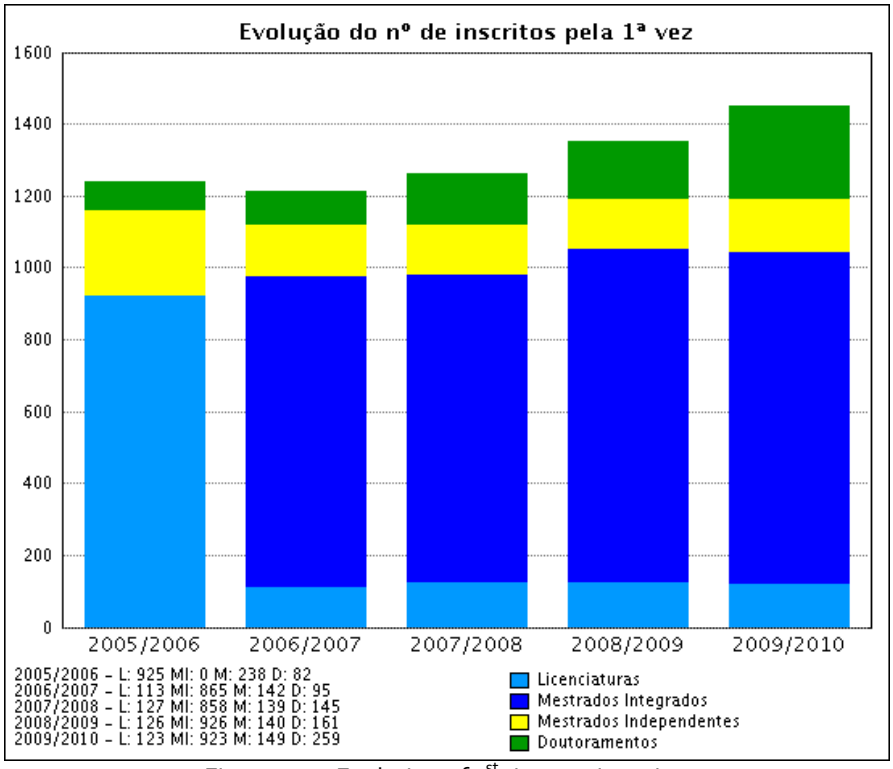

Figure 1.2 – Evolution of 1st time registration

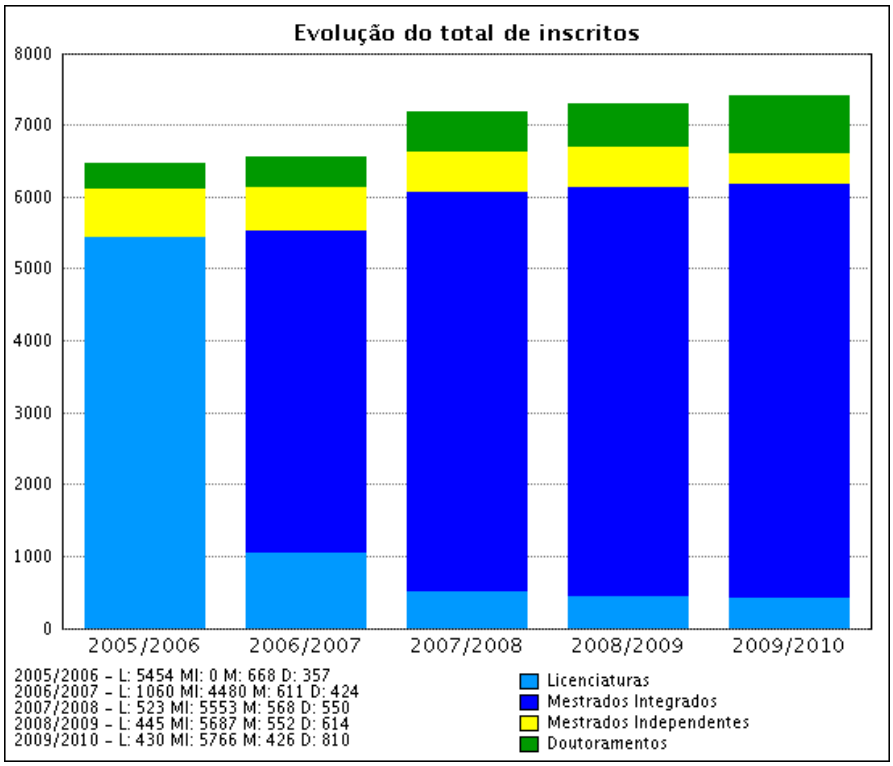

Figure 1.3 – Evolution of total registered students

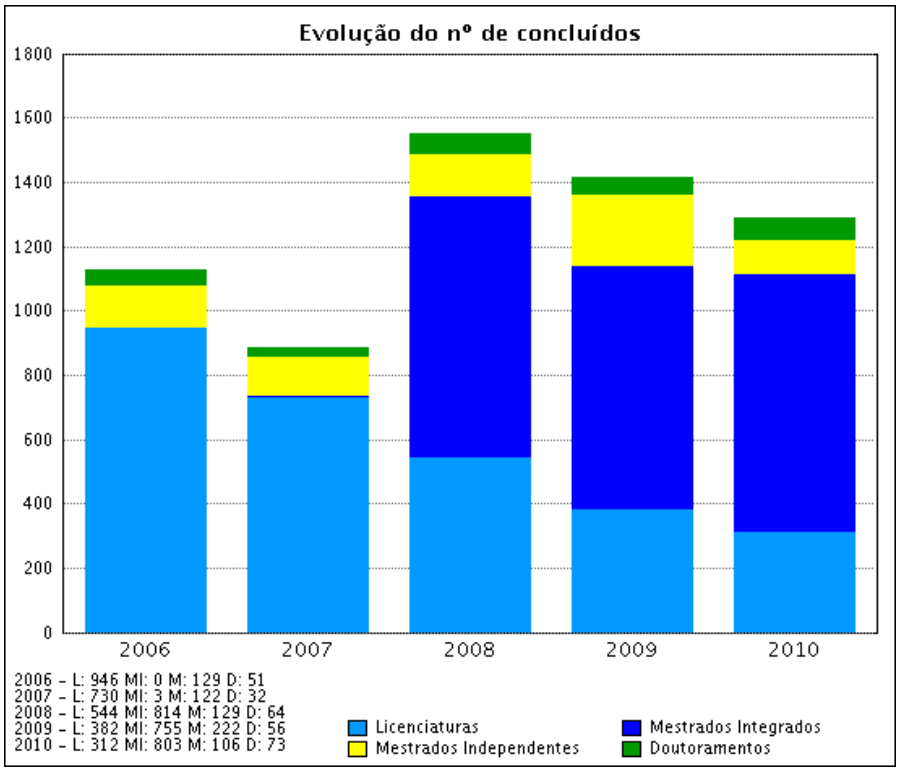

Figure 1.4 – Evolution of number of graduates per civil year, per programme

S1.4 - Address

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URL: http://www.fe.up.pt
e-mail: feup@fe.up.pt

INTRODUCTORY DATA ABOUT THE INSTITUTION:

PART B

S2 - Introductory data about the institution: Part B

Table 2.1 – Undergraduate Programmes - 2009/2010

Programmes	Registered Students	Teachers	Teachers w/ PhD
LCC - Licenciatura in Communication Sciences: Journalism, Public Relations, Multimedia	290	2	1
LCEEMG - Licenciatura in Engineering Sciences - Mining and Geo-Environmental Engineering	66	22	18
LCINF - Licenciatura in Information Science	74	15	8

Table 2.2 – Integrated Master Programmes - 2009/2010

Programmes	Registered Students	Teachers	Teachers w/ PhD
MIB - Master in Bioengineering	121	88	73
MIEA - Master in Environmental Engineering	232	75	64
MIEC - Master in Civil Engineering	1442	122	89
MIEEC - Master in Electrical and Computers Engineering	1467	162	114
MIEIC - Master in Informatics and Computing Engineering	688	91	67
MIEIG - Master in Industrial Engineering and Management	353	74	51
MIEM - Master in Mechanical Engineering	946	117	80
MIEMM - Master in Metallurgical and Materials Engineering	140	21	16
MIEQ - Master in Chemical Engineering	377	72	58

Table 2.3 – 2nd Cycle Programmes - 2009/2010

Programmes	Registered Students	Teachers	Teachers w/ PhD
MCI - Master in Information Science	53	18	11
MDI - Master in Industrial Design	38	18	9
MEB - Master in Biomedical Engineering	35	28	25
MEMG - Master in Mining and Geo-Environmental Engineering	22	17	15
MESG - Master in Services Engineering and Management	55	26	17
MESHO - Master in Occupational Safety and Hygiene Engineering	103	16	13
MIET - Master in Innovation and Technological Entrepreneurship	48	15	5
MM - Master in Multimedia	78	20	15

Table 2.4 – 3rd Cycle programmes - 2009/2010

Programmes	Registered Students	Teachers	Teachers w/ PhD
DEGT - Doctoral Program in Transport Engineering and Management	12	8	8
DEIG - Doctorate in Industrial Engineering and Management	2	0	0
DLIT - Doctoral Program in Leaders for Technological Industries	13	37	9
MAP-T - Doctoral Program in Telecommunications	31	8	7
PDEEC - Doctoral Program in Electrical and Computer Engineering	48	32	29
PDEMGR - Doctoral Program in Mining and Geo-Resources Engineering	1	3	3
PDEMM - Doctoral Program in Metallurgical and Materials Engineering	3	5	5
PDEQB - Doctoral Program in Chemical and Biological Engineering	30	24	23
PDERPQ - Doctoral Program in Engineering of Refining, Petrochemistry and Chemistry	11	0	0
PDMA - Doctoral Program in Applied Mathematics	21	0	0
PDMAPI - Doctoral Program in Computer Science	40	0	0
PDMD - Doctoral Program in Digital Media	17	10	8
PDSSE - Doctoral Program in Sustainable Energy Systems	7	12	11
PRDEIG - Doctoral Program in Industrial Engineering and Management	27	19	18
PRODEB - Doctoral Program in Biomedical Engineering	17	24	21
PRODEC - Doctoral Program in Civil Engineering	63	71	68
PRODEF - Doctoral Program in Physics Engineering	1	4	4
PRODEI - Doctoral Program in Informatics Engineering	31	22	21
PRODEM - Doctoral Program in Mechanical Engineering	45	45	42

INTRODUCTORY DATA ABOUT THE INSTITUTION:

PART C

S3 - Introductory data about the institution: Part C

S3.1 - Summary of institution's history

The teaching of Engineering in Portugal had its origins in the early Nautical School (*Aula Náutica*), by decree of 30 July 1765. The city of Porto was an important shipping and trade center, and the mercantile spirit of its inhabitants was early developed. However, those were very troubled times: trade was being adversely affected by pirates hiding along the shores of North Africa who plundered ships carrying goods.

To solve this problem, Porto businessmen (*Homens de Negócio da Praça do Porto*) asked the King's permission to build, at their own expense, two frigates of 24 and 30 guns to protect the fleets sailing from the city to the ports in America. Shipbuilding required men capable of commanding and manoeuvring the vessels, and thus the Nautical School was founded in Porto.

The Nautical School was later replaced by the Polytechnic Academy, created in Porto by decree of 13 January 1837. It was tasked with the training of engineers, naval officers, pilots, traders, farmers, factory managers and artists.

By decree of 21 July 1885, programmes in Civil, Mining and Industrial Engineering were established, as well as the higher education programme in Commerce, all of them with the duration of six years: four of preliminary studies and two of specialization.

This Academy also prepared students for the Army, Naval, Medical and Pharmacy Schools. After the establishment of the Republic, the first government carried out a reform of higher education, reforming the University of Coimbra and creating two new Universities with pedagogic and administrative autonomy in Lisbon and Porto.

This reform changed the Polytechnic Academy, where Engineering was first taught in Portugal, into the Faculty of Sciences, which included the School of Engineering. This situation led to the protests of Porto professors, voiced by the city representatives, which led to the publication of Law no. 410 of 1915, turning the School of Engineering into an autonomous Technical Faculty. This same law determined the organization of the programmes into Mining, Civil, Mechanical, Electrical and Chemical-Industrial Engineering.

The organization of these programmes was reviewed by legislation published on 30 November 1918 and on 29 January 1921. Decree no. 18739, of 26 July 1930, determined the organization of the programmes taught in the form then on named *Faculdade de Engenharia da Universidade do Porto* (Faculty of Engineering of the University of Porto).

Celebrating the 100th anniversary of the Polytechnic Academy, the building at Rua dos Bragas was inaugurated in 1937.

Decree no. 40378, of 14 November 1955, determined the organization and curricula of the Engineering programmes taught in Portuguese Universities (Mining, Civil, Mechanical,

Electrical and Chemical-Industrial Engineering). This decree established a single, mandatory plan of studies for Engineering programmes taught in the Faculty of Sciences and the Higher Technical Institute (for the first three years), and in the latter and UP's Faculty of Engineering (for the remaining three years). The education reform of 1970 introduced important changes to the organization of Engineering programmes, which were shortened to five years, and schools were given the autonomy to design their own curricula.

In 1974, the Faculty of Engineering took over the teaching of the five years of its undergraduate programmes, the first two years no longer being tasked to the Faculty of Sciences.

Figure 3.1 - FEUP's former facilities at Rua dos Bragas

Meanwhile, in 1970, the undergraduate programme in Metallurgical Engineering had been created, later named Metallurgical and Materials Engineering. More recently, the undergraduate programmes in Management and Industrial Engineering (1990) and in Informatics and Computing Engineering (1994) were created. Nowadays, FEUP offers nine integrated master programmes and three licentiateship in engineering science.

In 1988, the publication of the law on University Autonomy allowed the Faculty of Engineering to vote on its first Statutes, which sanctioned its administrative, financial and pedagogic autonomy.

Postgraduate education is also one of the areas in which FEUP has invested substantially since the creation of its first Master's programme in 1981. From then on, several programmes have been created at this level of study, now numbering eleven Master programmes and covering several branches of Engineering. Furthermore, all of FEUP's departments offer Doctoral degrees in their corresponding scientific fields and FEUP also offers Doctoral degrees in the interdisciplinary fields of Engineering and Engineering Sciences.

The former FEUP facilities, with a net area of about 30,000 m2, were limited, given the number of students and teaching and non-teaching staff working there.

The new facilities located in University of Porto's Campus II have almost three times the previous area with incomparably superior conditions and quality, providing a confident outlook for the future.

Figure 3.2 - Panoramic view of campus from the Library building

S3.2 - Description of main premises

FEUP occupies its current premises, since October 2000. It is a newly-built campus located in the Asprela, at northeast of Porto, with ca. 90 000 m2 of built area. This deployment is roughly divided by 46 % for laboratories, 19 % for classrooms, 19 % for offices, 7 % for the Main Library, 4 % for Administrative Services, 2 % for Social Services, 2 % for the Students Association and 1 % for the Computer Centre. Regarding the classrooms, there are 35 amphitheatres, ranging from 56 to 184 seats, 41 tutorial rooms, ranging from 18 to 40 seats, 25 computer classrooms, among which 17 with less than 20 personal computers and 7 with more than 20 personal computers.

Table 3.1 – FEUP campus deployment description

Resources (2009)	
Campus area	84 400 m^2
Greenway	23 000 m^2
Building deployment area	25 838 m^2
Departments	9
Teaching laboratories	77
Computers for classes	1200
Investment in laboratory equipment	1,14 M€

Since its inauguration, 5 new buildings were added to the campus, namely, the University Canteen, the INESC (Interface Institute for Systems and Computer Engineering of Porto), the Cafeteria, the Student's Association and the INEGI (Interface Institute of Mechanical Engineering and Industrial Management).

The Main Library occupies a separate 7 floors building, with a total surface of 5 400 m^2. It provides high quality conditions, with 600 seats for students and researchers. It has individual spaces for reading, areas for team work and multimedia areas. It has more than 60 000 text books, it subscribes the paper version of more than 500 scientific journals and it has online access to more than 21 000 titles. It supports the access to multiple important data bases in Engineering (El Compendex, Inspec, Iconda, Current Contents, accessible via intranet). It also

provides access to e-books from renowned publishers / distributors (Ebrary, Knovel, Referex Engineering, Safari Tech Books Online). There is a unanimous opinion that the Library services provide an excellent environment for learning activities.

The Computer Centre (CICA – Centro de Informática Correia de Araújo) ensures the operability of computer resources and services and communication networks for the entire community of FEUP, promoting their use and innovation. It manages a wired network (FEUPnet) of 4Gbit/s, 6 000 access points, allowing secure remote access via phone connections, and a wireless network covering more than 95 % of the built space. It provides and maintains a universe of more than 1 000 personal computers for students, spread along more than 20 tutorial classrooms, study rooms, and examination rooms. In addition, it provides assistance to student and researcher laptops. Taking advantage of the existing wireless network, the integration of personal laptops exponentially increases the number of connected machines. Additionally, there is a large number of teaching and research laboratories, spread by the FEUP Departments and Interface Institutes, that also benefit from the networking infrastructure managed by the Computer Centre. Generally speaking, it may be said that there is a good adequacy of the networking infrastructure required for teaching / learning / researching.

Additionally, FEUP also provides multiple convenience spaces, such as: 2 restaurants, 2 snack-bars, 1 cafeteria, 1 canteen, 1 bookshop, 1 newspapers shop, 1 computer shop, 1 copy-center, 3 ATM machines, multiple photocopy machines and printers widely available to students and researchers, etc.

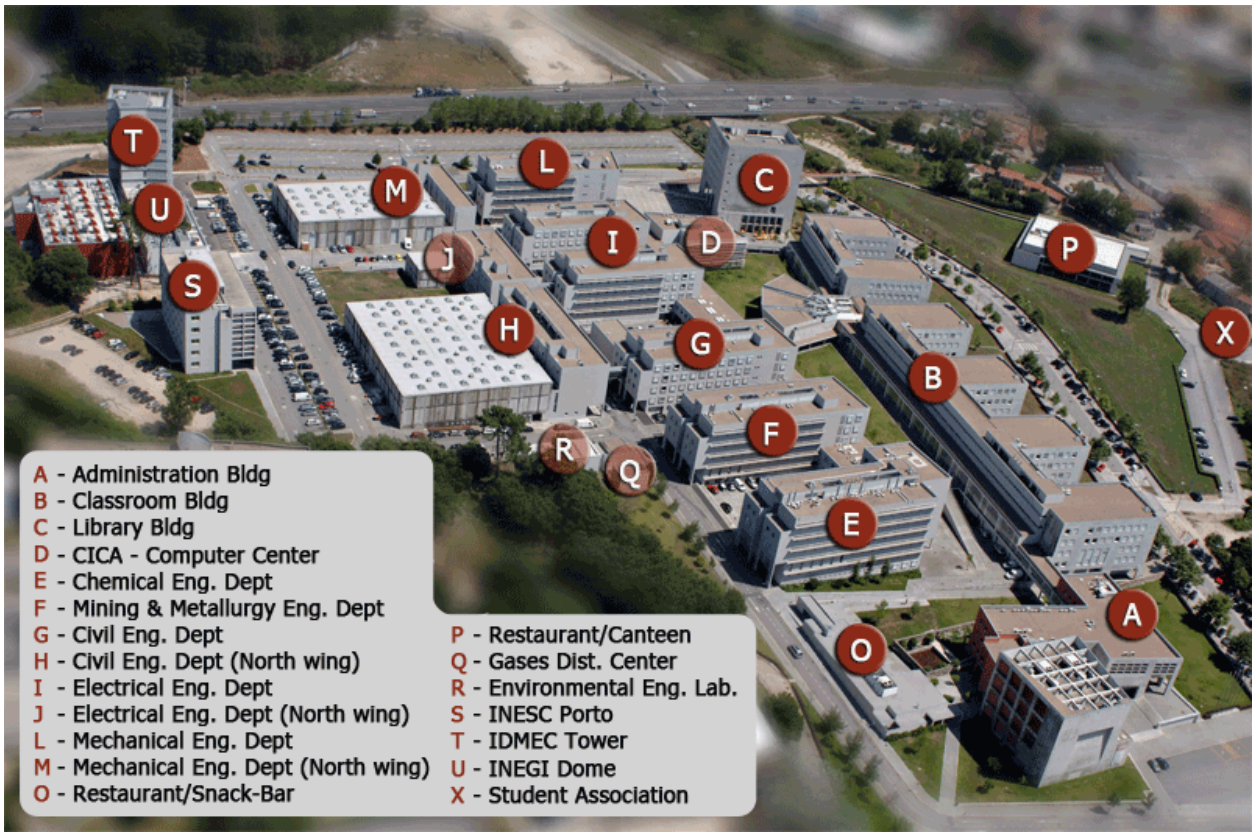

Figure 3.3 – FEUP's Campus aerial view

COURSE FORMALIZATION

PR1

S4 - Course formalization - PR1

S4.1 - Proof of course's legitimacy

The MIEIC course was given official backing by the "Direcção Geral do Ensino Superior", according to the "Despacho n.º 14 437/2006[1]" published in "Diário da República, n.º 130—7 de Julho de 2006". Its structure is in accordance with University Resolution no. 1835/2009 published in "Diário da República, 2ª série — n.º 123 — 29 de Junho de 2009[2]", wich amended the University Resolution no. 1092 /2006 published in "Diário da República, 2ª série—n.º149—3 de Agosto de 2006[3]".

The official documents are available in the Annex A – Legal Documentation.

[1] https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=110607&pv_cod=12aq7Nes7Jar
[2] https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=111914&pv_cod=13zaQj5DWjaG
[2] https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=111914&pv_cod=13zaQj5DWjaG
[3] https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=111913&pv_cod=13as5NhwaNa5

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HEI STRATEGY CONCERNING THE COURSE

R1

S5 - HEI strategy concerning the course R1

S5.1 - Historical roots of the course

This degree currently takes the form of an Integrated Masters in Informatics and Computing Engineering (MIEIC – Mestrado Integrado em Engenharia Informática e Computação), and was created in 2006. However, the origins of this course date back to 1994/1995, with the first appearance of the "Licenciatura" (Licentiateship) in Informatics and Computing Engineering (LEIC), complemented, in 2003, with the Masters Degree in Informatics Engineering (MEI), and, in 2005, with the Doctoral Program in Informatics Engineering (PRODEI).

A core objective in the original proposals of the aforementioned degrees, particularly LEIC, was to produce graduates highly proficient in the development, usage and maintenance of computer applications, with an inherent aptitude towards effective communication with other colleagues and partners in the several areas of engineering, by sharing with them basic training in mathematics and engineering sciences, according to the recommendations of key relevant professional organizations. Since graduates would need to act in a multitude of professional markets, a flexible and multi-disciplinary knowledge of the field was considered to be a valuable attribute. For that purpose, the LEIC syllabus was deliberately designed to enhance these characteristics by adding, to the usual body of knowledge in the specific areas of informatics engineering, other lines of education, typically required by these professionals. Among such additional knowledge are the concepts and practices of management, which further enhance the understanding of problems in this area, and prepare students to undertake activities with higher levels of responsibility within organizations.

The growing need to deepen knowledge in an ever-changing field such as informatics, and at the same time increase the scientific and technical rigour directly targeted to scientific research and the subsequent pursuit of such careers, led to the design of MEI - Masters in Informatics Engineering. The close link between the teaching community and R&D centres and laboratories, enabled the formation of a high quality scientific framework, which has remained until this day, in MIEIC.

During regular operation of these degrees, there has been a permanent concern to follow closely the needs of the labour market, and make appropriate adjustments to the curricula in order to continuously address any flaws detected. The globalization of the labour market is particularly apparent in the field of informatics/computer science and, as such, MIEIC graduates are expected to be able to work for any national or international company or institution.

LEIC was subject to two external evaluations in 2002: the level of assessment undertaken by FUP (Portuguese Universities Foundation), placed LEIC at the top of the national-level ranking, in the group of degrees named "Systems and Computation Engineering, Informatics Engineering and Informatics"; LEIC was also highly rated by the Order of Engineers ("Ordem dos Engenheiros") during a similar evaluation performed under the aegis of its "College of Informatics Engineering".

Since 2002, a quality assurance system in these degrees has been implemented incrementally, with particular concern to the following aspects of monitoring: (1) the student's performance, (2) the teaching faculty's performance, (3) the curricula and syllabi, (4) the students' workload, and (5) internships and Masters dissertations. In this regard, it is worth highlighting the remarkable success of internships and Masters undertaken in industrial environments. The effects of the implementation of this quality assurance are evident in the increasing interest and quality of newly enrolled students, as well as in the rising number of both national and international industrial proposals and invitations for internships and Masters dissertations projects. As an example of such recognition, we can cite proposals and successful activities carried out in the Centre of Software Development at Microsoft Denmark and in the European Organization for Nuclear Research (CERN).

MEI, the forerunner the Masters in Informatics Engineering, had a duration of 3 terms (6 months each), and was designed as a means of deepening students' knowledge of nuclear engineering and advanced computing, including their theoretical foundations, allowing for specialization in areas of great relevance. Despite the existence of these well-defined areas of expertise, MEI was deliberately designed not to exclude the possibility of students selecting their own choices, adapted and tailored to their personal and professional goals, and thus ensuring a high level of flexibility in the degree. This quality can be observed in the dissertations produced hitherto, which exhibit a high degree of linkage between practical industrial needs and the rigour of technological and scientific production.

In 2005, LEIC underwent a major reformulation of its curricula, leading to the course currently known as MIEIC in 2006, as a result of the fusion of LEIC and MEI into a five-year degree aligned with the due implementation of the Bologna Process. A new reformulation of the syllabus took place in 2009/10, and this will extend until 2011/12, when it will assume its final shape. The intended changes are both a result of a re-arrangement of the mandatory courses, in order to further improve the rationale behind the lecturing sequence in the topics involved, and an expansion of the Bologna process, which aims towards an increased use of multi-disciplinary laboratories, supported by appropriate software development methodologies. The reformulation also includes a rearrangement of the optional courses, now limited to two terms, and the elimination of the Internship/Project at the end of the course of studies, thus requiring the students to take a mandatory, one-term course, on Dissertation Planning, followed by a formal Masters dissertations to be undertaken in one semester. Completion of the first 3 years (1st cycle, 180 ECTS) awards students a Bachelor's (First) degree Diploma ("Licenciatura" or Licentiateship) in Engineering Sciences, with emphasis on Informatics and Computing. Completion of the 5 years (1st + 2nd cycle, 300 ECTS) awards students a Masters degree in Informatics and Computing Engineering.

S5.2 - Special features of the course compared with others of a similar nature

The fundamental objective of the Integrated Masters Degree in Informatics and Computing Engineering (MIEIC) is to prepare students to be able to start a professional career in both practical and research activities in the various areas of informatics or related fields. As such, it is structurally organized according to a phased and integrated approach with the following general aims:

- To provide a solid base of scientific and engineering knowledge, essential for interacting with other engineering specialties, and supporting higher level professional practice.
- To provide a solid and specialized training and education, enabling the conception, specification, design and implementation of products, processes and services, based on computers, computations and information technologies.
- To stimulate the acquisition and training of soft skills like creative attitudes and capabilities, critical mind, leadership and team work.
- To stimulate the spirit of entrepreneurship and innovation, risk assessment and opportunity exploitation.
- To provide process management learning, boosting quality and productivity, and optimizing resources.
- To provide the required level of learning and training in order to award the professional title of Engineer from the appropriate internationally recognized institutions.

At the end of the first three years (1st cycle) the students must have acquired a solid base education not only comprising the essential scientific and engineering skills, but also a broad, fundamental, non-specialized knowledge in several domains of informatics. This first stage should be seen essentially as providing a level of mobility to, and from, other national and European universities and educational institutions.

After concluding the five-year integrated cycle, graduates should have gained an advanced level of education in Informatics and Computing Engineering, comprising a specialization area or a deep knowledge of a broader range of interests. In the last two years, students are offered a wide choice of optional courses, which is individually configured according to their own personal aspirations.

Depending on the set of optional courses selected, a student may be assigned a specialization from among the following:

- Software Engineering and Information Systems (divided into two subareas with the same name);
- Intelligent Systems and Multimedia (divided into two subareas with the same name);
- Networks and Information Technologies (divided into Internet Technologies and Information Infrastructures subareas).

S5.2.1 - Educational and professional objectives

Among the multiple job functions and career opportunities open to MIEIC graduates, the following are worthy of special mention:

- Information systems architecture, design and conception
- Administration and management of informatics systems or centres
- Design and development of systems and applications
- Informatics project management
- Consultancy and auditing
- Research and technological development

Typical FEUP Informatics Engineers employers include:

- Software development enterprises
- Information service providers
- Banks, finance and insurance companies
- Companies with their own information centres, such as transport, distribution, logistics, etc.
- Research and development institutions

S5.3 - Competitive Advantages

- The admission of students, except for the 1st year of the First Degree ("Licenciatura") and Integrated Masters Degree courses, is directly organized by FEUP, by means of a selection process involving, at least, a curriculum review and an interview, thus facilitating selection of the most able students.
- The graduate profile is defined according to lists of skills obtained from accredited international organizations and from the contributions of external entities, particularly from those linked to the business world, participating in several discussion forums.
- The establishment of a direct link between graduate profiles and teaching methodologies used in educational processes.
- The existence of structures for psychological support, as well as activities designed to integrate new students and actions intended to build academic success among the students.
- The great majority of teachers have a full-time and exclusive commitment to the faculty and undertake research activities integrated in related R&D units.
- The existence of an active policy at FEUP, to train teachers in new teaching methods, with regular organization of seminars given by national and international experts, with a high level of teacher participation.
- The gradual increase in the requirements used for progress in an academic teaching career, both in terms of the criteria required for obtaining "Tenure" and eligibility to apply for Associate Professor and Full Professor.
- The standardization of criteria for candidate assessment, in the selection of Associate Professor and Full Professor, and the need to clarify the weighting factors for each criterion, in the application regulations.
- The good quality of installations, housed in buildings of recent construction and of an appropriate size.
- The existence of a systematic investment policy in the field of Information and Communication Technologies (ICT), particularly, in terms of network equipment and in the renewal of hundreds of personal computers in laboratories and other classrooms.
- The existence of a favourable context for involvement in international networks for higher education and research (ERASMUS and others).
- The establishment of regional partnerships at the 3rd cycle level (doctorates and advanced training).
- The possibility of having pluriannual contracts in a foundational context (RJIES).
- The Exploitation of the potential existing in the markets of emerging economies.

- Quality assurance in the evaluation of curricula, due to a very thorough procedure normally used to propose the establishment, modification, termination and evaluation, with many steps and multiple participants.
- Robust procedures for an evaluation of the teaching/learning process, through performance assessment of students and of teachers in the classroom (carried out by students).
- Integration of the students in research environments, and encouragement of both creativity and innovation in the projects they undertake.
- Systematic evaluation of the integration and professional development of graduates by FEUP.
- Almost all teaching processes and the great majority of administrative processes are computerized.
- The average time taken by MIEIC graduates to find employment is roughly one month.

S5.4 - Threats

- Selection and recruitment of students for the 1st year is done, primarily, through a national application process, organized by CNAES (National Committee for Higher Education Access). FEUP only helps in the definition of some criteria for selection.
- FEUP's present system of assessing graduates' integration and professional development may still be considered inadequate, in terms of its potential contribution to attracting better students.
- The lack of specific support for the social integration of international students, namely those from PALOPs, particularly in terms of the teaching of the Portuguese language and culture, and access to scholarships.
- The language used for teaching makes it difficult to attract foreign students, especially from European countries.
- The existence of a high level of "inbreeding", noting that 63.8% of FEUP teachers received their PhD from FEUP, and a low level of internationalization of teaching staff, although the most recent application rounds show a clear trend towards a greater openness to the recruitment of teachers with external PhD education.
- The age profile of the teaching staff is heavily concentrated in the 45-60 age group, apart from the current legal framework, could limit the opportunity of renewal of teaching staff in the medium term.
- The lack of a systematic assessment of the effectiveness of in-house teacher training and its impact on performance (there is only an assessment of the level of satisfaction at the end of each training activity).
- There are some problems in the classrooms, in terms of space, availability, acoustics, environmental comfort and fitness for new teaching and learning concepts in the Engineering fields.
- The lack of university residences, in sufficient number to meet student demand, particularly of postgraduate international students.
- The need for more computer rooms with a sufficiently large number of seats prepared for classes and examinations.
- A student mobility context, adjusted to the European higher education system (Bologna), in which the more developed countries attract many of our best students.

- A potential loss in terms of FEUP's autonomy, as a result of UP reorganization.
- The low technological level (albeit increasing) and contraction of regional business, currently registered.
- An unfavourable national demography (low birth rate).
- The complexity of the procedures, followed to propose the establishment, modification, termination and evaluation of curricula, which make it a heavy task, particularly in degree courses where partner institutions are involved.
- The lack of a systematic mechanism to analyse the possibilities of resource sharing (for example, the use of units from other FEUP curricular programmes).

S5.5 - Programme Sustainability

Within the framework of the Bologna Process, in 2006 FEUP undertook an overall sustainability study for all the Programmes it had on offer. At that time, the total financial resources of FEUP were 40.6 M€, 71% of those coming from the State Budget (OE) and 29% from its own revenues (RP). Between 2002 and 2006, the OE component grew 14% and the RP component grew about 30%. Throughout this period, a major effort was made to improve FEUP's economic and financial indicators, and consequently the net revenue evolved from 0.16 M€ to 4.4 M €. At the present time (as of 2009), the OE represents 68% of the revenue, totalling 33,9M€, while the RP total is 16 M€. From 2006 onwards, the OE grew 18% while the RP showed an increase of 34%.

Despite this relatively comfortable financial situation, it was necessary to contain expenses, due to the budget cuts that occurred in 2007. A study was then carried out to estimate how income and expenses had evolved over a five year period, the results providing a framework for the preparation of business plans and budget cuts for both FEUP's Departments and Services in 2007.

Currently, additional inquiries regarding the efficiency of the programmes (from the economic and academic perspective) are underway, and analytical models are being developed to further assist in the assessment of economic performance for each programme.
Such models take into consideration performance indicators such as i)ECTS efficiency, ii) graduate efficiency, iii) accumulation capacity and iv) success rate to account for academic efficiency. They also take into consideration i) direct costs (human resources, programme costs, etc.), ii) indirect costs (support services, infrastructures, and so on), iii) revenue from OE and student fees, among others, to account for economic efficiency. As this study is not complete and the models are not fully developed and validated, it is prudent not to present any results of such indicators.

Over the years, FEUP has tried to strengthen its self-financing capacity and this is one of its strategic objectives[4] (SO). Noteworthy in this area are: Financial Resources Management (SO no.4); the Bridge to Business and Industry (SO no.5); and the School's Brand Image Promotion (SO no.7). However, despite these efforts, the amount gathered by this source of financing was reduced by 3% and 2% in 2005 and 2006 respectively, when compared with previous years. . In

[4] FEUP's Strategy Plan:
https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=47875&pv_cod=37caaSkaEarE

2008, in the midst of an adverse economic environment, the net results plunged -3M€[5], mostly due to the increase in personnel costs (10%) and the reduction of RP(9%). Nevertheless, recovery came shortly afterwards in 2009, with a positive increase of 4M€, thus achieving a positive net result of 1M€[6].

The transfer of funds from FEUP's budget to the departmental budgets follows the same rules that are used to transfer funds from the UP to the faculties. That is, each department receives funds according to the number of students it serves. This number is evaluated on the basis of the teaching service that each department provides to different FEUP programmes. If the department budget grows above that amount a convergence plan may be implemented. Presently, there is a set of performance indicators common to several departments, which include items such as: service distribution, scientific productivity, ability to attract new funds, new students and so forth, which are the basis for gauging each department's health.

S5.5.1 - Economic and Financial Study

S5.5.1.1 - Methodology

The analysis of the financial viability of FEUP programmes was made (in 2006) considering the numerus clausus of current undergraduate programmes and their rates of success. It allowed the Faculty to make an estimated forecast of the number of students who would be granted access within the next 10 years, the cost per teaching hour, the structural costs and the net revenue per student. Thus, if we consider that no major revision is necessary for the assumptions made below, or that no other indicator need be taken into account, this study could still be considered up-to-date and representative of the health of FEUP programmes.

S5.5.1.2 - Cost Structure

To determine the costs of operating the programme, FEUP's budget for the fiscal year 2005 was considered, divided into Departmental and Central Support Services operational costs. The Departments' expenses budget was in turn broken down in two tranches: teaching costs and all other costs. The average annual cost of a teacher is obtained from the consideration of the number of full-time equivalent teachers in service during that year.

It is necessary to separate expenses concerning teaching and research from development and technology transfer. Based on some internal indicators, we can assume that 70% of expenses are directly allocated to teaching activities. Note that the direct costs of the R&D&T activities do not constitute part of this budget. Another justification for such a large proportion of the budget devoted to education, particularly in the allocation of time/teaching costs, is based on a 35-hour working week. That number is clearly exceeded by the overwhelming majority of FEUP teachers. Broadly speaking, it can be said that much of the R&D&T work exceeds the 35 hour timetable, thus justifying the 70% allocation for teaching duties.

[5] 2008 Accounting Report:
https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=76333&pv_cod=37xraFgb5Ykp
[6] 2009 Accounting Report:
https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=91299&pv_cod=37HawaT7aaas

Educational expenses having been evaluated, these must be further divided into undergraduate education expenses (based on the financial sustainability study) and postgraduate education expenses, based on the number of students. The cost for each teacher is evaluated on a basis of a 9 hours per week teaching load (the FEUP average) and 30 teaching weeks per year. This figure must be updated every year by the addition of 2% for salary increases and increases of 2.5% for purposes of promotion and progression. Departments' operating costs, excluding teacher resources and the operating costs of central support services, are also updated to 2006 figures by assuming an inflation rate of 2%.

S5.5.1.3 - Income Structure

For the calculation of revenue per student (financial year 2006), the Government budget (OE) income for 2006 was considered, this being divided by the estimated number of graduate students. Given the previously agreed division between teaching and other activities, it was assumed that 70% of the funding is allocated via the OE directly to educational activities. This figure, when divided among FEUP programmes, based on their student numbers and the different student / teacher ratios, gives the revenue from the OE per graduate student. Finally, this value must be added to the registration fee ("propina") paid by each student.

S5.5.1.4 - Budget Model

The programme budget is based on the figures outlined above, particularly on teacher cost per teaching hour, structural cost per student and income per student. The total programme income is reached by multiplying the number of students by the income per student. However, the total programme costs require the calculation of two parcels. The first one is related to the structure costs that are also directly obtained from the student cost. The second one (the teacher cost) requires a more complex calculation, as it depends on the total number of teaching hours per programme. This value is obtained by intersecting the study plan (subjects and types of subject classes) with the number of students and also with the number of students per class.

S5.5.1.5 - Final Remarks

As is clear from the budget examination, each FEUP programme generates profit on a permanent basis, as long as it has a *numerus clausus* greater than 40 students (the Informatics and Computing Engineering programme, with a *numerus clausus* of 105 students, is clearly above this figure). This finding is in line with the economic and financial performance that can be consistently checked in FEUP's accounting system. This is mainly due to a very strict cost control policy implemented by FEUP management, which it is only possible to sustain with teachers who teach an average of 9 hours per week, working with a teacher/student ratio of 13.5.

It is also important to state that the implemented costs containment policy does not translate into a lower quality level at FEUP as research based institution, both as regards student learning process and levels of research attained. Overall, the evaluation of FEUP programmes and the levels of research activities generated have been ranked amongst the top positions as regards the national assessment systems.

COOPERATION WITH OTHER INSTITUTIONS

R3

S6 - Cooperation with other institutions - R3

S6.1 - Protocol & partnership agreements with other institutions/organizations

S6.1.1 - ERASMUS and Other Programmes

The following table lists the Institutions which the Integrated Master Programme has protocols to exchange students, under the ERASMUS programme and other exchange protocols.

Table 6.1 – Exchange protocols

Institution		Positions				
Country	Name	Total	Available	Month/Student	Degree	Area
Austria	TECHNISCHE UNIVERSITÄT WIEN	2	0	5	Master	Informatics, Computer Science
Belgium	Universiteit Gent	1	1	9	Master	Informatics, Computer Science
Brazil	Universidade Regional de Blumenau	2	2	5	Master	Informatics, Computer Science
	Fundação Valparaibana de Ensino/ Universidade do Vale do Paraíba	2	2	5	Master	Informatics, Computer Science
	Pontifícia Universidade Católica de Campinas	2	2	5	Master	Informatics, Computer Science
	Pontifícia Universidade Católica de Minas Gerais	2	2	5	Master	Informatics, Computer Science
	Pontifícia Universidade Católica do Paraná	2	2	5	Master	Informatics, Computer Science
	Pontifícia Universidade Católica do Rio Grande do Sul	2	0	5	Master	Informatics, Computer Science
	Universidade de Caxias do Sul	2	2	5	Master	Informatics, Computer Science
	Universidade do Estado de Santa Catarina	2	2	5	Master	Informatics, Computer Science
	Universidade do Estado do Amazonas	2	2	5	Master	Informatics, Computer Science
	Universidade Estadual de Maringá	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de	2	2	5	Master	Informatics,

Table 6.1 – Exchange protocols

Institution		Positions				
Country	**Name**	**Total**	**Available**	**Month/Student**	**Degree**	**Area**
	Alagoas					Computer Science
	Universidade Federal do Amazonas	2	2	5	Master	Informatics, Computer Science
	Universidade Federal do Ceará	2	2	5	Master	Informatics, Computer Science
	Universidade Federal do Espírito Santo	2	2	5	Master	Informatics, Computer Science
	Universidade Federal Fluminense	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Goiás	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Juiz de Fora	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Mato Grosso	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Ouro Preto	2	2	5	Master	Informatics, Computer Science
	Universidade Federal da Paraíba	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Pernambuco	2	2	5	Master	Informatics, Computer Science
	Universidade Federal do Piauí	2	2	5	Master	Informatics, Computer Science
	Universidade Federal do Rio de Janeiro	2	2	5	Master	Informatics, Computer Science
	Universidade Federal do Rio Grande do Norte	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Santa Catarina	0	0	5	Master	Informatics, Computer Science
	Universidade Federal de Santa Catarina	2	0	5	Master	Informatics, Computer Science
	Universidade Estadual Paulista Júlio Mesquita	2	2	5	Master	Informatics, Computer

Table 6.1 – Exchange protocols

Institution		Positions				
Country	**Name**	**Total**	**Available**	**Month/Student**	**Degree**	**Area**
	Filho					Science
	Universidade Estadual de Campinas	2	2	5	Master	Informatics, Computer Science
	Universidade Federal de Itajubá	2	2	5	Master	Informatics, Computer Science
	Universidade de Fortaleza	2	2	5	Master	Informatics, Computer Science
	Universidade Regional do Noroeste do Estado do Rio Grande do Sul	2	2	5	Master	Informatics, Computer Science
	Centro Universitário UNIVATES	2	2	5	Master	Informatics, Computer Science
	Universidade de Pernambuco	2	2	5	Master	Informatics, Computer Science
	Universidade Regional Integrada do Alto Uruguai e das Missões	2	2	5	Master	Informatics, Computer Science
	Universidade de São Paulo	2	2	5	Master	Informatics, Computer Science
Germany	Georg Simon Ohm Fachochschule Nürnberg	2	0	5	Master	Informatics, Computer Science
Denmark	University College Vitus Bering Denmark	1	0	5	Licentiateship / Master	Informatics, Computer Science
Spain	Universitat Politècnica de Cataluña	2	0	5	Licentiateship / Master	Informatics, Computer Science
	Universidad de Jaén	1	1	5	Master	Informatics, Computer Science
	Universidad Politécnica de Madrid	2	0	5	Master	Informatics, Computer Science
	Universidad de Santiago de Compostela	1	0	9	Master	Informatics, Computer Science
	Universidad Politecnica de Valencia	1	0	5	Master	Informatics, Computer Science
France	Institut National des Sciences Appliquées de Toulouse	2	0	5	Master	Informatics, Computer Science

Table 6.1 – Exchange protocols

Institution		Positions				
Country	**Name**	**Total**	**Available**	**Month/Student**	**Degree**	**Area**
Hungary	BUDAPESTI MUSZAKI ES GAZDASAGTUDOMANYI EGYETEM	2	0	5	Master	Informatics, Computer Science
Italy	Università Degli Studi di Ferrara	2	0	5	Master	Informatics, Computer Science
	Sapienza Università di Roma	2	0	5	Master	Informatics, Computer Science
The Netherlands	Technische Universiteit Delft	2	0	5	Master	Informatics, Computer Science
Poland	Uniwersytet Lódzki	2	0	5	Master	Informatics, Computer Science
Slovakia	Zilinska univerzita v Ziline	2	0	5	Master	Informatics, Computer Science
United Kingdom of Great Britain and Northern Ireland	CRANFIELD UNIVERSITY	2	2	10	Master	Informatics, Computer Science

S6.1.2 - ERASMUS Internships (student OUT)

Under the ERASMUS programme, it is possible for students to perform their final graduation work, earlier internships/projects and now a master dissertation, in an industrial or R&D environment out of the country.

In MIEIC, some contacts with such institutions are maintained so this kind of movements is still possible, opening the students scientific and cultural minds.

In spite of some difficulties that an external work adds to the problem, a few students have been, in the last years, doing their final works in this context, and it is strategic to MIEIC to increase this number. The correspondent list of the last two years follows.

Table 6.2 – Erasmus internships

Partner	2008/2009	2009/2010	Total
EDF Energy	1		1
Procter and Gamble	1		1
TamTam	1		1
Technische Universiteit Delft		2	2
Total	3	2	5

S6.1.3 - Corporate and ERASMUS Dissertations (2009/2010)

Table 6.3 – Corporate and ERASMUS dissertations

Course	Students enrolled in Dissertation	Dissertations in corporate environment	(%)	Dissertations under Mobility Programmes	(%)
MIEIC	106	50	47,2	4	3.8
FEUP	977	235	24,1	40	4,09

S6.1.4 - Partnership agreements with corporations

Here are shown the partnership and cooperative agreements established by the department(s) involved in the Integrated Master Course in the past years (2000-2011).

Table 6.4 – Partnership agreements with corporations in the past few years

Corporate partner	Collaboration type	Year	Convention	contract	Protocol	Total
Acronym - Informação e Tecnologia, Lda. / FEUP	Dissertation	2010		1		1
Alert Life Sciences Computing, S.A.	Dissertation	2010		1		1
Associação Fraunhofer Portugal Research / FEUP	Dissertation	2010		1		1
Auditmark, Lda. / FEUP	Dissertation	2010		3		3
Banco BPI, S.A. / FEUP	Dissertation	2010		1		1
Biblioteca Municipal de Espinho / FEUP	Dissertation	2010		1		1
Cardmobili Desenvolvimento de Software, S.A. / FEUP	Dissertation	2010		1		1
ComTest.pt - Associação Portuguesa de Testes de Software / FEUP	Collaboration	2010	1			1
CPCis, S.A. / FEUP	Dissertation	2010		2		2
CreativeSystems - Sistemas e Serviços de Consultoria, Lda. / FEUP	Dissertation	2010		1		1
Critical Manufacturing, S.A. / FEUP	Dissertation	2010		1		1
EDP - Distribuição de Energia, S.A. / FEUP	Dissertation	2009		1		1
EFACEC - Engenharia, S.A. / FEUP	Dissertation	2010		1		1
EFACEC CAPITAL, S.G.P.S. S.A. / FEUP	Collaboration	2010			1	1
Enigma Virtual Lda. / FEUP	Collaboration	2010			1	1
FCCN - Fundação para a Computação Científica Nacional / FEUP	Dissertation	2010		1		1
Fundação Cupertino de Miranda / FEUP	Dissertation	2010		1		1
Glintt - Healthcare Solutions, S.A. / FEUP	Dissertation	2010		2		2

Table 6.4 – Partnership agreements with corporations in the past few years

Corporate partner	Collaboration type	Year	Convention	contract	Protocol	Total
I2S Informárica - Sistemas e Serviços, S.A. / FEUP	Dissertation	2010		3		3
INEGI - Instituto de Engenharia Mecânica e Gestão Industrial / FEUP	Dissertation	2010		2		2
INESC - Instituto de Engenharia de Sistemas e Computadores do Porto / FEUP	Dissertation	2010		9		9
INOVAMAIS - Serviços de Consultadoria em Inovação Tecnológica, S.A. / FEUP	Dissertation	2010		1		1
Liga Portuguesa da Futebol Profissional / FEUP	Dissertation	2010		1		1
Media, Objects and Gadgets - Soluções de Software e Hardware, S.A. / FEUP	Dissertation	2010		1		1
Microsoft / FEUP	Internship	2009	1			1
Mog Technologies, S.A. / FEUP	Dissertation	2010		1		1
MSFT - Software para Microcomputadores, Lda / FEUP	Dissertation	2010		2		2
MULTICERT / FEUP	Dissertation	2010		1		1
NBO - Recursos em Tecnologias de Informação, S.A. / FEUP	Dissertation	2010		1		1
People's Conseil - Tecnologias de Informação, Lda. / FEUP	Dissertation	2010		2		2
Pictonio, Lda. / FEUP	Dissertation	2010		1		1
Portugal Telecom Inovação, SA / FEUP	Cooperation / Dissertation	2009			1	1
Portugalmail - Comunicações, S.A. / FEUP	Dissertation	2010		1		1
PT - Sistemas de Informação, S.A. / FEUP	Dissertation	2010		2		2
SONAE CENTER SERVIÇOS II, S.A. / FEUP	Dissertation	2010		1		1
Sonae Indústria SGPS, S.A. / FEUP	Dissertation	2010	1			1
Strongstep Innovation in	Collaboration/Dissertation	2010			1	1
Software Quality, Lda. / FEUP	Dissertation	2010		1		1
Ubiwhere, Lda. / FEUP	Dissertation	2010		2		2
Wipro Portugal / FEUP	Dissertation	2010		5		5
ZON TV CABO PORTUGAL, S.A. / FEUP	Dissertation	2010		1		1
Total			3	57	4	64

S6.2 - Interface institutions and the way they operate in conjunction with the HEI

Broadly speaking, teachers and researchers from FEUP are doing fundamental and applied research within different environments, namely: a) within FEUP Research units, funded directly through the national funding programmes of the Foundation for Science and Technology (FCT); or, b) within research units located at Interface Institutes, also funded directly by FCT and through the funding programmes of other institutions.

There are 10 Interface Institutes at FEUP and / or UP with significant participation from FEUP teachers and researchers. These Institutes are:

- IC - Construction Institute
- IDIT - Institute of Development and Technological Innovation
- IDMEC - FEUP - Institute of Mechanical Engineering - FEUP
- IHRH - Hydraulics and Water Resources Institute
- INEB - Biomedical Engineering Institute
- INEGI - Institute of Mechanical Engineering and Industrial Management
- INESC Porto – Institute for Systems and Computer Engineering – Porto
- ISR-P - Institute for Systems and Robotics – Porto
- LEMC - Building Materials Testing Laboratory
- CERUP – University of Porto Risk Analysis Research Centre

Among these institutions, those that are more directly related to MIEIC are IDIT, INEB, INEGI, INESC Porto and ISR-p (*):

IDIT - Institute of Development and Technological Innovation

IDIT is a private non-profit, public utility institution, established in 1989, whose purpose is to promote the development and introduction of technological innovation in the business environment, and to provide counseling on technological issues affecting companies in selected technology areas.

In 1999, there was a merger resulting from the incorporation into IDIT of the CCP – Porto CIM (Computer-Integrated Manufacturing) Centre, an organization active in R&D and in national and international advanced training in using its CIM platform.

IDIT operates in a select set of horizontal areas, including robotics, simulation, integrated manufacturing systems, industrial computing, acoustics and vibration and environmental technology.

INEB – Biomedical Engineering Institute (Instituto de Engenharia Biomédica)

INEB is a private non-profit association of the University of Porto with the status of Public Interest Institution. The aim of INEB is to provide an interface between academia and the entrepreneurial and health sectors in the areas of Biomedical Engineering. The institute was founded in June 1989 by six institutions, including the University of Porto.

The purpose of INEB is to generate knowledge, by promoting research, advanced training and technology transfer in biomedical engineering.

INEB's vision is to be an international reference point in the application of integrated engineering solutions to improve human health.

INEB has adopted the motto "Engineering for life", to express its involvement in the development of technologies and devices aimed at improving patients' quality of life and ongoing study of living organisms. Transdisciplinarity is a distinctive feature of INEB. Integrative research, involving specialists in biomaterials, bioengineering, nanomedicine, bioimaging, medical simulation, biology, and medicine has brought international recognition to the institute.

- Interdisciplinary teams are grouped into three areas of activity:
- Biomaterials and Tissue Regeneration
- Bioimaging and Biomedical Signals
- Geoepidemiology

INEGI – Institute of Mechanical Engineering and Industrial Management

INEGI is an interface Institution oriented to the activities of Research and Development, Innovation and Technology Transfer. It was founded in 1986, as an organization to strengthen the liaison between the Department of Mechanical Engineering and Industrial Management (DEMEGI) of the University of Porto and industry. This strong link to DEMEGI is still maintained today, being one of the Institute's main knowledge sources with its wide range of scientific and technological skills.

Over more than two decades, it has developed and consolidated its position as an honoured Industry partner, through its participation in R&D projects, so that currently projects with companies account for more than 50% of the Institute's turnover.

Being a non-profit private association and recognized as being of public interest, INEGI is currently considered an active agent playing a significant role in the development of Portuguese industry, and in the transformation of its competitive model. Its mission has been defined as "to contribute to the increase in the competitiveness of national industry, through Research and Development, Technology Transfer and Training, in the fields of engineering design, materials, production technology, energy and environment, and industrial management."

INESC Porto – Institute for Systems and Computer Engineering – Porto

INESC Porto is a private non-profit association, recognised as a Public Interest Institution and an Associate Laboratory since 2002. It invests in Scientific Research and Technological Development, as well as in Advanced Training and Consulting, Technology Transfer and supports the establishment of new technology-based Companies.

INESC Porto was created to act as an interface between the academic world, the world of industry and services and public administration in Information Technologies, Telecommunications and Electronics (ITT&E). Its activities range from research and development to technology transfer, consulting and advanced training.

INESC Porto is guided by the following criteria: innovation, internationalisation and social and economic impact, and aims to form a group of strategic partners that can guarantee the institution's stability and economic sustainability.

Areas of Intervention at INESC Porto:

- Telecommunications and Multimedia
- Power Systems
- Manufacturing Systems
- Information and Computer Graphics Systems
- Optoelectronics and Electronic Systems
- Robotics and Intelligent Systems
- Innovation and Technology Transfer
- Artificial Intelligence and Decision Support
- Programming and Computing Languages
- Industrial Management
- Embedded and Real-Time Computing Systems

ISR P - Institute of Systems and Robotics - Porto

ISR-P is a research unit hosted at FEUP to carry out R&D activities in advanced systems and control concepts, tools and technologies for a wide range of areas encompassing robotics, automation, networked vehicles and systems, and, in particular, new emerging network centric systems with high societal impact.

Its R&D activities are organized in the following research groups:

- CEO - Control, Estimation and Optimization: Concepts, methods and tools for identification, control and optimization
- IE - Industrial Electronics: Advanced automation systems and technologies
- NCCS - Network Centric Control Systems: Network centric systems and underwater, surface, and air vehicles, systems and technologies for networked applications
- RS - Robotic Systems: Cooperative robotics in dynamic environments

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GENERAL INFORMATION ABOUT THE COURSE:

PART A

R4

S7 - General information about the course: Part A - R4

S7.1 - Programme working/structure

Table 7.1 – Programme Working Structure

Course Units				**Final Work**		**Internship**	
Semiannual	47	ECTS	300	Yes	X	Yes	
Annual				No		No	X
Total Workload			8100	**Programme (years)**	5	**Nr. of weeks**	0
Total Contact Hours			2527				

S7.2 - Contact time (hours per week)

Table 7.2 – Contact Time

Year	**1º**		**2º**		**3º**		**4º**		**5º**	
Semester	**1S**	**2S**	**1S**	**2S**	**1S**	**2S**	**1S**	**2S**	**1S**	**2S**
Lectures	13	9	11	10	10	10	10	6	3	1
Tutorial	10	8	10	6	6	4	8	13	9	3
Practical/Project	0	0	0	6	5	3	3	3	0	0.5
Total	23	17	21	22	21	17	21	22	12	4.5

S7.3 - Number of students in the last 5 years

Table 7.3 – Number of students in the past years

Academic Year	**Entry 1st Year**	**Total in 1st Year**	**Total in the Programme**	**Civil Year**	**1st cycle graduates**	**2nd cycle graduates**
2009/2010	109	121	688	2010	104	99
2008/2009	111	124	671	2009	95	96
2007/2008	110	113	673	2008	88	122
2006/2007	114	122	604	2007	157	0
2005/2006	97	102	583	2006	0	0

S7.4 - Course general outcomes

MIEIC addresses all the outcomes defined by EUR-ACE, namely with regard to the following:

Knowledge and Understanding

- knowledge and understanding of the scientific and mathematical principles underlying this branch of engineering;
- an in-depth knowledge and understanding of the key aspects and principles of this branch of engineering;
- coherent knowledge of this branch of engineering including a critical awareness of the latest innovations in the field;
- awareness of the wider multidisciplinary context of engineering.

Engineering Analysis

- the ability to apply gained knowledge and understanding to identify, formulate and solve engineering problems using established methods;
- the ability to formulate and solve problems in new and emerging areas of a chosen specialisation;
- the ability to solve problems that are unfamiliar, incompletely defined, and with competing specifications;
- the ability to apply gained knowledge and understanding to analyse engineering products, processes and methods;
- the ability to use gained knowledge and understanding to conceptualise engineering models, systems and processes;
- the ability to select and apply both established and innovative analytic and modelling methods in problem solving.

Engineering Design

- the ability to apply gained knowledge and understanding to develop and realise designs to meet defined and specified requirements;
- an ability to use gained knowledge and understanding to design solutions to unfamiliar problems, possibly involving other disciplines;
- an understanding of design methodologies, and an ability to use them;
- an ability to use creativity to develop new and original ideas and methods;
- an ability to use gained engineering judgement to work with complexity, technical uncertainty and incomplete information.

Investigations

- the ability to identify, locate and obtain required data;
- the ability to design and conduct analytic, modelling and experimental research;
- the ability to critically evaluate data and draw conclusions;
- the ability to conduct research into the application of new and emerging technologies in this branch of engineering;

- workshop and laboratory skills.

Engineering Practice

- the ability to select and use appropriate equipment, tools and methods;
- a comprehensive understanding of applicable techniques and methods, and of their limitations;
- the ability to combine theory and practice to solve engineering problems;
- the ability to integrate knowledge from different branches, and handle complexity;
- a knowledge of the non-technical implications of engineering practice.

Transferable Skills

- function effectively as an individual and as a member of a team;
- use diverse methods to communicate effectively with the engineering community and with society at large;
- demonstrate awareness of the health, safety and legal issues and responsibilities of engineering practice, the impact of engineering solutions in a societal and environmental context, and be committed to professional ethics, responsibilities and norms of engineering practice;
- demonstrate an awareness of project management and business practices, such as risk and change management, and understand their limitations;
- recognise the need for, and have the ability to engage in independent, life-long learning;
- function effectively as leader of a team that may be composed of different disciplines and levels;
- work and communicate effectively in national and international contexts.

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GENERAL INFORMATION ABOUT THE COURSE:

PART B

R4

S8 - General information about the course: Part B - R4

S8.1 - Outcomes (Competences and skills) per scientific area:

S8.1.1 - Computer Architecture

Table 8.1 - Outcomes per scientific area: Computer Architecture

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Computer Architecture and Organization (EIC0083)	AC	1	1S	x	x	x		x	
Microprocessors and Personal Computers (EIC0016)	AC	1	2S	x	x	x		x	
Microprocessors and Personal Computers (EIC0016)	AC	2	1S	x	x	x		x	
Computer Laboratory (EIC0020)	AC	2	2S	x	x	x	x	x	x
Advanced Computer Architectures (EIC0049)	AC	5	1S	x	x	x	x	x	x
Networks and Information Technologies Seminar (EIC0100)	AC, SOR	5	1S	x	x	x	x	x	x

S8.1.2 - Industrial Automation

Table 8.2 - Outcomes per scientific area: Industrial Automation

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Signals and Sensors (EIC0093)	AI	4	2S	x	x	x	x	x	x
Critical Systems (EIC0073)	AI	4	2S	x	x	x	x	x	x
Industrial Systems (EIC0075)	AI	4	2S	x	x	x	x	x	x
Embedded and Real Time Systems (EIC0102)	AI	5	1S	x	x	x	x	x	x

S8.1.3 - Social and Professional Issues

Table 8.3 - Outcomes per scientific area: Social and Professional Issues

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Project FEUP (FEUP002)	ASP	1	1S	x	x	x	x	x	x

S8.1.4 - Software Engineering

Table 8.4 - Outcomes per scientific area: Software Engineering

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Software Engineering (EIC0024)	ES	3	1S	x	x	x	x	x	x
Software Development Laboratory (EIC0086)	ES, TM	4	1S	x	x	x	x	x	x
Project Management Laboratory (EIC0106)	ES, TM	4	2S	x	x	x	x	x	x
Formal Methods in Software Engineering (EIC0039)	ES	4	2S	x	x	x	x	x	
Software Systems Architecture (EIC0048)	ES	4	2S	x	x	x	x	x	x
Software Systems Requirements Engineering (EIC0053)	ES	4	2S	x	x	x	x	x	x
Quality Management (EIC0109)	ES, MQG	5	1S	x	x	x	x	x	x
Agile Software Development Methodologies (EIC0062)	ES	5	1S	x	x	x	x	x	x
Information Systems and Software Engineering Seminar (EIC0099)	ES, SI	5	1S	x	x	x	x	x	x
Software Testing and Quality (EIC0103)	ES	5	1S	x	x	x	x	x	x

S8.1.5 - Physics

Table 8.5 - Outcomes per scientific area: Physics

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Physics I (EIC0010)	FIS	1	2S	x	x			x	
Physics II (EIC0014)	FIS	2	1S	x	x			x	

S8.1.6 - Programming Fundamentals

Table 8.6 - Outcomes per scientific area: Programming Fundamentals

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Programming Fundamentals (EIC0005)	FP	1	1S	x	x	x		x	
Computing Theory (EIC0022)	FP	2	1S	x	x		x		

S8.1.7 - Artificial Intelligence

Table 8.7 - Outcomes per scientific area: Artificial Intelligence

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Artificial Intelligence (EIC0029)	IA	3	2S	x	x	x		x	
Agents and Distributed Artificial Intelligence (EIC0033)	IA	4	1S	x	x	x	x	x	
Planning and Scheduling Methodologies (EIC0063)	IA	4	2S	x	x	x	x	x	x
Electronic Business Technologies (EIC0078)	IA	4	2S	x	x	x	x	x	x
Knowledge Extraction and Machine Learning (EIC0096)	IA	5	1S	x	x	x	x	x	x
Systems Modelling and Simulation (EIC0098)	IA	5	1S	x	x	x	x	x	x
Robotics (EIC0071)	IA	5	1S	x	x	x	x	x	x
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	IA, IM	5	1S	x	x	x	x	x	x

S8.1.8 - Interaction and Multimedia

Table 8.8 - Outcomes per scientific area: Interaction and Multimedia

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Computer Graphics (EIC0019)	IM	2	2S	x	x	x		x	
Graphical Applications Laboratory (EIC0084)	IM	3	1S	x	x	x	x	x	x
Signal Processing Algorithms (EIC0088)	IM	4	2S	x	x	x	x	x	x
Computer Games Development (EIC0090)	IM	4	2S	x	x	x	x	x	x
Multimedia and New Services (EIC0064)	IM	4	2S	x	x	x	x	x	x
Human-Computer Interaction (EIC0057)	IM	5	1S	x	x	x	x	x	x
Speech Processing (EIC0068)	IM	5	1S	x	x	x	x	x	x
Virtual and Augmented Reality (EIC0070)	IM	5	1S	x	x	x	x	x	x
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	IA, IM	5	1S	x	x	x	x	x	x
Computer Vision (EIC0104)	IM	5	1S	x	x	x	x	x	x

S8.1.9 - Mathematics

Table 8.9 - Outcomes per scientific area: Mathematics

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Algebra (EIC0003)	MAT	1	1S	x	x		x		
Mathematical Analysis (EIC0004)	MAT	1	1S	x	x		x		
Discrete Mathematics (EIC0011)	MAT	1	1S	x	x		x		
Complements of Mathematics (EIC0009)	MAT	1	2S	x	x		x		
Statistical Methods (EIC0105)	MAT	1	2S	x	x			x	
Numerical Methods (EIC0021)	MAT	2	1S	x	x				

S8.1.10 - Quantitative Methods and Management

Table 8.10 - Outcomes per scientific area: Quantitative Methods and Management

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Enterprise Management (EIC0034)	MQG	4	1S	x	x	x	x	x	x
Operational Research (EIC0037)	MQG	4	2S	x	x		x	x	
Operations Management and Logistics (EIC0091)	MQG	4	2S	x	x	x	x	x	x
Marketing (EIC0061)	MQG	4	2S	x	x	x	x	x	x
Project Appraisal (EIC0044)	MQG	5	1S	x	x	x	x	x	x
Quality Management (EIC0109)	ES, MQG	5	1S	x	x	x	x	x	x
Decision Support Systems (EIC0074)	MQG	5	1S	x	x	x	x	x	x

S8.1.11 - Programming

Table 8.11 - Outcomes per scientific area: Programming

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Programming (EIC0012)	PRO	1	2S	x	x	x		x	
Algorithms and Data Structures (EIC0013)	PRO	2	1S	x	x	x		x	
Algorithm Design and Analysis (EIC0110)	PRO	2	2S	x	x	x		x	
Object Oriented Programming Laboratory (EIC0111)	PRO	2	2S	x	x	x	x	x	x
Logic Programming (EIC0026)	PRO	3	1S	x	x	x		x	
Compilers (EIC0028)	PRO	3	2S	x	x	x		x	
Parallel Computing (EIC0089)	PRO	4	2S	x	x	x	x	x	x
Programming Paradigms (EIC0065)	PRO	4	2S	x	x	x	x	x	x

S8.1.12 - Information Systems

Table 8.12 - Outcomes per scientific area: Information Systems

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Databases (EIC0023)	SI	3	1S	x	x	x		x	
Web Languages and Technologies (EIC0112)	SI	3	1S	x	x	x		x	
Database and Web Applications Laboratory (EIC0085)	SI	3	2S	x	x	x	x	x	x
Information Systems (EIC0040)	SI	4	1S	x	x	x	x	x	
Markup Languages and Document Processing (EIC0107)	SI	4	2S	x	x	x	x	x	x
Geospatial Systems (EIC0094)	SI	4	2S	x	x	x	x	x	x
Database Technologies (EIC0076)	SI	4	2S	x	x	x	x	x	x
Data Warehouses (EIC0046)	SI	5	1S	x	x	x	x	x	x
Information Description, Storage and Retrieval (EIC0108)	SI	5	1S	x	x	x	x	x	x
Enterprise Information Management (EIC0097)	SI	5	1S	x	x	x	x	x	x
Information Systems Strategic Planning (EIC0067)	SI	5	1S	x	x	x	x	x	x
Information Systems and Software Engineering Seminar (EIC0099)	ES, SI	5	1S	x	x	x	x	x	x

S8.1.13 - Operating Systems and Networks

Table 8.13 - Outcomes per scientific area: Operating Systems and Networks

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Operating Systems (EIC0027)	SOR	2	2S	x	x	x	x	x	
Operating Systems (EIC0027)	SOR	3	1S	x	x	x	x	x	
Computer Networks (EIC0032)	SOR	3	2S	x	x	x	x	x	
Distributed Systems (EIC0036)	SOR	3	2S	x	x	x	x	x	
Distributed Systems (EIC0036)	SOR	4	1S	x	x	x	x	x	
Network and System Services (EIC0092)	SOR	4	2S	x	x	x	x	x	x
Distribution and Integration Technologies (EIC0077)	SOR	4	2S	x	x	x	x	x	x
Network and Systems Architecture and Management (EIC0095)	SOR	5	1S	x	x	x	x	x	x
Mobile Computing (EIC0050)	SOR	5	1S	x	x	x	x	x	x
Mobile Communications (EIC0082)	SOR	5	1S	x	x	x	x	x	x
Computer Systems Security (EIC0072)	SOR	5	1S	x	x	x	x	x	x
Networks and Information Technologies Seminar (EIC0100)	AC, SOR	5	1S	x	x	x	x	x	x

S8.1.14 - Multidisciplinary subjects

Table 8.14 - Outcomes per scientific area: Multidisciplinary subjects

Courses	Scientific Area	Year	Regime	Knowledge and Understanding	Engineering Analysis	Engineering Design	Investigations	Engineering Practice	Transferable Skills
Software Development Laboratory (EIC0086)	ES, TM	4	1S	x	x	x	x	x	x
Project Management Laboratory (EIC0106)	ES, TM	4	2S	x	x	x	x	x	x
Dissertation (EIC0041)	TM	5	1S		x	x	x	x	x
Dissertation Planning (EIC0087)	TM	5	1S		x	x	x	x	x
Dissertation (EIC0041)	TM	5	2S		x	x	x	x	x
Dissertation Planning (EIC0087)	TM	5	2S		x	x	x	x	x

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PROGRAMME PLAN

R5

S9 - Programme plan - R5

Table 9.1 – 1st year syllabus, contact hours per semester

Course Units	Year	Regime	REF	Contact hours per semester				ECTS
				Lectures	Tutorials	Practical/ Project	Total	
Mandatory								
Algebra (EIC0003)	1	1S	B	42.0	28.0	0.0	70.0	5
Mathematical Analysis (EIC0004)	1	1S	B	42.0	28.0	0.0	70.0	6
Computer Architecture and Organization (EIC0083)	1	1S	C	28.0	28.0	0.0	56.0	6
Programming Fundamentals (EIC0005)	1	1S	C	42.0	28.0	0.0	70.0	6
Discrete Mathematics (EIC0011)	1	1S	C	28.0	28.0	0.0	56.0	5
Project FEUP (FEUP002)	1	1S	B	15.7	0.3	0.0	16.0	2
Complements of Mathematics (EIC0009)	1	2S	B	28.0	28.0	0.0	56.0	6
Physics I (EIC0010)	1	2S	B	28.0	28.0	0.0	56.0	6
Statistical Methods (EIC0105)	1	2S	B	28.0	28.0	0.0	56.0	5
Microprocessors and Personal Computers (EIC0016)	1	2S	C	28.0	28.0	0.0	56.0	6
Programming (EIC0012)	1	2S	C	42.0	28.0	0.0	70.0	7

Table 9.2 – 2nd year syllabus, contact hours per semester

Course Units	Year	Regime	REF	Contact hours per semester				ECTS
				Lectures	Tutorials	Practical/ Project	Total	
Mandatory								
Algorithms and Data Structures (EIC0013)	2	1S	C	42.0	28.0	0.0	70.0	7
Physics II (EIC0014)	2	1S	B	28.0	28.0	0.0	56.0	6
Numerical Methods (EIC0021)	2	1S	B	28.0	28.0	0.0	56.0	5
Microprocessors and Personal Computers (EIC0016)	2	1S	B	28.0	28.0	0.0	56.0	6
Computing Theory (EIC0022)	2	1S	C	28.0	28.0	0.0	56.0	6
Computer Graphics (EIC0019)	2	2S	C	28.0	28.0	0.0	56.0	6
Algorithm Design and Analysis (EIC0110)	2	2S	C	28.0	28.0	0.0	56.0	6
Computer Laboratory (EIC0020)	2	2S	C	28.0	0.0	42.0	70.0	6
Object Oriented Programming Laboratory (EIC0111)	2	2S	C	28.0	0.0	42.0	70.0	6
Operating Systems (EIC0027)	2	2S	C	28.0	28.0	0.0	56.0	6

Table 9.3 - 3rd year syllabus, contact hours per semester

Course Units	Year	Regime	REF	Contact hours per semester				ECTS
				Lectures	Tutorials	Practical/ Project	Total	
Mandatory								
Databases (EIC0023)	3	1S	C	28.0	28.0	0.0	56.0	6
Software Engineering (EIC0024)	3	1S	S	28.0	28.0	0.0	56.0	6
Graphical Applications Laboratory (EIC0084)	3	1S	C	28.0	0.0	42.0	70.0	7
Web Languages and Technologies (EIC0112)	3	1S	C	28.0	28.0	0.0	56.0	6
Logic Programming (EIC0026)	3	1S	S	28.0	28.0	0.0	56.0	5
Operating Systems (EIC0027)	3	1S	C	28.0	28.0	0.0	56.0	6
Compilers (EIC0028)	3	2S	C	42.0	14.0	0.0	56.0	6
Artificial Intelligence (EIC0029)	3	2S	S	42.0	14.0	0.0	56.0	6
Database and Web Applications Laboratory (EIC0085)	3	2S	C	28.0	0.0	42.0	70.0	7
Computer Networks (EIC0032)	3	2S	S	28.0	28.0	0.0	56.0	6
Distributed Systems (EIC0036)	3	2S	S	28.0	28.0	0.0	56.0	6

Table 9.4 – 4th year syllabus, contact hours per semester

Course Units - Mandatory	Year	Regime	REF	Contact hours per semester				ECTS
				Lectures	Tutorials	Practical/ Project	Total	
Agents and Distributed Artificial Intelligence (EIC0033)	4	1S	S	28.0	28.0	0.0	56.0	6
Enterprise Management (EIC0034)	4	1S	P	28.0	28.0	0.0	56.0	5
Software Development Laboratory (EIC0086)	4	1S	C	28.0	0.0	42.0	70.0	7
Information Systems (EIC0040)	4	1S	S	28.0	28.0	0.0	56.0	6
Distributed Systems (EIC0036)	4	1S	S	28.0	28.0	0.0	56.0	6
Operational Research (EIC0037)	4	2S	B	28.0	28.0	0.0	56.0	5
Project Management Laboratory (EIC0106)	4	2S	S	28.0	0.0	42.0	70.0	7
Formal Methods in Software Engineering (EIC0039)	4	2S	S	28.0	28.0	0.0	56.0	6
Course Units - Electives								
Signal Processing Algorithms (EIC0088)	4	2S	O	0.0	56.0	0.0	56.0	6
Software Systems Architecture (EIC0048)	4	2S	O	0.0	56.0	0.0	56.0	6
Parallel Computing (EIC0089)	4	2S	O	0.0	56.0	0.0	56.0	6
Computer Games Development (EIC0090)	4	2S	O	0.0	56.0	0.0	56.0	6
Software Systems Requirements Engineering (EIC0053)	4	2S	O	0.0	56.0	0.0	56.0	6
Operations Management and Logistics (EIC0091)	4	2S	O	0.0	56.0	0.0	56.0	6
Markup Languages and Document Processing (EIC0107)	4	2S	O	0.0	56.0	0.0	56.0	6
Marketing (EIC0061)	4	2S	O	0.0	56.0	0.0	56.0	6
Planning and Scheduling Methodologies (EIC0063)	4	2S	O	0.0	56.0	0.0	56.0	6
Multimedia and New Services (EIC0064)	4	2S	O	0.0	56.0	0.0	56.0	6
Programming Paradigms (EIC0065)	4	2S	O	0.0	56.0	0.0	56.0	6
Network and System Services (EIC0092)	4	2S	O	0.0	56.0	0.0	56.0	6
Signals and Sensors (EIC0093)	4	2S	O	0.0	56.0	0.0	56.0	6
Critical Systems (EIC0073)	4	2S	O	0.0	56.0	0.0	56.0	6
Geospatial Systems (EIC0094)	4	2S	O	0.0	56.0	0.0	56.0	6
Industrial Systems (EIC0075)	4	2S	O	0.0	56.0	0.0	56.0	6
Database Technologies (EIC0076)	4	2S	O	0.0	56.0	0.0	56.0	6
Distribution and Integration Technologies (EIC0077)	4	2S	O	0.0	56.0	0.0	56.0	6
Electronic Business Technologies (EIC0078)	4	2S	O	0.0	56.0	0.0	56.0	6

Table 9.5 – 5th year syllabus, contact hours per semester, specialization in Building Construction

Course Units - Mandatory	Year	Regime	REF	Contact hours per semester				ECTS
				Lectures	Tutorials	Practical/ Project	Total	
Dissertation (EIC0041)	5	1S	P	18.7	0.0	9.3	28.0	30
Dissertation Planning (EIC0087)	5	1S	P	0.0	56.0	0.0	56.0	6
Dissertation (EIC0041)	5	2S	P	18.7	0.0	9.3	28.0	30
Dissertation Planning (EIC0087)	5	2S	P	0.0	56.0	0.0	56.0	6
Course Units - Electives								
Project Appraisal (EIC0044)	5	1S	O	0.0	56.0	0.0	56.0	6
Data Warehouses (EIC0046)	5	1S	O	0.0	56.0	0.0	56.0	6
Network and Systems Architecture and Management (EIC0095)	5	1S	O	0.0	56.0	0.0	56.0	6
Advanced Computer Architectures (EIC0049)	5	1S	O	56.0	0.0	0.0	56.0	6
Mobile Computing (EIC0050)	5	1S	O	0.0	56.0	0.0	56.0	6
Mobile Communications (EIC0082)	5	1S	O	56.0	0.0	0.0	56.0	6
Information Description, Storage and Retrieval (EIC0108)	5	1S	O	0.0	56.0	0.0	56.0	6
Knowledge Extraction and Machine Learning (EIC0096)	5	1S	O	0.0	56.0	0.0	56.0	6
Quality Management (EIC0109)	5	1S	O	0.0	56.0	0.0	56.0	6
Enterprise Information Management (EIC0097)	5	1S	O	0.0	56.0	0.0	56.0	6
Human-Computer Interaction (EIC0057)	5	1S	O	0.0	56.0	0.0	56.0	6
Agile Software Development Methodologies (EIC0062)	5	1S	O	0.0	56.0	0.0	56.0	6
Systems Modelling and Simulation (EIC0098)	5	1S	O	0.0	56.0	0.0	56.0	6
Information Systems Strategic Planning (EIC0067)	5	1S	O	0.0	56.0	0.0	56.0	6
Speech Processing (EIC0068)	5	1S	O	0.0	56.0	0.0	56.0	6
Virtual and Augmented Reality (EIC0070)	5	1S	O	0.0	56.0	0.0	56.0	6
Robotics (EIC0071)	5	1S	O	0.0	56.0	0.0	56.0	6
Computer Systems Security (EIC0072)	5	1S	O	0.0	56.0	0.0	56.0	6
Information Systems and Software Engineering Seminar (EIC0099)	5	1S	O	0.0	56.0	0.0	56.0	6
Networks and Information Technologies Seminar (EIC0100)	5	1S	O	0.0	56.0	0.0	56.0	6
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	5	1S	O	0.0	56.0	0.0	56.0	6
Decision Support Systems (EIC0074)	5	1S	O	0.0	56.0	0.0	56.0	6
Embedded and Real Time Systems (EIC0102)	5	1S	O	0.0	56.0	0.0	56.0	6
Software Testing and Quality (EIC0103)	5	1S	O	0.0	56.0	0.0	56.0	6
Computer Vision (EIC0104)	5	1S	O	0.0	56.0	0.0	56.0	6

Please note:

Launched in the academic year of 2009/2010, an adaptation of the MIEIC study plan was scheduled for completion after a two-year transition. There are thus some differences between the set of courses offered and the proposed study plan.

Points 1 to 5 below explain how students were expected to enrol on these courses in the academic year 2009/2010.

Points 6 and 7 list the set of elective courses that were not offered in the academic year 2009/2010, by resolution of the Scientific Committee, based on the number of students wishing to enrol.

1 - The course Microprocessors and Personal Computers (from the 1st year curriculum), was also offered in the 1st semester for 2nd year students.

2 - 2nd year students were expected to attend the Statistics Methods course (from the 1st year curriculum).

3 - The new course Object-Oriented Programming Laboratory was not offered.

4 - The new course Languages and Web Technologies was not offered.

5 - The course Personal and Interpersonal Proficiency was not offered.

6 - The following elective 4th year courses were not offered:

- Signal processing Algorithms;
- Operations management and logistics;
- Paradigms of programming;
- Signs and Sensors;
- Geospatial Systems;
- Industrial Systems;
- Database Technologies.

7 - The following elective 5th year courses were not offered:

- Advanced Computer Architectures;
- Mobile Communications;
- Quality management;
- Business Information Management;
- Modelling and simulation systems;
- Speech Processing;
- Seminar in Software Engineering and information systems;
- Workshop of networks and information technologies;
- Real-time and embedded systems;
- Machine vision.

8 - The set of courses offered is set every year by the MIEIC Scientific Committee, after considering the total number of students (to guarantee the courses' economic viability), as well as taking student intentions into account (based on enquiries released beforehand).

9 - In the elective courses, is expected tha the student contact with the course as much as an additional hour regarding planning, presenting or discussing the assignments in hand.

10 - Copies of exams can be found in S18 – Teaching Staff Perspective.

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COURSE SHEET

R5/R6

S10 - Course sheet – R5/R6

Please follow the links bellow and use the provided credentials to access the Courses' Sheets available online.

Table 10.1 – 1st year syllabus, contact hours per week

Course Units	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Mandatory							
Algebra (EIC0003)	1	1S	3.0	2.0	0.0	5.0	5
Mathematical Analysis (EIC0004)	1	1S	3.0	2.0	0.0	5.0	6
Computer Architecture and Organization (EIC0083)	1	1S	2.0	2.0	0.0	4.0	6
Programming Fundamentals (EIC0005)	1	1S	3.0	2.0	0.0	5.0	6
Discrete Mathematics (EIC0011)	1	1S	2.0	2.0	0.0	4.0	5
Project FEUP (FEUP002)	1	1S	1.2	0.0	0.0	1.2	2
Complements of Mathematics (EIC0009)	1	2S	2.0	2.0	0.0	4.0	6
Physics I (EIC0010)	1	2S	2.0	2.0	0.0	4.0	6
Statistical Methods (EIC0105)	1	2S	2.0	2.0	0.0	4.0	5
Microprocessors and Personal Computers (EIC0016)	1	2S	2.0	2.0	0.0	4.0	6
Programming (EIC0012)	1	2S	3.0	2.0	0.0	5.0	7

Table 10.2 – 2nd year syllabus, contact hours per week

Course Units	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Mandatory							
Algorithms and Data Structures (EIC0013)	2	1S	3.0	2.0	0.0	5.0	7
Physics II (EIC0014)	2	1S	2.0	2.0	0.0	4.0	6
Numerical Methods (EIC0021)	2	1S	2.0	2.0	0.0	4.0	5
Microprocessors and Personal Computers (EIC0016)	2	1S	2.0	2.0	0.0	4.0	6
Computing Theory (EIC0022)	2	1S	2.0	2.0	0.0	4.0	6
Computer Graphics (EIC0019)	2	2S	2.0	2.0	0.0	4.0	6
Algorithm Design and Analysis (EIC0110)	2	2S	2.0	2.0	0.0	4.0	6
Computer Laboratory (EIC0020)	2	2S	2.0	0.0	3.0	5.0	6
Object Oriented Programming Laboratory (EIC0111)	2	2S	2.0	0.0	3.0	5.0	6
Operating Systems (EIC0027)	2	2S	2.0	2.0	0.0	4.0	6

Table 10.3 – 3rd year syllabus, contact hours per week

Course Units	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Mandatory							
Databases (EIC0023)	3	1S	2.0	2.0	0.0	4.0	6
Software Engineering (EIC0024)	3	1S	2.0	2.0	0.0	4.0	6
Graphical Applications Laboratory (EIC0084)	3	1S	2.0	0.0	3.0	5.0	7
Web Languages and Technologies (EIC0112)	3	1S	2.0	2.0	0.0	4.0	6
Logic Programming (EIC0026)	3	1S	2.0	2.0	0.0	4.0	5
Operating Systems (EIC0027)	3	1S	2.0	2.0	0.0	4.0	6
Compilers (EIC0028)	3	2S	3.0	1.0	0.0	4.0	6
Artificial Intelligence (EIC0029)	3	2S	3.0	1.0	0.0	4.0	6
Database and Web Applications Laboratory (EIC0085)	3	2S	2.0	0.0	3.0	5.0	7
Computer Networks (EIC0032)	3	2S	2.0	2.0	0.0	4.0	6
Distributed Systems (EIC0036)	3	2S	2.0	2.0	0.0	4.0	6

Table 10.4 – 4th year syllabus, contact hours per week

Course Units - Mandatory	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Agents and Distributed Artificial Intelligence (EIC0033)	4	1S	2.0	2.0	0.0	4.0	6
Enterprise Management (EIC0034)	4	1S	2.0	2.0	0.0	4.0	5
Software Development Laboratory (EIC0086)	4	1S	2.0	0.0	3.0	5.0	7
Information Systems (EIC0040)	4	1S	2.0	2.0	0.0	4.0	6
Distributed Systems (EIC0036)	4	1S	2.0	2.0	0.0	4.0	6
Operational Research (EIC0037)	4	2S	2.0	2.0	0.0	4.0	5
Project Management Laboratory (EIC0106)	4	2S	2.0	0.0	3.0	5.0	7
Formal Methods in Software Engineering (EIC0039)	4	2S	2.0	2.0	0.0	4.0	6
Course Units - Electives							
Signal Processing Algorithms (EIC0088)	4	2S	0.0	3.0	0.0	4.0	6
Software Systems Architecture (EIC0048)	4	2S	0.0	3.0	0.0	3.0	6
Parallel Computing (EIC0089)	4	2S	0.0	3.0	0.0	3.0	6
Computer Games Development (EIC0090)	4	2S	0.0	3.0	0.0	3.0	6
Software Systems Requirements Engineering (EIC0053)	4	2S	0.0	3.0	0.0	3.0	6
Operations Management and Logistics (EIC0091)	4	2S	0.0	3.0	0.0	3.0	6
Markup Languages and Document Processing (EIC0107)	4	2S	0.0	3.0	0.0	3.0	6
Marketing (EIC0061)	4	2S	0.0	3.0	0.0	3.0	6
Planning and Scheduling Methodologies (EIC0063)	4	2S	0.0	3.0	0.0	3.0	6
Multimedia and New Services (EIC0064)	4	2S	0.0	3.0	0.0	3.0	6
Programming Paradigms (EIC0065)	4	2S	0.0	3.0	0.0	3.0	6
Network and System Services (EIC0092)	4	2S	0.0	3.0	0.0	3.0	6
Signals and Sensors (EIC0093)	4	2S	0.0	3.0	0.0	3.0	6
Critical Systems (EIC0073)	4	2S	0.0	3.0	0.0	3.0	6
Geospatial Systems (EIC0094)	4	2S	0.0	3.0	0.0	3.0	6
Industrial Systems (EIC0075)	4	2S	0.0	3.0	0.0	3.0	6
Database Technologies (EIC0076)	4	2S	0.0	3.0	0.0	3.0	6
Distribution and Integration Technologies (EIC0077)	4	2S	0.0	3.0	0.0	3.0	6
Electronic Business Technologies (EIC0078)	4	2S	0.0	3.0	0.0	3.0	6

Table 10.5 – 5th year syllabus, contact hours per week, specialization in Building Construction

Course Units - Mandatory	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Dissertation (EIC0041)	5	1S	1.0	0.0	0.5	1.5	30
Dissertation Planning (EIC0087)	5	1S	0.0	3.0	0.0	3.0	6
Dissertation (EIC0041)	5	2S	1.0	0.0	0.5	1.5	30
Dissertation Planning (EIC0087)	5	2S	0.0	3.0	0.0	3.0	6
Course Units - Electives							
Project Appraisal (EIC0044)	5	1S	0.0	3.0	0.0	3.0	6
Data Warehouses (EIC0046)	5	1S	0.0	3.0	0.0	3.0	6
Network and Systems Architecture and Management (EIC0095)	5	1S	0.0	3.0	0.0	3.0	6
Advanced Computer Architectures (EIC0049)	5	1S	3.0	0.0	0.0	3.0	6
Mobile Computing (EIC0050)	5	1S	0.0	3.0	0.0	3.0	6
Mobile Communications (EIC0082)	5	1S	3.0	0.0	0.0	3.0	6
Information Description, Storage and Retrieval (EIC0108)	5	1S	0.0	3.0	0.0	3.0	6
Knowledge Extraction and Machine Learning (EIC0096)	5	1S	0.0	3.0	0.0	3.0	6
Quality Management (EIC0109)	5	1S	0.0	3.0	0.0	3.0	6
Enterprise Information Management (EIC0097)	5	1S	0.0	3.0	0.0	3.0	6
Human-Computer Interaction (EIC0057)	5	1S	0.0	3.0	0.0	3.0	6
Agile Software Development Methodologies (EIC0062)	5	1S	0.0	3.0	0.0	3.0	6
Systems Modelling and Simulation (EIC0098)	5	1S	0.0	3.0	0.0	3.0	6
Information Systems Strategic Planning (EIC0067)	5	1S	0.0	3.0	0.0	3.0	6
Speech Processing (EIC0068)	5	1S	0.0	3.0	0.0	3.0	6
Virtual and Augmented Reality (EIC0070)	5	1S	0.0	3.0	0.0	3.0	6
Robotics (EIC0071)	5	1S	0.0	3.0	0.0	3.0	6
Computer Systems Security (EIC0072)	5	1S	0.0	3.0	0.0	3.0	6
Information Systems and Software Engineering Seminar (EIC0099)	5	1S	0.0	3.0	0.0	3.0	6
Networks and Information Technologies Seminar (EIC0100)	5	1S	0.0	3.0	0.0	3.0	6
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	5	1S	0.0	3.0	0.0	3.0	6
Decision Support Systems (EIC0074)	5	1S	0.0	3.0	0.0	3.0	6
Embedded and Real Time Systems (EIC0102)	5	1S	0.0	3.0	0.0	3.0	6
Software Testing and Quality (EIC0103)	5	1S	0.0	3.0	0.0	3.0	6
Computer Vision (EIC0104)	5	1S	0.0	3.0	0.0	3.0	6

Please note:

Launched in the academic year of 2009/2010, an adaptation of the MIEIC study plan was scheduled for completion after a two-year transition. There are thus some differences between the set of courses offered and the proposed study plan.

Points 1 to 5 below explain how students were expected to enrol on these courses in the academic year 2009/2010.

Points 6 and 7 list the set of elective courses that were not offered in the academic year 2009/2010, by resolution of the Scientific Committee, based on the number of students wishing to enrol.

1 - The course Microprocessors and Personal Computers (from the 1st year curriculum), was also offered in the 1st semester for 2nd year students.

2 - 2nd year students were expected to attend the Statistics Methods course (from the 1st year curriculum).

3 - The new course Object-Oriented Programming Laboratory was not offered.

4 - The new course Languages and Web Technologies was not offered.

5 - The course Personal and Interpersonal Proficiency was not offered.

6 - The following elective 4th year courses were not offered:

- Signal processing Algorithms;
- Operations management and logistics;
- Paradigms of programming;
- Signs and Sensors;
- Geospatial Systems;
- Industrial Systems;
- Database Technologies.

7 - The following elective 5th year courses were not offered:

- Advanced Computer Architectures;
- Mobile Communications;
- Quality management;
- Business Information Management;
- Modelling and simulation systems;
- Speech Processing;
- Seminar in Software Engineering and information systems;
- Workshop of networks and information technologies;
- Real-time and embedded systems;
- Machine vision.

8 - The set of courses offered is set every year by the MIEIC Scientific Committee, after considering the total number of students (to guarantee the courses' economic viability), as well as taking student intentions into account (based on enquiries released beforehand).

9 - In the elective courses, is expected tha the student contact with the course as much as an additional hour regarding planning, presenting or discussing the assignments in hand.

10 - Copies of exams can be found in S18 – Teaching Staff Perspective.

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COMPLEMENTARY ACTIVITIES

R5/R6

S11 - Complementary Activities - R5/R6

S11.1 - RoboCup – Robotic Soccer

S11.1.1 - Identification

Table 11.1 – Activity characterization and support staff

Academic Year – 2009/2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) f appropriate**
4th & 5th	-	2	1.5	**I**

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	Luís Paulo Reis	Assistant Professor	PhD	Not applicable

S11.1.2 - Aims, Characterization

Background

This activity emphasizes cooperative robotics and applications in a domain where the teaching staff are known as leading world researchers: RoboCup – Robotic Soccer[7]. In the last ten years RoboCup has increasingly become a testbed for research in cooperative/intelligent robotics and multi-agent systems.

Aims

- To understand the basic concepts of Robotics and the context of Artificial Intelligence in Robotics;
- To study methods of perception and sensorial interpretation (emphasizing computer vision), which enable creation of precise world states and mobile robot control methods;
- To study the methods which allow mobile robots to navigate in familiar or unfamiliar environments using Planning and Navigation algorithms;
- To study the fundamentals of cooperative robotics and of the robot teams' construction;
- To analyze the main national and international robotic competitions, the most realistic robot simulators and the most advanced robotic platforms available on the market (emphasizing the robots AIBO ERS210A and ERS-7).

[7] Introductory video: https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=118925&pv_cod=33aq5IdzaQcM

Contents

Teams from the best companies and universities in the world compete in nine major leagues, including seven cooperative leagues. The research developed during the development of FC Portugal robot soccer teams, which regularly compete in four of these leagues (2D Simulation, 3D Simulation, Rescue and Legged League), led the Universities of Aveiro and Porto to win three RoboCup world championships and four European championships in different leagues

S11.1.3 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria

After the completion of the abovementioned tasks the students are expected to develop or acquire the following skills:
Knowledge and Understanding – Students should be able to gather new information, bringing together practice and theory and thus gain substantial knowledge regarding this application.
Engineering Analysis – the students should be able to understand specific requirements, through analysis, before proposing an implementation. This involves an in-depth understanding of the underlying science.
Engineering Design – the students must be able to create new and innovative solutions to the needs identified.
Investigations – The students should conduct some research into the technical issues prior to implementation.
Engineering Practice – The students should be aware of the technical implications regarding the technology they are presenting.
Transferable Skills – As group work and interpersonal interaction is key, it is expected that these students will strongly develop their soft skills - such as communication and management techniques or group work and presentation methods.

S11.1.4 - Assessment Procedure

Self-Assessment
Not applicable

Teacher´s Assessment
Not applicable

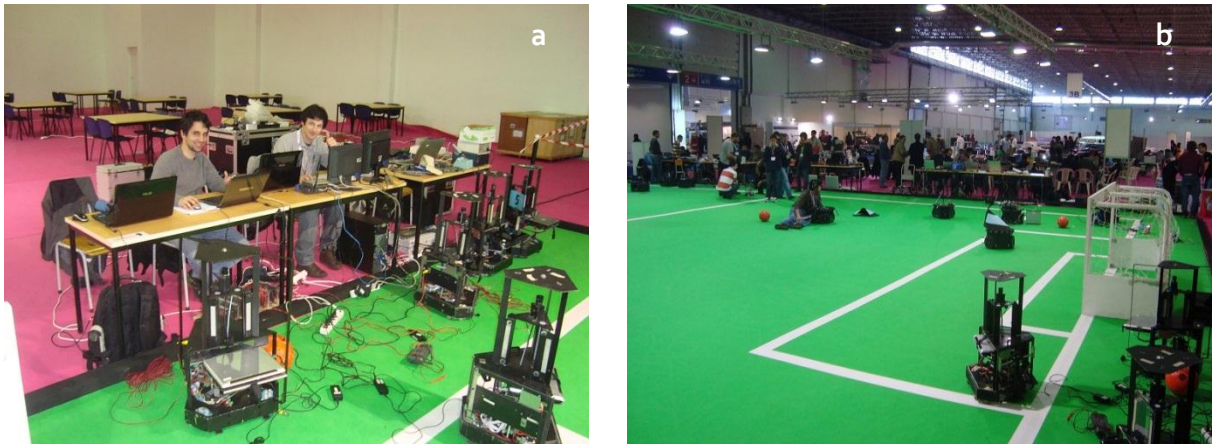

Figure 11.1 – a) teams at work; b) overall view of the game field

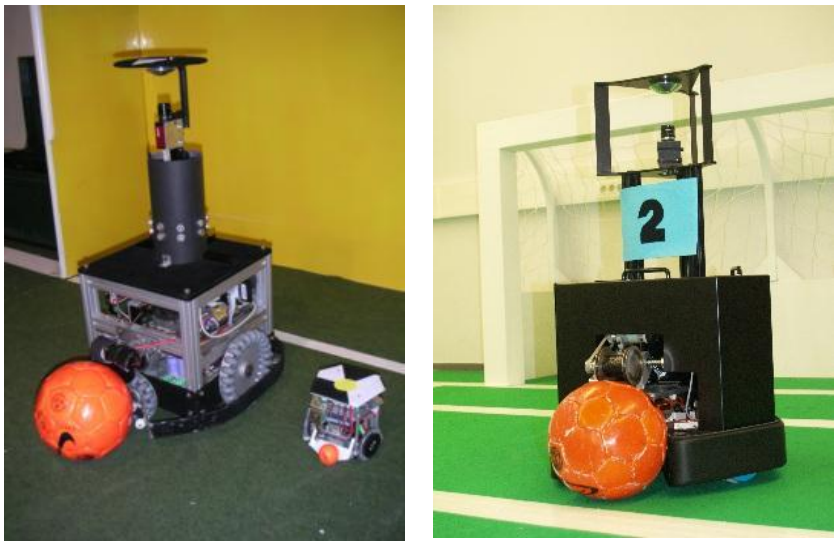

Figure 11.2 – Some of the RoboCup players

S11.2 - UP Young Researchers (IJUP Conference)

S11.2.1 - Identification

Table 11.2 – Activity characterization and support staff

Academic Year – 2009/2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) f appropriate**
3rd & 4th	-	2	1.5	**I**

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	André Restivo	Lecturer	MSc	Not applicable

S11.2.2 - Aims, Characterization

Background

Since 1995 FEUP students have been participating in several programming contests. During the academic year they are coached and participate in several training sessions. They are also responsible for a wiki containing helpful knowledge that ensures a good kick start for future participants.

Aims

To allow students with high potential to expand their knowledge above what could be achieved in the classroom and to promote the excellence of FEUP students across other universities.

Contents

- Participation in the 2009 MIUP (Inter-University Programming Marathon - *Maratona Inter-Universitária de Programação*) with 2 teams that ended up in 1st and 2nd positions out of 14
- Participation in the 2009 SWERC (South Western European Regional Contest) with 2 teams that ended 3rd (best FEUP result ever) and 19th.

S11.2.3 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria

After the completion of the abovementioned tasks the students are expected to develop or acquire the following skills:
Knowledge and Understanding – Students should be able to gain substantial knowledge in new topics.
Engineering Analysis – the students should be able to understand specific requirements, through analysis, before proposing an implementation. This involves an in-depth understanding of the underlying science and techniques.
Engineering Design – the students must be able to create new and innovative solutions to the needs identified or to overcome the problems encountered.
Investigations – The students should conduct some research into the technical issues prior to the implementation.
Engineering Practice – The students should be aware of the technical implications regarding implementation.
Transferable Skills – As a strong element of teamwork is involved and interaction with colleagues is key, it is expected that these students will strongly develop their soft skills - such as communication, management techniques and presentation methods.

S11.2.4 - Assessment Procedure

Self-Assessment
Not applicable

Teacher´s Assessment
Not applicable

S11.3 - NeES - Student Interest Group in Software Engineering

S11.3.1 - Identification

Table 11.3 – Activity characterization and support staff

Academic Year – 2009/2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) f appropriate**
3rd, 4th & 5th	-	2	2	**I**

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	Ana Paiva	Assistant Professor	PhD	Not applicable

S11.3.2 - Aims, Characterization

Background

Software Engineering (SE) is a vast domain of study and encompasses a wide variety of topics. The course syllabus covers the most important areas and refers to all the others, yet some are only partially covered due to time restrictions. In order to further pursue studies into such topics, the idea of creating a study group began to develop. This idea was nurtured by the teaching staff and so GEES came into being.

Aims

At first, the main goal was to further pursue studies in the Software Engineering domain, but eventually the group expanded its aims, and devoted its efforts into increasing the awareness of students to the issues involved in Software Engineering. Besides publicizing SE as an important and interesting area of research, supporting and nurturing the creation of smaller groups, dedicated to a specific topic, GEES also aims to spur research and publish information on the subject, as well as promote partnerships with local companies developing Software.

Contents

So far, several workshops and colloquiums have been organized, some in conjunction with local companies, such as StrongStep, and students have been actively participating in conferences on the subject, helping organizing as volunteers.

S11.3.3 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria
After completion of the abovementioned tasks the students are expected to develop or acquire the following skills:
Knowledge and Understanding – Students should have gained substantial knowledge regarding the implementation of a wide range of applications.
Engineering Analysis – the students should be able to understand the specific requirements, through examination of the problem at hand, before proposing an implementation.
Engineering Design – the students must be able to create innovative solutions to the needs identified.
Investigations – The students should conduct some research into the technical issues prior to the implementation of the proposed solution(s).
Engineering Practice – The students should be aware of the technical implications regarding the technology they are implementing.
Transferable Skills – As group work and interpersonal interaction is key, it is expected that students will strongly develop their soft skills - such as communication and management techniques or group work and presentation methods.

S11.3.4 - Assessment Procedure

Self-Assessment
Not applicable.

Teacher´s Assessment
Not applicable.

S11.4 - NeCG - Student Interest Group in Computer Graphics

S11.4.1 - Identification

Table 11.4 – Activity characterization and support staff

Academic Year – 2009/2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) f appropriate**
1st - 5th	-	2	1,5	

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	A. Augusto de Sousa	Associate Professor	PhD	Not applicable

S11.4.2 - Aims, Characterization

Background
The NeCG - Student Interest Group in Computer Graphics at FEUP is an interest group of students in the area of computer graphics and electronic game development, having arisen as a result of curriculum units in the area, taught in MIEIC.

Aims
The following are objectives of NeCG:

- To promote research and development activities in the area of Computer Graphics and Multimedia on the part of students at FEUP and, at the same time, promote the image of FEUP.
- To promote and disseminate scientific research, including interdisciplinary studies, seeking to streamline and implement the guidelines of FEUP.
- To promote entrepreneurship among its members.

Contents
In fulfillment of the objectives, the NeCG has participated in competitions and in research and development projects within and outside the FEUP, collaborating also with projects related to obtaining a PhD. It has still maintained some links to the industry, developing by-products for integration into commercial products.
The Group has tried to keep up to date with training and technology, in particular by enabling some of its members to participate in specialty workshops. In consequence, these members are encouraged to provide the remaining members with training based on the material gained.

S11.4.3 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria
After completion of the abovementioned objectives students are expected to develop or acquire the following skills:
Knowledge and Understanding – Students should have gained substantial knowledge regarding the implementation of a wide range of applications.
Engineering Analysis –students should be able to understand the specific needs, through examination of the problem at hand, before they propose an implementation.
Engineering Design – the students must be capable of creating innovative solutions to the requirements identified.
Investigations – The students should conduct some research into the technical issues prior to the implementation of the proposed solution(s).
Engineering Practice – The students should be aware of the technical implications regarding the technology they are implementing.
Transferable Skills – As group work and interpersonal interaction is key, it is expected that student will strongly develop their soft skills - such as communication and management techniques or group work and presentation methods.

S11.4.4 - Assessment Procedure

Self-Assessment
Not applicable.

Teacher´s Assessment
Not applicable.

S11.5 - FEUP Open Week

S11.5.1 - Identification

Table 11.5 – Activity characterization and support staff

Academic Year – 2009/2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) If appropriate**
3rd, 4th & 5th	-	0.5	0.3	-

Teaching Staff				
	Name	**Position**	**Academic background**	**%Occ.**
Coordinator	several teachers, one per scientific area, would supervise the organization and presentation of the students' work	Associate Professor (typically)	Minimum Master, typically, PhD	

S11.5.2 - Aims, Characterization

Background
The publicizing of the Integrated Masters in Informatics and Computation Engineering (MIEIC) amongst high school students is an ongoing effort of the staff at the Department of Informatics Engineering, and it involves a lot of aspects: demonstrations in high schools, reception of small groups of visitors at almost any time of the year, and in particular, opening the doors of the Department one week every year, generally in March, to a large group of students.

This last event has, for many years, seen the involvement of all sections of the Faculty of Engineering and, indeed, the whole University of Porto. It is very much anticipated by high-school students and teachers and the number of students that came to visit the campus, in recent years, is well over a thousand.

Aims
For students the goals of the "Open Week" activities are two-fold:

- to present effectively and demonstrate to the public the (essentially laboratory based) work they have developed in class;

- to allow the Integrated Masters students to train and develop personal skills, namely those related to communicating with a general audience;
- to convey their experience as students as a first opportunity of professional exposure.

Contents
The students engaged in this activity, supervised by teachers of several scientific areas, prepare lectures, assignments and laboratory experiments to be presented to groups of 15 high-school students, accompanied by one of their high-school teachers. On average, the activities from each scientific area, lasting about 30 minutes, are presented to 4 groups of visitors during three days of the annual general Faculty event, "Open Week".
The lectures, assignments and demonstrations are prepared to be interesting to the visitors and are, as far as possible, made to be interactive, so that the visitors can ask questions and put their hands on the gadgets or keyboards to try out whatever is being presented or demonstrated.
Some of the scientific topics that attracted most interest from visitors were Robotics, Interaction and Graphical Interfaces and Artificial Intelligence.

S11.5.3 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria
By supporting these activities, the Integrated Masters students are expected to develop or improve the following set of skills:
Knowledge and Understanding – The students should be able to pass knowledge to others, bringing together practice and theory and thus gain an extended knowledge regarding the experiments presented.
Engineering Analysis – The students should be capable of explaining the engineering problems and the solutions proposed by the experiment. This involves an in-depth understanding of the underlying science.
Engineering Design – An intricate knowledge of the experiments and, therefore, the underlying theory, is necessary to demonstrate the solutions and other technical aspects, in a simplified form, to the participant.
Investigations – The students are encouraged to conduct some research into the technical issues of the experiments that they will be displaying.
Engineering Practice – The students should be aware of the technical implications regarding the technology they are presenting.
Transferable Skills – As interpersonal interaction is key, it is expected that students will strongly develop their soft skills - such as communication and management techniques or group work and presentation methods.

S11.5.4 - Assessment Procedure

Self-Assessment
Not applicable.

Teacher´s Assessment
Not applicable.

ADENDUM TO S11 COMPLEMENTARY ACTIVITIES

R5/R6

S11.6 - JuniFEUP

Addendum table 11-1 - Activity characterization and support staff

Academic Year – 2009/2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level f appropriate (B/I/A)**
1st-5th	-	2	1.5	

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	Alcibíades Guedes	Assistant Professor	PhD	Not applicable

S11.6.1 - Aims, Characterization

Background

JuniFEUP is a junior company formed by students from various courses at FEUP. JuniFEUP plans to establish a platform of cooperation between the academic and business world, allowing a rapprochement between these two universes, facilitating the integration of students in these companies and opening an important gateway to their development.

Aims

- To act as true partners of companies in finding innovative solutions;
- To establish a platform for cooperation between the academic and business world, allowing a rapprochement between these two worlds;
- To facilitate the integration of students in these companies and open an important gateway to their development.

Contents

JuniFEUP offers solutions in all areas covered by the courses run by FEUP. However, it is more specialized in projects linked to information technologies and management, in areas like:

- Information technology consulting services
- WebSites
- WebDesign
- Information systems
- Multimedia Products
- Management systems
- Management and deployment of networks

S11.6.2 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria

After completion of the described tasks the students are expected to develop or acquire the following skills:
Knowledge and Understanding – Students should have gained substantial knowledge regarding the implementation of a wide range of applications.
Engineering Analysis – the students should be able to understand the specific requirements, through examination of the problem at hand, before they propose any solution or implementation.
Engineering Design – the students must be able to create innovative solutions in agreement with the needs that were identified by the team or the client.
Investigations – The students should perform extensive research into the technical issues prior to the implementation of the proposed solution(s).
Engineering Practice – The students should be aware of the technical implications regarding the technology they are implementing.
Transferable Skills – The students are expected to strongly develop their soft skills, such as communication, team work, management techniques and presentation methods, as a result of the extensive collaborative work and interpersonal interaction.

S11.6.3 - Assessment Procedure

Self-Assessment
Not applicable.

Teacher's Assessment
Not applicable.

S11.7 - Scientific Meetings Organization

Students have been included in activities related to the organization of scientific meetings, like conferences and workshops. A list of such participations follows.

SLACTIONS 2010 - Life, Imagination and Work using Metaverse platforms
Dates: 18-19 November, 2010
Place: FEUP, Porto, Portugal (central chapter: Manchester, UK)
http://www.slactions.org/slactions.php

Addendum table 11-2 - Activity characterization and support staff

Academic Year – 2009-2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level If appropriate (B/I/A)**
5th (1 students)	-	**1** (average)	0.6	-

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	António Coelho	AssistantProfessor	PhD	-
Other	Rui Rodrigues	Assistant Professor	PhD	-

TeBug2011 -1st International Workshop on Testing and Debugging
co-located with the International Conference on Software Testing, Verification and Validation (ICST)]
Dates: 25 March 2011
Place: Berlin
www.fe.up.pt/TeBug2011

Addendum table 11-3 - Activity characterization and support staff

Academic Year – 2009-2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level If appropriate (B/I/A)**
5th (2 students)	-	**1** (average)	0.6	-

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	Rui Maranhão Abreu	Assistant Professor	PhD	-

Agile Portugal 2010
Dates: 25-26 June, 2010
Place: FEUP, Porto
http://www.agilept.org

Addendum table 11-4 - Activity characterization and support staff

Academic Year – 2009-2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) If appropriate**
3rd, 4 & 5th (10 students)	**-**	**1** (average)	0.6	-

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	Ademar Aguiar	Assistant Professor	PhD	-

QUATIC'2010 - Seventh International Conference on the Quality of Information and Communications Technology
Dates: 29th September to 2nd October, 2010.
Place: FEUP, Porto, Portugal
http://paginas.fe.up.pt/~quatic2010/doku.php

Addendum table 11-5- Activity characterization and support staff

Academic Year – 2009-2010				
Year	**Sem**	**Contact time - Hours/Week**	**ECTS If appropriate**	**Level (B/I/A) If appropriate**
4 & 5th (3 students)	**-**	**1** (average)	0.6	-

Teaching Staff				
	Name	**Position**	**Academic background**	**% Occ.**
Coordinator	João Pascoal Faria	Assistant Professor	PhD	-

S11.7.1 - Aims, Characterization

Not applicable.

S11.7.2 - Characterization of objectives and program

Outcomes – in conformity with EUR-ACE criteria
Acquisition of knowledge and understanding about the organization of scientific meetings.
Analysis of the present role of Informatics and Computing Engineering in the Portuguese and nternational context.
Knowledge of the most probable areas of employment.
Transference of skills between students from the different years of the course.
Ability to efficiently demonstrate transferable skills.
Reports concerning the meeting organization.

S11.7.3 - Assessment Procedure

Self-Assessment
Not applicable.

Teacher's Assessment
Not applicable.

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S11.6 - FEUP's Cross-cutting Activities

Nowadays, FEUP offers - mostly to students but also to teachers and other collaborators- a wide assortment of events or thematic groups embracing cultural, technical and sporting activities. To ensure that the entire community has access to these activities, regular marketing notifications alert and encourage the students to enrol or to contribute.

Most of these activities are strongly based on team work and social interaction bonded by a common interest, but students are also given the opportunity to learn new skills or to tackle some small initial projects and even to collaborate with companies, and thus to start to apply, or broaden, their knowledge acquired while still at university.

Several language courses of different levels are available for national and international students, either to provide the first contact with a new language or to extend any previous knowledge. Behavioural courses are also provided for those students willing to tackle their shortcomings.

FEUP is also concerned to shorten the path to the work market by providing scheduled events whereby undergraduates and recent graduates can interact with recruiting and human resources companies to assess the labor market, improve their confidence, broaden horizons and job hunting skills and techniques. A counseling office is also available on a permanent basis.

Students and graduates are also given the appropriate environmental and technical support to trigger and develop their entrepreneurial skills, either by FEUP's administrative departments or by means of scheduled events, or through UP's innovation support services.

Many of these activities are sponsored by the several associations and groups based at FEUP, to which students can apply and in which they can take an active part in order to make their academic life more productive and stimulating.

S11.6.1 - Groups

S11.6.1.1 - Academic/cultural

- **AEFEUP** – FEUP Student Association

  The Student Association of Porto University Faculty of Engineering (AEFEUP) was founded on March 15, 1984.
  After completing 25 years of activity, this association can be proud of the work that has been undertaken on behalf of students, particularly those at FEUP. AEFEUP has been distinguished not only for the variety of areas of intervention and the promotion of a spirit of unity among the Engineering student community (and more generally within the

University of Porto), but also for the dynamism that it displays in the defence of those it represents. Thus, the association is an active partner both of FEUP and UP, making a valuable contribution to the noteworthy progress and prestige, both at this Faculty and within the entire University.
After 25 years of existence, AEFEUP plays an exceptional and increasingly important role in student life.
Throughout this period, there has been ample evidence of the genuine concern of the association with the issues of teaching quality, governance of the University and the Faculty, students' socioeconomic conditions, the orientation and integration of the engineering student community, the provision of cultural and sports activities for both undergraduates and graduates and for career opportunities. After some initial glitches and guesswork, there have been enormous developments on an organizational and involvement level, both as regards students and the extra-association environment, whereby AEFEUP has attained a truly professional level.
Many valuable initiatives have been taken over the past 25 years. AEFEUP is the largest association of students at the University of Porto, but is not satisfied simply with the label. Indeed, the association seeks to be worthy of the student community it represents, of the international prestige of FEUP and of the canons of the University of Porto.

- **ADEMEC** - Mechanical Former Students Association

- **ADEMM** - Metallurgical and Materials Former Students Association

- **Age-i-FEUP** - Industrial Engineering and Management Students Association

- **AlumniEI** - Alumni Association of Informatics and Computing Engineering

- **AEC** - Alumni Association of Civil Engineering, Faculty of Engineering of Porto University

- **TEUP** - The Tuna of the Faculty of Engineering

TEUP was born on 7 November 1988. The River Douro, the Rabelo boats, the historic buildings, the streets and the resurgence of academic traditions have rekindled the city's recognition of its historical significance and attest to the fact that a long-cherished dream has come true, inspired by the romance and beauty of the "Invincible City": the birth of the Faculty of Engineering's "Tuna".
Being the second oldest in Porto and the first faculty 'tuna', it was thus the precursor of the vast musical movement that sprouted in its stead. The formation of Tunas in most universities, faculties and institutes of the Porto academic community, as well in the rest of the country, and the successive Tuna festivals and meetings are proof of this.
Its hallmark is human interaction, bohemian camaraderie and songs that delight. A meeting point for friends, it possesses a unique gift of motivation and a commitment that always governs its conduct.
It provides escape and distraction from a demanding student life, and a healthy counterbalance to the stresses of academic work and study.
The interest and attention shown by the entire academic community is the reason for successive invitations to perform at different academic and other events. The "Engineering

Tuna" will always be a positive presence in and influence on the university environment, the streets of Porto and the hearts of passers-by and onlookers alike.

- **TUNAFE** - Engineering's Feminine Tuna

  The feminine Tuna was created on November 3, 1992 by a group of students from the Faculty of Engineering who shared a love for music and bohemianism. Made up of students on various FEUP courses, the TUNAFE combines respect for tradition with student exuberance and irreverence, and serves as a healthy outlet and means of escape from a demanding academic life.
  Free from rules and regulations, the passion that the tuna embodies is an essential ingredient, together with the small gestures that will cement the friendships forged through a shared love. This is the spirit fostered by the FEUP feminine Tuna, which marked all its generations.

- **BEST Porto** - Board of European Students of Technology - University of Porto

  BEST Porto is one of 77 Local BEST Groups (LBGs) spread throughout Europe and it aims to represent the BEST locally. As there can be only one LBG per university, BEST Porto represents the Faculties of Engineering (FEUP) and of Science (FCUP), both institutions of Porto University.
  BEST Porto organizes internal activities aimed at students from FEUP, such as engineering competitions, but also external activities, as in the case of the Summer Course, an annual event that brings around 20 people from all corners of Europe to Porto.
  All these activities are only possible due to the dedicated work and commitment of all LBG members (BESTies). Most events are free for the participant, which requires members to undertake fundraising activities to support these projects. At the same time, the BESTies acquire skills that will be very useful in their future professional lives, and have the opportunity to learn more about other cultures and to make contact with fellow-Europeans.

- **i-ESN** -International Exchange Erasmus Student Network

  ESN-Porto (Erasmus Student Network - Porto) is a group set up by volunteer students to help exchange students to integrate and adapt to Porto.
  With the support of Porto University International Relations Office, several activities are organized to ease the adaptation process and showcase Portugal and its culture.

- **CORAL** - Choir of the Faculty of Engineering of UP

  In 1988, a group of engineering students, sharing a love of music, created a group to promote polyphonic music of a popular and student nature. Thus was born the Engineering Choir of the University of Porto.
  Along with various performances and tours, both in national territory and abroad, the activities of the FEUP Choir include the promotion of courses in vocal technique. Several choir reunions have also been organized with the regular attendance of some of the best university choirs from abroad.

- **Grupo de Fados**

  FEUP's Fado group came into being on October 18, 1988, making its first public appearance on April 15, 1989, in S. Miguel de Paredes, and gained official status at the Queima das Fitas 'Serenata' that same year.
  Through its founders' initiatives, the love of music and a pleasant social gathering, this group has come a long way, having discovered the reason for its entire existence in the deep friendship that unites its members. Its three generations of student members have continued and kept alive the prevailing spirit and romanticism.
  The musical genre adopted was almost exclusive to the secular Academy of Coimbra until the end of the eighties, when it began to reach a wider audience along with the resurgence of and growing interest in academic traditions in Porto.
  Seeking to disseminate this genre and its inherent feelings and experiences, the group gives several performances and participates in activities and festivals both nationwide and abroad. In 1999 a studio recording of recognized artistic value was released.

- **ESTIEM** - European Students of Industrial Engineering and Management

  ESTIEM is the organization for European Students of Industrial Engineering and Management, which combines technological understanding with management skills. Its goals are to establish and foster relations between students across Europe and to support them in their personal and professional development. This network consists of 65 Local Groups in 25 countries, reaching out to 50,000 students.

- **IACES Porto** - International Association of Civil Engineering Students

  In September 1989, Civil Engineering students from various European countries came together in Delft for the first Academic Congress of Civil Engineering StudentS (ACCESS). The goal was to discuss the possibilities of improving contacts between civil engineering students throughout Europe. The final result was the establishment of the International Association of Civil Engineering Students (IACES).
  During its growth period the organization has established contacts with more than fifty Universities within and outside Europe. The major aim of IACES was the development of contacts between civil engineering students throughout the world. Nowadays IACES is present at civil engineering faculties through the whole of Europe, in the form of Local Committees (LC's) or Contact Persons (CP's).
  The students who are active in IACES organize a lot of different international activities. By taking part in IACES activities students can exchange opinions and experience, and discover new possibilities to understand and handle engineering problems or situations. Most important, however, is the opportunity to make oneself known and share different cultural experiences, undertaking interesting excursions and establishing personal friendships, all useful in one's future working life.
  The structure of IACES consists of all independent Local Committees together, each with its own members. Each year, several activities are organized by LC's, which their own members can join in. During an activity, which can last as long as a week, there can be lectures, excursions and enjoyable evening parties. Thus it is a very interesting experience to participate in and a good way of familiarizing oneself with other cultures.

Taking into consideration the continuous development in Europe with increasing mobility of workers and students, one understands the importance of international contacts between students.

- **Engenharia Rádio** (AEFEUP)

  Engineering Radio (ER) is an AEFEUP project which has replaced the Internal Engineering Radio that existed in the former premises of the Faculty of Engineering, in Rua dos Bragas.
  In the academic year 2000/2001 the original project was discontinued due to FEUP's moving to the Asprela site.
  Some years later, in 2004/2005, now in the new FEUP premises, the new ER studio was built by AEFEUP and started transmitting some experimental programmes.
  From the outset, the ER continuous emission could be heard via the internet and the programs were also available for download on the website.
  Its main goal is to make more and better programs and to create a radio to which college students can relate and in which they can actively participate.

- **Engineering Journal** (AEFEUP)

  The Engineering Journal (JE) is the property of AEFEUP but coordinated by a group of students from FEUP. This group has editorial independence and its main objective is to provide FEUP's student population with a means of disseminating information, in the expectation of improving the quality of academic life and involving the students in a dynamic and interesting project, while at the same time enabling them to occupy their free time with a valuable extra-curricular activity.
  Currently, the JE has a circulation of 1,500 copies and is free of charge.

- **Engenharte** – Theatrer group

  FEUP's Theatre Group was created in 2000 as an initiative of the cultural committee of the Students' Association. In 2002 it gained some autonomy and was coordinated by the students who form the group, while continuing to rely on the support of the Students' Association and the FEUP Cultural Committee. The project is then called Engenharte. The aim is to provide future engineering graduates with important personal enrichment through awareness of the performing arts and to encourage a creative spirit and the ability to bring stories and images alive by enacting them on stage. Each season comprises theatre training through games and exercises, the development of body language and the use of voice, character building, the exercise of the imagination, creational process experiments and performance rehearsals.

- **FEUP Cultural Committee**

  Considering college as a privileged space for Cross-fertilization, in 2002 the Board of the Faculty of Engineering created FEUP's Cultural Committee. This project aimed to immerse the FEUP academic community in cultural and artistic enjoyment, through a regular schedule of activities ranging from music to theatre, exhibitions, film series, debates about art and society, etc..

- **The Library**

  The FEUP Library acts as a natural cultural hub by providing several cultural activities for the community.
  As a means of nurturing the reading habits of the community, the Library created the FEUP Reading Club, which organizes discussion forums about authors and literary works.
  Alongside these sessions, a training scheme for the whole community was also launched, whose goal is the development of infoliteracy skills.
  Additionally, lectures, exhibitions and sessions celebrating relevant special occasions are regularly organised.
  The Library is also responsible for the FEUP Museum, established in order to catalogue, conserve and promote FEUP'S collection of artefacts and equipment.

S11.6.1.2 - Technical

- **JuniFEUP** - Junior Company of Porto University Faculty of Engineering

  JuniFEUP was established in March 2001. It is constituted by students from all years and all FEUP courses (except for Non-Executive Chairman Prof. Guedes Alcibiades), and has about 150 collaborators. In addition to these, JuniFEUP can rely on about 6,000 students from the Faculty of Engineering whenever its human resources are not sufficient for the completion of a project.
  JuniFEUP aims to establish a platform for cooperation between business and academia, enabling a closer relationship between these two universes, facilitating the integration of students into these companies while opening an important door for their development.

- **NAAM** - FEUP's Nucleus of Aeronautics, Aerospace and Modelling

- **Computer Graphics Students Group**

  The Computer Graphics Student Group of FEUP, NeCG|FEUP, was created in 2006 by a group of undergraduate Informatics and Computing Engineering students who were passionate about Computer Graphics.
  Its main goals are to create a mutual help group to raise awareness of its members regarding the subjects related to Computer Graphics, to promote undergraduate R&D activities and to spread The Word of the Pixel! It also takes a very special interest in the science and development of Digital Games.
  Usually, its activities are related to software development, yet it also promotes open academic/industrial events, since it believes that openness and awareness is the path to the next cycle of global knowledge.

- **Microelectronics' Students Group**

  The microelectronics students' group was created in Feb 2008 by students of the Integrated Masters and Ph.D. degrees in Electrical and Computer Engineering (ECE) from

FEUP. The initiative aims to develop and stimulate the interest of ECE students in the areas of semiconductor design technology, through the establishment of a very structured working environment to create, design and innovate. Currently, the group has more than twenty students at different stages of their studies working together, as an extra-curricular activity, on a variety of IC design projects. The group is supported by the Department of ECE of FEUP, and sponsored by INESC Porto. Professors Pedro Guedes de Oliveira and Vítor Grade Tavares are the main mentors of the group, which is led by the Ph.D. student Cândido Duarte.

- **NaFEUP** - FEUP Environmental Group

  FEUP's environmental group arose from the need to implement several actions in favor of a paradigm shift in an attempt to bridge the existing sustainability deficiencies at FEUP while at the same time aiming to be a collective force capable of informing, integrating and acting in order to foster environmental awareness in every FEUP student and collaborator. It was created with the purpose of being an open forum of knowledge sharing and of idea or experience exchanges where all stakeholders can - and should - participate, engage and collaborate.

- **Software Engineering Student Group**

- **Radio Amateurs Group**

- **ACM Student Group**

  The FEUP Association for Computing Machinery (ACM) core was the first in Portugal. The main objectives are the promotion of activities related to information systems and alerting people, particularly students from engineering, to the importance of this scientific area and all uses of computers in general.
  The ACM is an international scientific and educational organization dedicated to the development of computing and its applications, notably in the fields of art, science, engineering and information technology. With more than 80,000 members spread over 100 different countries, the ACM serves as a relay centre for students and computer professionals working in various fields of information technology.

- **NUIEEE** –IEEE University Group

  The IEEE is a nonprofit, worldwide leader for the advancement of technology.
  The IEEE name was originally an acronym for Institute of Electrical and Electronics Engineers, Inc. but is usually referred to as IEEE and pronounced as I3E.
  The IEEE is a leading authority on areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics, among others.
  To foster interest in engineering, the IEEE also serves student members in Polytechnics and Universities (Student Branch) worldwide and promotes synergies between industry, universities and governments to stimulate students' interest in science, mathematics, engineering and technology.

- **CHEFAX I&D**

  The group Chefax R&D was officially established in April 2001, upon the approval of the Director of CICA. Initially it had only two students and the support of an invited professor.
  The Main aim was to create a community of online programmers, whose purpose was to allow for them to learn from each other.
  At the present time, Chefax is also developing projects in partnership with CICA and other Academic Centers, such as NEACM.

S11.6.1.3 - Sports and leisure

- **Sports teams** (AEFEUP)

  AEFEUP provides the opportunity for students to practise a sport while representing FEUP in the Academic Championships in Porto (CAP), organized by the Academic Federation of Porto (FAP), and also the chance to compete at national level in UNIVERSITIY NATIONAL CHAMPIONSHIPS (CNU), organized by the Academic Federation of University Sports (FADU). The teams are:

  - Handball;
  - Basketball;
  - Football;
  - Futsal;
  - Volleyball.

- **Water Polo**

  The "Apolos Aquáticos" is a water polo team created by students of FEUP which currently has under its umbrella a number of players from several faculties of the University of Porto.

- **Leisure activities**

  AEFEUP organizes a large number of recreational activities on a regular basis, ranging from tournaments (LAN parties, table games, paintball, karting, racing, ...) to small leagues (futsal, table tennis, foosball, ...) and themed events (radical, surf and snow trips, dinner parties, health week, garage bands, Engineering week, ...).

- **GADUP - Sport Office** – University of Porto Social Support

  The creation of the Sports Office (GADUP) to manage all sports-related activities at the university is a sign of the new direction in which UP is going. It is committed to periodically reviewing its priorities in a constant dialogue with the students' associations, thus ensuring high quality sports services to the academic community at large. It wishes to see more students and staff practising sports on a regular basis, combining physical activity with a feeling of satisfaction and involvement.

The University of Porto has always borne in mind that sports activities are essential for the proper training of the individual. There are several facilities available for student exercise:

- The Prof. Dr. Jaime Rios de Souza University Stadium comprising the Professor Galvao Teles Pavilion, soccer field, rugby field, running track, two tennis courts and multi-sports stadium where activities such as handball, athletics, badminton, basketball, soccer (indoor and outdoor), rugby, tennis, fitness courses etc. are promoted.

- The Boa Hora Sports Complex with the university pool, judo centre, table tennis centre, chess centre, medical clinic and sauna to support activities such as Aikido, billiards, gymnastics, judo, karate, weightlifting, swimming, synchronized swimming, Water Polo, Table Tennis, Volleyball, Chess and Yoga.

The Rowing and Canoeing Centre, also an essential contributor to UPorto sporting activities, is located on the south bank of the river Douro (Vila Nova de Gaia).
Besides offering the above sports facilities, the University of Porto has arrangements with several gyms and fitness centres, whereby it can offer enhanced access to sporting and fitness activities.

- **FEUP's Sports Committee**

The Sports committee, in combination with FEUP, also organizes regular sporting activities. For instance, once a week yoga classes are held on the FEUP Campus, these being open to the entire community and Interface Institutes. It has also cooperated with FEUP in the development and construction of the joint maintenance track of FEUP/IPP. Likewise, the Sports committee has also worked together with FEUP on planning a new campus sports area, which will include changing rooms for general sports activities as well as a weight-lifting room and a multipurpose pavilion.

S11.6.2 - Services/courses

- **Entrepreneurs' Support Office (GAE - DCoop)**

The Dcoop promotes entrepreneurship as a skill and as an incentive to self-employment, also providing support for the creation of academic spin-offs. Its main scope is:

- To promote in young Engineering graduates the entrepreneurial spirit through the dissemination of programmes, activities and contest ideas aimed at the creation of innovative companies and businesses;

- To establish collaborative partnerships with innovation organizations, for the promotion of such activities;

- To support the creation of academic spin-offs (initial stages) through the dissemination of programmes that encourage business creation and through providing

contacts with consulting firms, venture capital and business angels who support the creation of new companies, business innovation and incubation centres.

- To support the evaluation of business ideas and business plans for FEUP's scientific and academic community, through a dedicated office.

Moreover, other UP services such as UPIN, UPTEC and CEdUP add further support and provide launch platforms for creative and innovative ideas.

- **Language courses**

AEFEUP offers some language courses delivered by third party providers. Usually the following are available:

- German;
- French;
- Spanish;

FEUP's students can also access other language courses given by other faculties of Porto University. international students are given the opportunity to learn Portuguese.

- **Behavioural courses**

Some of the available courses (promoted by AEFEUP)are :

- Behavioural Dimension of Change;
- Financial Management;
- Leadership and Coaching;
- Interpersonal Relationship;
- Public Speaking;
- Time and Stress Management;

- **Computer/Informatics courses**

Regularly, there are several computer, informatics and software courses available either to students or personnel. These may be promoted by FEUP, UP, AEFEUP or one of the groups/associations.

S11.6.3 - Events

- **Open Week – Engineer Career Week**

For a week, Porto University Faculty of Engineering opens its doors to students and teachers from secondary schools, with the theme "Career: Engineer".
In order to interact with students with a bent for Engineering, FEUP Departments prepare an interesting range of experiences, lectures, demonstrations and activities that depict the richness of the courses offered. The theme of the Open Week is designed to portray some

of the career opportunities available for FEUP graduates. Divided into five sub-themes, the display explores multidisciplinary areas to the full extent of engineering training offered.
This is a golden opportunity for FEUP and UP to "show off" and attract the best quality students from secondary school.

- **FEUP first job**

  The Cooperation Division (Cooperation and Communication Services) of Porto University Faculty of Engineering is responsible for organizing the "FEUP FIRST JOB" fair. This fair takes place each year, and is the fruit of FEUP cooperative links with companies. The fair aims at being a meeting point between recruiting companies and students or recent graduates searching for job opportunities.
  FEUP's "FirstJob" usually includes the presence of national and international companies on the stands, the usual employability workshops, presentations of companies (Chat Rooms) and the rapid recruitment interviews (Quick Job Hunting). More recently, additional activities have been introduced, such as the presence of a permanent booth for career counselling, supported by Human Resources Recruitment and Selection companies, and workshops on entrepreneurship and scientific research careers, aimed at students that are considering other professional careers.

- **FEUP CONGRESS 2011**

  With its first edition in 2011, the goal of this event is to create an expanded discussion forum in which all the FEUP community (teachers, researchers, technicians and students) can express themselves on any topic related to the activities and organization of our institution that may have a bearing on the near, medium or long term future, either from a strategic point of view or simply as far as current procedure is concerned.
  This event is the result of the maturing of projects implemented in the past, and seeks to provide the community with a dedicated discussion space regarding the numerous aspects of the Faculty's operation and organization, also acting as a vessel for proposals, initiatives or suggestions for its improvement.

All in all, FEUP's universe of cross-cutting activities provides a rich environment for students, teachers and collaborators alike to choose from, and ultimately provides multiple opportunities for engaging in parallel undertakings, either as a means of tackling their shortcomings or of strengthening their skills and widening their interests.

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OUTCOMES

R7

S12 - Outcomes - R7

Table 12.1 – 1st year syllabus outcomes

Course Units	Year	Regime	Knowledge and Understanding	Eng. Analysis	Eng. Design	Investigations	Eng. Practice	Transf. Skills
Mandatory								
Algebra (EIC0003)	1	1S	x	x		x		
Mathematical Analysis (EIC0004)	1	1S	x	x		x		
Computer Architecture and Organization (EIC0083)	1	1S	x	x	x		x	
Programming Fundamentals (EIC0005)	1	1S	x	x	x		x	
Discrete Mathematics (EIC0011)	1	1S	x	x		x		
Project FEUP (FEUP002)	1	1S	x	x	x	x	x	x
Complements of Mathematics (EIC0009)	1	2S	x	x		x		
Physics I (EIC0010)	1	2S	x	x			x	
Statistical Methods (EIC0105)	1	2S	x	x			x	
Microprocessors and Personal Computers (EIC0016)(A: 2-1)	1	2S	x	x	x		x	
Programming (EIC0012)	1	2S	x	x	x		x	

Table 12.2 – 2nd year syllabus outcomes

Course Units	Year	Regime	Knowledge and Understanding	Eng. Analysis	Eng. Design	Investigations	Eng. Practice	Transf. Skills
Mandatory								
Algorithms and Data Structures (EIC0013)	2	1S	x	x	x		x	
Physics II (EIC0014)	2	1S	x	x			x	
Numerical Methods (EIC0021)	2	1S	x	x				
Microprocessors and Personal Computers (EIC0016)(A: 2-2)	2	1S	x	x	x		x	
Computing Theory (EIC0022)	2	1S	x	x		x		
Computer Graphics (EIC0019)	2	2S	x	x	x		x	
Algorithm Design and Analysis (EIC0110)	2	2S	x	x	x		x	
Computer Laboratory (EIC0020)	2	2S	x	x	x	x	x	x
Object Oriented Programming Laboratory (EIC0111)	2	2S	x	x	x	x	x	x
Operating Systems (EIC0027)(A: 3-1)	2	2S	x	x	x	x	x	

Table 12.3 –3rd year syllabus outcomes

Course Units	Year	Regime	Knowledge and Understanding	Eng. Analysis	Eng. Design	Investigations	Eng. Practice	Transf. Skills
Mandatory								
Databases (EIC0023)	3	1S	x	x	x		x	
Software Engineering (EIC0024)	3	1S	x	x	x	x	x	x
Graphical Applications Laboratory (EIC0084)	3	1S	x	x	x	x	x	x
Web Languages and Technologies (EIC0112)	3	1S	x	x	x		x	
Logic Programming (EIC0026)	3	1S	x	x	x		x	
Operating Systems (EIC0027)(A: 3-2)	3	1S	x	x	x	x	x	
Compilers (EIC0028)	3	2S	x	x	x		x	
Artificial Intelligence (EIC0029)	3	2S	x	x	x		x	
Database and Web Applications Laboratory (EIC0085)	3	2S	x	x	x	x	x	x
Computer Networks (EIC0032)	3	2S	x	x	x	x	x	
Distributed Systems (EIC0036)(A: 4-1)	3	2S	x	x	x	x	x	

Table 12.4 – 4th year syllabus outcomes

Course Units	Year	Regime	Knowledge and Understanding	Eng. Analysis	Eng. Design	Investigations	Eng. Practice	Transf. Skills
Mandatory								
Agents and Distributed Artificial Intelligence (EIC0033)	4	1S	x	x	x	x	x	
Enterprise Management (EIC0034)	4	1S	x	x	x	x	x	x
Software Development Laboratory (EIC0086)	4	1S	x	x	x	x	x	x
Information Systems (EIC0040)	4	1S	x	x	x	x	x	
Distributed Systems (EIC0036)(A: 4-2)	4	1S	x	x	x	x	x	
Operational Research (EIC0037)	4	2S	x	x		x	x	
Project Management Laboratory (EIC0106)	4	2S	x	x	x	x	x	x
Formal Methods in Software Engineering (EIC0039)	4	2S	x	x	x	x	x	
Electives								
Signal Processing Algorithms (EIC0088)	4	2S	x	x	x	x	x	x
Software Systems Architecture (EIC0048)	4	2S	x	x	x	x	x	x
Parallel Computing (EIC0089)	4	2S	x	x	x	x	x	x
Computer Games Development (EIC0090)	4	2S	x	x	x	x	x	x
Software Systems Requirements Engineering (EIC0053)	4	2S	x	x	x	x	x	x
Operations Management and Logistics (EIC0091)	4	2S	x	x	x	x	x	x
Markup Languages and Document Processing (EIC0107)	4	2S	x	x	x	x	x	x
Marketing (EIC0061)	4	2S	x	x	x	x	x	x
Planning and Scheduling Methodologies (EIC0063)	4	2S	x	x	x	x	x	x
Multimedia and New Services (EIC0064)	4	2S	x	x	x	x	x	x
Programming Paradigms (EIC0065)	4	2S	x	x	x	x	x	x
Network and System Services (EIC0092)	4	2S	x	x	x	x	x	x
Signals and Sensors (EIC0093)	4	2S	x	x	x	x	x	x
Critical Systems (EIC0073)	4	2S	x	x	x	x	x	x
Geospatial Systems (EIC0094)	4	2S	x	x	x	x	x	x
Industrial Systems (EIC0075)	4	2S	x	x	x	x	x	x
Database Technologies (EIC0076)	4	2S	x	x	x	x	x	x
Distribution and Integration Technologies (EIC0077)	4	2S	x	x	x	x	x	x
Electronic Business Technologies (EIC0078)	4	2S	x	x	x	x	x	x

Table 12.5 – 5th year syllabus outcomes

Course Units	Year	Regime	Knowledge and Understanding	Eng. Analysis	Eng. Design	Investigations	Eng. Practice	Transf. Skills
Mandatory								
Dissertation (EIC0041)	5	1S		x	x	x	x	x
Dissertation Planning (EIC0087)	5	1S		x	x	x	x	x
Dissertation (EIC0041)	5	2S		x	x	x	x	x
Dissertation Planning (EIC0087)	5	2S		x	x	x	x	x
Electives								
Project Appraisal (EIC0044)	5	1S	x	x	x	x	x	x
Data Warehouses (EIC0046)	5	1S	x	x	x	x	x	x
Network and Systems Architecture and Management (EIC0095)	5	1S	x	x	x	x	x	x
Advanced Computer Architectures (EIC0049)	5	1S	x	x	x	x	x	x
Mobile Computing (EIC0050)	5	1S	x	x	x	x	x	x
Mobile Communications (EIC0082)	5	1S	x	x	x	x	x	x
Information Description, Storage and Retrieval (EIC0108)	5	1S	x	x	x	x	x	x
Knowledge Extraction and Machine Learning (EIC0096)	5	1S	x	x	x	x	x	x
Quality Management (EIC0109)	5	1S	x	x	x	x	x	x
Enterprise Information Management (EIC0097)	5	1S	x	x	x	x	x	x
Human-Computer Interaction (EIC0057)	5	1S	x	x	x	x	x	x
Agile Software Development Methodologies (EIC0062)	5	1S	x	x	x	x	x	x
Systems Modelling and Simulation (EIC0098)	5	1S	x	x	x	x	x	x
Information Systems Strategic Planning (EIC0067)	5	1S	x	x	x	x	x	x
Speech Processing (EIC0068)	5	1S	x	x	x	x	x	x
Virtual and Augmented Reality (EIC0070)	5	1S	x	x	x	x	x	x
Robotics (EIC0071)	5	1S	x	x	x	x	x	x
Computer Systems Security (EIC0072)	5	1S	x	x	x	x	x	x
Information Systems and Software Engineering Seminar (EIC0099)	5	1S	x	x	x	x	x	x
Networks and Information Technologies Seminar (EIC0100)	5	1S	x	x	x	x	x	x
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	5	1S	x	x	x	x	x	x
Decision Support Systems (EIC0074)	5	1S	x	x	x	x	x	x
Embedded and Real Time Systems (EIC0102)	5	1S	x	x	x	x	x	x
Software Testing and Quality (EIC0103)	5	1S	x	x	x	x	x	x
Computer Vision (EIC0104)	5	1S	x	x	x	x	x	x

Please note: A: x-y:These subjects belong to a group of alternatives.
For each group of alternatives (x), students must enroll in on of the subjects of the (y) group.

LIST OF TEACHING STAFF:

PERMANENT STAFF

R8

S13 - List of teaching staff: permanent staff - R8

Table 13.1 – Permanent teaching staff

Name	Academic Position	Age	Qualifications (Degrees)	GEST %	Admission	Years of Service	OE
Artur Pimenta Alves	Full Professor	64	PhD	100%	04-01-1971	41,1	
Fernando Nunes Ferreira	Full Professor	62	PhD	100%	03-11-1972	39,3	
Eugénio da Costa Oliveira	Full Professor	63	PhD	100%	21-12-1974	37,2	
Fernando Manuel Ferreira Lobo Pereira	Full Professor	55	PhD	100%	13-11-1980	31,3	
José António Ruela Simões Fernandes	Associate Professor	62	PhD	100%	08-11-1971	40,1	
Francisco José de Oliveira Restivo	Associate Professor	65	PhD	100%	12-01-1971	39,9	
Jorge Manuel Pinho de Sousa	Associate Professor	56	PhD	100%	02-05-1980	30,8	
Gabriel de Sousa Torcato David	Associate Professor	54	PhD	100%	12-11-1981	30,3	
Raul Fernando de Almeida Moreira Vidal	Associate Professor	64	PhD	100%	01-07-1982	29,7	
Rui Carlos Camacho de Sousa Ferreira da Silva	Associate Professor	51	PhD	100%	25-02-1983	29	
José Manuel Soutelo Soeiro de Carvalho	Associate Professor	53	PhD	100%	11-06-1983	28,7	
António Augusto de Sousa	Associate Professor	54	PhD	100%	16-12-1983	28,2	
António Manuel Lucas Soares	Associate Professor	47	PhD	100%	28-09-1987	24,4	
Francisco Manuel Madureira e Castro Vasques de Carvalho	Associate Professor	47	PhD	100%	07-03-1988	24	
António Joaquim Mendes Ferreira	Associate Professor	50	PhD	100%	10-10-1991	20,4	

Table 13.1 – Permanent teaching staff

Name	Academic Position	Age	Qualifications (Degrees)	GEST %	Admission	Years of Service	OE
João Bernardo de Sena Esteves Falcão e Cunha	Associate Professor	52	PhD	100%	29-09-1986	20,1	
Manuel Alberto Pereira Ricardo	Associate Professor	47	PhD	100%	01-03-1997	15	
João Manuel Paiva Cardoso	Associate Professor	41	PhD	100%	04-09-2008	3,5	
Eurico Manuel Elias de Morais Carrapatoso	Assistant Professor	56	PhD	100%	24-02-1978	36,1	
Armindo Luís Vilar Soares Lage	Assistant Professor	63	PhD	100%	07-04-1975	35,7	
José Augusto Trigo Barbosa	Assistant Professor	55	PhD	100%	13-12-1980	31,2	
Jorge Alves da Silva	Assistant Professor	54	PhD	100%	01-02-1982	30,1	
António Ernesto da Silva Carvalho Brito	Assistant Professor	53	PhD	100%	01-02-1982	30	
António Miguel Pontes Pimenta Monteiro	Assistant Professor	52	PhD	100%	18-04-1983	28,8	
Maria Cristina de Carvalho Alves Ribeiro	Assistant Professor	54	PhD	100%	16-11-1983	28,3	
José António Rodrigues Pereira de Faria	Assistant Professor	51	PhD	100%	16-12-1983	28,2	
António José Pessoa de Magalhães	Assistant Professor	51	PhD	100%	19-03-1984	27,9	
João António Correia Lopes	Assistant Professor	51	PhD	100%	15-11-1984	27,3	
José Manuel de Magalhães Cruz	Assistant Professor	52	PhD	100%	16-11-1984	27,3	
João Carlos Pascoal Faria	Assistant Professor	52	PhD	100%	20-12-1985	26,1	
Pedro Alexandre Guimarães Lobo Ferreira Souto	Assistant Professor	48	PhD	100%	30-09-1986	25,4	
José Rui da Rocha Pinto Ferreira	Assistant Professor	50	PhD	100%	28-09-1987	23,4	

Table 13.1 – Permanent teaching staff

Name	Academic Position	Age	Qualifications (Degrees)	GEST %	Admission	Years of Service	OE
João Paulo de Castro Canas Ferreira	Assistant Professor	47	PhD	100%	07-12-1988	23,2	
Joaquim Gabriel Magalhães Mendes	Assistant Professor	46	PhD	100%	19-12-1989	22,2	
Rui Jorge Sousa Costa de Miranda Guedes	Assistant Professor	46	PhD	100%	29-01-1990	22,1	
Ana Paula Cunha da Rocha	Assistant Professor	44	PhD	100%	27-11-1991	20,2	
António José Duarte Araújo	Assistant Professor	46	PhD	100%	27-11-1991	20,2	
José Luís Cabral Moura Borges	Assistant Professor	44	PhD	100%	01-10-1992	19,4	
Jaime Enrique Villate Matiz	Assistant Professor	52	PhD	100%	17-12-1992	19,2	
Paulo José Lopes Machado Portugal	Assistant Professor	43	PhD	100%	17-12-1992	19,2	
Ademar Manuel Teixeira de Aguiar	Assistant Professor	45	PhD	100%	28-10-1994	17,3	
António Miguel da Fonseca Fernandes Gomes	Assistant Professor	44	PhD	100%	21-11-1996	15,2	
Maria Teresa Magalhães da Silva Pinto de Andrade	Assistant Professor	48	PhD	100%	22-11-1996	15,2	
Armando Jorge Miranda de Sousa	Assistant Professor	41	PhD	100%	03-03-1997	15	
Miguel Fernando Paiva Velhote Correia	Assistant Professor	44	PhD	100%	16-10-1998	13,3	
Ana Cristina Ramada Paiva Pimenta	Assistant Professor	39	PhD	100%	08-10-1999	12,4	
Jorge Manuel Gomes Barbosa	Assistant Professor	42	PhD	100%	14-11-2000	11,3	
João Alberto Vieira Campos Pereira Claro	Assistant Professor	41	PhD	100%	08-01-2001	11,1	

Table 13.1 – Permanent teaching staff

Name	Academic Position	Age	Qualifications (Degrees)	GEST %	Admission	Years of Service	OE
Rui Paulo Soares Ribeiro	Assistant Professor	48	PhD	100%	20-06-2002	9,7	
Jaime dos Santos Cardoso	Assistant Professor	35	PhD	100%	02-02-2004	6	
António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor	40	PhD	100%	01-04-2006	5,9	
Rosaldo José Fernandes Rossetti	Assistant Professor	39	PhD	100%	23-11-2006	5,2	
Ricardo Santos Morla	Assistant Professor	36	PhD	100%	15-11-2007	4,3	
Maria de Lurdes Proença de Amorim Dinis	Assistant Professor	39	PhD	100%	01-09-2008	3,5	
Maria Cristina da Costa Vila	Lecturer	46	PhD	100%	05-05-1992	19,8	
Mário Jorge Rodrigues de Sousa	Lecturer	43	PhD	100%	17-12-1992	19,2	
João António Gonçalves de Sousa Marques de Carvalho	Lecturer	47	Licenciatura	100%	12-12-1995	16,2	
Maria Teresa Galvão Dias	Lecturer	45	PhD	100%	16-06-1997	14,7	
Lia Raquel Neto Martins Lima Patricio	Lecturer	42	PhD	100%	09-01-2002	10,1	
André Monteiro de Oliveira Restivo	Lecturer	35	Master	100%	30-01-2004	8,1	
Sérgio Sobral Nunes	Lecturer	35	PhD	100%	15-09-2005	6,4	

LIST OF TEACHING STAFF:

NON-PERMANENT STAFF

R8

S14 - List of teaching staff: non-permanent staff - R8

Table 14.1 – Non-permanent teaching staff

Name	Academic Position	Age	Qualifications (Degrees)	GEST %	Admission	Years of Service	OE
João Manuel Couto das Neves	Invited Assistant Professor	49	Licenciatura	50%	31-01-2002	10,1	
Luís Paulo Gonçalves dos Reis	Invited Assistant Professor	41	PhD	100%	13-12-2001	9,7	
Tito Carlos Soares Vieira	Invited Assistant Professor	39	Master	100%	29-05-2006	4,8	
João Isidro Araújo Vila Verde	Invited Lecturer	48	Master	100%	28-10-1994	13,4	
Gil Manuel Magalhães de Andrade Gonçalves	Invited Lecturer	41	Master	100%	20-10-1999	12,3	
Maria Gabriela Beirão dos Santos	Invited Lecturer	38	PhD	100%	15-09-2004	7,4	
Rui Alexandre Carvalhais Costa Padrão	Invited Lecturer	40	Master	100%	31-10-2004	7,3	
Henrique Daniel de Avelar Lopes Cardoso	Invited Lecturer	37	PhD	100%	15-09-2005	6,4	
Nuno Honório Rodrigues Flores	Invited Lecturer	36	Master	100%	14-12-2005	6,2	
António Manuel Correia Pereira	Invited Lecturer	50	PhD	100%	27-10-2006	5,3	
António Jesus Monteiro de Castro	Invited Lecturer	47	Master	50%	27-10-2006	4,4	

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LIST OF STAFF IN CHARGE

R8

S15 - List of staff in charge - R8

The courses' regents are marked as **bold**.

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
Mandatory								
Algebra (EIC0003)	1	1S	**António Joaquim Mendes Ferreira**	Full Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Mecânica	Doutoramento-Engenharia Mecânica
			Carla Maria da Cunha Roque		DEMec - Departamento de Engenharia Mecânica			
			Pedro Alexandre Lopes de Sousa Martins		DEMec - Department of Mechanical Engineering		Licenciatura em Física - Ramo Científico	Licenciatura-Física - Ramo Científico
Mathematical Analysis (EIC0004)	1	1S	Ana Maria Azevedo Neves	Invited Lecturer	DEMec - Department of Mechanical Engineering		Licenciatura em Matemática	Mestrado-Ensino da Matemática
			António Joaquim Mendes Ferreira	Full Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Mecânica	Doutoramento-Engenharia Mecânica
			Rui Paulo Soares Ribeiro	Assistant Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Física Tecnológica	Doutoramento-Ciências -Física Experimental

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
Computer Architecture and Organization (EIC0083)	1	1S	António José Duarte Araújo	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			João Paulo de Castro Canas Ferreira	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Raul Fernando de Almeida Moreira Vidal	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica - opção: Sistemas-Electrónica	Doctor-Doctor of Philosophy
Programming Fundamentals (EIC0005)	1	1S	António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Fernando Nunes Ferreira	Full Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica
			Henrique Daniel de Avelar Lopes Cardoso	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Informática de Gestão	Doutor-Engenharia Informática

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Jorge Alves da Silva	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Discrete Mathematics (EIC0011)	1	1S	**Francisco José de Oliveira Restivo**		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor-Engenharia Electrotécnica e de Computadores - R. Sistemas Telec., Electrónica e Comp.
			Gil Manuel Magalhães de Andrade Gonçalves	Invited Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Mestrado-Engenharia Electrotécnica e de Computadores
Complements of Mathematics (EIC0009)	1	2S	José Augusto Trigo Barbosa	Assistant Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Mecânica	Doutoramento-Engenharia Mecânica
			Rui Jorge Sousa Costa de Miranda Guedes	Assistant Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Mecânica	Doutoramento-Engenharia Mecânica
			Rui Paulo Soares Ribeiro	Assistant Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Física Tecnológica	Doutoramento-Ciências -Física Experimental
Physics I (EIC0010)	1	2S	**Jaime Enrique Villate Matiz**	Assistant Professor	DEF - Departamento de Engenharia Física	100%	Licenciatura em Fisíca	Doctor of Philosofhy-Fisíca
			João António Gonçalves de	Lecturer	DEF - Departamento	100%	Licenciatura em Física - Ramo	Licenciatura-Física - Ramo científico óptica electronica

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Sousa Marques de Carvalho		de Engenharia Física		científico óptica electronica	
Statistical Methods (EIC0105)	1	2S	Isabel Maria Noronha de Resende Horta e Costa	Invited Lecturer	DEGI - Departamento de Engenharia e Gestão Industrial	30%	Licenciatura em Engenharia Civil - Opção Condicionada de Construções Civis	Licenciatura-Engenharia Civil - Opção Condicionada de Construções Civis
			José Luis Cabral Moura Borges	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Mecânica	Doctor of Philosophy-Computer Science
			Maria Joao Medeiros Vasconcelos		DEGI - Departamento de Engenharia e Gestão Industrial	30%	Licenciatura em Matemática Aplicada à Tecnologia	Mestrado-Estatística Aplicada e Modelação
Microprocessors and Personal Computers (EIC0016)	1	2S	**Armindo Luís Vilar Soares Lage**		DEEC - Department of Electrical and Computer Engineering	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica
			João Paulo de Castro Canas Ferreira	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Miguel Fernando Paiva Velhote	Assistant Professor	DEEC - Departamento	100%	Licenciatura em Engenharia	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Correia		de Engenharia Eletrotécnica e de Computadores		Electrotécnica e de Computadores	
Programming (EIC0012)	1	2S	António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Fernando Nunes Ferreira	Full Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica
			Henrique Daniel de Avelar Lopes Cardoso	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Informática de Gestão	Doutor-Engenharia Informática
			Jorge Alves da Silva	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Algorithms and Data Structures (EIC0013)	2	1S	António Jesus Monteiro de Castro		DEI - Departamento de Engenharia Informática	50%	Licenciatura em Engenharia de Sistemas de Informação	Mestrado-Inteligência Artificial
			António Manuel Correia Pereira	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutor-Engenharia Informática
			Rosaldo José	Assistant	DEI -	100%	Licenciatura em	Doutor-Ciência da Computação

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Fernandes Rossetti	Professor	Departamento de Engenharia Informática		Engenharia Civil	
Physics II (EIC0014)	2	1S	**Jaime Enrique Villate Matiz**	Assistant Professor	DEF - Departamento de Engenharia Física	100%	Licenciatura em Fisíca	Doctor of Philosofhy-Fisíca
			João António Gonçalves de Sousa Marques de Carvalho	Lecturer	DEF - Departamento de Engenharia Física	100%	Licenciatura em Física - Ramo científico óptica electronica	Licenciatura-Física - Ramo científico óptica electronica
Numerical Methods (EIC0021)	2	1S	**José Manuel Soutelo Soeiro de Carvalho**	Associate Professor	DEM - Departamento de Engenharia de Minas	100%	Licenciatura em Engenharia de Minas	Doutoramento-Engenharia de Minas
			Maria Cristina da Costa Vila	Assistant Professor	DEM - Departamento de Engenharia de Minas	100%	Licenciatura em Engenharia de Minas	Doutoramento-Ciências de Engenharia
			Maria de Lurdes Proença de Amorim Dinis	Assistant Professor	DEM - Departamento de Engenharia de Minas	100%	Licenciatura em Engenharia de Minas	Doutoramento-Engenharia do Ambiente
Microprocessors and Personal Computers (EIC0016)	2	1S	**Armindo Luís Vilar Soares Lage**		DEEC - Department of Electrical and Computer Engineering	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica
			Ricardo Santos Morla	Assistant Professor	DEEC - Departamento	100%	Licenciatura em Engenharia	Doctor of Philosofhy-Computer Science

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					de Engenharia Eletrotécnica e de Computadores		Electrotécnica e de Computadores - Telecomunicações e Computadores	
Computing Theory (EIC0022)	2	1S	**João Manuel Paiva Cardoso**	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrónica e Telecomunicações	Doutor-Engenharia Electrotécnica e de Computadores
			Rui Jorge Pereira Gonçalves		DEI - Departamento de Engenharia Informática	30%	Licenciatura em Ciência de Computadores - Ramo Científico	Mestrado-Engenharia Informática
Computer Graphics (EIC0019)	2	2S	**António Augusto de Sousa**	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Rui Pedro Amaral Rodrigues	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doutor-Informática
Algorithm Design and Analysis (EIC0110)	2	2S	António Jesus Monteiro de Castro		DEI - Departamento de Engenharia Informática	50%	Licenciatura em Engenharia de Sistemas de Informação	Mestrado-Inteligência Artificial

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Nuno Honório Rodrigues Flores	Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Informática e Computação	Mestrado-Engenharia Informática
			Rosaldo José Fernandes Rossetti	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Civil	Doutor-Ciência da Computação
Computer Laboratory (EIC0020)	2	2S	António Manuel Correia Pereira	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutor-Engenharia Informática
			João Isidro Araújo Vila Verde	Invited Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Mestrado-Engenharia Electrotécnica
			Rui Filipe Lima Maranhão de Abreu	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doctor -SEM CURSO/ÁREA
Operating Systems (EIC0027)	2	2S	João Isidro Araújo Vila Verde	Invited Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Mestrado-Engenharia Electrotécnica
			Jorge Alves da Silva	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Databases (EIC0023)	3	1S	Fernando Luís Ferreira de		DEI - Departamento	30%	Licenciatura em Engenharia	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Almeida		de Engenharia Informática		Informática e Computação	
			Maria Eduarda Silva Mendes Rodrigues	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Telecomunicações e Computadores	Doctor of Philosofhy-
			Valter Vieira Neto Rocha		DEI - Departamento de Engenharia Informática	30%	Licenciatura em Engenharia Electrónica e Telecomunicações	Licenciatura-Engenharia Electrónica e Telecomunicações
Software Engineering (EIC0024)	3	1S	Ana Cristina Ramada Paiva Pimenta	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doutoramento-Engenharia Electrotécnica e de Computadores
			João Carlos Pascoal de Faria	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Graphical Applications Laboratory (EIC0084)	3	1S	**António Augusto de Sousa**	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Maria Eduarda Silva Mendes Rodrigues	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores -	Doctor of Philosofhy-

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
							Telecomunicações e Computadores	
			Rui Pedro Amaral Rodrigues	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doutor-Informática
Logic Programming (EIC0026)	3	1S	**Eugénio da Costa Oliveira**	Full Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Informática - Inteligência Artificial
			Luis Paulo Gonçalves dos Reis		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Rui Jorge Reis Gomes		DEI - Departamento de Engenharia Informática	30%	Licenciatura em Engenharia Informática e Computação	Mestrado-Engenharia Informática
Operating Systems (EIC0027)	3	1S	Hugo José Sereno Lopes Ferreira	Invited Lecturer	DEI - Departamento de Engenharia Informática	30%	Licenciatura em Engenharia Informática e Computação	Licenciatura-Engenharia Informática e Computação
			João Isidro Araújo Vila Verde	Invited Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Mestrado-Engenharia Electrotécnica
			Rui Filipe Lima Maranhão de Abreu	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doctor -SEM CURSO/ÁREA

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
Compilers (EIC0028)	3	2S	**João Manuel Paiva Cardoso**	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrónica e Telecomunicações	Doutor-Engenharia Electrotécnica e de Computadores
Artificial Intelligence (EIC0029)	3	2S	**Ana Paula Cunha da Rocha**	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Henrique Daniel de Avelar Lopes Cardoso	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Informática de Gestão	Doutor-Engenharia Informática
Database and Web Applications Laboratory (EIC0085)	3	2S	André Monteiro de Oliveira Restivo	Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Informática e Computação	Mestrado-Inteligencia Artificial e Sistemas Inteligentes
			João António Correia Lopes	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosofhy-Engenharia Electrotécnica
			Luís Filipe Pinto de Almeida Teixeira	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	30%	Licenciatura em Engenharia Electrotécnica e de Computadores - Telecomunicações e Computadores	Doutoramento-Ramo de Conhecimento em Engenharia Electrotécnica e de Computadores
			Sérgio Sobral Nunes	Assistant Professor	DEI - Departamento de Engenharia	100%	Licenciatura em Engenharia Informática e	Doutor-Engenharia Informática

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					Informática		Computação	
Computer Networks (EIC0032)	3	2S	José António Ruela Simões Fernandes		DEEC - Department of Electrical and Computer Engineering	100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosofhy-Engenharia Electrotécnica
			Manuel Alberto Pereira Ricardo	Associate Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Maria Teresa Magalhães da Silva Pinto de Andrade	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Ramo de Conhecimento em Engenharia Electrotécnica e de Computadores
Distributed Systems (EIC0036)	3	2S	Daniel Cardoso de Moura	Invited Lecturer	DEI - Departamento de Engenharia Informática	30%	Licenciatura em Engenharia Informática e Computação	Mestrado-Mestrado em Inteligência Artificial e Computação
			Pedro Alexandre Guimarães Lobo Ferreira do Souto	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosophy-Artes/Glass
Agents and Distributed Artificial Intelligence (EIC0033)	4	1S	António Jesus Monteiro de Castro		DEI - Departamento de Engenharia	50%	Licenciatura em Engenharia de Sistemas de	Mestrado-Inteligência Artificial

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					Informática		Informação	
			Eugénio da Costa Oliveira	Full Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Informática - Inteligência Artificial
			Henrique Daniel de Avelar Lopes Cardoso	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Informática de Gestão	Doutor-Engenharia Informática
Enterprise Management (EIC0034)	4	1S	Lia Raquel Neto Martins de Lima Patrício	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Economia -Ramo Economia de Empresa	Doutoramento-Gestão e Engenharia Industrial
			Maria Gabriela Beirão dos Santos	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia e Gestão Industrial	Doutor-Engenharia Industrial e Gestão
Software Development Laboratory (EIC0086)	4	1S	**Ademar Manuel Teixeira de Aguiar**	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Sistemas Digitais	Doutoramento-Engenharia Electrotécnica e de Computadores
			Nuno Honório Rodrigues Flores	Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Informática e Computação	Mestrado-Engenharia Informática
Information Systems (EIC0040)	4	1S	João Bernardo de Sena Esteves	Full Professor	DEGI - Departamento	100%	Licenciatura em Engenharia	Ph.D-Computing Science

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Falcão e Cunha		de Engenharia e Gestão Industrial		Electrotécnica	
			João Manuel Curralo Mourinho		DEGI - Departamento de Engenharia e Gestão Industrial	30%	Mestrado em Engenharia Informática e Computação	Mestrado Integrado-Engenharia Informática e Computação
			Nadja Mench Bressan		DEGI - Departamento de Engenharia e Gestão Industrial	30%	Mestrado em Automação, Instrumentação e Controlo	Mestrado-Automação, Instrumentação e Controlo
			Ricardo Jorge Teixeira Sousa		DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	30%	Licenciatura em Engenharia Electrotécnica e de Computadores - Ramo Sist. Telecom., Elect. e Comput.	Licenciatura-Engenharia Electrotécnica e de Computadores - Ramo Sist. Telecom., Elect. e Comput.
Distributed Systems (EIC0036)	4	1S	**Pedro Alexandre Guimarães Lobo Ferreira do Souto**	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosophy-Artes/Glass
			Rui Filipe Lima Maranhão de Abreu	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doctor -SEM CURSO/ÁREA
Operational Research	4	2S	António Miguel	Assistant	DEGI -	100%	Licenciatura em	Doutoramento-Engenharia Electrotécnica e

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
(EIC0037)			da Fonseca Fernandes Gomes	Professor	Departamento de Engenharia e Gestão Industrial		Engenharia Electrotécnica e de Computadores	de Computadores
			Maria Teresa Galvão Dias	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Matemática (Ramo de Investigação Operacional)	Doutoramento-Ciências de Engenharia
Project Management Laboratory (EIC0106)	4	2S	Ademar Manuel Teixeira de Aguiar	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Sistemas Digitais	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Ernesto da Silva Carvalho Brito	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Mecânica	Doctor of Philosofhy-SEM CURSO/ÁREA
			Gil Manuel Magalhães de Andrade Gonçalves	Invited Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Mestrado-Engenharia Electrotécnica e de Computadores
			João Carlos Pascoal de Faria	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			Raul Fernando de Almeida Moreira Vidal	Associate Professor	DEI - Departamento de Engenharia	100%	Licenciatura em Engenharia Electrotécnica -	Doctor-Doctor of Philosophy

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					Informática		opção: Sistemas-Electrónica	
Formal Methods in Software Engineering (EIC0039)	4	2S	**Ana Cristina Ramada Paiva Pimenta**	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doutoramento-Engenharia Electrotécnica e de Computadores
			Hugo José Sereno Lopes Ferreira	Invited Lecturer	DEI - Departamento de Engenharia Informática	30%	Licenciatura em Engenharia Informática e Computação	Licenciatura-Engenharia Informática e Computação
Dissertation (EIC0041)	5	1S	Ademar Manuel Teixeira de Aguiar	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Sistemas Digitais	Doutoramento-Engenharia Electrotécnica e de Computadores
			Ana Paula Cunha da Rocha	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Augusto de Sousa	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Manuel Lucas Soares	Associate Professor	DEI - Departamento	100%	Licenciatura em Engenharia	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					de Engenharia Informática		Electrotécnica	
			António Miguel Pontes Pimenta Monteiro	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			Gabriel de Sousa Torcato David	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Ramo e Especialidade de Informática
			João Carlos Pascoal de Faria	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			Jorge Manuel Gomes Barbosa	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			José António Rodrigues Pereira de Faria	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			José Luis Cabral Moura Borges	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Mecânica	Doctor of Philosophy-Computer Science
			José Manuel Magalhães Cruz	Assistant Professor	DEI - Departamento	100%	Licenciatura em Física	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					de Engenharia Informática			
			Lia Raquel Neto Martins de Lima Patrício	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Economia -Ramo Economia de Empresa	Doutoramento-Gestão e Engenharia Industrial
			Luis Paulo Gonçalves dos Reis		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Manuel Alberto Pereira Ricardo	Associate Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Maria Cristina de Carvalho Alves Ribeiro	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Informática - Inteligência Artificial
			Maria Teresa Galvão Dias	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Matemática (Ramo de Investigação Operacional)	Doutoramento-Ciências de Engenharia
			Tito Carlos Soares Vieira		CICA - Centro de Informática Prof. Correia Araújo	100%	Licenciatura em Engenharia de Sistemas de Informação	Mestrado-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
Dissertation Planning (EIC0087)	5	1S	**Francisco José de Oliveira Restivo**		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor-Engenharia Electrotécnica e de Computadores - R. Sistemas Telec., Electrónica e Comp.
Dissertation (EIC0041)	5	2S	Ademar Manuel Teixeira de Aguiar	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Sistemas Digitais	Doutoramento-Engenharia Electrotécnica e de Computadores
			Ana Cristina Ramada Paiva Pimenta	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doutoramento-Engenharia Electrotécnica e de Computadores
			Ana Paula Cunha da Rocha	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Augusto de Sousa	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			António José Pessoa de Magalhães	Assistant Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			António Manuel Lucas Soares	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			António Miguel Pontes Pimenta Monteiro	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			Armando Jorge Miranda de Sousa	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Claudia Melania Chituc	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Science of Systems and Computers	Doutor-Engenharia Electrotécnica e de Computadores
			Eugénio da Costa Oliveira	Full Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Informática - Inteligência Artificial
			Eurico Manuel Elias Morais Carrapatoso	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica - Sistemas de Energia, Lógicos e Analógicos
			Fernando Manuel Ferreira	Full Professor	DEEC - Departamento	100%	Licenciatura em Engenharia	Doctor-Doctor of Philosophy

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Lobo Pereira		de Engenharia Eletrotécnica e de Computadores		Electrotécnica	
			Francisco José de Oliveira Restivo		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor-Engenharia Electrotécnica e de Computadores - R. Sistemas Telec., Electrónica e Comp.
			Gil Manuel Magalhães de Andrade Gonçalves	Invited Lecturer	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Mestrado-Engenharia Electrotécnica e de Computadores
			Jaime dos Santos Cardoso	Assistant Professor	DEEC - Departamento de Engenharia Eletrotécnica e de Computadores	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Telecomunicações e Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			João António Correia Lopes	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosofhy-Engenharia Electrotécnica
			João Bernardo de Sena Esteves Falcão e Cunha	Full Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Electrotécnica	Ph.D-Computing Science
			João Carlos Pascoal de Faria	Assistant Professor	DEI - Departamento	100%	Licenciatura em Engenharia	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
					de Engenharia Informática		Electrotécnica	
			João Manuel Paiva Cardoso	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrónica e Telecomunicações	Doutor-Engenharia Electrotécnica e de Computadores
			Joaquim Gabriel Magalhães Mendes	Assistant Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Mecânica	Doutoramento-Electrónica Industrial
			Jorge Alves da Silva	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			Jorge Manuel Gomes Barbosa	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Jorge Manuel Pinho de Sousa	Associate Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Electrotécnica	Docteur-Sciences Aplliquées
			José Luis Cabral Moura Borges	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Engenharia Mecânica	Doctor of Philosophy-Computer Science
			José Rui da Rocha Pinto	Assistant Professor	DEEC - Departamento	100%	Licenciatura em Engenharia	Doutoramento-Ramo de Conhecimento em Engenharia Electrotécnica e de

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Ferreira		de Engenharia Eletrotécnica e de Computadores		Electrotécnica	Computadores
			Luis Paulo Gonçalves dos Reis		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Maria Cristina de Carvalho Alves Ribeiro	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Informática - Inteligência Artificial
			Maria Eduarda Silva Mendes Rodrigues	Invited Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Telecomunicações e Computadores	Doctor of Philosofhy-
			Maria Teresa Galvão Dias	Assistant Professor	DEGI - Departamento de Engenharia e Gestão Industrial	100%	Licenciatura em Matemática (Ramo de Investigação Operacional)	Doutoramento-Ciências de Engenharia
			Raul Fernando de Almeida Moreira Vidal	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica - opção: Sistemas-Electrónica	Doctor-Doctor of Philosophy
			Rosaldo José	Assistant	DEI -	100%	Licenciatura em	Doutor-Ciência da Computação

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Fernandes Rossetti	Professor	Departamento de Engenharia Informática		Engenharia Civil	
			Rui Carlos Camacho de Sousa Ferreira da Silva	Associate Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
			Rui Filipe Lima Maranhão de Abreu	Assistant Professor	DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia de Sistemas e Informática	Doctor -SEM CURSO/ÁREA
Dissertation Planning (EIC0087)	5	2S	**Francisco José de Oliveira Restivo**		DEI - Departamento de Engenharia Informática	100%	Licenciatura em Engenharia Electrotécnica	Doctor-Engenharia Electrotécnica e de Computadores - R. Sistemas Telec., Electrónica e Comp.
Electives								
Software Systems Architecture (EIC0048)	4	2S	**Ademar Manuel Teixeira de Aguiar**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Sistemas Digitais	Doutoramento-Engenharia Electrotécnica e de Computadores
Parallel Computing (EIC0089)	4	2S	**António Miguel Pontes Pimenta Monteiro**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Computer Games Development (EIC0090)	4	2S	**António Fernando Vasconcelos Cunha Castro Coelho**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
			Rui Pedro Amaral Rodrigues	Invited Assitant Professor			Licenciatura em Engenharia de Sistemas e Informática	Doutoramento- Informática
Software Systems Requirements Engineering (EIC0053)	4	2S	**António Manuel Lucas Soares**	Associate Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Markup Languages and Document Processing (EIC0107)	4	2S	João António Correia Lopes	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosofhy-Engenharia Electrotécnica
			Maria Cristina de Carvalho Alves Ribeiro	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento - Informática
Marketing (EIC0061)	4	2S	Lia Raquel Neto Martins de Lima Patrício	Assistant Professor		100%	Licenciatura em Economia -Ramo Economia de Empresa	Doutoramento-Gestão e Engenharia Industrial
Planning and Scheduling Methodologies (EIC0063)	4	2S	**Luis Paulo Gonçalves dos Reis**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
Multimedia and New Services (EIC0064)	4	2S	Artur Pimenta Alves	Full Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrónica e Telecomunicações
			Eurico Manuel Elias Morais Carrapatoso	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica
Network and System Services (EIC0092)	4	2S	João Manuel Couto das Neves	Invited Assistant		50%	Licenciatura em Engenharia	Licenciatura-Engenharia Electrotécnica

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
				Professor			Electrotécnica	
Critical Systems (EIC0073)	4	2S	Francisco Manuel Madureira e Castro Vasques de Carvalho	Associate Professor	DEMec - Department of Mechanical Engineering	100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica
			Mário Jorge Rodrigues de Sousa	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Paulo José Lopes Machado Portugal	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
Distribution and Integration Technologies (EIC0077)	4	2S	**António Miguel Pontes Pimenta Monteiro**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Electronic Business Technologies (EIC0078)	4	2S	**Ana Paula Cunha da Rocha**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
Project Appraisal (EIC0044)	5	1S	Rui Alexandre Carvalhais Costa Padrão	Invited Lecturer		100%	Licenciatura em Gestão	Mestrado-Ciências Empresariais
Data Warehouses (EIC0046)	5	1S	Claudia Melania Chituc	Prestação de Serviços		100%	Licenciatura em Science of Systems and Computers	Doutor-Engenharia Electrotécnica e de Computadores
Network and Systems Architecture and	5	1S	João Manuel Couto das Neves	Invited Assistant		50%	Licenciatura em Engenharia	Licenciatura-Engenharia Electrotécnica

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
Management (EIC0095)				Professor			Electrotécnica	
Mobile Computing (EIC0050)	5	1S	**António Miguel Pontes Pimenta Monteiro**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Information Description, Storage and Retrieval (EIC0108)	5	1S	João António Correia Lopes	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doctor of Philosofhy-Engenharia Electrotécnica
			Maria Cristina de Carvalho Alves Ribeiro	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento - Informática
Knowledge Extraction and Machine Learning (EIC0096)	5	1S	José Luis Cabral Moura Borges	Assistant Professor		100%	Licenciatura em Engenharia Mecânica	Doctor of Philosophy-Computer Science
			Rui Carlos Camacho de Sousa Ferreira da Silva	Associate Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Human-Computer Interaction (EIC0057)	5	1S	José Luis Cabral Moura Borges	Assistant Professor		100%	Licenciatura em Engenharia Mecânica	Doctor of Philosophy-Computer Science
			Maria Teresa Galvão Dias	Assistant Professor		100%	Licenciatura em Matemática	Doctor of Philosophy-Engineering Science
Agile Software Development Methodologies (EIC0062)	5	1S	**Ademar Manuel Teixeira de Aguiar**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores - Sistemas Digitais	Doutoramento-Engenharia Electrotécnica e de Computadores
Information Systems Strategic Planning	5	1S	**António Manuel Lucas Soares**	Associate Professor		100%	Licenciatura em Engenharia	Doutoramento-Engenharia Electrotécnica e de Computadores

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
(EIC0067)							Electrotécnica	
Virtual and Augmented Reality (EIC0070)	5	1S	António Augusto de Sousa	Associate Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Jorge Alves da Silva	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Engenharia Electrotécnica e de Computadores
Robotics (EIC0071)	5	1S	**Luis Paulo Gonçalves dos Reis**	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
Computer Systems Security (EIC0072)	5	1S	**José Manuel Magalhães Cruz**	Assistant Professor		100%	Licenciatura em Física	Doutoramento-Engenharia Electrotécnica e de Computadores
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	5	1S	**Eugénio da Costa Oliveira**	Full Professor		100%	Licenciatura em Engenharia Electrotécnica	Doutoramento-Informática - Inteligência Artificial
			Luis Paulo Gonçalves dos Reis	External Collaborator			Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
Decision Support Systems (EIC0074)	5	1S	João Alberto Vieira de Campos Pereira Claro	Assistant Professor		100%	Licenciatura em Engenharia Electrotécnica e de Computadores	Doutoramento-Engenharia Electrotécnica e de Computadores
			Jorge Manuel Pinho de Sousa	Associate Professor		100%	Licenciatura em Engenharia Electrotécnica	Docteur – Sciences Apliquées
Software Testing and	5	1S	**Ana Cristina**	Assistant		100%	Licenciatura em	Doutoramento-Engenharia Electrotécnica e

Table 15.1 – List of teaching staff in charge (spans through multiple pages)

Course Unit	Year	Period	Member of teaching staff in charge	Category	Department	Employment Status	Academic Background	Academic Degree
Quality (EIC0103)			**Ramada Paiva Pimenta**	Professor			Engenharia de Sistemas e Informática	de Computadores

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PROGRAMME DIRECTOR SHEET

R8

S16 - Programme Director Sheet - R8

Please follow the links bellow and use the provided credentials to access the programme Director's *Curriculum Vitæ* (current and previous).

S16.1 - Current Director

António Augusto Sousa - Since 04/2008

S16.2 - Previous Director

Raul Fernando de Almeida Moreira Vidal - From 01/2007 to 04/2008

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TEACHING STAFF SHEET

R8

S17 - Teaching Staff Sheet - R8

Please follow the links bellow and use the provided credentials to access the Academic Staff *Curriculum Vitæ*.

Table 17.1 – Academic Staff's Curriculum Vitæ

Name	Academic Professional Position
Ademar Manuel Teixeira de Aguiar	Assistant Professor
Ana Cristina Ramada Paiva Pimenta	Assistant Professor
Ana Paula Cunha da Rocha	Assistant Professor
André Monteiro de Oliveira Restivo	Lecturer
António Augusto de Sousa	Associate Professor
António Ernesto da Silva Carvalho Brito	Assistant Professor
António Fernando Vasconcelos Cunha Castro Coelho	Assistant Professor
António Jesus Monteiro de Castro	Invited Lecturer
António Joaquim Mendes Ferreira	Associate Professor
António José Duarte Araújo	Assistant Professor
António José Pessoa de Magalhães	Assistant Professor
António Manuel Correia Pereira	Invited Lecturer
António Manuel Lucas Soares	Associate Professor
António Miguel da Fonseca Fernandes Gomes	Assistant Professor
António Miguel Pontes Pimenta Monteiro	Assistant Professor
Armando Jorge Miranda de Sousa	Assistant Professor
Armindo Luís Vilar Soares Lage	Assistant Professor
Artur Pimenta Alves	Full Professor
Eugénio da Costa Oliveira	Full Professor
Eurico Manuel Elias de Morais Carrapatoso	Assistant Professor
Fernando Manuel Ferreira Lobo Pereira	Full Professor
Fernando Nunes Ferreira	Full Professor
Francisco José de Oliveira Restivo	Associate Professor
Francisco Manuel Madureira e Castro Vasques de Carvalho	Associate Professor
Gabriel de Sousa Torcato David	Associate Professor
Gil Manuel Magalhães de Andrade Gonçalves	Invited Lecturer
Henrique Daniel de Avelar Lopes Cardoso	Invited Lecturer
Jaime dos Santos Cardoso	Assistant Professor
Jaime Enrique Villate Matiz	Assistant Professor
João Alberto Vieira Campos Pereira Claro	Assistant Professor
João António Correia Lopes	Assistant Professor

Table 17.1 – Academic Staff's Curriculum Vitæ

Name	Academic Professional Position
João António Gonçalves de Sousa Marques de Carvalho	Lecturer
João Bernardo de Sena Esteves Falcão e Cunha	Associate Professor
João Carlos Pascoal Faria	Assistant Professor
João Isidro Araújo Vila Verde	Invited Lecturer
João Manuel Couto das Neves	Invited Assistant Professor
João Manuel Paiva Cardoso	Associate Professor
João Paulo de Castro Canas Ferreira	Assistant Professor
Joaquim Gabriel Magalhães Mendes	Assistant Professor
Jorge Alves da Silva	Assistant Professor
Jorge Manuel Gomes Barbosa	Assistant Professor
Jorge Manuel Pinho de Sousa	Associate Professor
José António Rodrigues Pereira de Faria	Assistant Professor
José António Ruela Simões Fernandes	Associate Professor
José Augusto Trigo Barbosa	Assistant Professor
José Luís Cabral Moura Borges	Assistant Professor
José Manuel de Magalhães Cruz	Assistant Professor
José Manuel Soutelo Soeiro de Carvalho	Associate Professor
José Rui da Rocha Pinto Ferreira	Assistant Professor
Lia Raquel Neto Martins Lima Patricio	Lecturer
Luís Paulo Gonçalves dos Reis	Invited Assistant Professor
Manuel Alberto Pereira Ricardo	Associate Professor
Maria Cristina da Costa Vila	Lecturer
Maria Cristina de Carvalho Alves Ribeiro	Assistant Professor
Maria de Lurdes Proença de Amorim Dinis	Assistant Professor
Maria Gabriela Beirão dos Santos	Invited Lecturer
Maria Teresa Galvão Dias	Lecturer
Maria Teresa Magalhães da Silva Pinto de Andrade	Assistant Professor
Mário Jorge Rodrigues de Sousa	Lecturer
Miguel Fernando Paiva Velhote Correia	Assistant Professor
Nuno Honório Rodrigues Flores	Invited Lecturer
Paulo José Lopes Machado Portugal	Assistant Professor
Pedro Alexandre Guimarães Lobo Ferreira Souto	Assistant Professor
Raul Fernando de Almeida Moreira Vidal	Associate Professor
Ricardo Santos Morla	Assistant Professor
Rosaldo José Fernandes Rossetti	Assistant Professor

Table 17.1 – Academic Staff's Curriculum Vitæ

Name	Academic Professional Position
Rui Alexandre Carvalhais Costa Padrão	Invited Lecturer
Rui Carlos Camacho de Sousa Ferreira da Silva	Associate Professor
Rui Jorge Sousa Costa de Miranda Guedes	Assistant Professor
Rui Paulo Soares Ribeiro	Assistant Professor
Sérgio Sobral Nunes	Lecturer
Tito Carlos Soares Vieira	Invited Assistant Professor

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TEACHING STAFF PERSPECTIVE

R9

S18 - Teaching staff perspective - R9

Please follow the links bellow and use the provided credentials to access the Academic Staff perspective on the course's functioning.

Table 18.1 - Teaching staff perspective

Course Units	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Mandatory							
Algebra (EIC0003)	1	1S	3.0	2.0	0.0	5.0	5
Mathematical Analysis (EIC0004)	1	1S	3.0	2.0	0.0	5.0	6
Computer Architecture and Organization (EIC0083)	1	1S	2.0	2.0	0.0	4.0	6
Programming Fundamentals (EIC0005)	1	1S	3.0	2.0	0.0	5.0	6
Discrete Mathematics (EIC0011)	1	1S	2.0	2.0	0.0	4.0	5
Project FEUP (FEUP002)	1	1S	1.2	0.0	0.0	1.2	2
Complements of Mathematics (EIC0009)	1	2S	2.0	2.0	0.0	4.0	6
Physics I (EIC0010)	1	2S	2.0	2.0	0.0	4.0	6
Statistical Methods (EIC0105)	1	2S	2.0	2.0	0.0	4.0	5
Microprocessors and Personal Computers (EIC0016)	1	2S	2.0	2.0	0.0	4.0	6
Programming (EIC0012)	1	2S	3.0	2.0	0.0	5.0	7
Algorithms and Data Structures (EIC0013)	2	1S	3.0	2.0	0.0	5.0	7
Physics II (EIC0014)	2	1S	2.0	2.0	0.0	4.0	6
Numerical Methods (EIC0021)	2	1S	2.0	2.0	0.0	4.0	5
Microprocessors and Personal Computers (EIC0016)	2	1S	2.0	2.0	0.0	4.0	6
Computing Theory (EIC0022)	2	1S	2.0	2.0	0.0	4.0	6
Computer Graphics (EIC0019)	2	2S	2.0	2.0	0.0	4.0	6
Algorithm Design and Analysis (EIC0110)	2	2S	2.0	2.0	0.0	4.0	6
Computer Laboratory (EIC0020)	2	2S	2.0	0.0	3.0	5.0	6
Object Oriented Programming Laboratory (EIC0111)	2	2S	3.0	0.0	2.0	5.0	6
Operating Systems (EIC0027)	2	2S	2.0	2.0	0.0	4.0	6
Databases (EIC0023)	3	1S	2.0	2.0	0.0	4.0	6
Software Engineering (EIC0024)	3	1S	2.0	2.0	0.0	4.0	6
Graphical Applications Laboratory (EIC0084)	3	1S	2.0	0.0	3.0	5.0	7
Web Languages and Technologies (EIC0112)	3	1S	2.0	2.0	0.0	4.0	6
Logic Programming (EIC0026)	3	1S	2.0	2.0	0.0	4.0	5
Operating Systems (EIC0027)	3	1S	2.0	2.0	0.0	4.0	6
Compilers (EIC0028)	3	2S	3.0	1.0	0.0	4.0	6

Table 18.1 - Teaching staff perspective

Course Units	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Artificial Intelligence (EIC0029)	3	2S	3.0	1.0	0.0	4.0	6
Database and Web Applications Laboratory (EIC0085)	3	2S	2.0	0.0	3.0	5.0	7
Computer Networks (EIC0032)	3	2S	2.0	2.0	0.0	4.0	6
Distributed Systems (EIC0036)	3	2S	2.0	2.0	0.0	4.0	6
Agents and Distributed Artificial Intelligence (EIC0033)	4	1S	2.0	2.0	0.0	4.0	6
Enterprise Management (EIC0034)	4	1S	2.0	2.0	0.0	4.0	5
Software Development Laboratory (EIC0086)	4	1S	2.0	0.0	3.0	5.0	7
Information Systems (EIC0040)	4	1S	2.0	2.0	0.0	4.0	6
Distributed Systems (EIC0036)	4	1S	2.0	2.0	0.0	4.0	6
Operational Research (EIC0037)	4	2S	2.0	2.0	0.0	4.0	5
Project Management Laboratory (EIC0106)	4	2S	2.0	0.0	3.0	5.0	7
Formal Methods in Software Engineering (EIC0039)	4	2S	2.0	2.0	0.0	4.0	6
Dissertation (EIC0041)	5	1S	1.0	0.0	0.5	1.5	30
Dissertation Planning (EIC0087)	5	1S	0.0	3.0	0.0	3.0	6
Dissertation (EIC0041)	5	2S	1.0	0.0	0.5	1.5	30
Dissertation Planning (EIC0087)	5	2S	0.0	3.0	0.0	3.0	6
Electives							
Signal Processing Algorithms (EIC0088)	4	2S	0.0	3.0	0.0	3.0	6
Software Systems Architecture (EIC0048)	4	2S	0.0	3.0	0.0	3.0	6
Parallel Computing (EIC0089)	4	2S	0.0	3.0	0.0	3.0	6
Computer Games Development (EIC0090)	4	2S	0.0	3.0	0.0	3.0	6
Software Systems Requirements Engineering (EIC0053)	4	2S	0.0	3.0	0.0	3.0	6
Operations Management and Logistics (EIC0091)	4	2S	0.0	3.0	0.0	3.0	6
Markup Languages and Document Processing (EIC0107)	4	2S	0.0	3.0	0.0	3.0	6
Marketing (EIC0061)	4	2S	0.0	3.0	0.0	3.0	6
Planning and Scheduling Methodologies (EIC0063)	4	2S	0.0	3.0	0.0	3.0	6
Multimedia and New Services (EIC0064)	4	2S	0.0	3.0	0.0	3.0	6
Programming Paradigms (EIC0065)	4	2S	0.0	3.0	0.0	3.0	6
Network and System Services (EIC0092)	4	2S	0.0	3.0	0.0	3.0	6
Signals and Sensors (EIC0093)	4	2S	0.0	3.0	0.0	3.0	6
Critical Systems (EIC0073)	4	2S	0.0	3.0	0.0	3.0	6
Geospatial Systems (EIC0094)	4	2S	0.0	3.0	0.0	3.0	6
Industrial Systems (EIC0075)	4	2S	0.0	3.0	0.0	3.0	6

Table 18.1 - Teaching staff perspective

Course Units	Year	Regime	Contact Time - Hours/Week				ECTS
			Lectures	Tutorials	Practical/ Project	Total	
Database Technologies (EIC0076)	4	2S	0.0	3.0	0.0	3.0	6
Distribution and Integration Technologies (EIC0077)	4	2S	0.0	3.0	0.0	3.0	6
Electronic Business Technologies (EIC0078)	4	2S	0.0	3.0	0.0	3.0	6
Project Appraisal (EIC0044)	5	1S	0.0	3.0	0.0	3.0	6
Data Warehouses (EIC0046)	5	1S	0.0	3.0	0.0	3.0	6
Network and Systems Architecture and Management (EIC0095)	5	1S	0.0	3.0	0.0	3.0	6
Advanced Computer Architectures (EIC0049)	5	1S	3.0	0.0	0.0	3.0	6
Mobile Computing (EIC0050)	5	1S	0.0	3.0	0.0	3.0	6
Mobile Communications (EIC0082)	5	1S	0.0	3.0	0.0	3.0	6
Information Description, Storage and Retrieval (EIC0108)	5	1S	0.0	3.0	0.0	3.0	6
Knowledge Extraction and Machine Learning (EIC0096)	5	1S	0.0	3.0	0.0	3.0	6
Quality Management (EIC0109)	5	1S	0.0	3.0	0.0	3.0	6
Enterprise Information Management (EIC0097)	5	1S	0.0	3.0	0.0	3.0	6
Human-Computer Interaction (EIC0057)	5	1S	0.0	3.0	0.0	3.0	6
Agile Software Development Methodologies (EIC0062)	5	1S	0.0	3.0	0.0	3.0	6
Systems Modelling and Simulation (EIC0098)	5	1S	0.0	3.0	0.0	3.0	6
Information Systems Strategic Planning (EIC0067)	5	1S	0.0	3.0	0.0	3.0	6
Speech Processing (EIC0068)	5	1S	0.0	3.0	0.0	3.0	6
Virtual and Augmented Reality (EIC0070)	5	1S	0.0	3.0	0.0	3.0	6
Robotics (EIC0071)	5	1S	0.0	3.0	0.0	3.0	6
Computer Systems Security (EIC0072)	5	1S	0.0	3.0	0.0	3.0	6
Information Systems and Software Engineering Seminar (EIC0099)	5	1S	0.0	3.0	0.0	3.0	6
Networks and Information Technologies Seminar (EIC0100)	5	1S	0.0	3.0	0.0	3.0	6
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	5	1S	0.0	3.0	0.0	3.0	6
Decision Support Systems (EIC0074)	5	1S	0.0	3.0	0.0	3.0	6
Embedded and Real Time Systems (EIC0102)	5	1S	0.0	3.0	0.0	3.0	6
Software Testing and Quality (EIC0103)	5	1S	0.0	3.0	0.0	3.0	6
Computer Vision (EIC0104)	5	1S	0.0	3.0	0.0	3.0	6

Please note: copies of exams could be provided within the above reports.

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MOVEMENT OF STUDENTS

R10

S19 - Movement of students - R10

S19.1 - Prerequisites

For the newly admitted students, the mandatory prerequisites for the applicants to the Integrated Master Programme are:

- (16) Mathematics
- (07) Physics and Chemistry

or

- (16) Mathematics
- (02) Biology or Geology

or

- (16) Mathematics
- (18) Portuguese

S19.2 - Access to Public Higher Education

The vacancies for public education institutions are filled by means of a national competition, organized by the General Directorate of Higher Education.

The national competition takes place at the end of the school year and is organized into three phases, in accordance with the schedule approved annually.

The management of the whole process related to the assessment of the capacity to attend, as well as the setting of criteria for selection and ranking of candidates for enrolment in higher education is responsibility of the National Committee for Higher Education Access.

The vacancies for some of the programmes offered by public higher education institutions, due to their particular characteristics, are set through competitions organized by the institutions themselves.

S19.2.1 - Entry conditions

The Portuguese system of access to higher education, public and private institutions of higher education, is based in admission tests, that are based on the corresponding national secondary school examinations. A set of conditions have to be fulfiled by those wishing to enter higher education through the national and local competition. In order to be granted access to higher education the students must:

- Have successfully completed the 12th year of schooling, or equivalent;
- Have sat for the national secondary school examinations corresponding to the admission tests determined for that year in accordance with the legal requirements and have the minimum allowed mark for admittance, as decided by the higher education institution;
- Have fulfilled the prerequisites (*) for the higher education course that the students wishes to attend, if required.

The marks obtained in the exams undertaken on the above mentioned terms are available to apply for higher education on the very year they are fulfilled and on the following two years.

Note: (*) The prerequisites are physical, functional or vocational conditions particularly relevant to some higher education courses. It is due to each higher education institution to decide whether the applicants to some of its courses must be subjected to these prerequisites and to decide upon its content.

S19.2.2 - Application process

The application process must be instructed with the following documents:

a) Application form
b) Copy of the identity card/passport
c) Certificate confirming that the student holds a secondary school degree (12 years of schooling), as well as stating the final mark obtained. This certificate must also include the marks obtained in each admission test settled for the higher education institution/programme the student wishes to apply for.
d) Document confirming that the student has fulfilled the prerequisites, if required.

Since 2007, the students' application to higher education on public institutions (national competition), can be made through an online application form.

S19.2.3 - *Numerus Clausus*

Access to higher education is limited by the number of vacancies, and public universities and polytechnics establish a minimum mark.

Each higher education institution settles the number of places available on each course which are approved by the Education Ministry. Private institutions also have *numerus clausus*.

The number of vacancies available on each course is set every year and is known to the applicants beforehand.

S19.3 - Application for Higher Education Graduates

S19.3.1 - Applicants

The following may apply:

- Holders of a Portuguese Higher Education degree in a Non-Suitable Area;

- Holders of a Portuguese Higher Education degree in a Suitable Area.

The affinity between the candidate's area of study and the scientific area of the programme to which the candidate intends to apply will be determined during the ranking process. Further information on this item may be requested through the respective Programme Directorship.

S19.3.2 - Numerus Clausus

Table 19.1 – numerus clausus forholders of an higher education degree

Programme	***Numerus Clausus***			
		Total	**1st phase**	**2nd phase**
Integrated Masters in Informatics and Computer Engineering	ANA1	2	0	2
	ANA2/3	2	0	2
	AA4	18	6	12
	AA5	15	5	10

Please note:

1 - Only part of the *numerus clausus* wiil be made available in the 1st phase. The remaining *numerus clausus* will be available for the 2nd stage. If any *numerus clausus* remain a 3rdphase will be held.

ANA1 Holders of a Higher Education Degree in a NON-SUITABLE AREA (Equivalent to less than 30 ECTS) ANA2 / 3 Holders of a Higher Education Degree in a NON-SUITABLE AREA (Equivalent to more than 30 and less than 162 ECTS)

AA4 Holders of a Higher Education Degree in a SUITABLE AREA (Equivalent to more than 30 and less than 162 ECTS) AA5 Holders of a Higher Education Degree (1st cycle or equivalent) in an APPROPRIATE AREA (Equivalent to more than 240 ECTS; Includes old diplomas of 300 ECTS)

S19.3.3 - Applications

S19.3.3.1 - Deadlines

Deadlines are set annually by the General Directorate of Higher Education and published in the Official Gazette (Diário da República).

Please note:

1 - 3rd phase will take place only if there are any remaining *numerus clausus* after the 2nd phase.

2 - Once the 1st Academic semester started in September, the candidates placed in the 3rd phase can apply only to the 2nd semester courses. However, the registration in some 1st semester courses could be considered if authorized.

S19.3.3.2 - Ranking Criteria

1. Candidate's affinity with the programme(s) he/she is applying to
2. Academic Path
3. Career Path
4. Behavioral and relational skills (tiebreakers)

The affinity between the candidate's area of study and the scientific area of the programme to which the candidate intends to apply will be determined during the ranking process. Futher information on this item may be requested through the respective Programme Directorship.

S19.3.3.3 - Ranking Procedure

The applicants will be subject to curriculum evaluation and, whenever deemed necessary, an interview.

Please note:

Holders of a higher education degree in a SUITABLE AREA

1 –For holders of a higher education degree in an appropriate area two application phases are planned. If any *numerus clausus* remain after the 2nd phase, a 3rd phase will be held.

2 – Only candidates with an application grade higher than 14 (numerical scale 0-20) and that have produced all the necessary documentation will be ranked. Alternate candidates and candidates who have failed to produce the necessary documentation will automatically be moved to the 2nd phase.

3 – Candidates who have completed or are expected to complete the programme before the deadline will be accepted for ranking in the following phases. If the candidate is unable to

produce the Graduation Certificate before the deadline, a Declaration of Honour will be accepted although priority will be given to those who have produced the Graduation Certificate. The candidate will only be allowed to register after producing the Graduation Certificate.

Holders of a degree in a NON-SUITABLE AREA

1 - Holders of a higher education degree in a non-suitable area will only be allowed to apply during the 2nd phase.

S19.3.3.4 - Documents Required

- Application form via Web (mandatory);
- ID document (ID Card / Citizen Card / Passport) (mandatory);
- Graduation Certificate from a higher education programme listing the courses taken, regime (annual or biannual) and number of UC / ECTS (except FEUP students, who are only required to scan and attach the Graduation Certificate with the final score) (mandatory);

  i. - If you are unable to obtain the certificate containing all these elements then you should add a list of courses taken containing the missing information;

  ii. - In the 2nd and 3rd phases, if you have already graduated but are unable to produce the Graduation Certificate then you must submit a written statement indicating the date you graduated and the final grade you are expected to achieve, as well as a list of courses taken, regime (semi-annual or annual) and number of UC / ECTS. You are still be required to produce the Graduation Certificate before the respective deadlines. Failing to do so will result in your application being cancelled.

- Working experience relevant to the course you wish to apply. Documentary proof of this information must be produced (mandatory).
- Photo (colored "passport" size photo, preferably with a neutral background, 200 pixels tall by 140 pixels wide, JPG format;) (optional).

Candidates will only be allowed to register after producing all required documents.

S19.3.4 - Legislation

ANA1 Holders of a Higher Education Degree in a NON-SUITABLE AREA (Equivalent to less than 30 ECTS) ANA2 / 3 Holders of a Higher Education Degree in a NON-SUITABLE AREA (Equivalent to more than 30 and less than 162 ECTS):

- Decree-Law No. 393-B/99 2 October - regulates special admissions to higher education, amended by:

- Decree-Law No. 64/2006 of 21 March
- Decree-Law No. 88/2006 of May
- Decree-Law No. 196/2006 of 10 October

- Ministerial Order No. 854-A/99 de 4 de Outubro – Approves the special admissions regulations to higher education, amended by:

  - Ministerial Order No. 1081/2001 of 5 September
  - Ministerial Order No. 393/2002 of 12 April

The schedule for Special applications and Admissions to higher education for the year of interest is published in the Diário da República (Official Gazette).

ANA4 Holders of a Higher Education Degree in a SUITABLE AREA (Equivalent to more than 30 and less than 162 ECTS) AA5 Holders of a Higher Education Degree (1stcycle or equivalent) in an APPROPRIATE AREA (Equivalent to more than 240 ECTS; Includes old diplomas of 300 ECTS):

- University of Porto's General regulation for Integrated Master Programmes

S19.4 - Application for Change of Programme and Transfers

S19.4.1 - Applicants

The following students may apply for change of programme or transfers*:

1. Students who are or were enrolled in a Portuguese Higher Education programme, but did not graduate;
2. Students from foreign Higher Education systems, whether they have graduated or not.

Students can CHANGE TO ANOTHER PROGRAMME, enrolling in a different first cycle or Integrated Master's programme, regardless of whether there has been an interruption of registration.

Through changes of programme, students may switch to another area of studies, in the same Higher Education institution or not, before they complete the programme they were enrolled in. Depending on the particulars, students can be admitted to any year of an Integrated Master's programme. All previous relevant education is given credit.

Students can also TRANSFER between Higher Education institutions, as long as they enrol in the same first cycle or Integrated Master's programme, regardless of whether there has been an interruption of registration.

Through transfers, students can switch between Higher Education Institutions before they complete a programme, staying within the same area of studies. Depending on the particulars, students can be admitted to any year of an Integrated Master's programme. All previous relevant education is given credit, corresponding to at least 90% of all completed courses.

By enrolling in an Integrated Master's programme, students may later request a Bachelor's degree Diploma in Engineering Sciences as soon as all of the first cycle courses have been completed. However, at least 10% of the first 180 ECTS of the Integrated Master's programme have to be obtained at FEUP.

Note:(*) According to article 5 (paragraph 3) of Law no. 37/2003, of 22 August, students who have been time-barred due to periods of limitation cannot apply to any programmes for two semesters.

S19.4.2 - *Numerus Clausus*

Table 19.2 – *Numerus clausus* for changes of programme and transfers

Programme	*Numerus Clausus*					
	Total		1st Phase		2nd Phase	
	Year 1	Years 2 to 5	Year 1	Years 2 to 5	Year 1	Years 2 to 5
Integrated Masters in Informatics and Computer Engineering	8	20	2	7	6	13

Please note:

1 - Change of Programme and Transfers for the 1st year – equivalence to less than 30 ECTS. Change of Programme and Transfers for the 2nd or subsequent years - equivalence to 30 ECTS or more.

2 - Only part of the *numerus clausus* will be made available in the 1st phase. The remaining *numerus clausus* will be available for the 2nd stage. If any *numerus clausus* remain a 3rd phase will be held.

S19.4.3 - Applications

S19.4.3.1 - Deadlines

An application timetable is established each year and it's composed by a maximum of three application phases (only if any *numerus clausus* remain the 2nd and 3rd phase will be held). Once the 1st Academic semester started in September, the candidates placed in the 3rd phase can apply only to the 2nd semester courses. However, the registration in some 1st semester courses could be considered if authorized.

S19.4.3.2 - Previous Qualifications

Higher Education application grade and grades obtained on the required entrance examinations (or equivalent ones*) higher than those established for the programme.

Minimum grade on the required entrance examinations: 95 points (grading scale: from 0 to 200); Minimum Higher Education application grade: 100 points (grading scale: from 0 to 200).

As far as the Integrated Master in Mechanical Engineering is concerned, applicants need to have obtained a grade higher than 13.5 (out of 20) on the Mathematics examination.

Note:(*) If there are no grades for the required entrance examinations, they may be replaced by those of an equivalent national examination or by those attributed by a jury (based on the assessment of the applicant's curriculum).

S19.4.3.3 - Ranking Criteria

1. The degree of similarity between the applicant's previous and prospective programmes;
2. Academic background;
3. Professional background;
4. Behavioural and interpersonal skills (tie-breaking criterion).

The affinity between the candidate's area of study and the scientific area of the programme to which the candidate intends to apply will be determined during the ranking process. Further information on this item may be requested through the respective Programme Directorship.

S19.4.3.4 - Ranking Procedure

- Assessment of the applicant's curriculum and, whenever deemed necessary, an interview.

Along with the application, the applicant must provide documentary evidence to enable the determination, calculation or attribution by a jury of the Higher Education application grade (or equivalent grade). By analysing the documents provided (or to be requested) and, whenever necessary, through an interview, the jury appointed by the programme's Scientific Committee will take into account: the degree of similarity between the applicant's previous and prospective programmes, the applicant's academic and professional background, and, if necessary, the behavioural and interpersonal skills displayed by the applicant. The applicant's academic background will be analysed through the Academic Background Grade (CPA, Classificação de Percurso Académico), calculated as follows:

$$CPA = \left(1 - \frac{\sum N_i}{2TOT}\right) \times A + \frac{\sum N_i}{2TOT} \times B$$

$$A = (0{,}50 \times C_{12} + 0{,}25 \times CE_1 + 0{,}25 \times CE_2)$$

$$B = \frac{\sum N_i C_i}{\sum N_i}$$

A = Grade equivalent to the Higher Education application grade for the programme being applied for (grading scale: from 0 to 20)

C_{12} = High School/K12 grade or equivalent grade (pre-university year)

CE_1 = Grade of the 1st required subject or of an equivalent national examination, or grade attributed by the jury (based on the analysis of the applicant's curriculum)

CE_2 = Grade of the 2nd required subject or of an equivalent national examination, or grade attributed by the jury (based on the analysis of the applicant's curriculum)

B = Grade average of the subjects relevant to the programme being applied for

N_i = Number of ECTS previously accumulated in the areas of study of the programme being applied for

C_i = Grade of each course relevant to the programme being applied for already given credit

TOT = Total number of ECTS credits of the programme being applied for Therefore, the university-level academic background has a weight proportional to the number of previously accumulated ECTS in the programme's areas of study (up to a maximum of 50%), and the remaining weight is attributed to the pre-university-level academic background.

Please note:

1 - In phase 1, only applicants with application grades higher than 14 (out of 20) will be ranked. Applicants who do not meet phase 1 requirements will be automatically transferred to phase 2.

2 - Applicants who want to transfer credits for courses completed before their application to FEUP must submit a request during the application process; they will not be allowed to transfer credits at other times.

S19.4.3.5 - Documents Required

- Online application form (mandatory);
- Identification (Identity Card/Citizen's Card/Passport) (mandatory);
- For national Higher Education applicants, Higher Education application history, including high school/K12 grades, the grades obtained on the required subjects or on the equivalent national examinations (required); This document may be obtained at the Direcção Geral do Ensino Superior; - FEUP students should scan and attach the information provided in the

"Percurso Académico" and "Ingresso" ("Academic Background" and "Admission") sections of SiFEUP, available through their student page) (mandatory);

- - For foreign Higher Education applicants see note (1):

i. High School/K12 grade or equivalent grade (pre-university year);
ii. Grade of the 1st required subject or of an equivalent national examination;
iii. Grade of the 2nd required subject or of an equivalent national examination.

- Certificate listing all Higher Education courses completed, their duration (semester/year) and number of credit units/ECTS (mandatory);
- - If you cannot obtain a certificate containing this information, you should add a list of courses completed, providing the information requested;
- - FEUP students should only attach a list of courses completed, including their duration (semester/year) and number of credit units/ECTS;
- - Applicants who have not completed any courses may produce a Higher Education registration certificate;
- - Foreign Higher Education applicants see note (1);
- Certificate/declaration issued by the last Higher Education institution the applicant was registered at, stating that he/she will not be time-barred due to periods of limitation in the academic year for which the application is being submitted. If you cannot obtain this certificate/declaration, you should produce a declaration of honour to that effect (mandatory);
- Declaration of Honour as the candidate will not complete the programme before the applications deadline (required). This does not apply to candidates from foreign higher education institutions, so foreign candidates must attach a blank document (mandatory);
- Professional curriculum relevant to the programme being applied for, duly substantiated (optional);
- Photo (colored "passport" size photo, preferably with a neutral background, 200 pixels tall by 140 pixels wide, JPG format; Average or higher quality in the JPG compression algorithm) (optional).

Note:(1) Information for foreign Higher Education applicants:

For qualifications obtained abroad, we will accept duly signed and authenticated certificates issued by the highest academic authority of the institution in question, which can be written in Portuguese, English, French ou Spanish. If the certificates are not translated into one of the aforementioned languages, they have to be authenticated by the foreign education system and recognized by the Portuguese diplomatic or consular authority or legalized with the Apostille of the Hague Convention. These instructions are also valid for translations of documents not written in Spanish, French or English.

Applicants who have been admitted and who have pending application documents will only be allowed to enrol as soon as they provide those documents.

S19.4.4 - Legislation

Ministerial Order no. 401/2007, of 5 April – Regulations for Higher Education Changes of Programme, Transfers and Readmissions;

Regulations for University of Porto Changes of Programme, Transfers and Readmissions.

S19.5 - Transfers to the course (from outside)

Table 19.3 - Transfers to the course (from outside)

Academic Year	Institution	1st Year	2nd Year	Total
2005/2006	Universidade do Minho	0	0	1
2007/2008	Universidade da Beira Interior	0	0	1
	Universidade Fernando Pessoa	0	1	1
	Instituto Superior de Engenharia do Porto	1	0	1
2008/2009	Universidade do Minho	0	1	1
	Instituto Superior de Engenharia do Porto	2	1	4
	Escola Superior de Tecnologia e Gestão de Felgueiras	0	1	1
		0	0	1
2009/2010	Universidade da Beira Interior	0	1	1
	Universidade do Minho	0	0	1
	Instituto Superior de Engenharia do Porto	0	2	2

S19.6 - Students movement with reference to the beginning of the year

Table 19.4 -Students movement with reference to the beginning of the year

Academic Year	Newly Admitted	Transferred	Graduates	Left without concluding	Attending Course
2005	118	1	*	*	119
2006	133	0	62	34	156
2007	175	3	123	52	122
2008	159	7	92	46	147
2009	149	4	101	47	124

Please Note: (*) values not available.

S19.7 - Graduate leavers

Table 19.5 - Graduate leavers

Academic Year	Total of Graduates		Graduate leavers					Average
	LEIC	MIEIC	1 Year	2 year	3 year	4 year	> 4 year	
2005/2006	75	0	0	0	1	3	71	6
2006/2007	62	0	0	0	2	1	59	6
2007/2008	1	122	11	111	0	0	1	2
2008/2009	0	92	10	8	74	0	0	3
2009/2010	0	101	2	5	5	89	0	4

STUDENTS' AND EMPLOYERS' EVALUATION

R11

S20 - Students' and employers' evaluation - R11

S20.1 - Introduction

The cooperation Division of FEUP (DCoop - FEUP), through its Business Cooperation Office, has the task of providing interfacing activities linking the HEI with the labour market, either by establishing systematic contacts with companies (those offering internships and possible jobs) or by maintaining a close relationship with FEUP graduates.

Among other objectives, the Cooperation Division, within the framework of the Job Observatory, monitors the activities of FEUP's Engineers in the area of professional and employment integration, gathering data about the career path of its *alumni* and their impact on society as engineers.

Launched over a period from 2006 to December 2007, the 1st edition of SENSOR 3 project had as its main goal the analysis of level of skills acquired during the programme, at the same time attempting to assess the employers' evaluation of those individual aptitudes and how well those profiles matched the requirements of the labour market. Some of the objectives were:

- To gain effective knowledge as regards the assessment that FEUP graduates make of the academic training received;
- To understand the potential needs concerning cross training, as experienced by its graduates in the exercise of their professional activities;
- To obtain some idea of employers' needs, as far as technical, scientific and behavioural skills are concerned;
- To rethink the graduate training programme, and possibly to make curricular (or other) changes in line with the pooled results.

In 2010, in pursuit of these objectives, a 2nd edition of SENSOR 3 was put into practise with the following main goals:

- To gain an insight, from the graduates' points of view, into the impact of the acquired competences on their professional activities.
- To assess the perspective and prospective outlook of the employers regarding their requirements for graduate competences.

In order to accomplish these main goals, the following specific objectives were delineated:

- Analyse the significance of the technical and cross competences of FEUP's Engineers in the performance of their professional activity.
- Compare the valuation of skills given by graduates and employers

- Identify the employer's perspectives regarding the use of technical and transferable skills by the graduates on the job.
- Analyse the graduate's self-evaluation of technical and transferable skills
- Match the importance given by graduates to technical and cross competences and the possession/mastery of those skills.
- Examine how graduates and employers value transferable skills over technical competences
- Investigate the reasons for the lack of some transferable skill
- Identify the degree of the HEI's contribution to the development of transferable skills

After all the replies from the target populations had been collected and analysed, the report was made available to the FEUP community for debate.

S20.2 - Methodology

To attain the proposed goals, the project was targeted at three distinct populations:

- FEUP engineering graduates
- Employers[8] of those *alumni* (board of directors or company owners)
- Supervisors in charge of overseeing the work performed by the graduates

In addition to questions aimed at establishing the contextual characterization of the graduate, work and company, the overall competences presented for assessment, for the three groups, were distributed according to the following major topics:

- Behavioural competences
- Oral communication and interpersonal relationships
- Personal organization and working methods
- Behaviour in multicultural environments
- Technical competences

The survey was delivered either in printed form or in an online format, depending on the contact provided/available.

S20.3 - Graduate's population characteristics:

Between 2005 and 2008 (three academic years) a total of 2501 graduates completed their studies at FEUP (1149 obtained a "Licenciatura" degree, 1194 a Masters degree and 158 a PhD). For this study, only the students who completed their first degree in Engineering were taken into account. This amounts to a total of 1895 *alumni*, which represents 75.77% of the total graduate population in that period.

[8] Full list here: http://paginas.fe.up.pt/~sicc/dcoop/re/EmpresasParticipantes.htm

The sample population analysis shows that the participation is not evenly distributed amongst the different programmes, which is in part explained by the different *numeri clausi* and hence the number of graduates each programme turns on each year. The sample distribution, by programme, was as follows:

Table 20.1 - Sample distribution, by programme.

Programme	Sample
EMG	1.00 %
EMM	3.17 %
EIC	13.46 %
EGI	5.54 %
EQ	9.87 %
EM	14.83 %
EEC	24.27 %
EC	27.86 %

Among the 1895 graduates, around 13% responded to the survey and were considered for analysis, approximately 54% of those graduating in the 2007/2008 academic year.

S20.4 - Employers' and supervisors' population characteristics:

The employers' target population was sampled from the databases maintained and updated by FEUP administrative services (Job offerings; previous surveys; ...). Using these resources, a total of 1508 entities were identified as potential employers of FEUP graduates. A total of 150 answers were received, which amounted to about 10% of the initial target population.

Regarding the supervisors, after screening, a total of 61 answers were provided and considered valid for the study, derived from 57 distinct companies.

S20.5 - Overall results

The full report take into consideration a much wider number of aspects regarding *alumni* and employer competences evaluation and identification than the ones shown below, and even attempt to get an insight of what might be the bearing of FEUP training, as seen by employers and former students. While going into such detail is not necessary - nor desirable to – for this matter, a small sample of results are presented to demonstrate the overall sense of excellent technical training FEUP offers and illustrate which areas must be devoted more attention to overcome the identified shortcomings.

S20.5.1 - Skills evaluation

Table 20.2 - Overall assessment and expectation of the employer regarding the group of skills presented (from supervisors' perspective - Table 16 in the full report)

Rating	Demonstrates high behavioural skills	Demonstrates high communication skills and interpersonal relationship	Demonstrates very good personal organization and working methods	High capacity to work in multicultural environments	Demonstrates high professional skills	Meets expectations, goals and objectives that are proposed	Is an important human resource for this company
Bad	**1.64%**	**3.28%**	**3.27%**		**3.28%**		
Insufficient	**1.64%**		**9.84%**		**1.64%**		
Sufficient	13.11%	19.67%	8.2%	14.75%	11.48%	27.87%	26.23%
Good	29.51%	24.59%	26.23%	14.75%	24.59%	22.95%	21.31%
Very good	16.39%	14.57%	9.84%	19.67%	19.67%	1.64%	3.28%
Excellent	**37.7%**	**37.7%**	**42.62%**	1.65%	**39.34%**	**47.54%**	**49.18%**
Not applicable	0.01%	0.19%		**49.18%**			
Total	100%	100%	100%	100%	100%	100%	100%

From the perspective of the supervisors of FEUP graduates, after being asked to choose from a predetermined set of answers regarding an overall assessment of FEUP engineers, the following answers stood out from the rest:

- 49.18% believed that the graduates constitute an excellent asset to the company
- 47.54% acknowledged their excellent focus on goals
- 49.18% don't consider the multicultural environment applicable

On the other hand some residual, but still present, flaws were also identified:

- 1.64% think that the graduates have either insufficient or poor behavioural skills
- 3.28% identify communication skills and interpersonal relations as poor
- 3.27% state the organization and work methodology of the alumni as poor, and 9.84% as insufficient,
- 3.28% draw attention to professional skills as poor, and 1.64 % as insufficient.

Table 20.3 - Evaluation by employers (Directors / Presidents of companies) regarding FEUP Engineers (number of answers - Table 17 in the full report)

	Bad	Insufficient	Sufficient	Good	Very Good	Didn't answer	Total
Technical Skills	1	2	1	2	1	115	122
Personal organization and working methodology		2	5	46	14	55	122
Communication and Interpersonal Relationship		6	28	28	4	56	122
Behavioural skills		7	29	29	1	56	122
Behaviour in multicultural environments		5	30	28	2	57	122
other							

One can see from the above table that, overall, the employer evaluation of such skills is clearly positive, even if the results are hampered by the small target population and high non-response rate

S20.5.2 - Shortcoming identification

Furthermore, a 'closed' question was asked of the directors/presidents of the companies involved referring to which areas the engineers reveal most weaknesses in. From the options proposed, the following three major groups of answers were observed:

- 33.06% state that the majority of engineers lack behavioural skills
- 26.45% identify lack of personal organization and work methodologies as a weakness
- 25.62% highlight failure to adjust as regards communication and interpersonal relationships

In spite of identifying these weaknesses, most employers consider FEUP graduates to possess positive skills – ranging from very good to sufficient – in regard to the above cross-competences.

Table 20.4 - shortcomings in FEUP's *alumni*: list of categories (arranged from 'most to least frequent') from the content analysis of comments regarding the weaknesses that graduates perceive in the training offered by FEUP (Table 18 in the full report)

Category	Occurrence
Weakness in the promotion of practical experiences and internships	131
Shortcoming in teaching methods (theory Vs practice), the applicability of knowledge, the necessity for additional training, etc.	89
Shortcomings in the promotion of behavioural skills, social integration and social support to students	50
Shortcomings in terms of personality, character and "how to act"	21
Shortcomings in business (management, HR management, marketing, sales, etc.)	20
Gaps in working competences in a business context	19
Shortcomings in foreign languages competences	16
Shortcomings in the domain of technical tools	14
Shortcomings in the field of entrepreneurship	12
Shortcomings in economic and financial areas	10
Shortcomings in FEUP's international exposure and inter-institutional cooperation	5
Shortcomings in language and general culture (problems with spelling, writing, synthesis capacity, vocabulary, grammar, difficulties in the preparation of written material, cultural integration in other countries)	5
Shortcomings in terms of diplomas offered	4
Flaws in document production	2
Shortcomings in the field of professional ethics	1
Shortcomings in legislation, standards …	1
Don't think he has flaws	3
Doesn't know/no opinion	4
Did not answer	19

From the above table, we can determine that graduates identify limitations in five major areas:

- Further training - or training with a more practical component - is desirable, as well as pre-entry experience of the labour market or more opportunities for internships.
- Some criticisms were made regarding teaching methods, namely the ratio between theory and practice and the applicability of the knowledge gained in the professional practice.
- More opportunities are needed for the development of soft skills, interpersonal communication and other related aspects.
- Weaknesses in terms of personality, character and behavioural skills (lack of humbleness, openness to negotiations, openness to learning, personal organization, etc.).
- Additional training is required in the field of business sciences

S20.6 - Closing remarks

This study shows that the concerns gathered from the three target audiences regarding the shortcomings of FEUP graduate students may be condensed into the following main points:

- There is a need to increase the behavioural skills (communication, conflict resolution, creativity, innovation, professional ethics, etc.);
- Further training is necessary in multidisciplinary areas (Management, Human Resources, Legislation, Health and Safety at Work, Entrepreneurship, etc.);
- A more practical approach is required during their engineering training, especially in the final years (internships, projects or other experience);
- There is a need for increased language training, both in other languages and in the mother tongue (competence in writing reports & letters, ability to synthesize, to give public presentations, etc.).

To tackle these weaknesses, over the past few years, the main curricula of many programmes have been adapted to respond to the difficulties of graduates and the requirements of employers. These anxieties have already led to specific modifications and adaptations in the corresponding areas, namely:

- Some curricula already offer options related to "social and personal skills" or "personal and professional proficiency", while others are related to business management, human resources or technical English, etc.
- The promotion of mobility, international and national internships (ERASMUS or IAESTE internships and ERASMUS, Almeida Garret, UMBC or MOBILE Programmes and PEJENE internships)
- Advertising of employability workshops and contact with employers (through job fairs and field trips)
- The forming of volunteer and autonomous workgroups (extra-curricular activities), thus promoting graduates' social self-awareness, organization and social skills.
- The implementation of the so-called "Projecto FEUP", which aims to develop the cross competences of the new students.

Despite these efforts, there is still a long way to go, and further investment is essential in areas such as entrepreneurship, sensibility to business management and negotiation techniques, risk analysis and leadership, problem solving, planning and organization and other cross-skills in order to overcome the anxieties of both graduates and employers. To challenge these issues, the proposed future orientations are:

- Possible revision of the pedagogical methods and techniques used, with potential introduction of optional courses in the aforementioned areas.
- Promotion of continuous training that might be ECTS credited, allowing students to choose the preparation that is most adequate to the professional life they contemplate.
- Additional promotion of e-learning in cross-skills.

- Evaluation of the possibility of providing extra university experience, which might take the form of internships throughout the programme and not only at the end of the course.

Therefore, in future, FEUP should invest a lot more in training and promotion of extra-curricular activities through the programme for the development of cross competences, where the teachers might be external and preferably involved in business and enterprise activities, in such a way that experiences and situations common in the day-to-day work environment might be brought to bear on the programme.

Also perfectly clear from this study is the overall sense of excellent technical preparation of FEUP graduates and of the fact that FEUP alumni are considered valuable assets to most companies.

Please Note: The full[9] and summary[10] reports are available for reference (in Portuguese).

[9] Full Report:
https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=100455&pv_cod=46Fa08Man2D1
[10] Summary report:
https://www.fe.up.pt/si/conteudos_service.conteudos_cont?pct_id=112056&pv_cod=00GXlaLa03En

SUITABILITY OF PREMISES

R12

S21 - Suitability of premises - R12

The FEUP occupies its current premises, since October 2000. This newly-built campus has around 90 000 m^2 of built area, roughly divided in 46% for laboratories, 19% for classrooms, 19% for offices, 7% for the Main Library, 4% for Administrative Services, 2% for Social Services, 2% for the Students Association and 1% for the Computer Center.

Among the classrooms, there are 35 amphitheatres, ranging from 56 to 184 seats, 41 tutorial rooms, ranging from 18 to 40 seats, 25 computer classrooms, among which 17 with less than 20 personal computers and 7 with more than 20 personal computers.

In general, the newly-built campus offers high-quality premises, which are clearly adequate and suitable in what concerns new teaching / learning concepts in the Engineering domains.

However, there are some few aspects that should be improved and are being addressed by the board of FEUP. For instance, experience shows the existence of some unfulfilled requirements in some of the classrooms, namely, regarding its size, general comfort and sound environment. There is also a lack of amphitheatres of intermediate size (around 100 seats) and a default of tutorial classrooms with a capacity for 30 up to 40 students.

The full description of available premises is given in the table below:

Table 21.1 – Available teaching spaces (spans through multiple pages)

Building	Room	Utilization	Type	Description	Area (m^2)	Capacity
A	101	Main Auditorium		Main Auditorium - plateau	287	396
A	217	Main Auditorium		Main Auditorium – 1st balcony	72	102
B	028	Class room	amphitheatre		71	53
B	002	Class room	amphitheatre	Integrated Masters	152	184
B	003	Class room	amphitheatre	Integrated Masters	152	184
B	027	Class room	amphitheatre		61	53
B	006	Class room	amphitheatre	Integrated Masters	71	53
B	008	Class room	amphitheatre	Integrated Masters	58	60
B	004	Class room	amphitheatre	Integrated Masters	99	99
B	035	Class room	amphitheatre	Integrated Masters	85	99
B	025	Class room	amphitheatre	Integrated Masters	58	60
B	007	Class room	amphitheatre	Integrated Masters	85	99
B	001	Class room	amphitheatre	Integrated Masters	152	184
B	009	Class room	amphitheatre	Integrated Masters	58	60
B	010	Class room	amphitheatre	Integrated Masters	95	99
B	011	Class room	amphitheatre	Integrated Masters	51	53
B	013	Class room	amphitheatre	Integrated Masters	85	99

Table 21.1 – Available teaching spaces (spans through multiple pages)

Building	Room	Utilization	Type	Description	Area (m^2)	Capacity
B	014	Class room	amphitheatre	Integrated Masters	99	99
B	015	Class room	amphitheatre	Integrated Masters	94	99
B	018	Class room	amphitheatre	Integrated Masters	58	60
B	019	Class room	amphitheatre	Integrated Masters	58	60
B	020	Class room	amphitheatre	Integrated Masters	95	99
B	022	Class room	amphitheatre	Integrated Masters	71	53
B	023	Class room	amphitheatre	Integrated Masters	85	99
B	026	Class room	amphitheatre	Integrated Masters	95	99
B	029	Class room	amphitheatre	Integrated Masters	85	99
B	032	Class room	amphitheatre	Support to the Main Auditorium	95	99
B	012	Class room	amphitheatre	Integrated Masters	71	53
B	016	Class room	amphitheatre	Integrated Masters	71	53
B	021	Class room	amphitheatre	Integrated Masters	61	53
B	034	Class room	amphitheatre	Support to the Main Auditorium	71	53
B	017	Class room	amphitheatre	Integrated Masters	85	99
B	024	Class room	amphitheatre	Integrated Masters	58	60
B	005	Class room	amphitheatre	Integrated Masters	94	99
B	031	Class room	amphitheatre	2nd cycle	58	60
B	033	Class room	amphitheatre	Support to the Main Auditorium	61	53
B	030	Class room	amphitheatre	2nd cycle	58	60
B	101	Class room	tutorial	Integrated Masters	56	28
B	111	Class room	tutorial	Integrated Masters	61	28
B	107	Class room	tutorial	Integrated Masters	61	28
B	104	Class room	tutorial	Drawing room	123	27
B	105	Class room	tutorial	Integrated Masters	39	20
B	110	Class room	tutorial	Integrated Masters	55	28
B	117	Class room	tutorial	Integrated Masters	39	20
B	122	Class room	tutorial	Continuous Formation	38	20
B	115	Class room	tutorial	Integrated Masters	61	28
B	108	Class room	tutorial	Drawing room	127	35
B	123	Class room	tutorial	Continuous Formation	61	28
B	120	Class room	tutorial	Examinations	123	69
B	118	Class room	tutorial	Integrated Masters	38	20
B	109	Class room	tutorial	Integrated Masters	56	28
B	116	Class room	tutorial	Examinations	123	69

Table 21.1 – Available teaching spaces (spans through multiple pages)

Building	Room	Utilization	Type	Description	Area (m^2)	Capacity
B	106	Class room	tutorial	Integrated Masters	38	19
B	114	Class room	tutorial	Integrated Masters	38	20
B	113	Class room	tutorial	Integrated Masters	39	20
B	102	Class room	tutorial	Integrated Masters	54	28
B	103	Class room	tutorial	Integrated Masters	61	28
B	112	Class room	tutorial	Examinations	123	69
B	119	Class room	tutorial	Integrated Masters	61	28
B	121	Class room	tutorial	Continuous Formation	39	20
B	228	Class room	tutorial	Continuous Formation	55	25
B	226	Class room	tutorial	Continuous Formation	61	28
B	225	Class room	tutorial	Integrated Masters	61	27
B	230	Class room	tutorial	2^{nd} cycle	50	21
B	229	Class room	tutorial	2^{nd} cycle	50	21
B	231	Class room	tutorial	Examinations	123	69
B	227	Class room	tutorial	Examinations	173	89
B	217	Class room	tutorial	Integrated Masters	50	21
B	223	Class room	tutorial	Integrated Masters	50	21
B	215	Class room	tutorial	Examinations	160	82
B	219	Class room	tutorial	Integrated Masters	61	27
B	214	Class room	tutorial	Integrated Masters	50	24
B	224	Class room	tutorial	Integrated Masters	52	21
B	220	Class room	tutorial	Integrated Masters	61	28
B	232A	Class room	tutorial	Examinations	80	45
B	232C	Class room	tutorial	Examinations	80	44
B	216	Class room	tutorial	Integrated Masters	55	25
B	218	Class room	tutorial	Integrated Masters	52	21
B	221	Class room	tutorial	Examinations	170	89
B	222	Class room	tutorial	Integrated Masters	55	25
B	213	Laboratory	computer room	Study room	50	15
B	207	Laboratory	computer room	Integrated Masters / CAD	123	27
B	209	Laboratory	computer room	Study room	50	18
B	204	Laboratory	computer room	Integrated Masters	55	16
B	212	Laboratory	computer room	Study room	50	18
B	206	Laboratory	computer room	Integrated Masters	50	24
B	211	Laboratory	computer room	Study room	55	20
B	210	Laboratory	computer room	Study room	72	20
B	202	Laboratory	computer room	Integrated Masters	50	24

Table 21.1 – Available teaching spaces (spans through multiple pages)

Building	Room	Utilization	Type	Description	Area (m^2)	Capacity
B	205	Laboratory	computer room	Integrated Masters	50	24
B	203	Laboratory	computer room	Integrated Masters	72	20
B	208	Laboratory	computer room	Study room	50	15
B	201	Laboratory	computer room	Integrated Masters	88	30
B	236	Laboratory	tutorial		49	24
B	234	Laboratory	tutorial		50	21
B	233	Laboratory	tutorial		55	25
B	324	Class room	tutorial	Study room	47	21
B	319	Class room	tutorial	Integrated Masters	54	25
B	322	Class room	tutorial	Integrated Masters	61	27
B	323	Class room	tutorial	Integrated Masters	61	28
B	328	Class room	tutorial	Study room	50	21
B	329	Class room	tutorial	Study room	50	21
B	345	Class room	tutorial	Students Association	49	24
B	335	Class room	tutorial	2^{nd} cycle	55	25
B	330	Class room	tutorial	Integrated Masters	61	21
B	332	Class room	tutorial	2^{nd} cycle	50	21
B	333	Class room	tutorial	2^{nd} cycle	50	21
B	334	Class room	tutorial	2^{nd} cycle	72	34
B	336	Class room	tutorial	2^{nd} cycle	49	21
B	340	Class room	tutorial	Students Association	49	21
B	342	Class room	tutorial	Students Association	55	25
B	343	Class room	tutorial	Students Association	49	21
B	344	Class room	tutorial	Students Association	37	16
B	341	Class room	tutorial	Students Association	72	34
B	338	Class room	tutorial	Examinations	123	69
B	337	Class room	tutorial	Language Courses	52	21
B	331	Class room	tutorial	Integrated Masters	61	28
B	327	Class room	tutorial	Integrated Masters	55	25
B	325	Class room	tutorial	Study room	49	21
B	321	Class room	tutorial	Study room	47	24
B	320	Class room	tutorial	Study room	49	21
B	316	Class room	tutorial	Study room	37	20
B	315	Class room	tutorial	Study room	49	21
B	317	Class room	tutorial	Study room	49	21
B	339	Class room	tutorial	Students Association	47	21
B	326	Class room	tutorial	Integrated Masters	72	34

Table 21.1 – Available teaching spaces (spans through multiple pages)

Building	Room	Utilization	Type	Description	Area (m^2)	Capacity
B	318	Class room	tutorial	Integrated Masters	72	35
B	301	Laboratory	computer room	Integrated Masters	87	30
B	302	Laboratory	computer room	Integrated Masters	49	24
B	303	Laboratory	computer room	Integrated Masters	49	24
B	306	Laboratory	computer room	Integrated Masters	52	24
B	304	Laboratory	computer room	Integrated Masters	55	16
B	314	Laboratory	computer room	Integrated Masters	52	24
B	313	Laboratory	computer room	Integrated Masters	50	24
B	307	Laboratory	computer room	Integrated Masters	61	32
B	308	Laboratory	computer room	Integrated Masters	61	32
B	310	Laboratory	computer room	Integrated Masters	50	24
B	311	Laboratory	computer room	Integrated Masters	72	20
B	312	Laboratory	computer room	Integrated Masters	55	24
B	305	Laboratory	computer room	Integrated Masters	50	24
B	309	Laboratory	computer room	Integrated Masters	50	24

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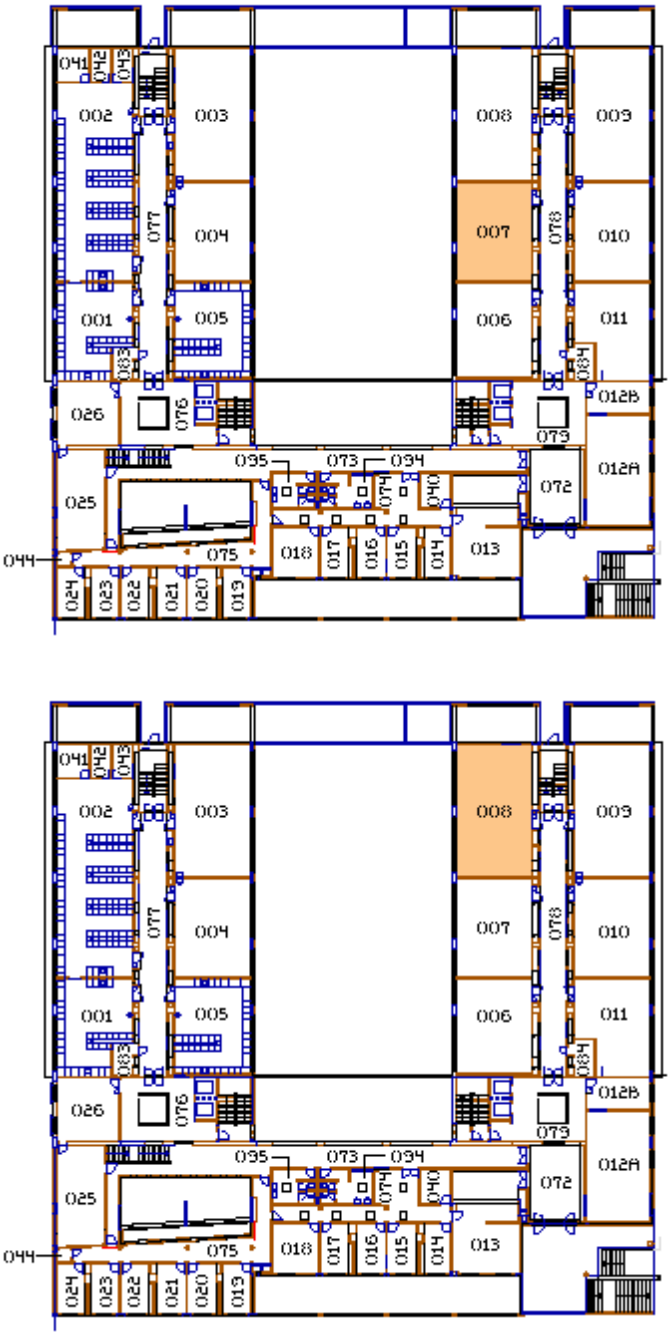
PEDAGOGIC FACILITIES

R13

S22 - Pedagogic facilities - R13

S22.1 - Teaching Laboratories

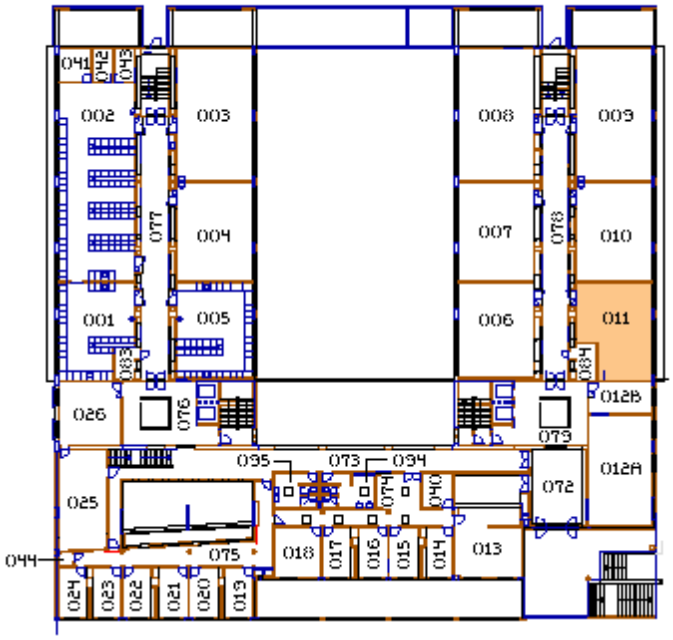
S22.1.1 - I007/I008 - Digital Systems and Microprocessors (61+83 m²)



These laboratories are mainly used for Computer Architecture and Programming of low level projects. Some of the available equipment are:-

- Oscilloscopes;
- measuring equipment;
- EPROM programmers;
- logic analyzers;
- and computers.

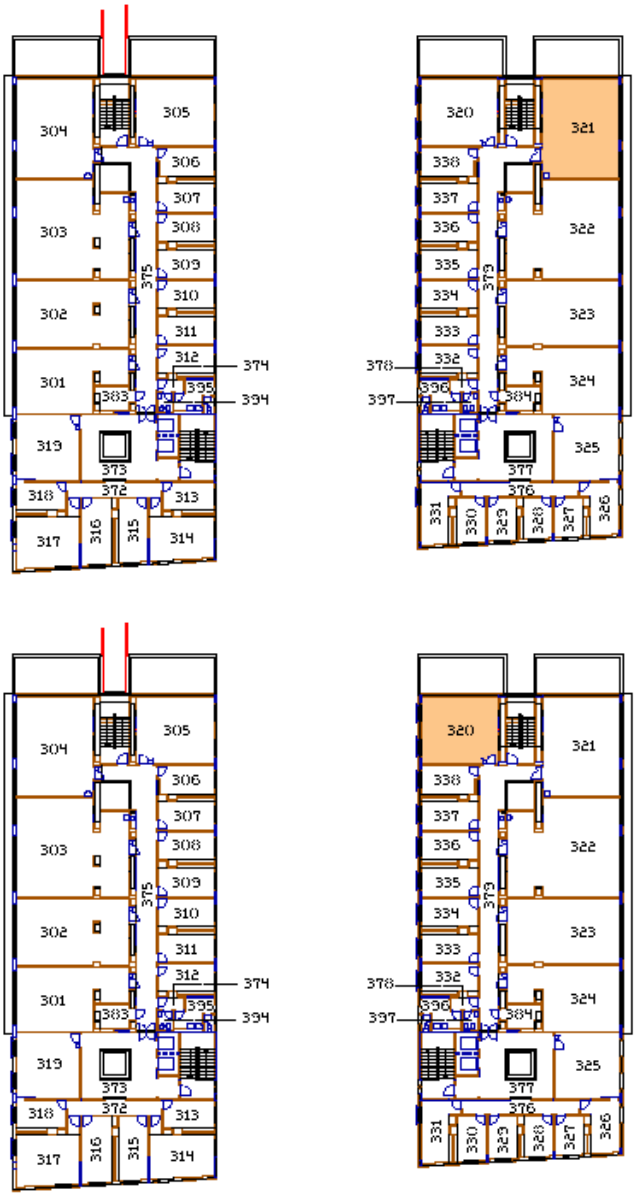
S22.1.2 - I011 - Computer Laboratory - extra classes (56 m2)



This laboratory is generally used by students in extra class time for software development and other activities related with practical works. The laboratory complements many computers rooms that exist in FEUP main classes building (B), since it presents a set of tools, more oriented for software development, which does not necessarily exist in the other rooms. The room is to be used proprietarily by students in the 4th and in the 5th years.

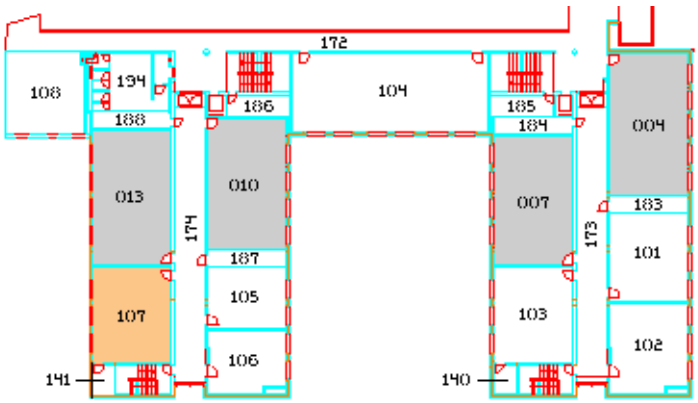
It is equipped with several computers, connected to the intranet and have access to multiple development tools and other central resources (database and web servers, campus applications, other) for installation and testing.

S22.1.3 - I320/321 - Communication Networks (42 + 63 m2)



These laboratories are used for the planning and configuration of networks and services. They are both equipped with specialized hardware like hubs, switches and routers.

S22.1.4 - B107 - Operating systems, Computer graphics and Multimedia (61 m2)



This laboratory is equipped with computers, as well as a scanner and a video recorder. Other equipment available in FEUP may also be used in the same context. This equipment is mainly used for system software development (operating systems) and computer graphics/multimedia practical teaching/works.

It is equipped with specific software tools that due to the existence of limited licences or other reasons must not be installed in the other computers rooms available in the classes building (B).

S22.2 - Research Laboratories

Research Laboratories are normally used by professors and other researchers in the usual activities of R&D, in several scientific areas related to Informatics and Computer Science. They can also be used by MIEIC students when they are included in the corresponding teams, performing some activities of Research Commencement, or even when they are developing their works for their final master thesis.

S22.2.1 - I120 - Laboratory of Robotics (67 m2)

This laboratory is mostly used for the design and operation of robotic systems.

It's Equipped with several computers, robots and their respective development kit.

S22.2.2 - I121 - Laboratory of Artificial Intelligence and Computer Science (86 m2)

This laboratory is mostly used for the design of intelligent systems.

It's Equipped with several computers.

S22.2.3 - I122 - Laboratory of Software Engineering (86 m2)

This laboratory is mostly used for research in software engineering. It's equipped with several computers.

S22.2.4 - I123 - Laboratory of Information Systems and Computer Graphics (60 m2)

This laboratory is mostly used for research in information Systems, as well as in Computer Graphics. It's equipped with several computers and some special equipment for the computer graphics developments.

S22.2.5 - I124 - SAPO Laboratory (52 m2)

This laboratory results of a protocol between the Portuguese company "SAPO" and the University of Porto. Its main objective is to make research in the informatics and computer science areas that are more interesting to the company: information retrieval from different points of view.

The equipment present in the different laboratories can be used in classes and for individual and team work. The operation of equipment with special characteristics must be supported by members of the technical staff.

S22.3 - Support Services and Facilities

S22.3.1 - Library

S22.3.1.1 - Presentation

FEUP's Library service aims to provide students, teachers, researchers and employees with all the necessary scientific, educational, technical and cultural information they may require in order to support them in their academic activities and functions, their cultural development and their social integration. To achieve this aim, the Library has physical resources, human resources, skilled technical staff, computing resources and equipment as well as an integrated system of library management providing information resources, books, magazines, databases and full text repositories in electronic format. Strategically speaking, the Library is currently concentrating its efforts in three essential areas:

a. to use information technologies in order to facilitate access to information and documentation in the working context, via a rapid and friendly service, particularly remote access to resources.. This is accomplished by increasing investment in full text repositories in electronic format;
b. to invest in user information and training, in order to optimize investment in information resources, especially in electronic environments and particularly in e-learning platforms;
c. to implement procedures to control the effectiveness and efficiency of the Library, in particular by implementing a Quality Certification.

S22.3.1.2 - Building and facilities

The Library is located in a new building whose planning was based on two fundamental concepts: comfort and versatility. The option for what is called "an empty networked box" will enable the Library to be used in different ways in the future, according to the changes that are expected to occur in this area, as a result of the increasing use and development of information technologies. The following basic characteristics can be mentioned:

a. Area: 6 000 m^2;
b. Communication network (wired and wireless) installed throughout the building;
c. 8-floor building allowing the allocation of different areas according to their function, whether reading, training, or technical use. The building is thus divided into the following areas:
    - Basement – Technical areas, Closed deposit, Snack-bar/cafeteria
    - Ground Floor – User support, FEUP Editorial, Book Store
    - 1st Floor – Human and Social Sciences, Literature and Exact Sciences, Standards and legislation;

- 2nd Floor – Electrical and Computer Engineering;
- 3rd Floor – Mechanical, Chemical, Metals and Materials Engineering;
- 4th Floor – Civil, Mines and Geosciences Engineering.
- 5th Floor – Periodicals deposit (open access)
- 6th Floor – Training and support areas, reserved work spaces

In terms of seats for reading (516), the Library satisfies existing requirements, which indicate approximately 10% of the student population.

The storage capacity of the shelves already installed, in terms of the number of printed volumes, allows us to expect that, in the next ten years, there will be no storage problems. New areas could be allocated to this function, if the acquisition of documentation, in physical support, does not decrease significantly as expected.

Table 22.1 – Library's features

Reading areas	
Total of seats for reading	470
Seats for reading with network connection	218
Places for informal reading	46
Total of seats	516
Computer resources for users	
Computers installed to search for information resources	81
Laser printers, scanners, zip drives (one per floor)	(one per floor)
Storage areas	
Planned storage capacity in order to have free access to books or journals	160 000 vol.
Planned storage capacity in closed space	60 000 vol.
Total capacity in volumes	220 000 vol.

The diversity of available bibliographical stock, corresponding to the different categories of users and to the documentation specificity of each engineering area, is duly outlined below:

- Reference Books: dictionaries, encyclopaedias, terminology
- Standards
- Thesis
- Statistical Information
- Legislation
- Cartographic Material
- General Bibliography concerning different Engineering areas
- Literary Works
- Cinematographic Works in video and DVD

- Periodicals (400 signed titles)
- Audiovisual material

S22.3.1.3 - Support services

The Library offers a wide range of services accessible to all FEUP members. To provide this assistance, qualified staff members with adequate training are available to support the following activities:

- consultation of the Library's documental stock;
- loans of monographs, theses, CD-ROMs and video cassettes;
- access, by FEUP's intranet, to the electronic resources provided by the library;
- printing of search results;
- photocopies, on a self-service basis, of documents held in the library, according to the appropriate legal restrictions;
- obtaining documents, by copy or by loan;
- registering a thesis in the Dissertation Abstracts database and in other, mainly European, reference databases of theses;
- registering of conferences, seminars and congresses, in specific databases for the divulgation of these events, e.g. Eventline;
- help with database searches, at the user's request;
- services rendered to external users;
- making agreements and protocols with companies and business associations, in order to provide services for scientific and technical information;
- weekly training sessions for users about the use of electronic services.

S22.3.1.4 - Electronic Resources

Via the links found on its website: http://biblioteca.fe.up.pt/, the Library provides access to the following information resources in electronic format, available throughout the campus:

a) Catalogue

1. It allows the user to search all FEUP's documental stock and its electronic Web resources;

2. It allows access to the summaries of the scientific journals, subscribed to by FEUP since 1997, and to the full text of several hundred journal titles, namely:

Articles in Scientific Journals

- ACM Digital Library
- ACS Journals
- AIP Journals
- Annual Reviews

- ASME Digital Library
- CE Database (ASCE)
- Emerald Fulltext
- Highwire Press
- IEEE Xplore
- Informaworld (Taylor and Francis)
- IOP Journals
- MetaPress
- Royal Society of Chemistry
- ScienceDirect
- Wiley Online Library

b) Databases accessible by agreement with the suppliers:

Bibliographic databases:

It provides integrated searches in the following major databases:

- **Academic Search Complete** - ASC is a powerful online reference system accessible via the Internet. It offers a variety of proprietary full text databases and popular databases from leading information providers.
- The comprehensive databases range from general reference collections to specially designed, subject-specific databases for public, academic, medical, corporate and school libraries.
- **Compendex** - Compendex is the most comprehensive bibliographic database of scientific and technical engineering research available, covering all engineering disciplines. It includes millions of bibliographic citations and abstracts from thousands of engineering journals and conference proceedings. When combined with the Engineering Index Backfile (1884-1969), Compendex covers well over 120 years of core engineering literature.
- **Current Contents** - Current Contents Connect® is a current awareness database that provides easy Web access to complete tables of contents, abstracts, bibliographic information, and abstracts from the most recently published issues of leading scholarly journals, as well as from more than 7,000 relevant, evaluated websites. Also included is full bibliographic information from some electronic journals before they are published.
- **ERIC** - the Education Resources Information Center, is the world's largest digital library of education literature.
- **Inspec** - Inspec includes bibliographic citations and indexed abstracts from publications in the fields of physics, electrical and electronic engineering, communications, computer science, control engineering, information technology, manufacturing and mechanical engineering, operations research, material science, oceanography, engineering mathematics, nuclear engineering, environmental science, geophysics, nanotechnology, biomedical technology and biophysics.

- **SCOPUS** - SciVerse Scopus is the world's largest abstract and citation database of peer-reviewed literature and quality web sources.
- **Web Of Science** - Web of Science ® provides researchers, administrators, faculty, and students with quick, powerful access to the world's leading citation databases. Authoritative, multidisciplinary content covers over 12,000 of the highest impact journals worldwide, including Open Access journals and over 150,000 conference proceedings. You'll find current and retrospective coverage in the sciences, social sciences, arts, and humanities, with coverage to 1900.
- **Zentralblatt MATH** - The Zentralblatt MATH Database is produced by the Berlin editorial office of FIZ Karlsruhe (in cooperation with European academies and mathematical institutes). It contains more than 3 million entries drawn from about 3500 journals and 1100 serials from 1826 to present.

And also in other important databases:

- **METADEX** - Metals Science - Engineering of materials fields.
- **ICONDA** - International Construction Database - Civil engineering, urban and regional planning, architecture and construction fields.
- **ISMEC** - Mechanical Engineering Abstracts - mechanical engineering, production engineering and management fields.
- **GEOREF** - Geology, geophysics, geochemistry, hydrology, mineralogy, petrology, seismograph and stratigraphy fields.
- **ISA** - Information Science Abstracts
- **LISA**- Library and Information Science Abstracts - Information sciences field.
- **Dissertation Abstracts**
- **Masters and doctoral dissertations**
- **Mathematics**
- **Medline** [by: NLM or WebSpirs] - medicine and health sciences field
- **JCR: Journal Citation Reports** - impacting factors and other related information on the assessment of periodicals.
- **AGRICOLA / AGRICultural OnLine Access** - bibliographic database for the agricultural literature field, created by the National Agricultural Library (USA).
- **TRIS Online** (Transportation Research Board) - the largest and most comprehensive bibliographic resource about information on transports, produced by the Transportation Research Board at the National Academy of Sciences (USA).
- **PUBSCIENCE** (Energy and Physics) - service that provides the search for citations from journals of participating publishers and of the DOE Energy Database (EDB).
- **PsycInfo** - psychology, education, behavioural sciences.
- **Sport Discus** - sports science, fitness, recreation
- **Geography** - geography
- **MLA International Bibliography** - literature, language, linguistics

Specific information databases:

- Legislation: LexOnline and INCM
- Statistics: Infoline
- Citations: Science Citation Index

Online encyclopedias:

- Encyclopaedia Britannica
- Ullmann's Encyclopedia
- CRC Handbook of Chemistry and Physics
- Kirk-Othmer Encyclopedia of Chemical Technology

e-books

- CRC CivilENGINEERINGnetBASE
- CRC ElectricalENGINEERINGnetBASE
- CRC MechanicalENGINEERINGnetBASE
- CRC NEUROSCIENCEnetBASE
- CRC ENGnetBASE
- CRC EnviroNetBase
- CRC FOODnetBASE
- CRC MathNetBase
- CRC STATSnetBASE
- CRCnetBASE
- ebrary
- Google Book Search
- Knovel
- Referex
- Safari Books Online

Dictionaries

- Dictionary of Portuguese (Porto Editora)
- Portuguese-English Dictionary (Porto Editora)
- On-line Dictionary of Computing (FOLDOC)

Digital libraries (Thesis and dissertations)

- Australasian Digital Thesis
- DART-Europe E-theses Portal

- Digitale Dissertationen im Internet
- NDLTD - Theses & Dissertations
- Portal Domínio Público
- TEL (thèses-en-ligne)
- Virginia Tech ETDs

Repositories

- ArXiv.org
- Astrophysics Data System (ADS)
- CERN Document Server
- CogPrints via SCIRUS
- DBLP Computer Science Bibliography
- DiVA - Academic Archive Online
- ETDE World Energy Base (ETDEWEB)
- HAL - Hyper Article en Ligne
- NBER Working Papers
- PLoS One

Intelectual Property

- Derwent Innovations Index
- EPO - European Patent Office
- esp@cenet (European Patent Office)
- Google Patents
- INPI - Instituto Nacional da Propriedade Industrial
- Community Trade Marks Online
- PATENTSCOPE - Appellations of Origin (WIPO)
- PATENTSCOPE - Patents (WIPO)
- PATENTSCOPE – Article 6ter (WIPO)
- PATENTSCOPE – Designs (WIPO)
- PATENTSCOPE – Trademarks (WIPO)
- USPTO Patent Database: Issued Patents
- USPTO Patent Database: Published Applications

Technical Reports

- CORDIS
- DOE Information Bridge
- NASA Technical Reports
- NTIS

- TechXtra
- TIBORDER - German Research Reports
- World Bank - Documents and Reports

Standards

- AENOR
- ANSI
- ASTM International
- IPQ
- ISO
- IEEE
- Specs & Standards

S22.3.1.5 - Resources Usage

Since its installation in the current new premises, the Library has had a high rate of usage, reflected by the following indicators, according to figures from December 2000 onwards:

- Daily crossings at the Library's entrance: 3 400
- Daily loan records: 200
- Registered users: 4 000

This achievement is also a result of the considerable investment made in information resources to support teaching activities, fulfilling the Library's aim of holding multiple copies of the recommended support bibliographies, both main and complementary, for FEUP courses.

S22.3.2 - Computer Center (CICA)

The Prof. Correia de Araújo Computer Center (CICA) is responsible for the planning, development, implementation, management and maintenance of computer resources, services and communication networks for the FEUP community, by promoting its use and innovation.

CICA manages a wired network (FEUPnet) of 4Gbit / s, 6,000 access points, allowing remote access via VPN connections, and a wireless network covering most of the campus area.

Fully detailed information about FEUP's network, and other services run by the computer center, can be found on CICA's website http://www.fe.up.pt/cica/, in the Services section.

CICA provides and maintains a total of more than 1,000 personal computers for students in more than 20 rooms, for practical classes, study rooms, and examination rooms. In addition, it provides assistance to laptops for students and teachers who, taking advantage of existing wireless network on campus, have increased its range exponentially.

CICA has workspaces for its own use and for use by the rest of the academic community, students and staff. These spaces include one computer room located in building D and 27 computer rooms located in building B, accessible to all users.

All computer rooms have workstations with dual boot configuration, including Windows and Linux operating systems. All workstations are connected to FEUPnet and consist of HP computers with 2.5Ghz Intel Core 2 Quad Q9300 processors with 6MB of L2 Cache, 4GB of RAM, 19" LCD Monitors and 16x DVD +/- RW drives.

CICA is also responsible for maintaining and managing the computer rooms, as well as some of the departmental computer labs.

Access to and use of the resources in these rooms and labs is subject to specific regulations, approved by the Faculty Board. In particular, we point out that these resources are to be used exclusively for teaching and research and development activities. Other activities, including recreation or commercial activities, are not allowed.

Within the established opening hours, CICA will provide technical support at these computer rooms and labs. Rooms B208, B209, B210, B211, B212 and B213 are permanently open, including nights , weekends and holiday periods. If, at any given time, the number of workstations available in these rooms proves insufficient to meet demand, CICA's technical staff or FEUP's security staff will open other rooms as required.

In computer room D009, there is a computer adapted for any user with special needs (whether visually impaired, hearing impaired or disabled).

Table 22.2 – Computer rooms under CICA's management – Buildings B/D (follow links for more information)

Building	Rooms	Software
B	B104, B107, B201, B202, B203, B204, B205, B206, B207, B208, B209, B210, B211, B212, B213, B301, B302, B303, B304, B305, B306, B307, B 308, B309, B310, B311, B312, B313,B314	List
B	Lecture theatres equipped with a projector: B001(a) B002(a) B003(a) B004(b), B005(b), B006(b), B007(b), B008(b), B009(b), B010(b), B011(b), B012(b), B013(b), B014(b),B015(b), B016 (b), B017(b), B018(b), B019(b), B020(b), B021(b), B022(b), B023(b), B 024(b), B025(b), B026(b), B027(b), B028(b), B029(b), B030(b), B031(b), B033(b), B034(b),B035(d) Classrooms for theoretical-practical classes equipped with a projector: B101(c), B103(c), B108(d), B109(c), B111(c), B112(d) , B115(c), B219(c) B232A(b)	List
D	D009	List

(a) Users can book a laptop for these rooms.
(b) Lecture theatres with 1 computer and a remote control for the projector.
(c) The projector is controlled (e.g., on/off) directly through the equipment. A remote control is not needed.
(d) The computer in this room does not have a remote control for the projector.

Besides maintaining and managing these rooms, which are for general use, CICA maintains and manages departmental computer rooms, at the request of departments and under conditions to be negotiated on a case by case basis.

Table 22.3 – Computer rooms under CICA's management - Departments (follow links for more information)

Location	Room(s)	Software
DEI	I011	List
DEEC	J202, J305	List
DEC	G112A	List
DEM	F208	List
DEMEGI	L201, L202, L203	List
Library	C604	-

S22.3.3 - Other Support Facilities

FEUP disposes of multiple convenience spaces, such as:

- 2 restaurants
- 2 snack-bars
- 1 cafeteria
- 1 canteen
- 1 bookshop
- 1 newspapers shop
- 1 computer shop
- 1 copy-centre
- 3 ATM cash machines
- Multiple copy and printer machines widely available to students and researchers

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COURSE MONITORING:

RATES OF SUCCESS

R14

S23 - Course monitoring: rates of success - R14

S23.1 - Subjects

Table 23.1 – Courses' success rates

Course Units	Year	Period	Total Enrolled	%			
				Eval/Enrol	Pass/Enrol	Pass/Eval	1st Enroll/ Total Enrolled
Mandatory							
Algebra (EIC0003)	1	1S	181	86.70	71.30	82.20	0.66
Mathematical Analysis (EIC0004)	1	1S	239	83.30	46.90	56.30	0.51
Computer Architecture and Organization (EIC0083)	1	1S	162	71.00	65.40	92.20	0.99
Complements of Mathematics (EIC0009)	1	2S	264	51.10	29.50	57.80	0.51
Physics I (EIC0010)	1	2S	240	64.60	47.50	73.50	0.51
Programming Fundamentals (EIC0005)	1	1S	156	75.60	64.70	85.60	0.79
Discrete Mathematics (EIC0011)	1	1S	172	83.10	80.20	96.50	1.00
Statistical Methods (EIC0105)	1	2S	294	74.50	66.70	89.50	1.00
Microprocessors and Personal Computers (EIC0016)	1	2S	171	51.50	46.20	89.80	1.00
Programming (EIC0012)	1	2S	176	70.50	57.40	81.50	0.67
Project FEUP (FEUP002)	1	1S	946	92.20	91.40	99.20	0.12
Algorithms and Data Structures (EIC0013)	2	1S	134	100.00	79.90	79.90	0.78
Computer Graphics (EIC0019)	2	2S	134	76.90	73.90	96.10	0.89
Algorithm Design and Analysis (EIC0110)	2	2S	136	100.00	66.90	66.90	1.00
Physics II (EIC0014)	2	1S	185	73.00	49.20	67.40	0.64
Computer Laboratory (EIC0020)	2	2S	142	86.60	83.80	96.70	0.87
Object Oriented Programming Laboratory (EIC0111)	2	2S	0	0	0	0	0
Numerical Methods (EIC0021)	2	1S	169	90.50	62.70	69.30	0.99
Microprocessors and Personal Computers (EIC0016)	2	1S	133	84.20	73.70	87.50	0.80
Operating Systems (EIC0027)	2	2S	154	74.00	57.80	78.10	1.00
Computing Theory (EIC0022)	2	1S	155	82.60	72.30	87.50	0.99
Databases (EIC0023)	3	1S	122	95.90	85.20	88.90	0.84
Compilers (EIC0028)	3	2S	151	69.50	68.90	99.00	0.72
Software Engineering (EIC0024)	3	1S	104	92.30	89.40	96.90	0.92
Artificial Intelligence (EIC0029)	3	2S	142	84.50	74.60	88.30	0.80
Graphical Applications Laboratory (EIC0084)	3	1S	117	93.20	93.20	100.00	1.00
Database and Web Applications Laboratory (EIC0085)	3	2S	112	90.20	90.20	100.00	1.00

Table 23.1 – Courses' success rates

Course Units	Year	Period	Total Enrolled	%			1st Enroll/ Total Enrolled
				Eval/Enrol	Pass/Enrol	Pass/Eval	
Web Languages and Technologies (EIC0112)	3	1S	0	0	0	0	0
Logic Programming (EIC0026)	3	1S	125	88.00	86.40	98.20	0.89
Computer Networks (EIC0032)	3	2S	140	87.10	82.90	95.10	0.89
Distributed Systems (EIC0036)	3	2S	138	74.60	65.90	88.30	1.00
Operating Systems (EIC0027)	3	1S	143	90.90	74.80	82.30	0.74
Agents and Distributed Artificial Intelligence (EIC0033)	4	1S	128	89.80	84.40	93.90	0.80
Enterprise Management (EIC0034)	4	1S	101	91.10	90.10	98.90	0.93
Operational Research (EIC0037)	4	2S	138	93.50	87.00	93.00	0.88
Software Development Laboratory (EIC0086)	4	1S	114	93.90	93.90	100.00	1.00
Project Management Laboratory (EIC0106)	4	2S	100	100.00	99.00	99.00	1.00
Formal Methods in Software Engineering (EIC0039)	4	2S	126	86.50	69.80	80.70	0.80
Information Systems (EIC0040)	4	1S	178	94.90	94.90	100.00	0.98
Distributed Systems (EIC0036)	4	1S	133	82.70	74.40	90.00	0.60
Dissertation (EIC0041)	5	1S	20	95.00	95.00	100.00	1.00
Dissertation (EIC0041)	5	2S	87	90.80	90.80	100.00	1.00
Dissertation Planning (EIC0087)	5	1S	88	97.70	96.60	98.80	1.00
Dissertation Planning (EIC0087)	5	2S	26	92.30	92.30	100.00	1.00
Electives							
Signal Processing Algorithms (EIC0088)	4	2S	0	0	0	0	0
Software Systems Architecture (EIC0048)	4	2S	26	100.00	88.50	88.50	1.00
Parallel Computing (EIC0089)	4	2S	15	93.30	93.30	100.00	1.00
Computer Games Development (EIC0090)	4	2S	31	100.00	100.00	100.00	1.00
Software Systems Requirements Engineering (EIC0053)	4	2S	19	89.50	84.20	94.10	1.00
Operations Management and Logistics (EIC0091)	4	2S	0	0	0	0	0
Markup Languages and Document Processing (EIC0107)	4	2S	27	96.30	96.30	100.00	1.00
Marketing (EIC0061)	4	2S	28	100.00	96.40	96.40	1.00
Planning and Scheduling Methodologies (EIC0063)	4	2S	13	100.00	100.00	100.00	1.00
Multimedia and New Services (EIC0064)	4	2S	27	100.00	100.00	100.00	1.00
Programming Paradigms (EIC0065)	4	2S	0	0	0	0	0
Network and System Services (EIC0092)	4	2S	12	100.00	100.00	100.00	1.00
Signals and Sensors (EIC0093)	4	2S	0	0	0	0	0
Critical Systems (EIC0073)	4	2S	14	71.40	71.40	100.00	0.79

Table 23.1 – Courses' success rates

Course Units	Year	Period	Total Enrolled	%			1st Enroll/ Total Enrolled
				Eval/Enrol	Pass/Enrol	Pass/Eval	
Geospatial Systems (EIC0094)	4	2S	0	0	0	0	0
Industrial Systems (EIC0075)	4	2S	0	0	0	0	0
Database Technologies (EIC0076)	4	2S	1	100.00	100.00	100.00	1.00
Distribution and Integration Technologies (EIC0077)	4	2S	18	88.90	88.90	100.00	1.00
Electronic Business Technologies (EIC0078)	4	2S	16	81.30	81.30	100.00	0.94
Project Appraisal (EIC0044)	5	1S	25	92.00	92.00	100.00	1.00
Data Warehouses (EIC0046)	5	1S	18	83.30	83.30	100.00	0.94
Network and Systems Architecture and Management (EIC0095)	5	1S	9	77.80	77.80	100.00	1.00
Advanced Computer Architectures (EIC0049)	5	1S	0	0	0	0	0
Mobile Computing (EIC0050)	5	1S	22	100.00	100.00	100.00	1.00
Mobile Communications (EIC0082)	5	1S	0	0	0	0	0
Information Description, Storage and Retrieval (EIC0108)	5	1S	16	100.00	100.00	100.00	1.00
Knowledge Extraction and Machine Learning (EIC0096)	5	1S	16	81.30	81.30	100.00	1.00
Quality Management (EIC0109)	5	1S	1	100.00	100.00	100.00	1.00
Enterprise Information Management (EIC0097)	5	1S	0	0	0	0	0
Human-Computer Interaction (EIC0057)	5	1S	25	100.00	100.00	100.00	1.04
Agile Software Development Methodologies (EIC0062)	5	1S	25	100.00	100.00	100.00	1.00
Systems Modelling and Simulation (EIC0098)	5	1S	0	0	0	0	0
Information Systems Strategic Planning (EIC0067)	5	1S	23	95.70	95.70	100.00	1.00
Speech Processing (EIC0068)	5	1S	0	0	0	0	0
Virtual and Augmented Reality (EIC0070)	5	1S	22	81.80	81.80	100.00	1.00
Robotics (EIC0071)	5	1S	11	100.00	100.00	100.00	1.00
Computer Systems Security (EIC0072)	5	1S	21	76.20	76.20	100.00	0.90
Information Systems and Software Engineering Seminar (EIC0099)	5	1S	0	0	0	0	0
Networks and Information Technologies Seminar (EIC0100)	5	1S	0	0	0	0	0
Intelligent Systems, Interaction and Multimedia Seminar (EIC0101)	5	1S	21	100.00	100.00	100.00	1.00
Decision Support Systems (EIC0074)	5	1S	26	96.20	96.20	100.00	1.00
Embedded and Real Time Systems (EIC0102)	5	1S	0	0	0	0	0
Software Testing and Quality (EIC0103)	5	1S	27	88.90	85.20	95.80	1.00
Computer Vision (EIC0104)	5	1S	0	0	0	0	0

Please note: as 2009/2010 academic year is the first implementation of this study plan and is not possible to compare data from the previous plans – mostly because of name changes and equivalences – the success rate for many courses is 100%.

S23.2 - Summary

Table 23.2 – Overall success rates

Year	Total Enrolled	%			1st Enroll/ Total Enrolled
		Eval/Enrol	Pass/Enrol	Pass/Eval	
1	2168	72.00	58.20	80.80	0.74
2	1342	84.80	68.00	80.10	0.82
3	1294	86.00	80.30	93.40	0.86
4	1264	92.10	87.70	95.30	0.89
5	529	93.00	92.60	99.60	0.98

COURSE MONITORING:

SELF-CONTROL

R14

S24 - Course monitoring: design/project work - R14

Table 24.1 – Project work

Students	Final grade	Title of the Final Work
Abel Fernando Neto Moreira dos Santos	16	Adaptação de veículos autónomos e inteligentes e análise de desempenho no flight simulador X
Alfredo Miguel da Cunha Silvestre	17	Integração da Web social em dispositivos de navegação em tempo real
Ana Catarina Lucas Saraiva	16	Qualidade em Engenharia de Software
Ana Gabriela Teixeira Soares	19	A Competence Management System towards Increased Corporate Sucess
Ana Sofia Barros Barbosa	17	Geração de casos de teste a partir de modelos de tarefas
André Manuel Silva Barbosa	17	Cenários de Utilização do Cartão de Cidadão em Sistemas de Informação Académicos
André Moreira Reina	16	Specifying an Information System for Managing Distributed Energy Generation Equipments and Related Services - a Case Study with EDF Energy in the UK
André Pacheco Pereira Neves	17	Web usage mining for click fraud detection
Angela Maria Moreira da Silva	15	Plataforma de interacção 2D para jogos educativos multi-jogador dos 6-12 anos
Bruno Leandro Silveira e Silva	17	Health Management Information System (HMIS)
Carla de Azevedo Santos	17	e-Guide - Self Service
Carlos Manuel Ramires de Sá	16	Collaborative conceptual modelling through a semantic wiki
Carlos Miguel do Nascimento Tonim Galinho Pires	18	Personal assistant for improving the social life of mobility-impaired citizens
Celso Renato Rocha Cardoso	14	Email visualization
Celso Ricardo Martins Maia Costa	14	Implementation of a knowledge discovery and enhancement module for structured information gained from unstructured information sources
Cláudio Miguel Teixeira da Costa	17	Social Software for Music
Daniel Fidalgo Rodrigues	18	Implementation of an information retrieval system within a central knowledge management system
Daniel Filipe Pereira Sequeira	18	Aplicação para controlo de um software de LCA através da sua COM interface
Daniel José Rodrigues de Sousa	18	Caracterização de ligações entre utilizadores em redes sociais
Diogo Dias Junior	16	Location based services for everyone
Ezilda Duarte Almeida	13	Classificação ordinal com opção de rejeição

Table 24.1 – Project work

Students	Final grade	Title of the Final Work
Fabio Homero Moreira Aguiar	14	Crowd simulation applied to emergency and evacuation situations
Fabio Rafael Magalhães Malheiro	17	Extracção, semi-estruturação e interacção com informação utilizando técnicas de processamento de linguagem natural
Fernando Miguel Costa Marques da Silva Pinto	19	Multimodal access to social media services
Filipe Manuel Castro Correia	16	Wholesale solution package
Filipe Miguel Esteves de Castro	17	Transforming Data into Processes, through Business Process Management
Filipe Teixeira Marques	18	Generic coordination methodologies applied to the robocup simulation leagues
Flavio Manuel Fernandes Cruz	19	Call Subsumption Mechanisms for Tabled Logic Programs
Francisco Maria Cruz Nunes	16	Healthcare TV based user interfaces for older adults
Francisco Xavier Richardson Rebello de Andrade	16	Geração automática de testes a partir de especificações algébricas
Gerardo Filipe Neves de Oliveira	16	Adjust and implement the transition methodology in ADSM engagements
Girson César Silva Monteiro	14	Computação voluntária
Gonçalo Santarém da Silva	19	Scaling rails: a system-wide approach to performance optimization
Gustavo Monteiro Oliveira Martins	14	Integração de funcionalidades de rede social e gestão de informação numa plataforma empresarial
Hector Manuel Gomes Dantas	17	Evolução de correio electrónico para modelos de comunicação em tempo real
Helder Filipe Martins Branco	14	Autonomic computing - processamento de eventos
Helder Marco Barata Nunes	17	Gestão de equipamentos e mobilitário urbano
Helder Martins Fontes	19	Multi-Technology Router for Mobile Networks: Layer 2 Overlay Network over Private and Public Wireless Links
Helder Tavares da Silva	17	Sistema de Afiliação para e-commerce
Henrique Manuel Pereira Mesquita e Mota	14	Modelação de Fluxos Documentais - estudo e implementação de uma ferramenta de modelação para a plataforma dCore
Hugo André Miranda Soares Ferreira Gomes	18	Automatização do processo de testes de um serviço web e móvel multi-plataforma
Hugo Frederico Resende	16	Web Social em Serviços Móveis Baseados na Localização
Hugo Manuel Zenha de	16	Aplicação de registos de ocorrências para dispositivos móveis

Table 24.1 – Project work

Students	Final grade	Title of the Final Work
Pinho		
Hugo Miguel Pereira Peixoto	18	Optimization of municipal solid waste collection routes based on the containers' fill status data
Hugo Norberto Jesus Meira	18	Desenvolvimentode Add-in de ecodesign para software de CAD solidworks e sincronização com base de dados
João de Campos Azevedo	19	A workbench to develop ILP systems
João Filipe Dias Gonçalves	17	Tecnologias Abertas de Suporte à Experimentação Remota via WEB
João Luís Carvalho Pereira	13	Integração de um módulo comercial no ERP jDx
João Paulo Ribeiro Portasio	16	Estudo da integração do AIP com outras aplicações oracle retail
João Paulo Santos Portela	17	Exploiting opponent behavior in multi-agent systems
João Pedro Alves Lago da Costa	16	Alice birdwatching: a community built knowledge base for birdwatchers
João Pedro da Cunha e Silva Martins Costa	18	Novo paradigma de navegação Web: Separadores hierárquicos com integração de favoritos e histórico
João Tiago Barbosa Pinto	13	Tools to support practical teaching of software engineering
João Tiago Pinheiro Neto Jacob	17	Jogo electrónico baseado na localização
João Vitor Barros Monteiro Dias	17	Search in GlinttHS Solutions
Joaquim Pedro de Almeida Santos	16	Multimedia museum guide - back office information system
Jorge Fernando Maciel Rodrigues Ruão Pinheiro	15	Interligação de infra-estruturas de computação de elevado desempenho heterógeneas recorrendo a um super-escalonador
Jorge Nuno Guimarães Ferreira de Abreu	15	Sistema de análise multidimensional de dados
José Graciano Almeida Ramos	15	Algoritmos colaborativos para sistemas de recomendação
José Luís Carvalho Pereira	12	Integração de um módulo de Logística no ERP jDx
José Luís da Silva Devezas	18	Link Ecosystem of the Portuguese Blogosphere
Julio Miguel Viana dos Santos	16	Personal Health Channel
Leonel João Gonçalves Dias	17	Novos serviços turísticos para mobile advertising
Luís Carlos Pacheco Soares Carneiro	18	Semantic integration of social and domain knowledge in a collaborative network platform
Luis Carlos Rijo Gaspar	16	Análise e Visualização de Interacções Online em Redes Sociais
Luís Filipe Guimarães Teofilo	19	Building a poker playing agent based on game logs using supervised learning
Luís Miguel Puim Alves	16	Search Technologies, the Future Enterprise Applications

Table 24.1 – Project work

Students	Final grade	Title of the Final Work
Luís Miguel Ramos Pinto	16	Oracle Retail Price Management, uma Visão de Suporte
Luis Rafael Roma da Câmara Pires	10	iFAct recoding
Marcelo Fernando Magalhães Barreira	12	Autonomic computing - registo de eventos
Marco André da Mota Cunha	18	Padrões de teste de interfaces gráficas
Micael Fernando Fonseca Oliveira	16	Quiosque multimédia para comércio electrónico
Miguel Augusto Pereira de Oliveira	13	High-level coordination and decision-making of a simulated robotic soccer team
Nuno Gonçalo Sobral Gomes Amaral Machado	18	Impact of the organizational structure on operations management
Paulo Alexandre Rodrigues Martins	17	Gestão da capacidade nas aplicações da direcção de sistemas de informação da Sonae
Paulo Luciano Simões de Carvalho	17	Plataforma de teste a aplicações web suportando múltiplos web-browsers
Pedro Alexandre Xavier Pacheco	19	Computer-Based Assessment Sustem foe e-Learning applied to Programming Education
Pedro Amorim Brandão da Silva	19	Modelação procedimental para desenvolvimento de jogos de computador
Pedro Daniel Pereira Alves de Sousa	18	Controlo autónomo de tráfego aéreo para veículos inteligentes utilizando o microsoft flight simulator X
Pedro Luis de Faria e Coelho	17	Open location based services platform
Pedro Miguel Barros Morgado	16	Estudo da automatização de processos de migração para um estilo SOA
Pedro Miguel Correia Teixeira	17	Search and navigation for photo collections
Pedro Miguel Tavares Teixeira Ferreira	14	Information systems for public transport users
Pedro Miguel Vieira Antunes Guedes da Silva	16	Web-based management and decision support system
Pedro Tiago Alves Margarido Simões Castanheira	15	Requirements spcefication and design of knowledge discovery and source monitoring services for a collaborative network platform
Rafael Araújo Pires	16	Knowledge Managemen tusing Wikis: a needs and features analysis
Ricardo José Fonseca de Oliveira Paulo	17	Geração assistida de diagramas esquemáticos de rede eléctrica
Ricardo Manuel Nascimento Castilho	15	Reducing screened program points for efficient error detection

Table 24.1 – Project work

Students	Final grade	Title of the Final Work
Ricardo Simão Rocha Garces	16	WEBGRAF 2 - Tradutor web de grafos de especificação de controlo lógico em código de programação normalizado
Rui Alberto Tavares Costa	15	Sistema de visão para detecção de pessoas em movimento
Rui Miguel Ferreira de Azevedo	16	Monitorização integrada de aplicações empresariais
Sara Filipa Lemos Carvalho	15	Real-time sensing of traffic information in twitter messages
Steeve Alves Ferreira	15	Reengineering Web applications to standalone rich internet applications
Telmo da Rocha Pereira	17	Framework para o desenvolvimento de experiências virtuais com interacção háptica
Telmo Tiago Barbosa Pinto	17	Music score binarization based on content knowledge
Tiago Amorim Ferreira Couteiro	17	Métodos estatísticos relacionais para previsão de resultados médicos
Tiago Filipe Rodrigues Ramos	16	Framework de monitorização de interfaces
Tiago Lira Pereira	18	Sistemas de informação para espaços naturais usando geo-referenciação e identificação física
Tiago Pinto Fernandes	18	Game engine for location based services
Vitor Hugo da Silva Pereira	18	Project and Development of a Case-Based Reasoning Poker Bot
Vitor João Constantino Madureira	17	Modelo de gestão de identidades e acessos

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COURSE MONITORING:

DESIGN/PROJECT WORK

R14

S25 - Course monitoring: self-control - R14

S25.1 - Institutional analysis of course's generic indicators

Table 25.1 – Evolution of number of students and graduates in the past few years

Academic Year	Entry 1st Year	Total in 1st Year	Total in the Programme	Civil Year	1st cycle graduates	2nd cycle graduates
2009/2010	109	121	688	2010	104	99
2008/2009	111	124	671	2009	95	96
2007/2008	110	113	673	2008	88	122
2006/2007	114	122	604	2007	157	0

S25.2 - Institutional Analysis Of Indicators Concerning Students

S25.2.1 - Student Population

The following graphs show some data about the student population and it's evolution in the past few years

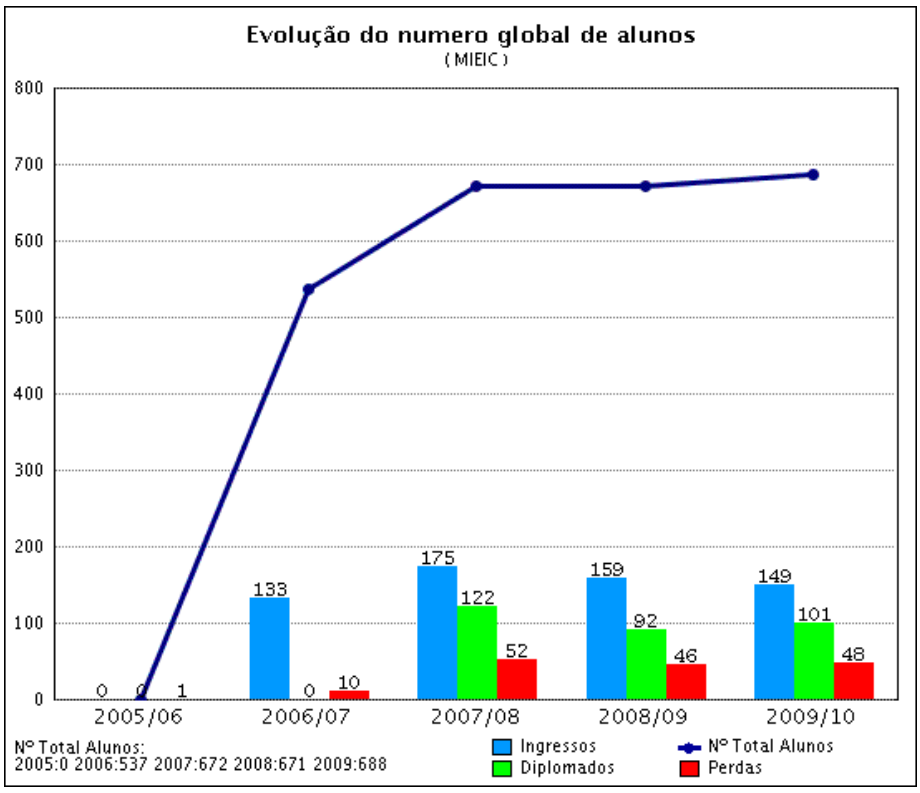

Figure 25.1 – Evolution of the number of students

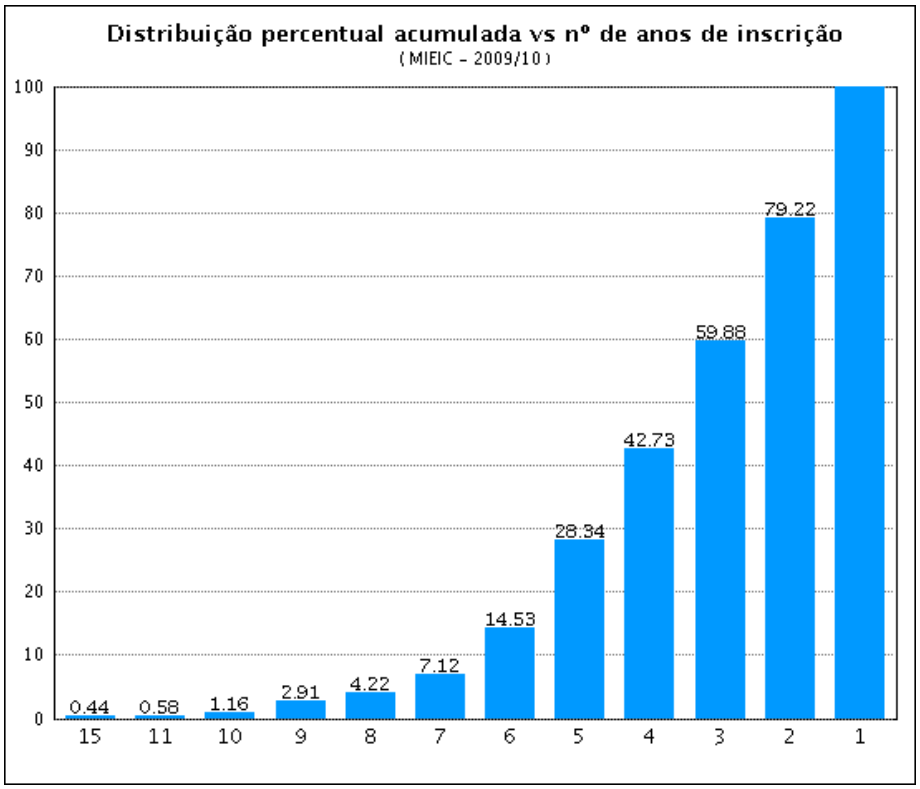

Figure 25.2 – Cumulative percentage distribution by number of registrations

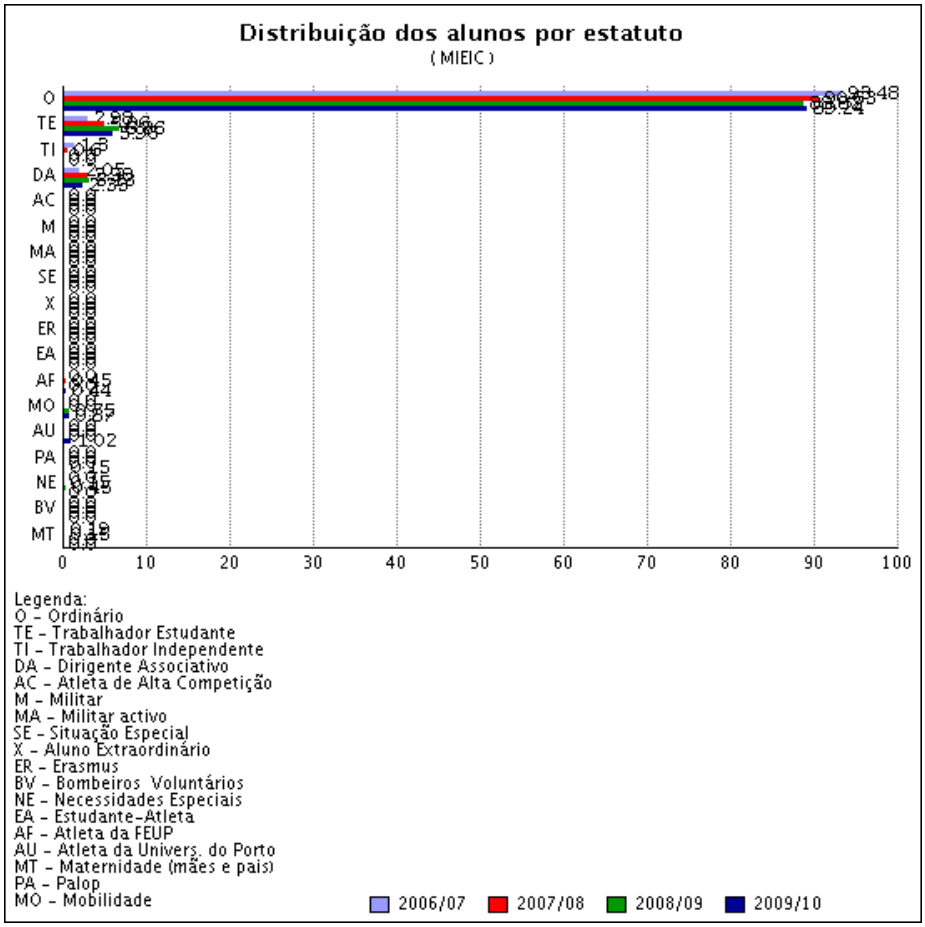

Figure 25.3 – Distribution of students by status

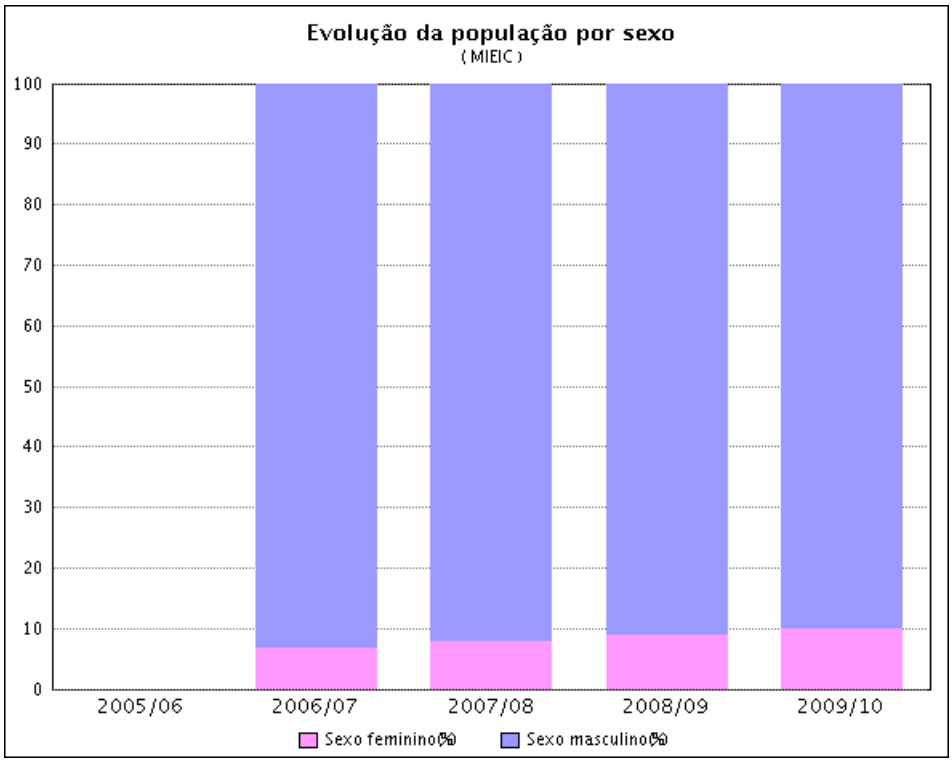

Figure 25.4 – Population evolution by gender

S25.2.2 - New students

In this section is shown data regarding new students' application

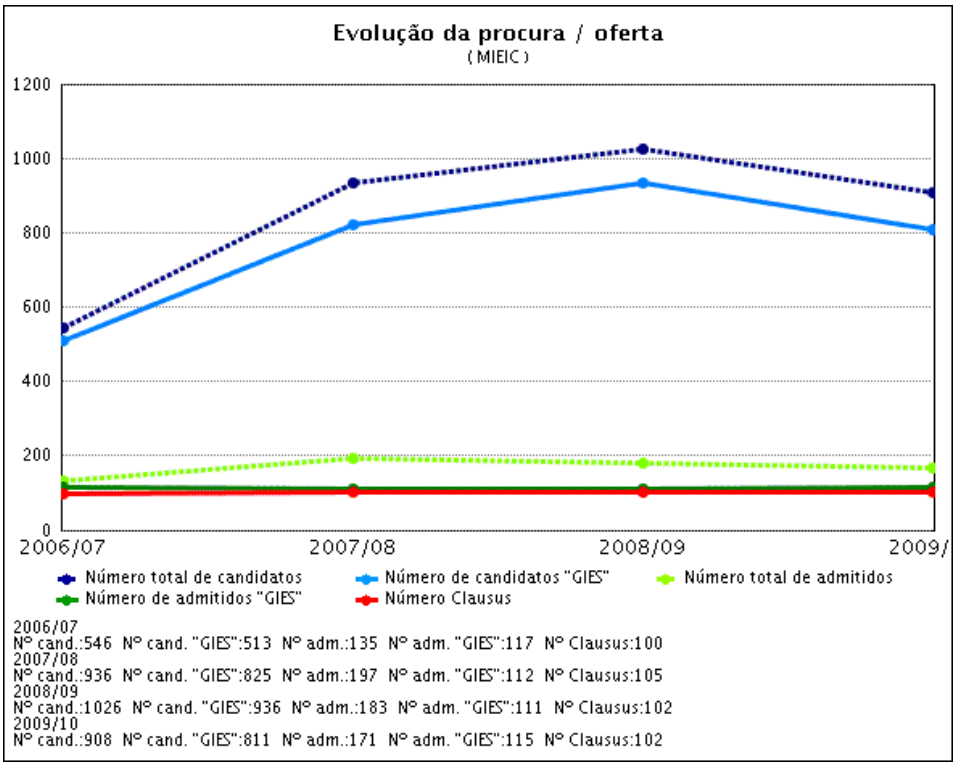

Figure 25.5 – Trends in demand / supply

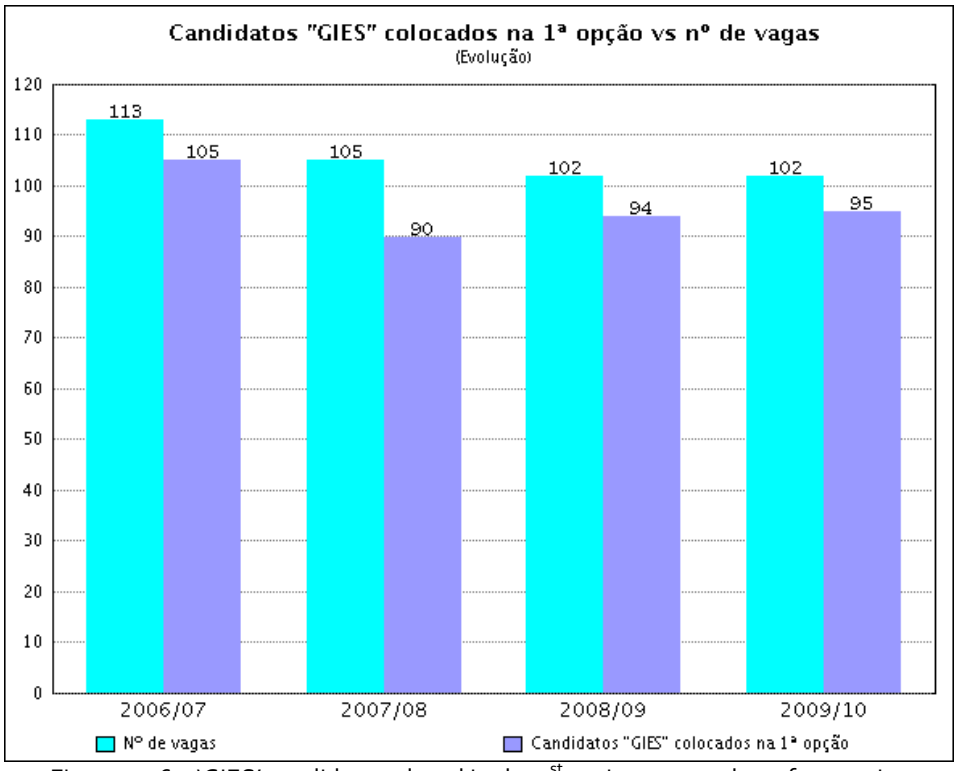

Figure 25.6 – 'GIES' candidates placed in the 1st option vs. number of vacancies

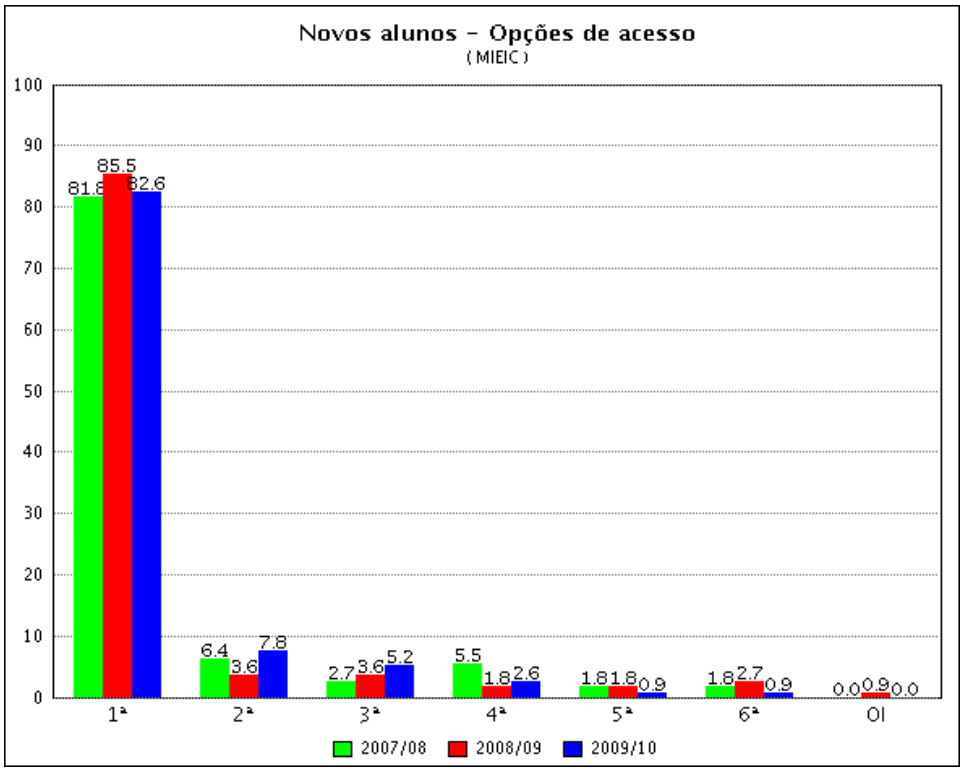

Figure 25.7 – New students' access options

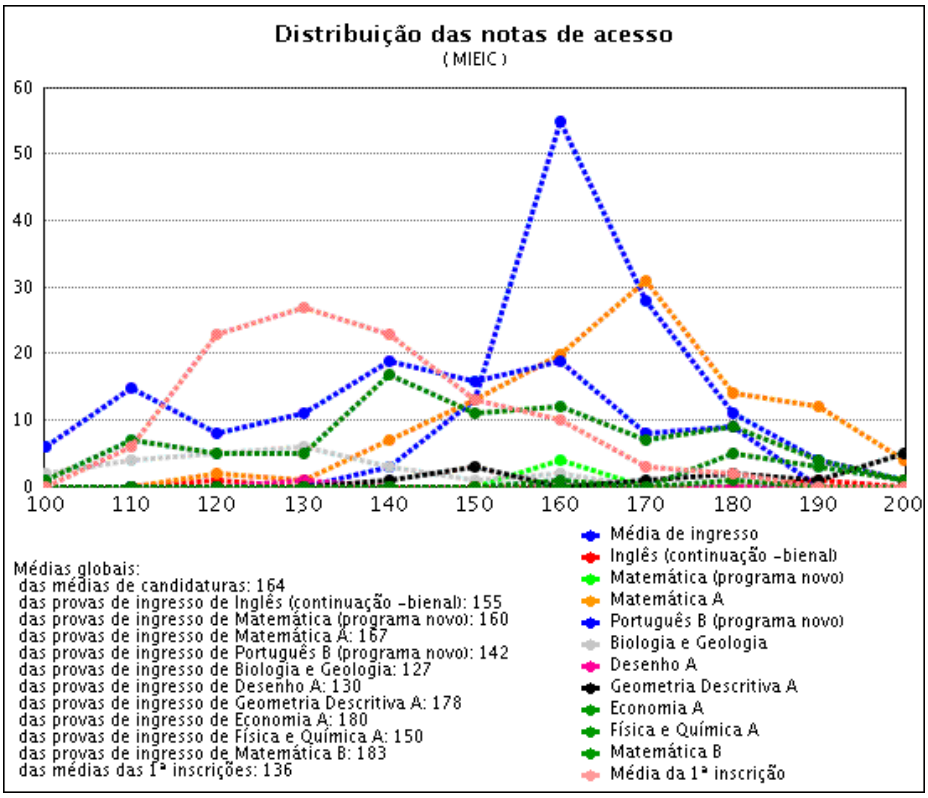

Figure 25.8 – Access grade distribution

S25.2.3 - Academic Progression

This section show student's behaviour during the course

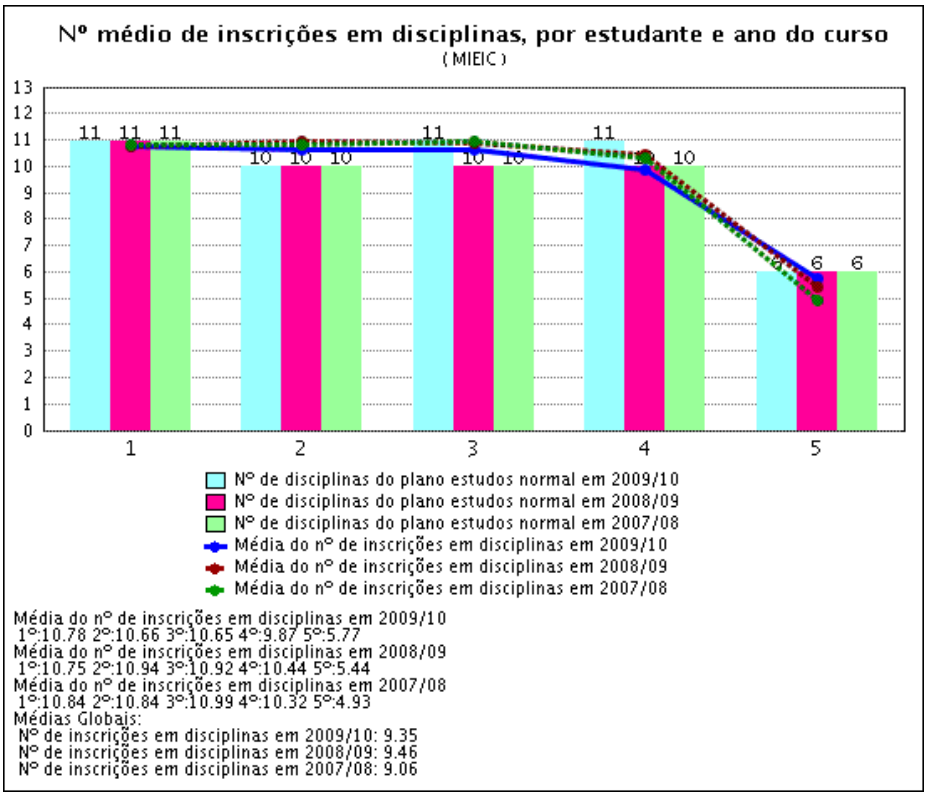

Figure 25.9 – Average registration in courses per student, per year

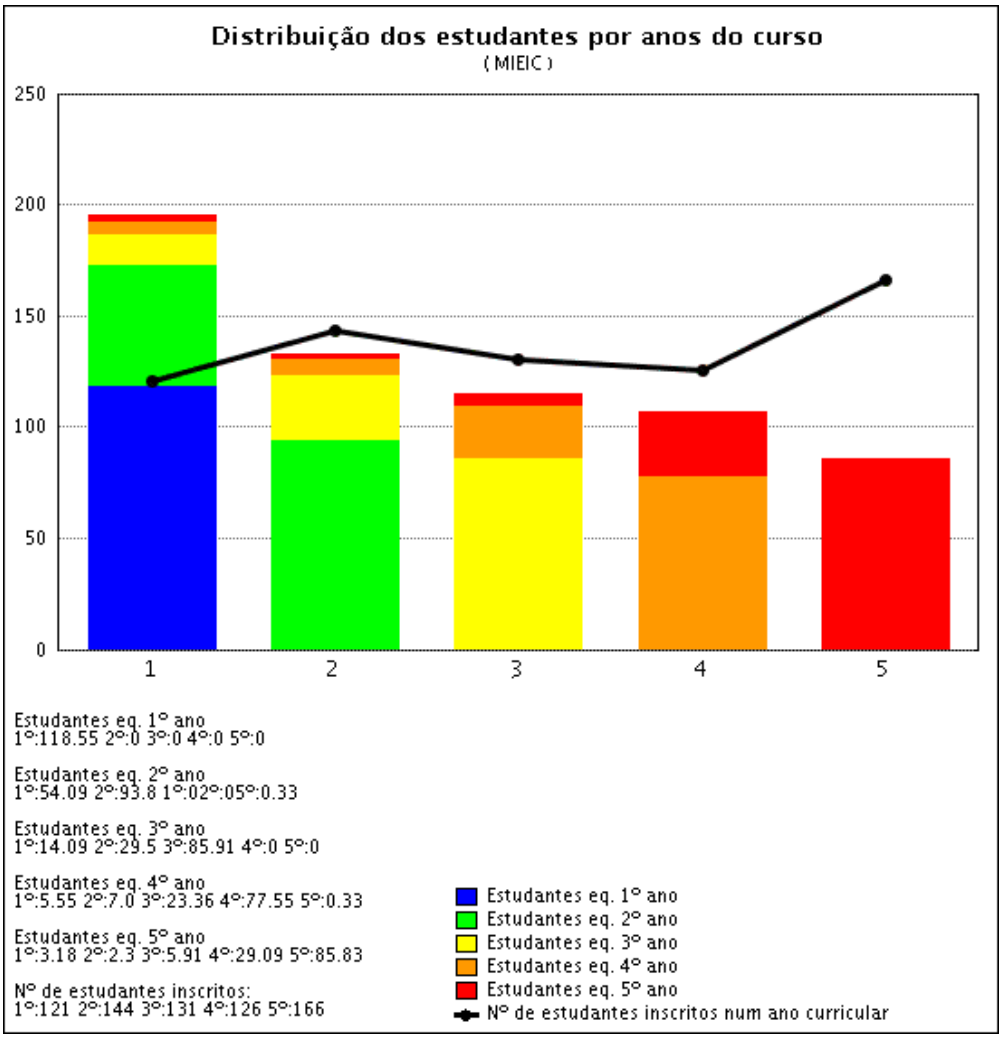

Figure 25.10 – Students' distribution per years of the programme

S25.2.4 - Results

This section is dedicated to student's results. The 10 worst subject performance analysis and all academic results are also presented.

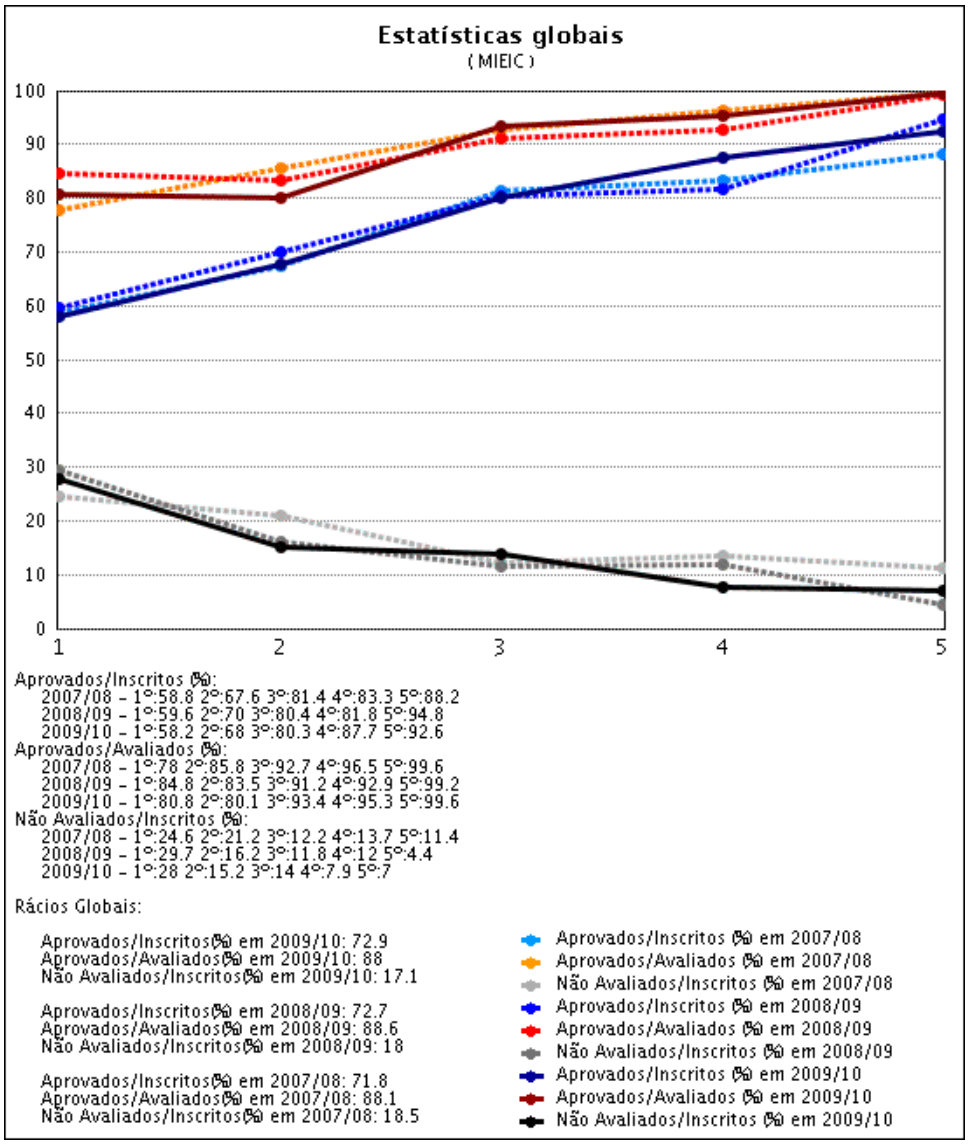

Figure 25.11 – Global statistics

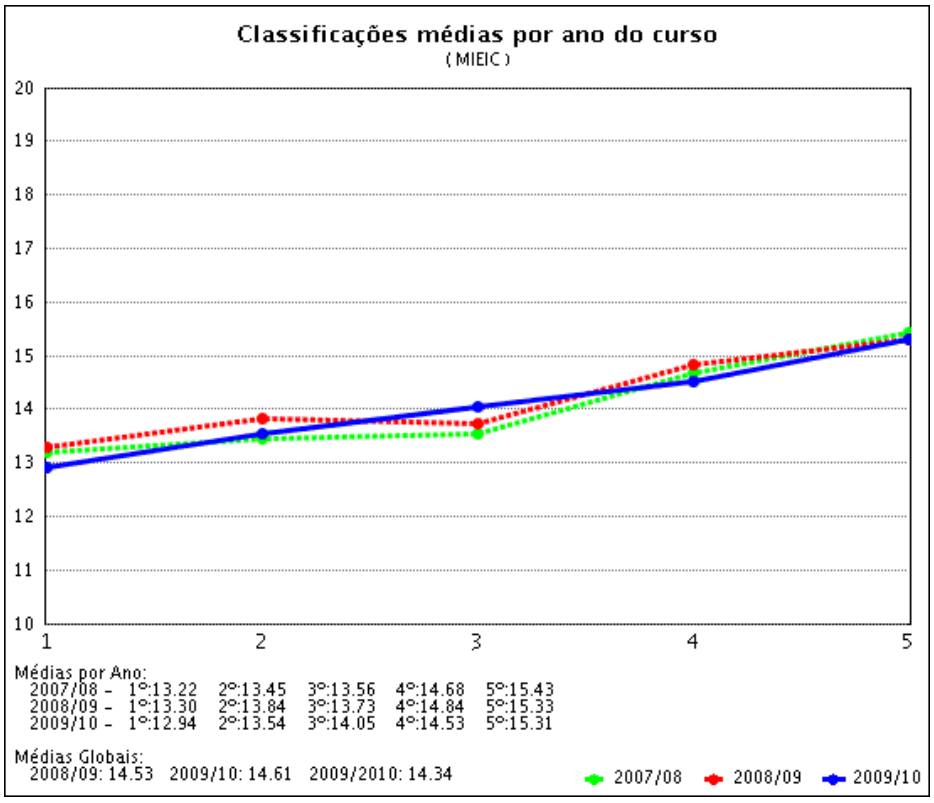

Figure 25.12 – Average rating per year of the programme

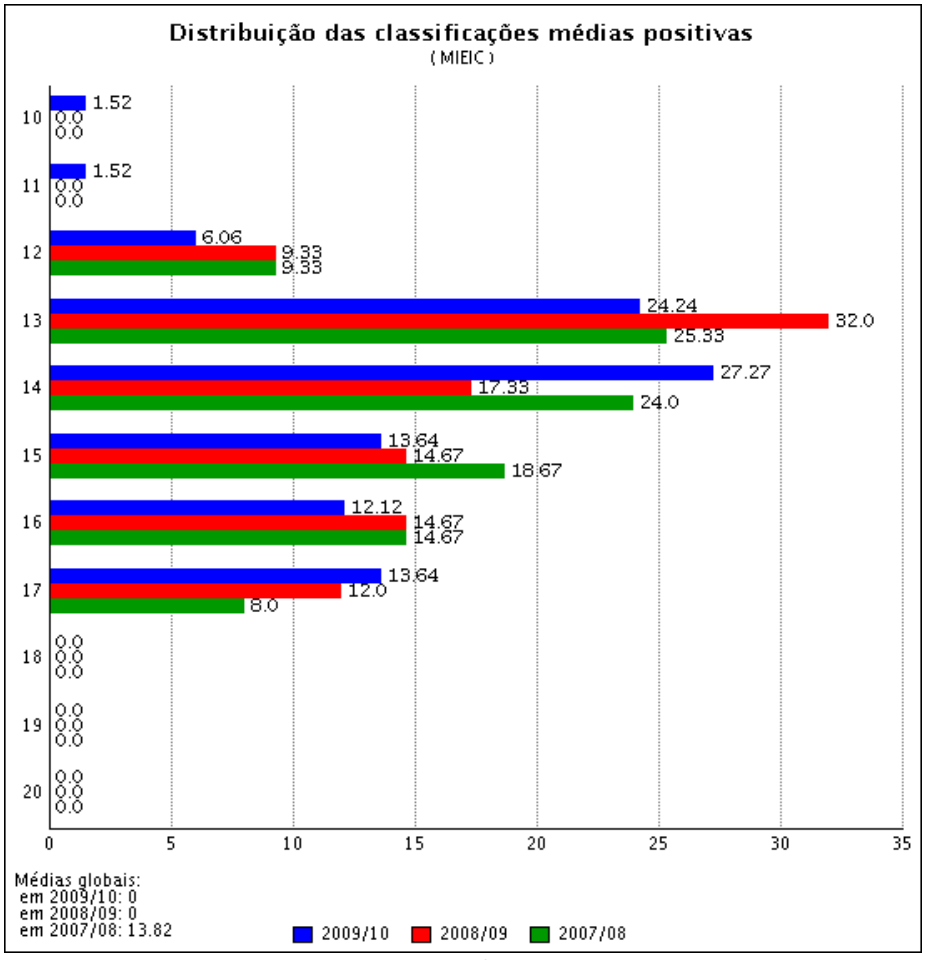

Figure 25.13 – Distribution of positive average ratings

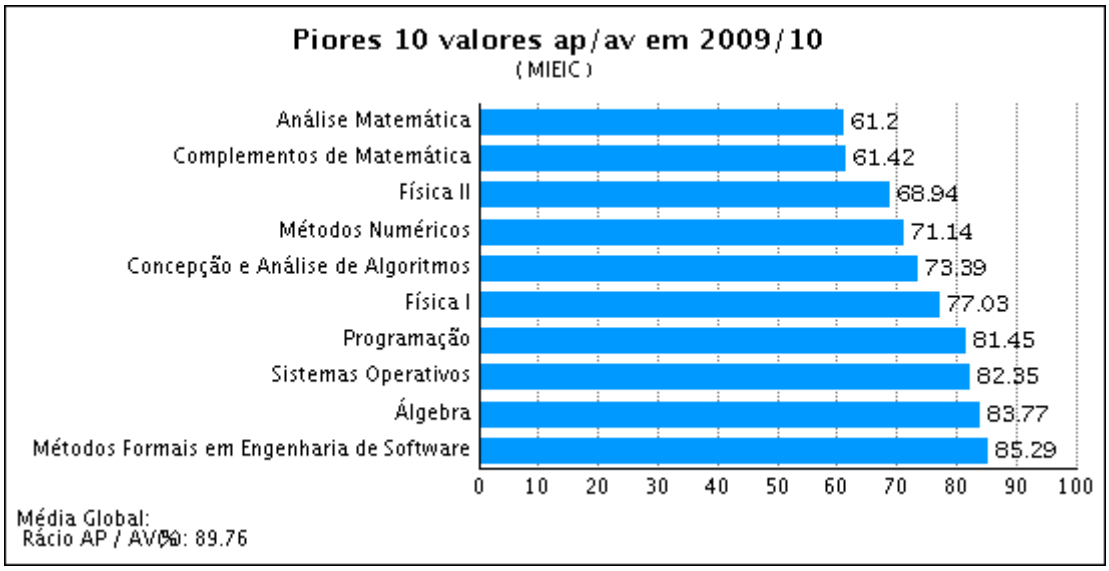

Figure 25.14 - Top 10 worst values approved / evaluated in 2009/10

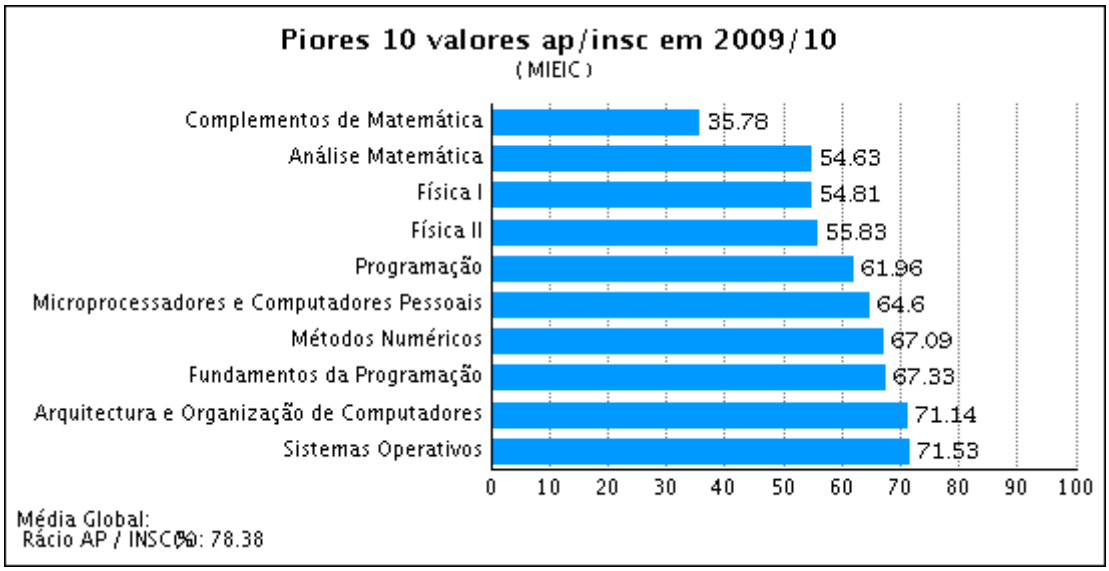

Figure 25.15 - Top 10 worst values approved / enrolled in 2009/10

S25.2.5 - Graduates

This section shows information about the graduate, either regarding course duration or final grade obtained

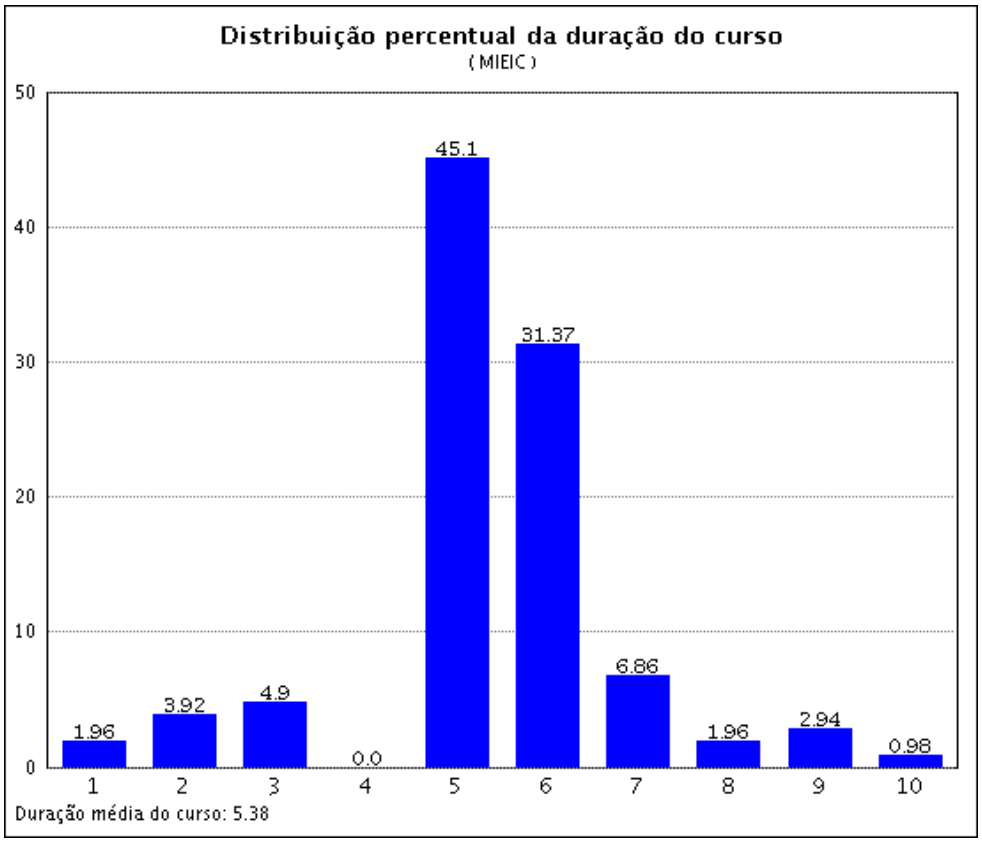

Figure 25.16 - Percentage distribution of the duration of the programme

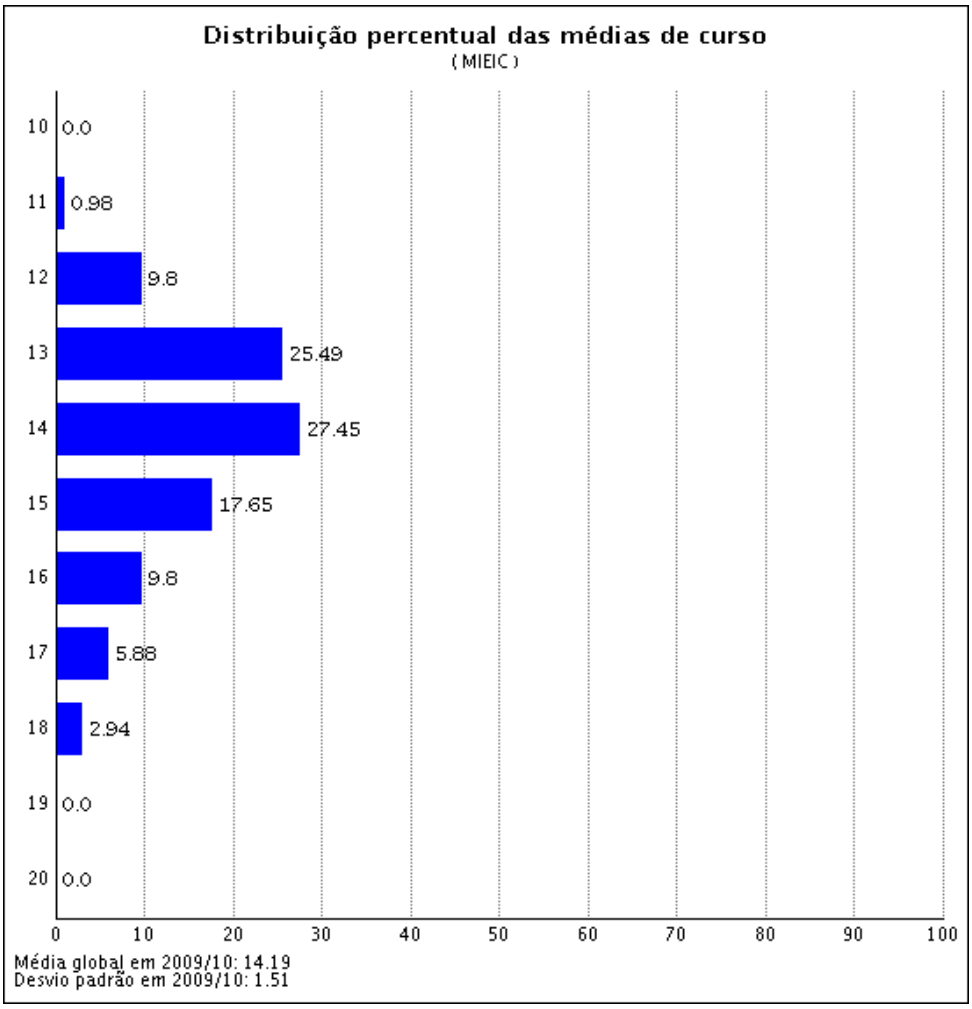

Figure 25.17 - Percentage distribution of the average grades of the programme

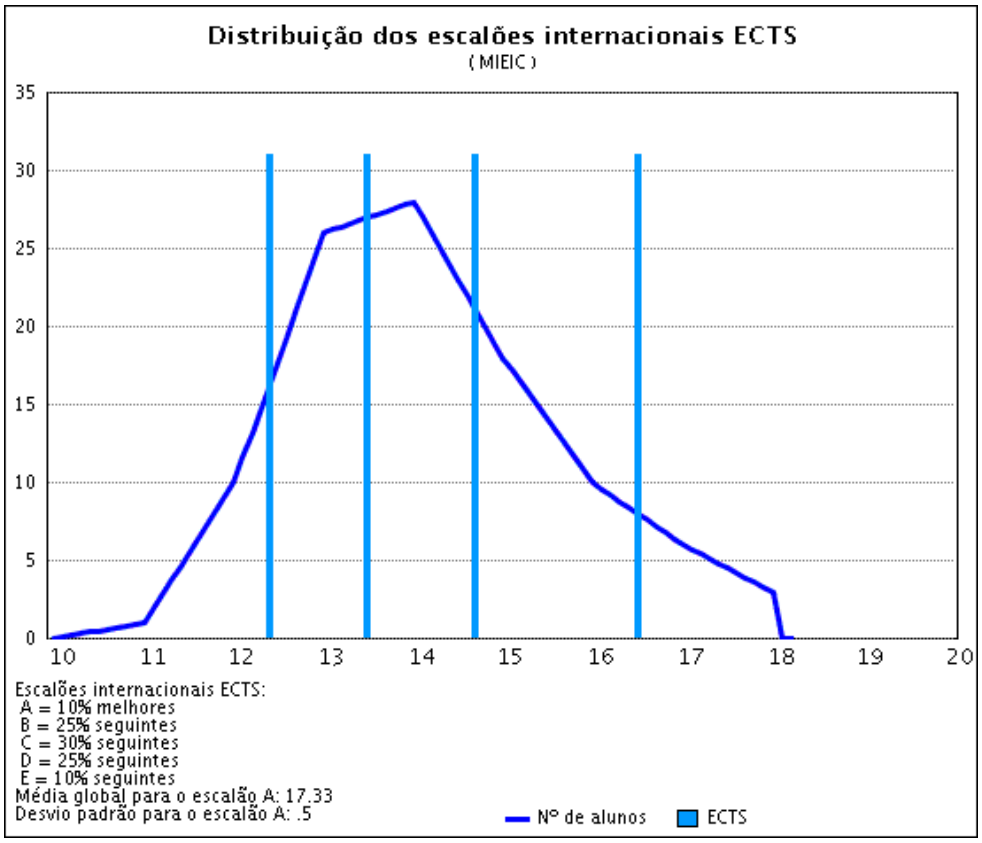

Figure 25.18 - International ECTS rank distribution

S25.2.6 - Student Mobility

The following graphs show the student's mobility and its evolution over the years

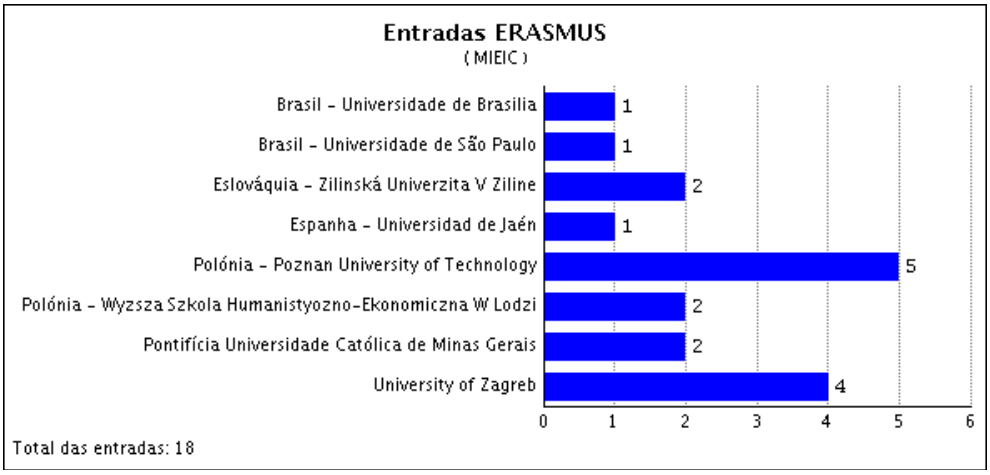

Figure 25.19 – ERASMUS students – IN

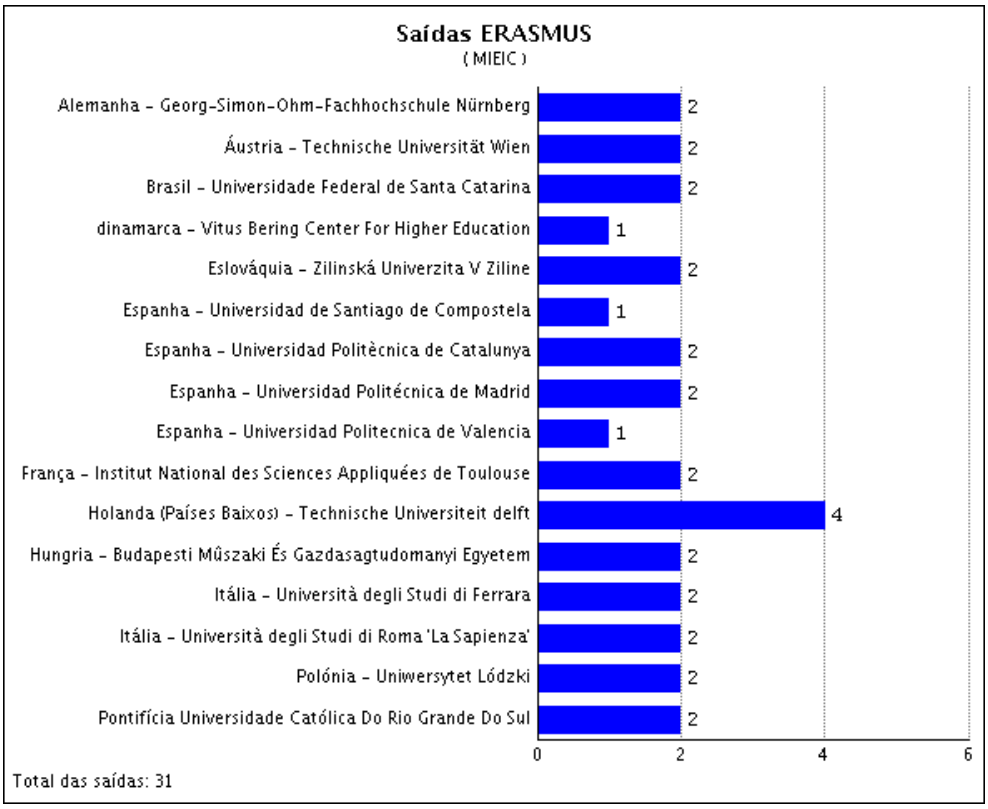

Figure 25.20 – ERASMUS students - OUT

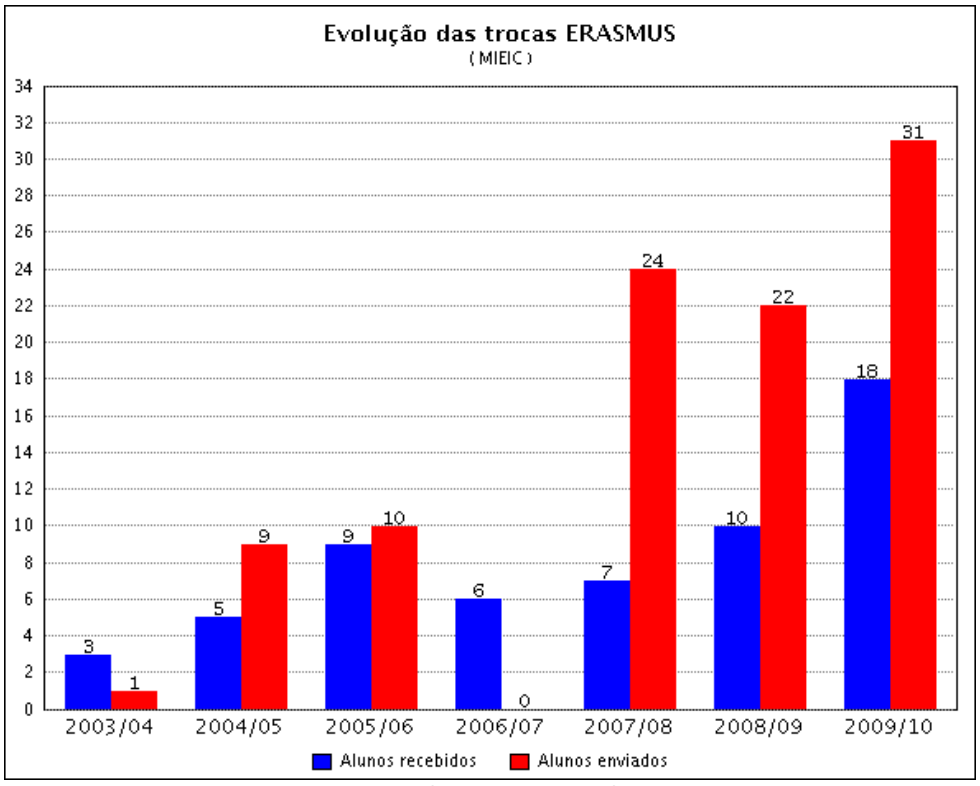

Figure 25.21 – Evolution of the exchange of ERASMUS students

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S25.2.7 - Student Surveys

S25.2.7.1 - Evaluation of curriculum units

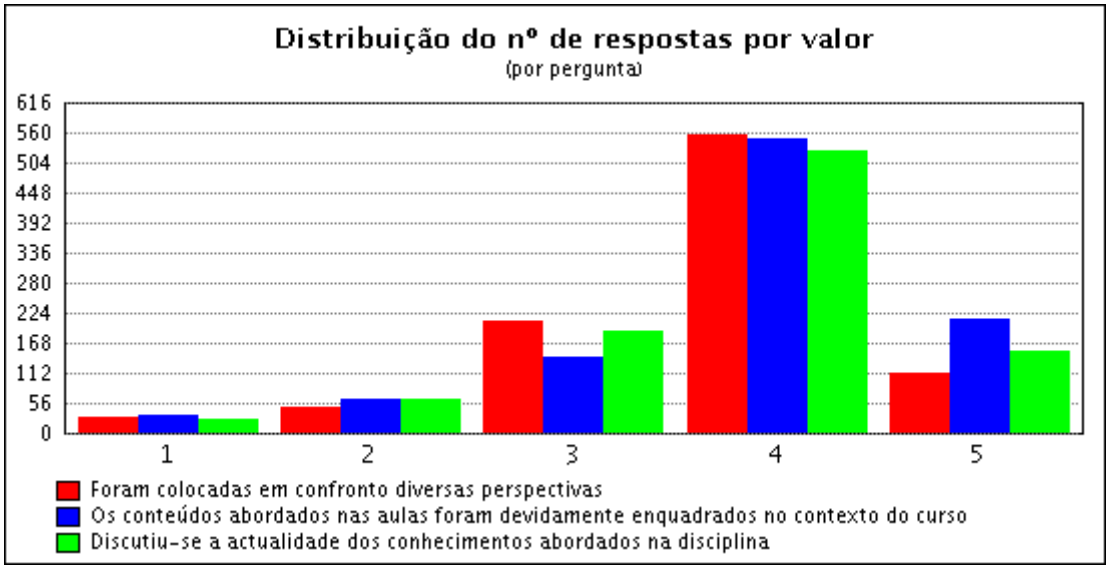
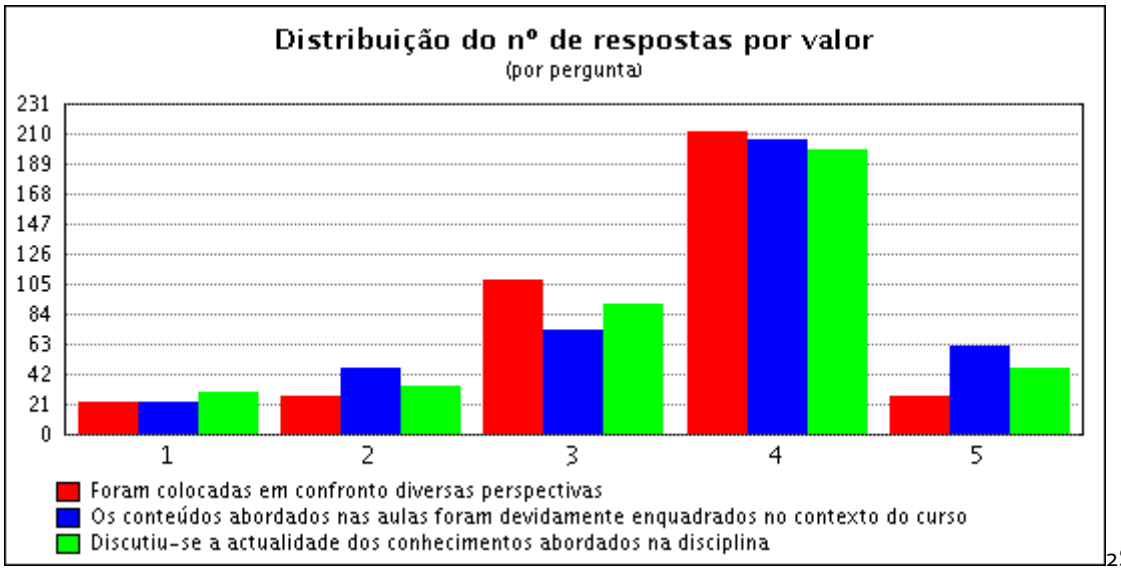


Figure 25.22 - Scope and Transversality of the Contents (1S)



2S

Figure 25.23 - Scope and Transversality of the Contents (2S)

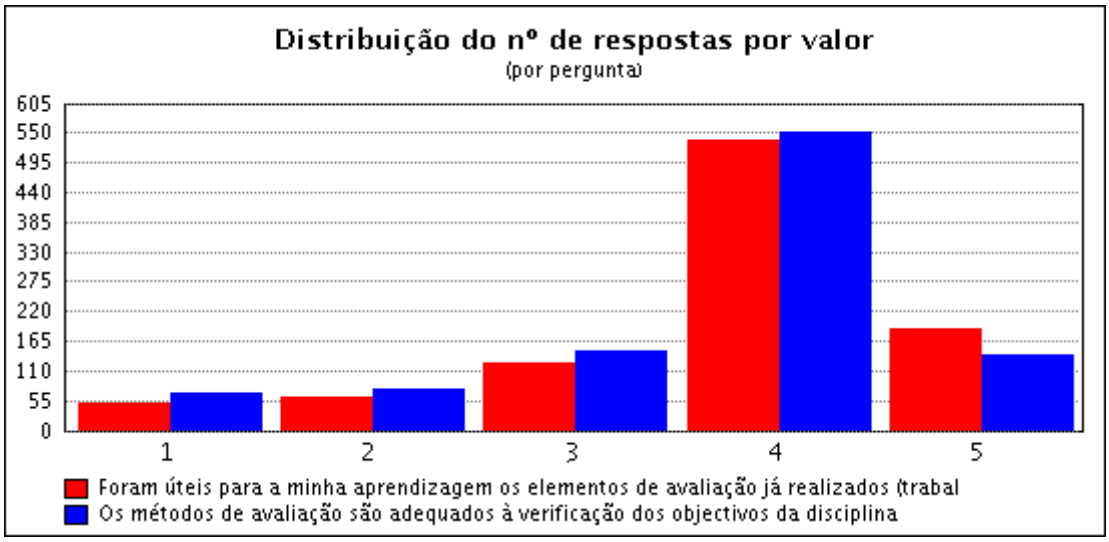
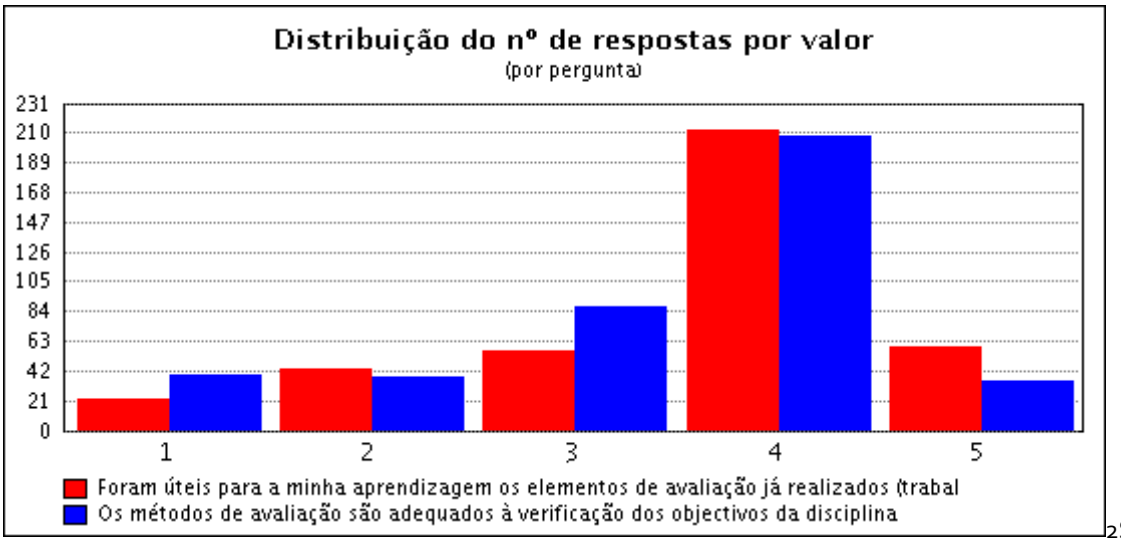


Figure 25.24 - Assessment Methodologies in the Curricular Unit (1S)



2S

Figure 25.25 - Assessment Methodologies in the Curricular Unit (2S)

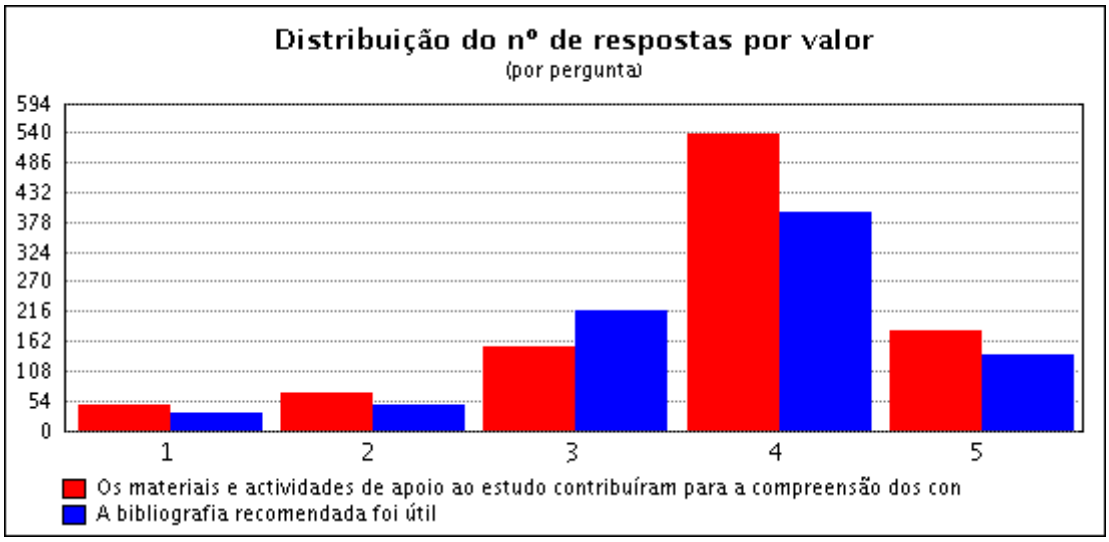


Figure 25.26 - Study Support materials (1S)

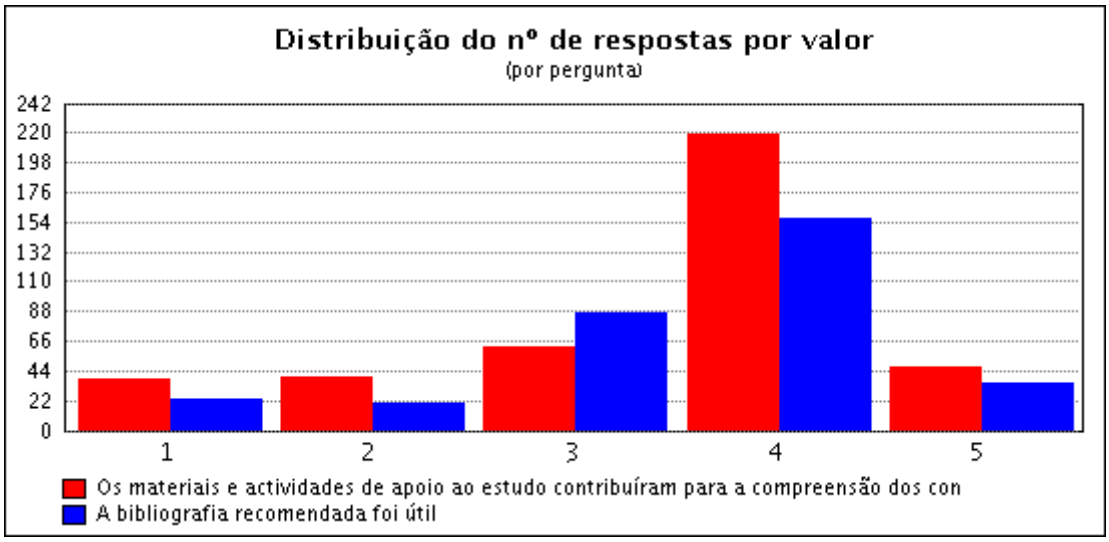


Figure 25.27 - Study Support materials (2S)

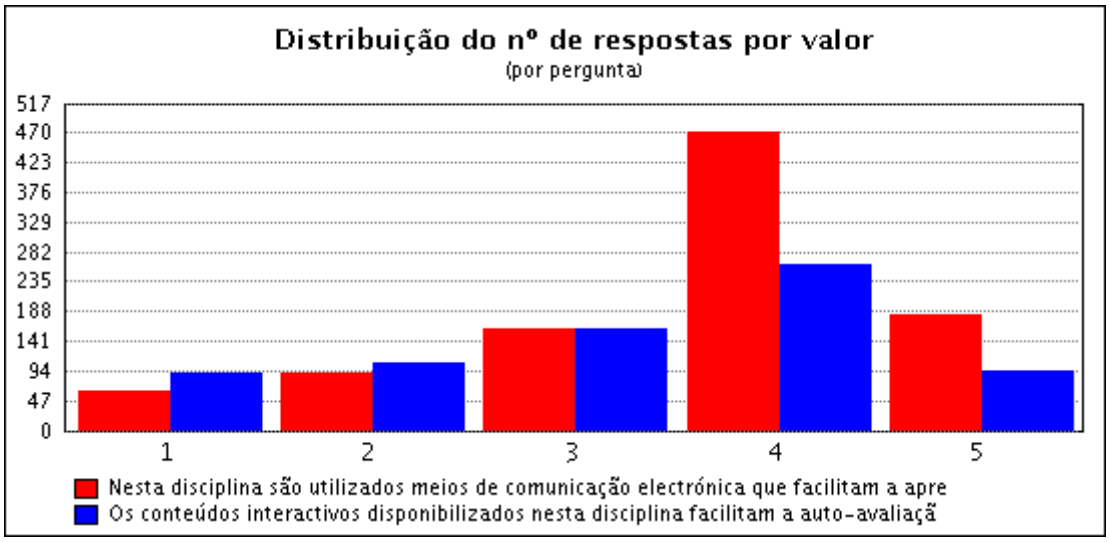


Figure 25.28 - E-learning (1S)

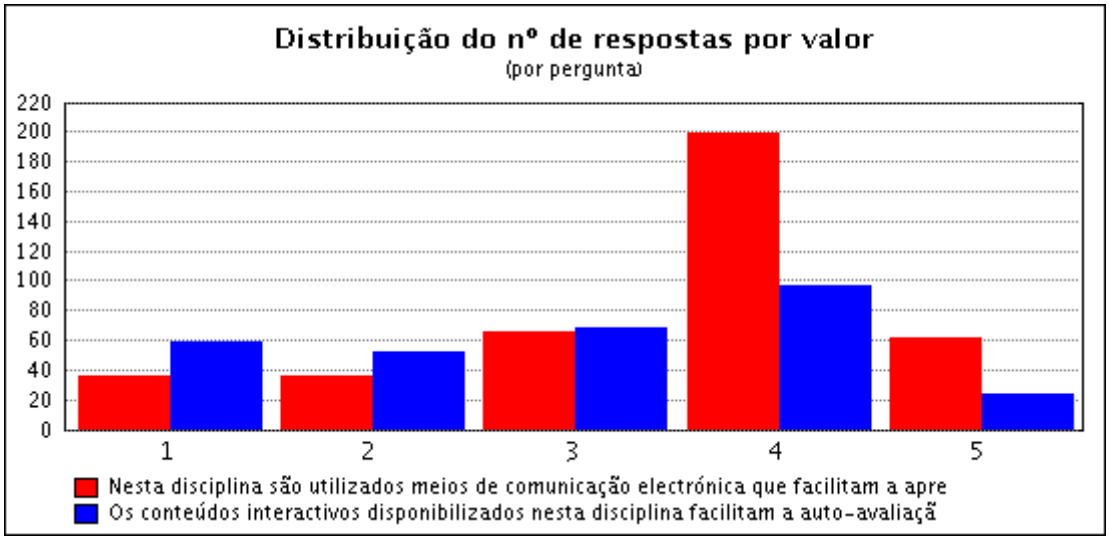


Figure 25.29 - E-learning (2S)

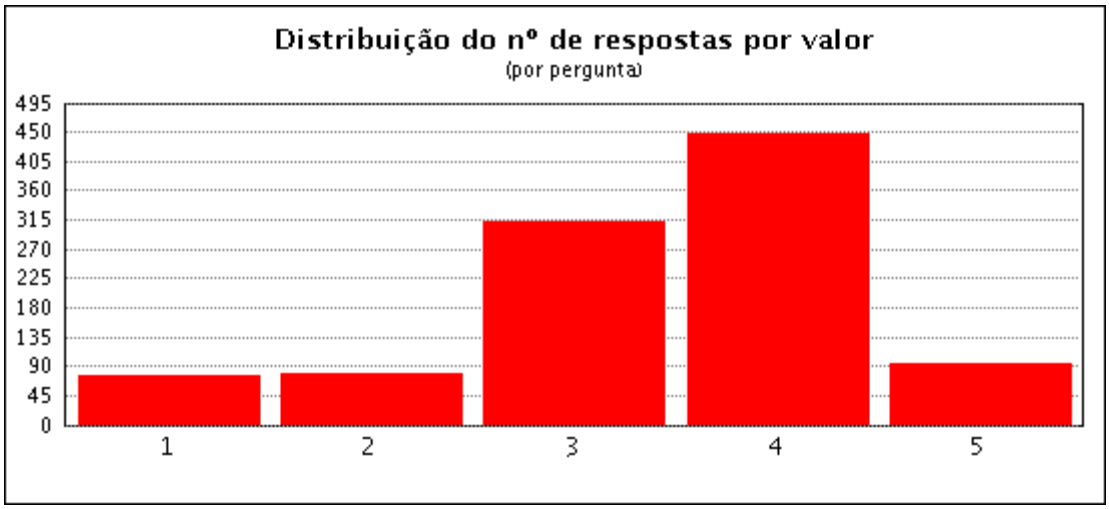


Figure 25.30 - Overall Assessment (1S)

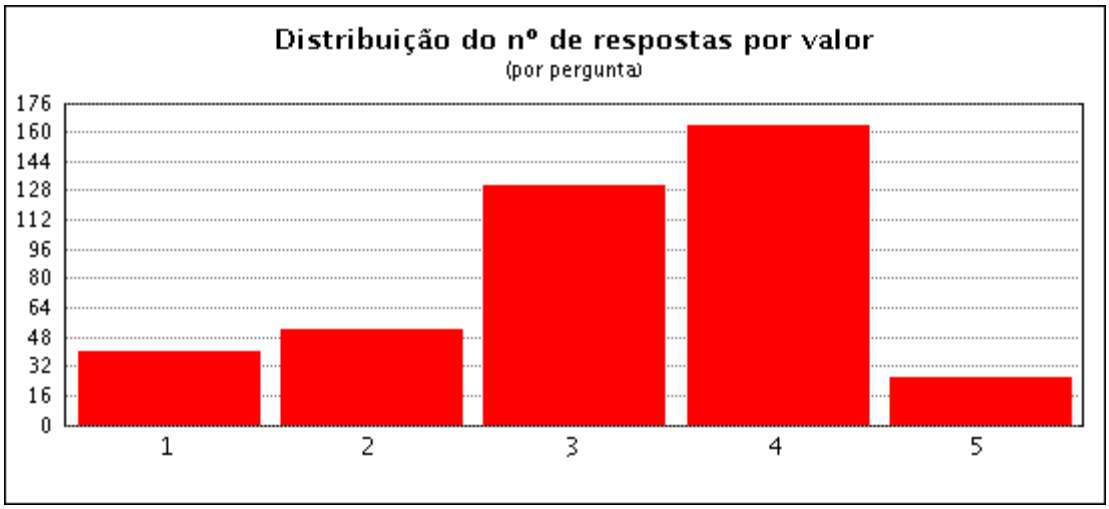


Figure 25.31 - Overall Assessment (2S)

S25.2.8 - Teacher Evaluation

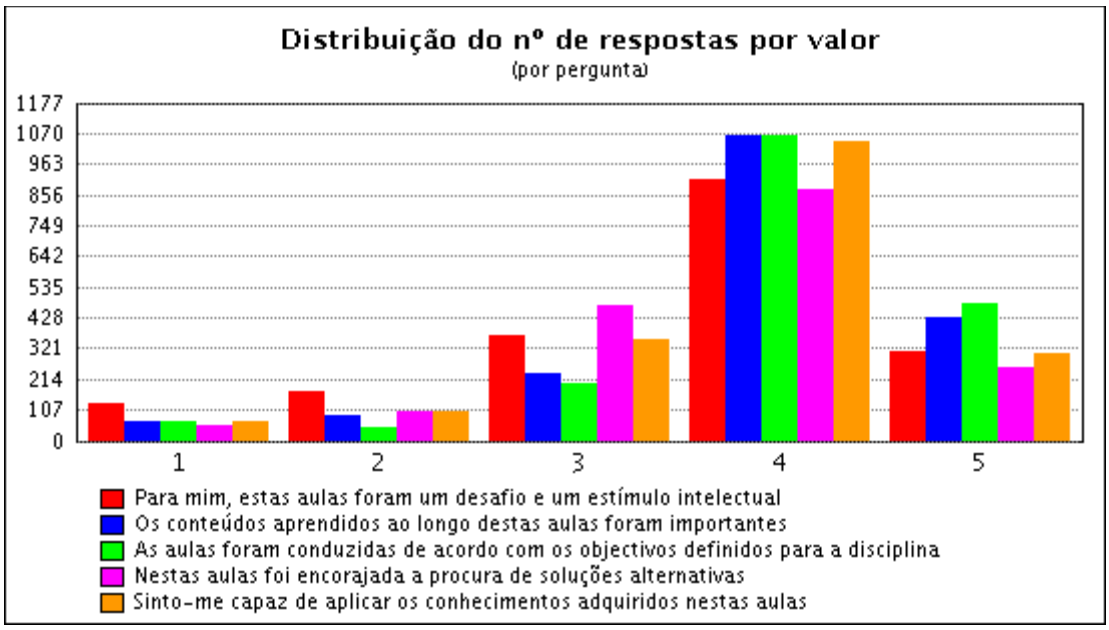


Figure 25.32 - Learning Processes and Academic Value of Classes (1S)

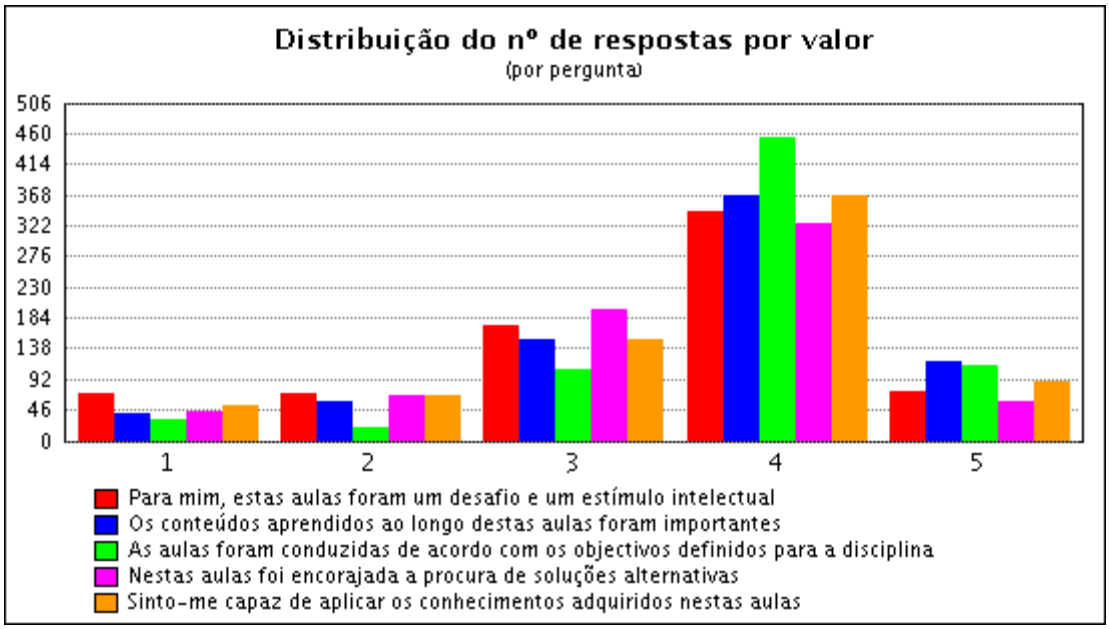


Figure 25.33 - Learning Processes and Academic Value of Classes (2S)

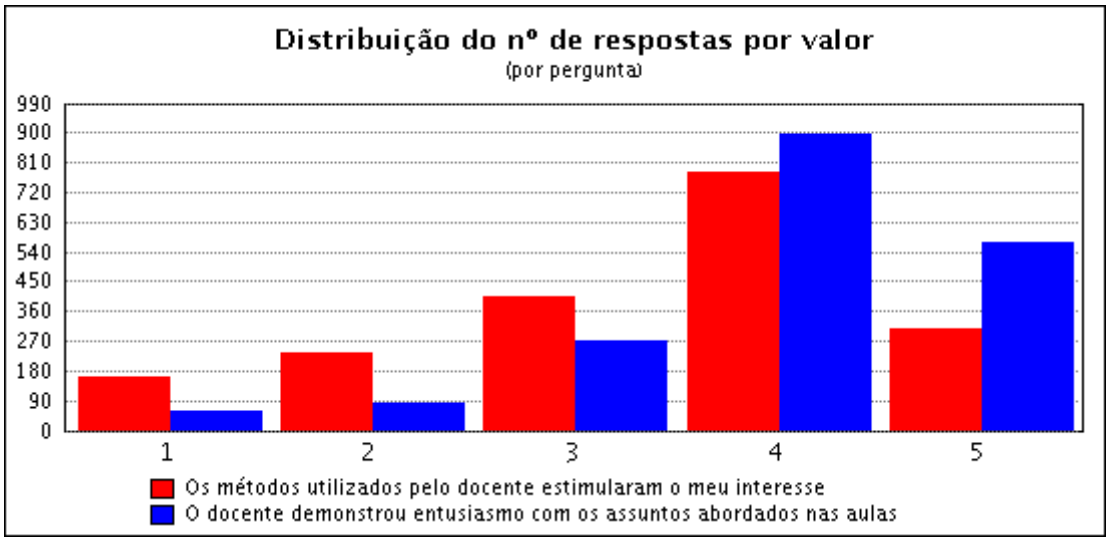


Figure 25.34 - Teacher's Commitment and Methodology (1S)

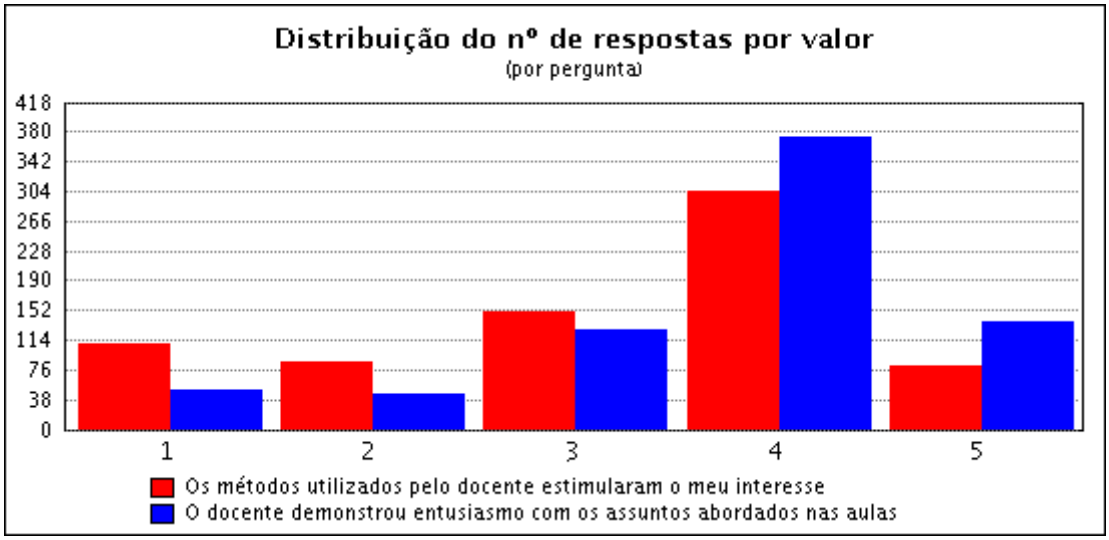


Figure 25.35 - Teacher's Commitment and Methodology (1S)

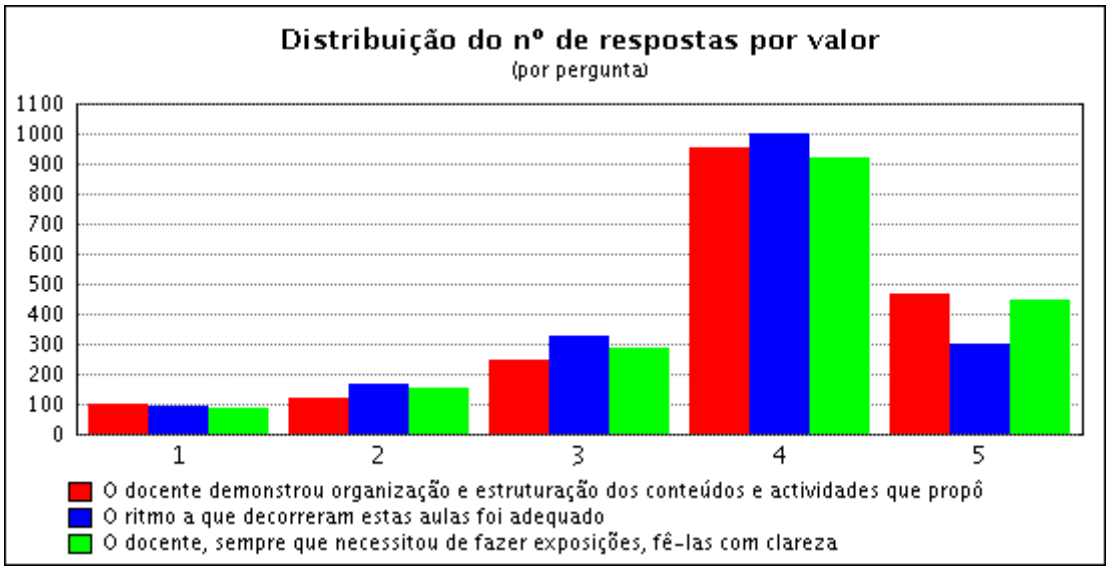


Figure 25.36 - Organization and Clarity (1S)

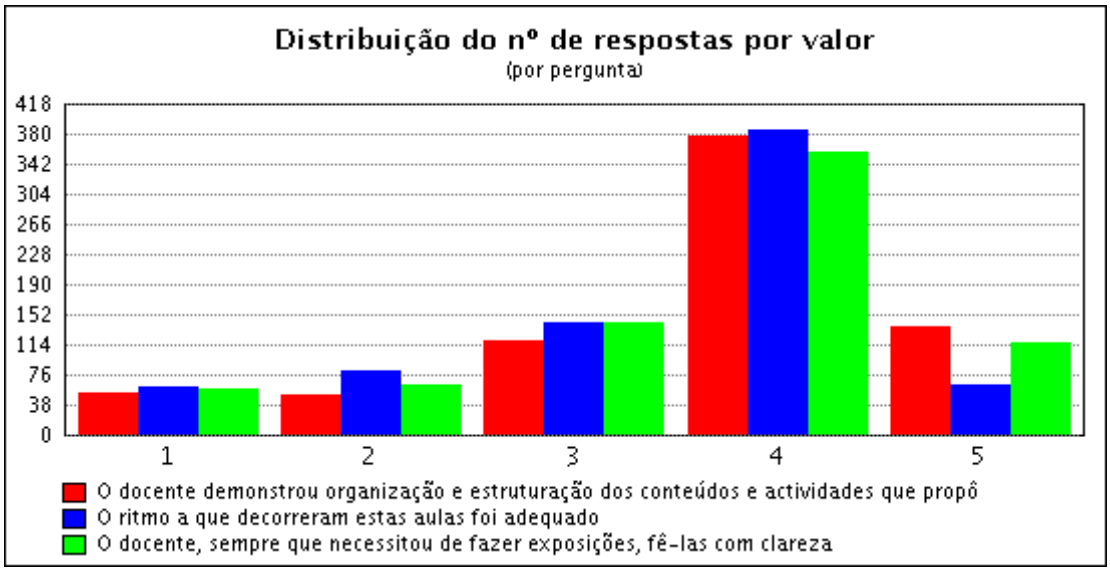


Figure 25.37 - Organization and Clarity (2S)

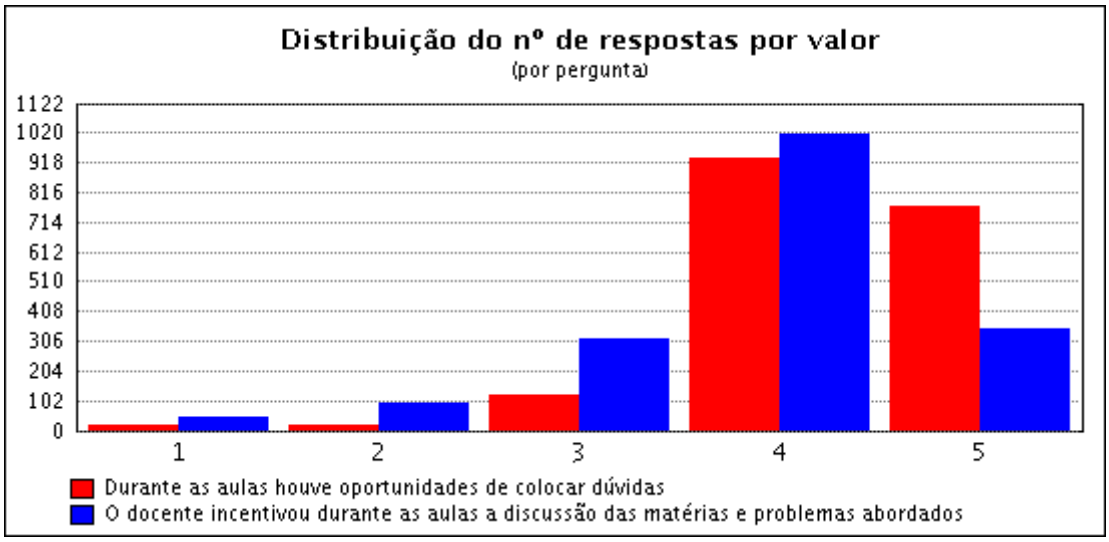
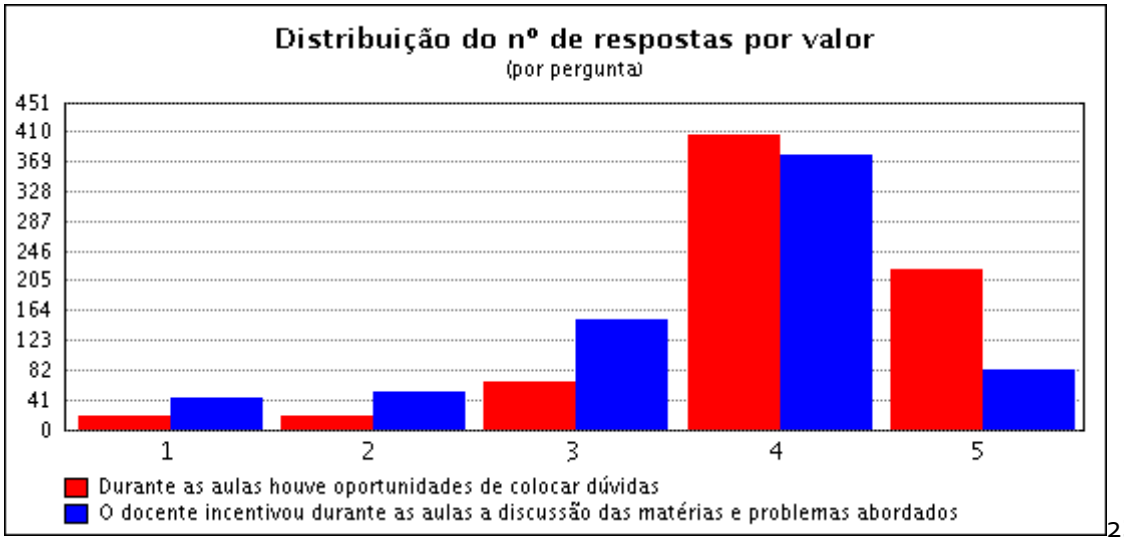


Figure 25.38 – Teacher Interaction (1S)



2S

Figure 25.39 – Teacher interaction (2S)

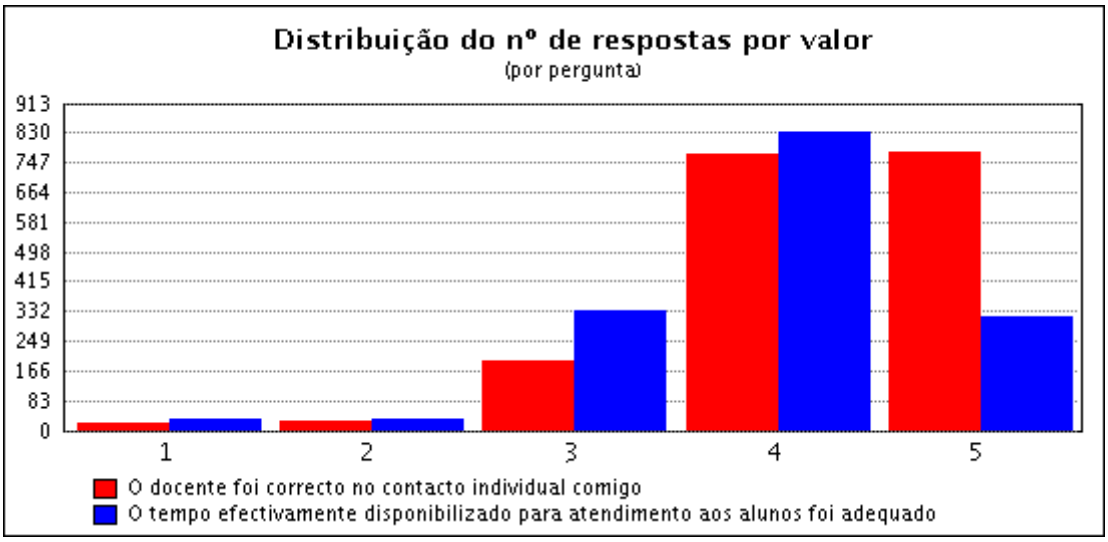


Figure 25.40 – Teacher Relationship (1S)

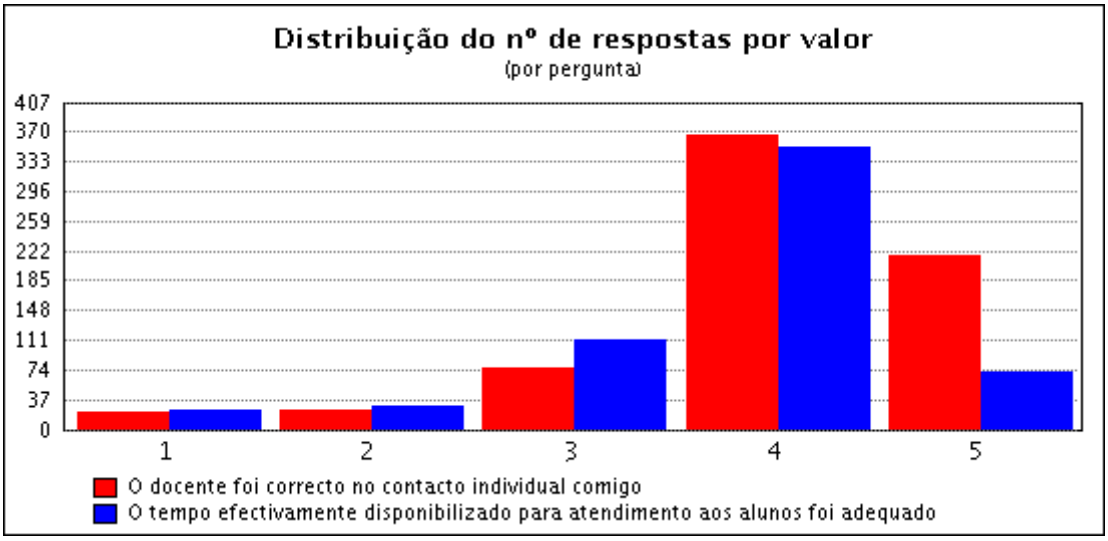


Figure 25.41 – Teacher Relationship (2S)

S25.2.9 - Self-assessment of students

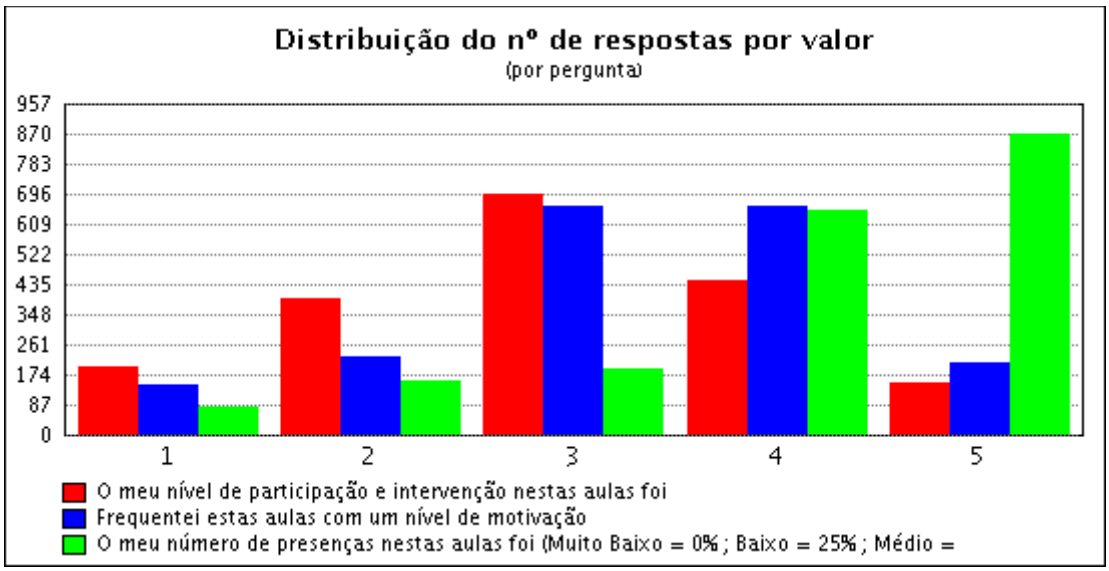


Figure 25.42 - Student Involvement (1S)

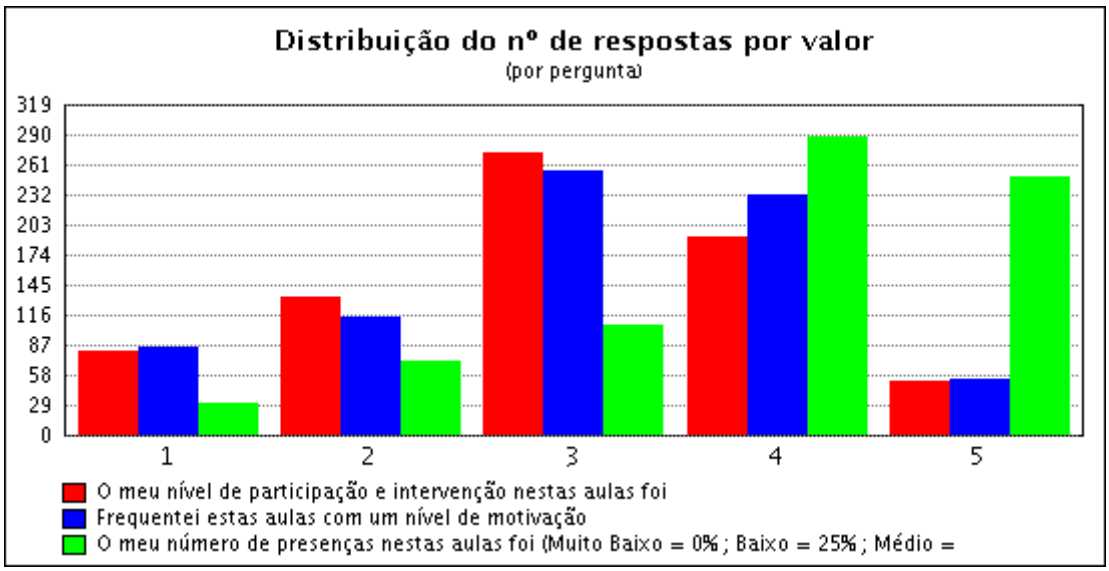


Figure 25.43 - Student Involvement (2S)

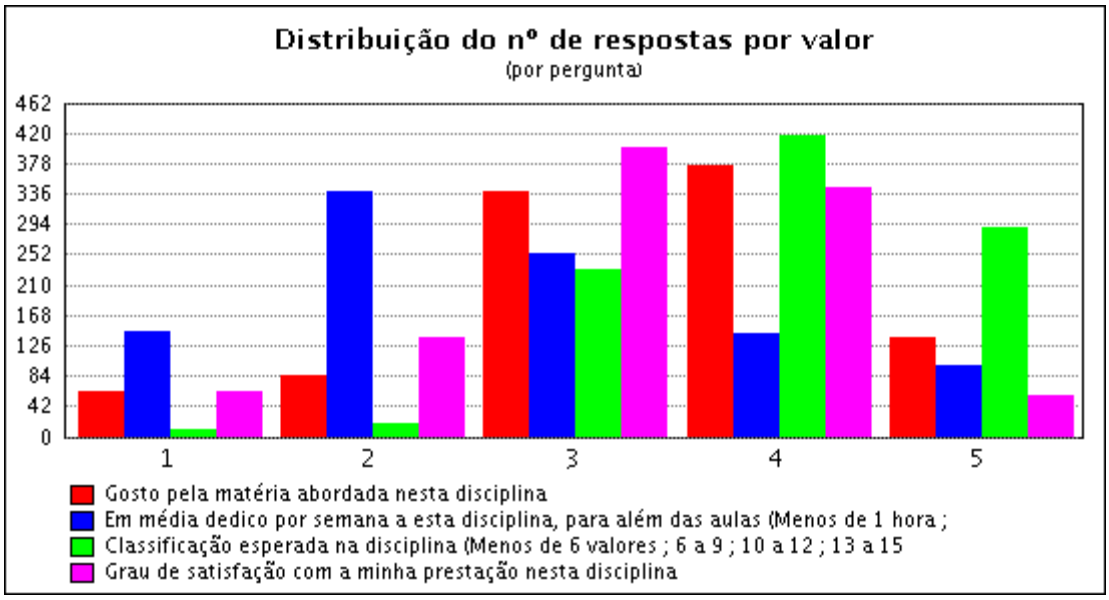


Figure 25.44 - Student self-assessment of the Curricular Unit (1S)

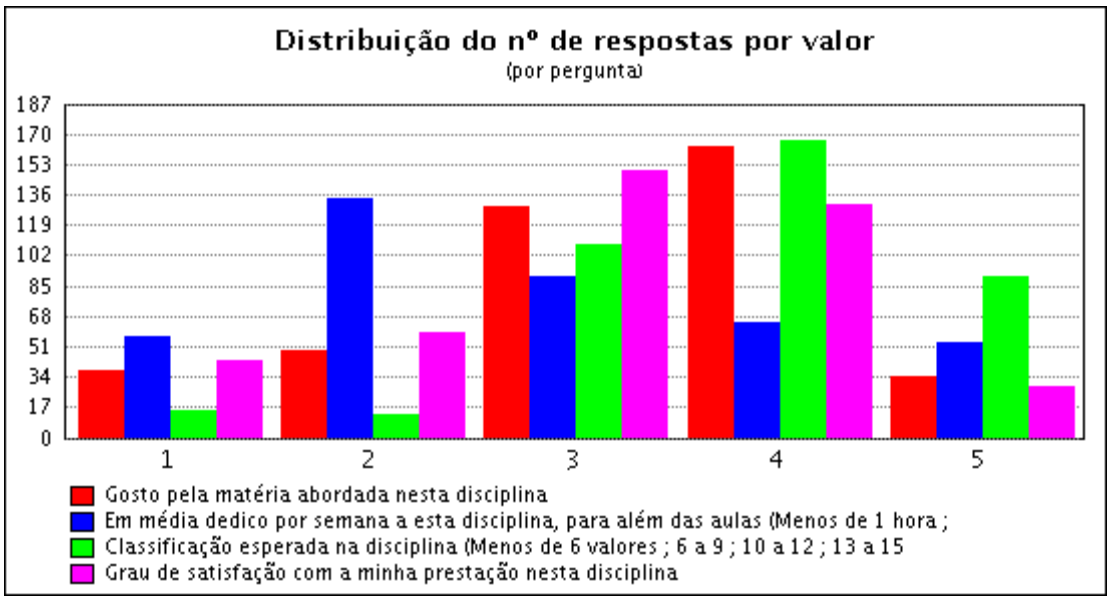


Figure 25.45 - Student self-assessment of the Curricular Unit (2S)

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QUALITY PLAN

R15

S26 - Quality plan - R15

S26.1 - Statutes of the Integrated Masters Programme leading to the degree of Masters in Informatics and Computing Engineering

S26.1.1 - Legal framework

The statutes of the Integrated Masters programme in Informatics and Computing Engineering take into account the provisions contained in the General Regulation of the Integrated Masters programmes of the University of Porto, those specified in the Statutes of FEUP, and those specified in Decree-Law 74/2006, of March 24, amended by Decree-Law no. 107/2008, of June 25 and also those specified by Decree-Law no. 230 /2009, Sept. 14.

S26.1.2 - Integrated Masters Programme

1 - The Integrated Masters programme in Informatics and Computing Engineering aims at a form of integrated training that culminates in the awarding of the Master's degree in Informatics and Computing Engineering, while ensuring the award of a degree with the designation "Licentiateship in Engineering Sciences - Informatics and Computing Engineering oriented" to the students who complete 180 ECTS credits corresponding to the first six semesters of the curriculum.

2 - The bestowing of the Masters degree in Informatics and Computing Engineering from the University of Porto requires the demonstration of the following core competences:

a) Possession of such a level of knowledge and understanding that:

i)) Students can develop and build on the knowledge gained in the 1st cycle of studies;

ii) This knowledge constitutes the basis for developments and /or original applications, in many cases in a research context.

b) Ability to apply this knowledge, and show a capacity to understand and solve problems in novel and unfamiliar situations, in broad and multidisciplinary contexts, albeit related to their field of study;

c) Ability to integrate knowledge, deal with complex issues, develop solutions or make judgements, including reflections on the implications and ethical and social responsibilities that result from those solutions and judgements or that may constrain them, in situations of limited or incomplete information;

d) Ability to communicate their findings and knowledge and underlying reasoning, either to specialists or non-specialists, in a clear and unambiguous way;

e) Possession of the capacity for lifelong learning, essentially in a self-oriented or independent manner.

S26.1.3 - Management bodies

The Integrated Masters programme in Informatics and Computing Engineering has the following governing bodies:

a) Director of the integrated Masters Programme;

b) Scientific Committee;

c) Monitoring Committee.

S26.1.4 - Integrated Masters Programme Director

1- The Director of the Integrated Masters Program is a Full Professor or an Associate Professor appointed by the Director of the Faculty of Engineering, after consulting the department(s) directly involved in the course.

2- The Director of the Integrated Masters Programme has the following duties:

a) to ensure the normal functioning of the curriculum and assure its quality;

b) to manage the budget assigned by the Director of FEUP;

c) to ensure the link between the Integrated Masters Programme and the Department(s) responsible for teaching the curricular units of the syllabus;

d) to disseminate and promote the Integrated Masters Programme among all the stakeholders;

e) to prepare an annual overall report on the operation of the Integrated Masters Programme, to which reports of the respective curricular units will be attached, to be prepared by the teachers in charge;

f) to prepare and submit to the Director of FEUP the statutes of the Integrated Masters programme, after consultation with the Scientific Committee;

g) to promote curricular coordination;

h) to prepare the necessary documents for the processes of accreditation and certification of the Integrated Masters Programme;

i) to organize the process of equivalence of curricular units and individual study plans;

j) to chair the meetings of the Scientific Committee and the Monitoring Committee of the Integrated Masters Programme;

k) to promote regular surveys of students and teachers on the Integrated Masters Programme, regarding the functioning of the curricular units.

3- In conjunction with the Directors of the Main department(s) involved in the Integrated Masters Programme, the Director of the programme, is also responsible for:

a) preparing and submitting for the approval of the Director of FEUP the proposals for the reorganization or modification of the programme curriculum;

b) preparing and submitting for the approval of the Director of FEUP the proposals for the requirements of teaching services, facilities and laboratories;

c) preparing and submitting for the approval of the Director of FEUP the proposal for *numerus clausus* and requisites for admittance to the Integrated Masters Programme.

4 - The Director of the course may also appoint a Deputy Director from among the members of the Scientific Committee, which will have the following responsibilities:

a) to assist the Director in his duties;

b) to perform the duties delegated by the Integrated Masters Programme Director;

c) to substitute the Integrated Masters Programme Director in his absence.

5 - The Director of the Integrated Masters Programme may, within his/her agreed remit, promote the establishment of committees as is deemed appropriate for the execution of his/her duties.

S26.1.5 - Integrated Masters Programme Scientific Committee

1- The Scientific Committee of the Integrated Masters Programme comprises two to four teachers, or researchers with PhD degrees, appointed by the Director of the Integrated Masters Programme, after consultation with the director(s) of the department(s) involved in the course, and is approved by the Director of FEUP.

2- The Scientific Committee has the following duties:

a) to assist the Director of the Integrated Masters Programme in coordinating the curriculum;

b) to pronounce on the proposed changes in organization or study plans;

c) to pronounce on the requirement of teaching staff in relation to the Integrated Masters Programme;

d) to pronounce on the proposals for re-admissions regimes and on *numerus clausus*;

e) to pronounce on the statutes of the Integrated Masters Programme prepared by the director;

f) to assist the Director and rule on matters that he submits to the Committee's attention.

3- The Scientific Committee of the Integrated Masters Programme ordinarily meets once per semester and extraordinarily whenever convened by the Director or at the request of at least 50% of its effective members.

4- Members of external bodies may be invited to attend meetings of the Scientific Committee to discuss matters of strategic importance for the Integrated Masters Programme or whenever it is deemed relevant.

S26.1.6 - Integrated Masters Programme Monitoring Committee

1- The Monitoring Committee of the Integrated Masters Programme is constituted by the Director, who presides, and three other members, one teacher and two students on the Integrated Masters programme.

2- The Faculty Member is appointed by the Director of the Integrated Masters Programme, after consultation with the director(s) of the department(s) involved in the course.

3- Students are elected by their peers from a list, and consist of two elements plus four substitutes, according to the d'Hondt system.

4- The Monitoring Committee of the Integrated Masters Programme must check the normal operation of the programme and propose to its Director measures to overcome functional difficulties encountered.

5- The Monitoring Committee of the Integrated Masters Programme ordinarily meets once per semester.

6- External elements may be invited to participate in the meetings of the Monitoring Committee of the Integrated Masters Programme, whenever this is considered necessary or relevant.

S26.2 - Programme Monitoring - Quality Assurance

On July 9, 2008, at the 69th meeting of the Permanent Section of the Senate the Procedure for Monitoring and Evaluation of the first and second cycles and Integrated Masters Programmes was approved. This procedure was never fully implemented, among other reasons, because the Agency for Assessment and Accreditation of Higher Education (A3ES) came into operation at that time. A new procedure for monitoring the study cycles that envisages the promotion and verification of the quality of teaching in agreement with recent recommendations from A3ES and ENQA is currently on track for implementation.

In fact, A3ES plan to install a process of institutional audit, starting in 2010/2011, for the certification of internal systems for quality assurance in higher education institutions, and recommends the adoption "of procedures to promote and demonstrate the quality of teaching that it provides and ensure that its fundamental purpose is the promotion of the students' learning"[11]. However, ENQA, in the document *European Standards and Guidelines*, states that "external quality assurance procedures should take into account the effectiveness of the internal quality assurance processes described in Part 1 of the European Standards and Guidelines"[12].

Because of this, the evaluation of the study cycles is of particular importance. Thus, the elements contained in the Guide to Self-Assessment of Operating Programmes (for Universities) to be adopted by A3ES[13] were introduced into this new version of the procedure. According to this new proposal, which builds on the current model, the roles of the Director, the Scientific Committee and the Monitoring Committee of the Integrated Masters Programmes are given greater relevance and hence strengthened.

As with the previous approach, the support application is inserted into the HEI's Information System (SIGARRA), which provides valuable assistance to the Director in the elaboration and analysis of the Programme Monitoring Report (PMR). The advantages associated with the adoption of this tool had already been identified and are related to simplification of the monitoring and evaluation procedures. SIGARRA also provides a common platform for all first and second and integrated masters courses of all Faculties, allowing for easier comparisons throughout the University of Porto. It also fully responds to the requirements of A3ES as regards the evaluation of programmes in operation.

[11] http://www.a3es.pt/sites/default/files/ESTUDO_SIGQ_PT.pdf
[12] http://www.enqa.eu/files/ESG_3edition%20(2).pdf
[13] http://www.a3es.pt/sites/default/files/Gui%C3%A3o_ACEF_2011_2012_Univ_PT_0.pdf

S26.2.1 - Overall procedure

Each year, the Director of the Integrated Masters Programme, in collaboration with the Scientific Committee and assisted by the Monitoring Committee, produces the Integrated Masters Programme Monitoring Report, with reference to the past academic year, and submits it to the Director of the Organic Unit (in this case, FEUP). This report may contain proposals for modification or improvement actions that have been identified. The FEUP Director (or the competent bodies that the Faculty assigns for this purpose, e.g. the Academic Affairs Council) assesses the PMR, approves it and eventually outlines new modifications or suggestions for improvement.

Starting with the PMR, the FEUP Director (or the competent bodies that the Faculty assigns for this purpose, e.g. the Academic Affairs Council) creates a Summary Report for each programme. This report should contain the modifications or improvement steps proposed for each syllabus. The report is then forwarded to the Continuous Improvement Office of the University of Porto.

The following diagram outlines the general procedure:

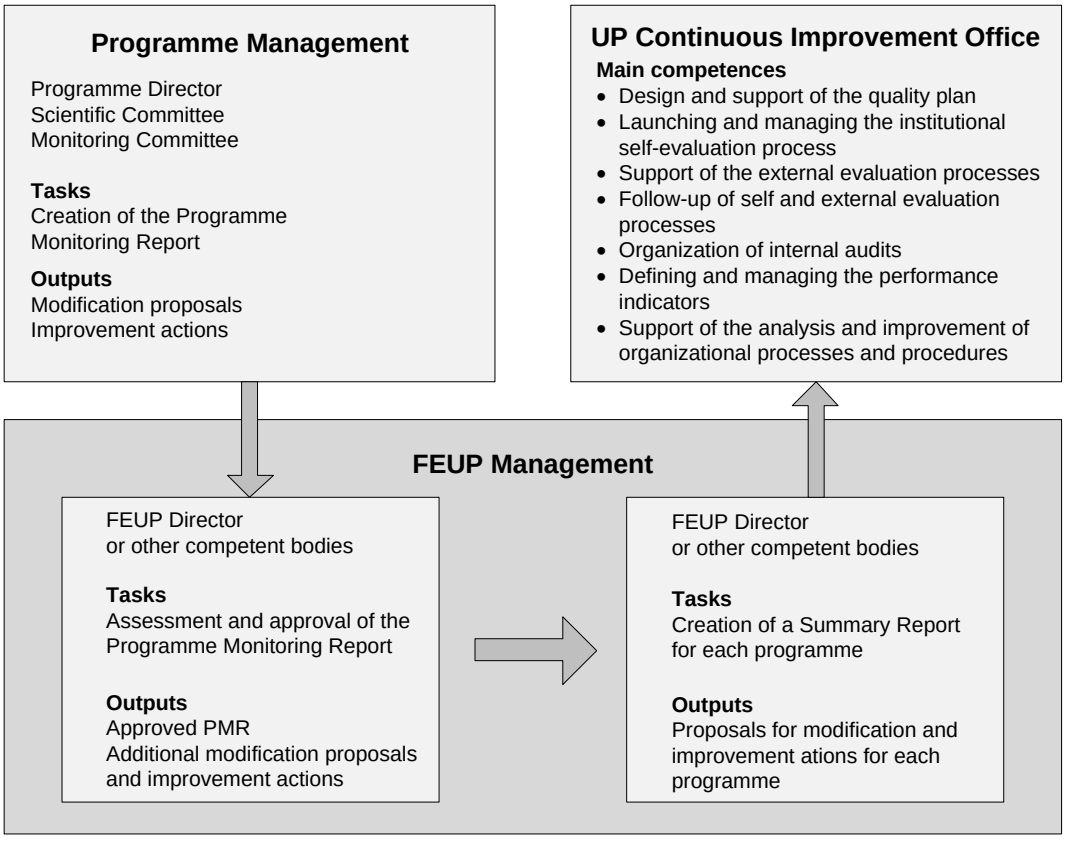

Figure 26.1 – Quality Assurance information flow

S26.2.2 - Report Structure

The following structure is proposed for the Programme Monitoring Report:

1. Characterization
2. Objectives
3. Internal Organization and Quality Assurance Mechanisms
4. Material Resources and Partnerships
5. Teaching and support staff
6. Students
7. Teaching Processes
8. Results
9. SWOT Analysis of proposed Study Program
10. Proposed Improvement actions

Annexes

I. Scientific Areas
II. Curricular structure and Study Plan
III. Outlined Programmatic content
IV. Teaching Staff
V. Teaching staff curriculum
VI. Material Resources
VII. Demand
VIII. Training efficiency
IX. Internationalization

As regards the Summary Report, the structure below should be adopted. Whenever possible, not only should it offer the current results, but also the comparison with data from the past few years. A comparative analysis with other programmes is also desirable.

- Introduction
- Student population
- New students
- Academic progression
- Results
- Mobility
- Teaching staff
- Conclusion

S26.3 - Relevant documents (in Portuguese)

Monitoring and evaluation procedure for the first and second degree and Integrated Masters programmes

General Regulations for the Integrated Masters of the University of Porto

Statutes of the Integrated Masters Programme for the degree of Masters in Informatics and Computing Engineering

ANNEX

ANNEX A **- Legal Documentation**

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ANNEX A1 - **Dispatch no. 14 437/2006**

Despacho n.º 14 437/2006

O Decreto-Lei n.º 74/2006, de 24 de Março, prevê que os estabelecimentos de ensino superior promovam, até ao final do ano lectivo de 2008-2009, a adequação dos cursos que se encontram a ministrar e dos graus que estão autorizados a conferir à nova organização decorrente do Processo de Bolonha.

Considerando que a entrada em funcionamento de tais adequações está sujeita a registo efectuado pelo director-geral do Ensino Superior;

Instruídos e analisados os pedidos, nos termos dos artigos 63.º e 64.º do Decreto-Lei n.º 74/2006, de 24 de Março:

Ao abrigo do n.º 2 do artigo 62.º daquele diploma:

Determino:

1 — São registadas as adequações dos cursos e dos graus identificados na col. «Curso objecto de adequação» do anexo a este despacho, ministrados pelos estabelecimentos indicados, aos ciclos de estudos caracterizados na col. «Ciclo de estudos».

2 — Na col. «Curso objecto de adequação», os graus são identificados com as letras «B» (bacharel), «L» (licenciado) «B+L» (bacharel e licenciado), «M» (mestre) e «D» (doutor).

3 — Na col. «Ciclo de estudos», os graus são identificados com as letras «L» (para o 1.º ciclo de estudos conducente ao grau de licenciado), «M» (para o 2.º ciclo de estudos conducente ao grau de mestre) e «D» (para o 3.º ciclo de estudos conducente ao grau de doutor).

4 — Na col. «Duração» é indicada a duração em semestres dos ciclos de estudos adequados.

5 — Os ciclos de estudos cuja adequação tenha sido registada nos termos do n.º 1 podem iniciar o seu funcionamento a partir do ano lectivo de 2006-2007.

6 — O órgão legal e estatutariamente competente deve promover a publicação da estrutura curricular e do plano de estudos dos ciclos de estudos adequados.

22 de Junho de 2006. — O Director-Geral, *António Morão Dias.*

ANEXO

Universidade do Porto

Faculdade de Engenharia

Ciclo de estudos				Duração	Número de ECTS	Curso objecto de adequação		Número de registo
Ciclo	Denominação	Percursos alternativos	Grau			Denominação	Grau	
1.º+2.º	Engenharia Civil	Áreas de especialização: Materiais e Processos de Construção, Estruturas, Geotecnia, Construções, Planeamento, Vias de Comunicação e Hidráulica.	(1) M	(1) 10	(1) 300	Engenharia Civil — opções: Materiais e Processos de Construção, Estruturas, Geotecnia, Construções Civis, Planeamento, Vias de Comunicação e Hidráulica.	L	R/B — AD-715/2006
1.º+2.º	Engenharia Electrotécnica e de Computadores.	Áreas de especialização: Telecomunicações, Automação e Energia.	(2) M	(2) 10	(2) 300	Engenharia Electrotécnica e de Computadores — ramos: Automação, Produção e Electrónica Industrial, Energia, Telecomunicações, Electrónica e Computadores.	L	R/B — AD-716/2006
1.º+2.º	Engenharia Informática e Computação.		(3) M	(3) 10	(3) 300	Engenharia Informática e Computação.	L	R/B — AD-717/2006
1.º+2.º	Engenharia Mecânica ...	Áreas de especialização: Automação, Energia Térmica, Gestão da Produção, Projecto e Construção Mecânica, Produção, Desenvolvimento e Engenharia Automóvel.	(4) M	(4) 10	(4) 300	Engenharia Mecânica — opções: Automação; Construções Mecânicas, Fluidos e Calor, Gestão da Produção, Projecto de Máquinas, Tecnologia de Moldação por Injecção, Tecnologia Mecânica e Produção.	L	R/B — AD-718/2006
1.º+2.º	Engenharia Metalúrgica e de Materiais.		(5) M	(5) 10	(5) 300	Engenharia Metalúrgica e de Materiais.	L	R/B — AD-719/2006
1.º+2.º	Engenharia Química ...		(6) M	(6) 10	(6) 300	Engenharia Química	L	R/B — AD-720/2006

(1) É conferido o grau de licenciado em Ciências de Engenharia, orientação em Engenharia Civil, após seis semestres e aprovação em 180 ECTS.
(2) É conferido o grau de licenciado em Ciências de Engenharia, orientação em Engenharia Electrotécnica e de Computadores, após seis semestres e aprovação em 180 ECTS.
(3) É conferido o grau de licenciado em Ciências de Engenharia, orientação em Engenharia Informática e Computação, após seis semestres e aprovação em 180 ECTS.
(4) É conferido o grau de licenciado em Ciências de Engenharia, orientação em Mecânica, após seis semestres e aprovação em 180 ECTS.
(5) É conferido o grau de licenciado em Ciências de Engenharia, orientação em Engenharia Metalúrgica e de Materais, após seis semestres e aprovação em 180 ECTS.
(6) É conferido o grau de licenciado em Ciências de Engenharia, orientação em Engenharia Química, após seis semestres e aprovação em 180 ECTS.

Rectificação n.º 1073/2006

Tendo-se verificado a existência de um erro na publicação no *Diário da República,* 2.ª série, n.º 120, de 23 de Junho de 2006, do anexo ao despacho n.º 13 205/2006, rectifica-se que, na col. «Curso objecto de adequação» referente ao ciclo de estudos denominado «Informática», onde se lê «Informática — ramos: Software Educacional» deve ler-se «Informática — ramos: Software; Educacional».

23 de Junho de 2006. — O Director-Geral, *António Morão Dias.*

Rectificação n.º 1074/2006

Tendo-se verificado a existência de um erro na publicação no *Diário da República,* 2.ª série, n.º 120, de 23 de Junho de 2006, do anexo ao despacho n.º 13 208/2006, rectifica-se que, nas cols. «Ciclo de estudos» e «Curso objecto de adequação» referentes ao ciclo de estudos denominado «Multimédia», onde se lê «Multimédia» deve ler-se «Multimedia».

23 de Junho de 2006. — O Director-Geral, *António Morão Dias.*

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ANNEX A2 - **Resolution no. 1092/2006**

recepção, expedido até ao termo do prazo fixado no n.º 1, dele devendo constar os seguintes elementos:

a) Identificação completa (nome, naturalidade, estado civil, nacionalidade, data de nascimento, situação militar, elementos do respectivo bilhete de identidade, residência, código postal e telefone);
b) Vaga a que se candidata;
c) Serviço a que pertence, habilitações que possui, categoria que detém e natureza do vínculo à função pública.

6.2 — O requerimento de admissão ao concurso deverá ser acompanhado da seguinte documentação:

a) Documentos comprovativos da posse dos requisitos gerais de admissão ao concurso, previstos no artigo 29.º do Decreto-Lei n.º 204/98, de 11 de Julho;
b) Fotocópia do bilhete de identidade;
c) Currículo profissional detalhado, actualizado e datado, do qual devem constar as funções que exerce, bem como aquelas que foram exercidas, com indicação dos respectivos períodos, e ainda a indicação de acções de formação frequentadas, caso tenham tido lugar, devendo as mesmas ser comprovadas através de documento;
d) Fotocópia de certificado de habilitações literárias e profissionais;
e) Declaração ou declarações actualizadas, passada pelo serviço de origem, da qual conste, de maneira inequívoca, a natureza do vínculo, a categoria detida, a antiguidade na categoria, na carreira e na função pública e o conjunto de tarefas inerentes ao posto de trabalho que ocupa;
f) Quaisquer outros elementos que os candidatos entendam dever apresentar por serem relevantes para a apreciação do seu mérito ou de constituírem motivo de preferência legal, os quais, todavia, só serão tidos em conta pelo júri se devidamente autenticados.

6.3 — É dispensada a apresentação dos documentos comprovativos dos requisitos gerais desde que os candidatos declarem, no requerimento, sob compromisso de honra, a situação em que se encontram relativamente a cada uma das condições exigidas.
6.4 — Os candidatos pertencentes à Faculdade de Ciências e Tecnologia ficam dispensados da apresentação dos documentos que constem dos respectivos processos individuais.
6.5 — O júri pode exigir a qualquer dos candidatos, no caso de dúvidas sobre a situação que descreve, a apresentação de documentos comprovativos das suas declarações.
6.6 — As falsas declarações são punidas nos termos da lei.
7 — Métodos de selecção e classificação — os métodos de selecção a utilizar serão os seguintes:
7.1 — Avaliação curricular:
7.1.1 — Na avaliação curricular serão obrigatoriamente considerados e ponderados os seguintes factores:

a) Habilitações académicas;
b) Formação profissional;
c) Experiência profissional.

7.2 — Entrevista profissional de selecção:
7.2.1 — A entrevista profissional de selecção, de carácter complementar, visa avaliar, numa relação interpessoal e de forma objectiva e sistemática, as aptidões profissionais e pessoais dos candidatos.
8 — A classificação final, na qual será adoptada a escala de 0 a 20 valores, resultará da média aritmética das classificações em cada um dos métodos de selecção, considerando-se não aprovados os candidatos que obtenham classificação inferior a 9,5 valores.
9 — Os critérios de apreciação e ponderação nos métodos de selecção utilizados, bem como o sistema de classificação final, incluindo a respectiva fórmula classificativa, constam de actas de reunião do júri do concurso, sendo as mesmas facultadas aos candidatos sempre que solicitadas.
10 — Afixação de listas — a relação dos candidatos e listas de classificação final serão afixadas na vitrina junto à Divisão de Recursos Humanos da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.
11 — A tudo o que não estiver previsto no presente aviso são aplicáveis as disposições constantes dos Decretos-Leis n.os 204/98, de 11 de Julho, 404-A/98, de 18 de Dezembro, e 427/89, de 7 de Dezembro.
12 — O júri do concurso terá a seguinte composição:

Presidente — Doutor Jorge Manuel Pinto Lampreia Pereira, professor auxiliar e presidente do conselho pedagógico da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.
Vogais efectivos:

Licenciado Luís Filipe Gonçalves Gaspar, assessor principal e secretário da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.

Licenciada Isabel Maria Dimas Cardoso Sequeira Pinto, técnica superior principal da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.

Vogais suplentes:

Doutor Manuel Leote Tavares Inglês Esquível, professor associado da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.
Licenciada Rita Sesinando T. Palla Carmo Monteiro, especialista de informática do grau 3 da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.

13 — O 1.º vogal efectivo substituirá o presidente do júri nas suas faltas ou impedimentos.

19 de Junho de 2006. — O Director, *Fernando Santana.*

UNIVERSIDADE DO PORTO

Reitoria

Deliberação n.º 1092/2006

Por deliberacão da secção permanente do senado, em reunião de 15 de Março de 2005, sob proposta do conselho científico da Faculdade de Engenharia da Universidade do Porto, foi aprovada a adequação do curso de licenciatura em Engenharia Informática e Computação da Faculdade de Engenharia desta Universidade, ao regime jurídico fixado pelo Decreto-Lei n.º 74/2006, de 24 de Março, passando a designar-se por curso de mestrado integrado em Engenharia Informática e Computação da Faculdade de Engenharia desta Universidade, sujeito ao seguinte regulamento:

Normas regulamentares do mestrado integrado

1 — Introdução:
1.1 — Preâmbulo:
a) O regulamento de cada curso de mestrado integrado da Faculdade de Engenharia da Universidade do Porto (FEUP) coincide na generalidade com este documento. Em casos específicos, poderá o regulamento de um determinado curso prever cláusulas unicamente aplicáveis a tal curso.
b) Neste regulamento dos mestrados integrados da FEUP são tomadas em conta as normas para enquadramento dos cursos conferentes de grau nas unidades orgânicas da Universidade do Porto (UP), correspondentes à deliberação n.º 897/2005, de 4 de Maio, da secção permanente do senado, bem como o especificado no decreto-lei sobre graus e diplomas de ensino superior.
1.2 — Ciclo de estudos de mestrado integrado:
a) O ciclo de estudos de mestrado integrado visa a atribuição do grau de mestre.
b) O grau de mestre comprova nível aprofundado de conhecimentos numa área científica específica e capacidade para a prática da investigação e ou para o exercício de uma actividade profissional especializada.
c) A concessão do grau de mestre pressupõe a demonstração de:

i) Possuir conhecimentos e capacidade de compreensão a um nível que:

1) Sustentando-se nos conhecimentos obtidos ao nível do 1.º ciclo, os desenvolva e aprofunde;
2) Permitam e constituam a base de desenvolvimentos e ou aplicações originais, em muitos casos em contexto de investigação;

ii) Saber aplicar os seus conhecimentos e a sua capacidade de compreensão e de resolução de problemas em situações novas e não familiares, em contextos alargados e multidisciplinares, ainda que relacionados com a sua área de estudo;
iii) Capacidade para integrar conhecimentos, lidar com questões complexas, desenvolver soluções ou emitir juízos em situações de informação limitada ou incompleta, incluindo reflexões sobre as implicações e responsabilidades éticas e sociais que resultem ou condicionem essas soluções e esses juízos;
iv) Ser capazes de comunicar as suas conclusões e os conhecimentos e raciocínios a elas subjacentes, quer a especialistas quer a não especialistas, de uma forma clara e sem ambiguidades;
v) Competências de aprendizagem que lhes permitam uma aprendizagem ao longo da vida, de um modo fundamentalmente auto-orientado ou autónomo.

d) O grau de mestre é conferido numa especialidade, podendo, quando necessário, as especialidades ser desdobradas em áreas de especialização.

2 — Órgãos de gestão:

2.1 — Cada ciclo de mestrado integrado possui os seguintes órgãos de gestão:

a) Director do curso;
b) Comissão científica;
c) Comissão de acompanhamento.

2.2 — Director do curso:

a) O director do curso é designado pelo director da FEUP, ouvidos os directores dos departamentos directamente envolvidos no curso.

b) Ao director do curso compete:

i) Assegurar o normal funcionamento do curso e zelar pela sua qualidade;
ii) Gerir as dotações orçamentais que lhe forem atribuídas pelos órgãos de gestão da FEUP;
iii) Assegurar a ligação entre o curso e os departamentos responsáveis pela leccionação de disciplinas do curso;
iv) Divulgar e promover o curso junto dos potenciais interessados;
v) Elaborar e submeter ao conselho científico da FEUP propostas de organização ou alteração dos planos de estudo, ouvida a respectiva comissão científica;
vi) Elaborar e submeter ao conselho científico da FEUP propostas de distribuição de serviço docente, ouvida a comissão científica do curso e os departamentos responsáveis pela leccionação das respectivas disciplinas;
vii) Elaborar e submeter ao conselho científico da FEUP propostas de regimes de ingresso e de *numerus clausus,* ouvida a respectiva comissão científica;
viii) Elaborar anualmente um relatório sobre o funcionamento do curso, ao qual serão anexos relatórios das disciplinas, a preparar pelos respectivos docentes responsáveis;
ix) Organizar os processos de equivalência de disciplinas e de planos individuais de estudo;
x) Presidir às reuniões da comissão científica e da comissão de acompanhamento do curso;
xi) Promover regularmente a auscultação dos docentes ligados às disciplinas do curso.

c) O director de curso pode, no exercício das competências atribuídas no n.º 2, promover a constituição de comissões que entenda convenientes ao melhor desempenho deste exercício.

2.3 — Comissão científica do curso:

a) A comissão científica do curso é constituída por três a cinco professores ou investigadores doutorados designados pelo director do curso, ouvidos os directores dos departamentos directamente envolvidos no curso, sendo homologada pelo director da FEUP.

b) À comissão científica do curso compete:

i) Promover a coordenação curricular;
ii) Pronunciar-se sobre as propostas de organização ou alteração dos planos de estudo;
iii) Pronunciar-se sobre propostas de distribuição de serviço docente;
iv) Pronunciar-se sobre propostas de regimes de reingresso e de *numerus clausus;*
v) Elaborar e submeter ao conselho pedagógico e ao conselho científico da FEUP o regulamento do curso.

c) A comissão científica do curso reúne ordinariamente duas vezes por semestre e extraordinariamente sempre que convocada pelo director do curso ou a pedido de 50 % dos seus membros em efectividade de funções.

d) Podem ser convidadas a participar em reuniões da comissão científica do curso individualidades externas, para discussão de assuntos de orientação estratégica do curso ou sempre que tal seja considerado relevante.

2.4 — Comissão de acompanhamento do curso:

a) A comissão de acompanhamento do curso é constituída por três docentes e por três alunos do curso.

b) Os docentes são nomeados pelo director do curso, ouvidos os directores dos departamentos da FEUP directamente envolvidos no curso.

c) Os alunos são eleitos pelos seus pares, em listas de três elementos mais três suplentes, de acordo com o método de Hondt, sendo o primeiro o representante do curso no conselho pedagógico.

d) À comissão de acompanhamento do curso compete verificar o normal funcionamento do curso e propor medidas que visem ultrapassar as dificuldades funcionais encontradas.

e) A comissão de acompanhamento do curso reúne ordinariamente duas vezes por semestre lectivo.

f) Podem ser convidadas a participar em reuniões da comissão de acompanhamento do curso individualidades externas, sempre que tal seja considerado relevante.

3 — Estrutura do ciclo de estudos:

3.1 — O ciclo de estudos integrado conducente ao grau de mestre tem uma duração de 10 semestres, corresponde a um total de 300 unidades de crédito ECTS e integra:

a) Uma parte curricular, constituída por um conjunto organizado de unidades curriculares, a que correspondem 270 créditos ECTS do ciclo de estudos;

b) Uma dissertação de natureza científica ou um trabalho de projecto, originais e especialmente realizados para este fim, ou um estágio de natureza profissional, objectos de relatório final, consoante os objectivos específicos que vise, a que correspondem 30 créditos ECTS do ciclo de estudos.

3.2 — A aprovação nas primeiras unidades curriculares que totalizem 180 ECTS confere a atribuição do grau de licenciado em Ciências de Engenharia — orientação em Engenharia Informática e Computação, nos termos do Decreto-Lei n.º 74/2006, de 24 de Março.

4 — Parte curricular:

4.1 — Plano de estudos:

a) O plano de estudos da componente curricular do curso é proposto aos órgãos competentes da UP pelo respectivo órgão competente da FEUP.

b) O plano de estudos da componente curricular de cada curso de mestrado integrado da FEUP pode incluir disciplinas de outros cursos da FEUP, da UP ou de outras universidades.

c) O plano de estudos deve ser delineado por forma que cada aluno tenha de obter aprovação em 270 unidades de crédito ECTS.

d) A duração da componente curricular não pode exceder o equivalente a nove semestres lectivos.

4.2 — Leccionação da componente curricular:

a) As unidades curriculares do curso devem ser preferencialmente coordenadas por professores ou investigadores doutorados da FEUP ou da UP.

b) Mediante proposta da comissão científica do curso e após aprovação pela comissão coordenadora da FEUP, podem também coordenar as unidades curriculares do curso professores, investigadores doutorados ou especialistas de outras instituições nacionais ou estrangeiras, colhida a anuência daqueles e dos órgãos próprios destas.

5 — Dissertação, projecto ou estágio:

5.1 — Apresentação dos temas e escolha da dissertação, projecto ou estágio:

a) A apresentação aos alunos dos temas propostos de dissertação de natureza científica, trabalho de projecto ou estágio de natureza profissional será efectuada pelo director de curso durante a componente curricular.

5.2 — Elaboração e entrega da dissertação ou relatório de projecto ou estágio:

a) Os procedimentos relativos à elaboração da dissertação, realização do projecto ou estágio profissional, nomeadamente as normas específicas para a elaboração dos respectivos relatórios, constam de regulamentos próprios, a aprovar pela comissão coordenadora da FEUP.

b) O prazo limite para a entrega das dissertações e relatórios de projecto ou estágio profissional é o final do 2.º semestre do 5.º ano curricular.

c) O aluno que não tenha conseguido cumprir o prazo referido na alínea anterior poderá ainda aceder a uma época especial de conclusão de curso, para o que deverá entregar a dissertação ou relatório até 30 dias antes da data prevista para esta época especial.

d) O aluno que não tenha obtido aprovação ou não tenha cumprido os prazos referidos nas duas alíneas anteriores deverá, para efeitos de conclusão do curso, candidatar-se a uma nova edição, através de um pedido de reingresso, em que solicitará a atribuição de um novo plano de estudos.

5.3 — Orientação:

a) A elaboração da dissertação ou do trabalho de projecto e a realização do estágio são orientadas preferencialmente por um professor ou investigador doutorado da FEUP ou da UP.

b) Podem ainda ser orientadas por professor ou por investigador doutorado de outros estabelecimentos de ensino superior, ou por especialistas na área de especialização, propostos pela comissão científica do curso e reconhecidos como idóneos pela comissão coordenadora da FEUP.

c) Em casos devidamente justificados, a serem analisados pela comissão científica do curso, pode admitir-se a co-orientação da dissertação por dois orientadores.

d) O orientador e o eventual co-orientador são nomeados pela comissão científica do curso, ouvido o aluno e o(s) orientador(es) a nomear.

e) O trabalho conducente à dissertação só poderá ter início após a aprovação do(s) orientador(es) da dissertação e do plano de trabalhos proposto.

5.4 — Nomeação, constituição e funcionamento do júri:

a) O júri para apreciação da dissertação, trabalho de projecto ou relatório de estágio é nomeado pelo director da FEUP, sob proposta da comissão científica do curso, até 30 dias antes do final do último semestre do curso.

b) O júri é constituído:

i) Pelo director do curso, que preside;

ii) Por um professor, investigador doutorado ou especialista na área de especialização, nacional ou estrangeiro, de mérito reconhecido pela comissão coordenadora da FEUP, devendo, sempre que possível, ser externo à FEUP;

iii) Pelo orientador e pelo co-orientador, quando exista;

iv) Em casos em que a abrangência do tema da dissertação o justifique, o júri poderá integrar até mais dois professores da FEUP, não excedendo cinco na totalidade. A análise destes casos compete à comissão científica do curso.

c) O director de curso poderá delegar a presidência do júri num professor ou num investigador doutorado da FEUP, de preferência pertencente à comissão científica do curso.

d) As deliberações do júri são tomadas por maioria dos membros que o constituem, através de votação nominal justificada, não sendo permitidas abstenções.

e) Das reuniões do júri são lavradas actas, das quais constam os votos de cada um dos seus membros e a respectiva fundamentação.

5.5 — Classificação da dissertação, projecto ou estágio:

a) Será atribuída uma classificação da escala numérica inteira de 0 a 20.

b) Será ainda atribuída uma menção qualitativa, com as seguintes quatro classes, previstas no Decreto-Lei n.º 42/2005, de 22 de Fevereiro:

i) De 10 a 13 — *Suficiente;*
ii) 14 e 15 — *Bom;*
iii) 16 e 17 — *Muito bom;*
iv) De 18 a 20 — *Excelente.*

6 — Classificação final:

6.1 — Ao grau académico de mestre é atribuída uma classificação final expressa no intervalo de 10-20 da escala numérica inteira de 0 a 20, bem como o seu equivalente na escala europeia de comparabilidade de classificações.

6.2 — O cálculo da classificação final é feito pela média, pesada pelas unidades de crédito ECTS, das classificações de todas as componentes do ciclo de estudos.

7 — Titulação e diplomas:

7.1 — O grau de mestre é titulado por uma carta de curso do grau de mestre, emitida pela UP.

7.2 — A aprovação nas primeiras unidades curriculares que totalizem 180 ECTS confere a atribuição do grau de licenciado em Ciências de Engenharia — orientação em Engenharia Informática e Computação, nos termos do Decreto-Lei n.º 74/2006, de 24 de Março.

7.3 — A emissão das cartas de curso é acompanhada da emissão do suplemento ao diploma elaborado nos termos e para os efeitos do Decreto-Lei n.º 42/2005.

8 — Outras normas regulamentares:

8.1 — Regras de admissão (condições específicas de ingresso, incluindo a possibilidade de ingressar após licenciatura):

a) O acesso e ingresso no ciclo de estudos referido no número anterior rege-se pelas normas aplicáveis ao acesso e ingresso no ciclo de estudos conducente ao grau de licenciado.

b) Podem ainda aceder a um ciclo de estudos de mestrado integrado os possuidores do grau de licenciado ou de diploma equivalente, em áreas afins da de especialização do mestrado integrado, nas seguintes condições:

i) Os candidatos à matrícula num curso de mestrado integrado da FEUP possuidores do grau de licenciado serão seleccionados pelo órgão competente da FEUP, sob proposta da respectiva comissão científica, tendo em atenção as condições de acesso e os critérios indicados no anúncio do respectivo curso;

ii) A comissão científica de curso poderá submeter os candidatos à matrícula a provas académicas de selecção, para avaliação do nível daqueles nas áreas científicas de base correspondentes ao curso;

iii) A comissão científica de curso definirá o plano de estudos que deverá ser cumprido por cada um destes candidatos;

iv) Os planos de estudo destes alunos corresponderão a um total de 30 a 120 unidades de crédito ECTS, a que se segue uma dissertação de natureza científica ou um trabalho de projecto, originais e especialmente realizados para este fim, ou um estágio de natureza profissional, objectos de relatório final, a que correspondem 30 créditos ECTS.

8.2 — Condições de funcionamento:

a) Número mínimo de alunos por ramo, sempre que este exista;
b) Na matrícula, pode inscrever-se em 60 ECTS;
c) Posteriormente, pode efectuar um número máximo de inscrições por ano equivalente a 72 ECTS.

8.3 — Estrutura curricular, plano de estudos e créditos:

a) V. formulários anexos.

8.4 — Regime de avaliação de conhecimentos:

a) De acordo com as normas gerais de avaliação em vigor na FEUP.

8.5 — Regime de precedências:

a) A inscrição, num dado ano lectivo, em disciplinas de um dado ano curricular só é possível após a inscrição em todas as disciplinas de anos curriculares anteriores. Exceptua-se o caso dos cursos a funcionar num regime de créditos, nos quais poderá haver um regime de precedências baseado em pré-requisitos especificados para cada unidade curricular.

b) A dissertação de natureza científica, projecto ou estágio de natureza profissional devem decorrer em regime de exclusividade, excepto se, no plano curricular, estiver previsto de modo diferente.

c) Um aluno que tenha disciplinas em atraso no início do semestre em que iria realizar a dissertação de natureza científica, projecto ou estágio de natureza profissional, nos casos em que está prevista a sua realização em regime de exclusividade, poderá optar entre:

i) Realizar a dissertação, projecto ou estágio durante esse semestre e deixar para a época especial de conclusão de curso as disciplinas atrasadas;

ii) Concluir em época especial, durante esse semestre, as disciplinas em atraso e realizar seguidamente a dissertação, projecto ou estágio, em regime de exclusividade, de modo a concluí-la(o) na época especial de conclusão de curso.

d) Nos casos em que não está prevista a realização da dissertação de natureza científica, projecto ou estágio de natureza profissional, em regime de exclusividade, um aluno que tenha disciplinas em atraso poderá optar entre:

i) Realizar a dissertação, projecto ou estágio durante o período lectivo previsto, frequentando apenas disciplinas cujas unidades de crédito totalizem os valores previstos no plano curricular, deixando para a época especial de conclusão de curso as restantes disciplinas;

ii) Concluir durante esse período lectivo as disciplinas em atraso e realizar seguidamente a dissertação, projecto ou estágio, em regime de exclusividade, de modo a concluí-la(o) na época especial de conclusão de curso.

8.6 — Regime de prescrição do direito à inscrição:

a) Aplica-se o modelo previsto na Lei n.º 37/2003, de 22 de Agosto.

8.7 — Processo de acompanhamento pelos órgãos pedagógico e científico:

a) O director de curso pode no exercício das competências especificadas no n.º 2.2, alínea *b*), promover a constituição de comissões que entenda convenientes ao melhor desempenho deste exercício.

b) A comissão científica do curso reúne ordinariamente duas vezes por semestre e extraordinariamente sempre que convocada pelo director do curso ou a pedido de 50 % dos seus membros em efectividade de funções.

c) Podem ser convidadas a participar em reuniões da comissão científica do curso individualidades externas, para discussão de assuntos de orientação estratégica do curso ou sempre que tal seja considerado relevante.

d) A comissão de acompanhamento do curso reúne ordinariamente duas vezes por semestre lectivo.

e) Podem ser convidadas a participar em reuniões da comissão de acompanhamento do curso individualidades externas, sempre que tal seja considerado relevante.

f) O director do curso pertence ao conselho científico da FEUP.

g) O director de curso e um aluno da comissão de acompanhamento pertencem ao conselho pedagógico da FEUP.

Estrutura curricular

1 — Estabelecimento de ensino — Universidade do Porto.

2 — Unidade orgânica (faculdade, escola, instituto, etc.) — Faculdade de Engenharia.

3 — Curso — mestrado integrado em Engenharia Informática e Computação.

4 — Grau ou diploma — mestre.

5 — Área científica predominante do curso — Engenharia Informática e Computação.

6 — Número de créditos, segundo o sistema europeu de transferência de créditos, necessário à obtenção do grau ou diploma — 300 ECTS.
7 — Duração normal do curso — 10 semestres.
8 — Opções, ramos ou outras formas de organização de percursos alternativos em que o curso se estruture (se aplicável) — não aplicável.
9 — Áreas científicas e créditos que devem ser reunidos para a obtenção do grau ou diploma:

QUADRO N.º 1

Área científica	Sigla	Créditos	
		Obrigatórios	Optativos
Arquitectura de Computadores	AC	24	
Aspectos Sociais e Profissionais	ASP	7	
Automação Industrial	AI	0	
Engenharia de Software	ES	26	
Física	FIS	12	
Métodos Quantitativos e Gestão	MQG	15	
Fundamentos da Programação	FP	12	
Inteligência Artificial	IA	12	
Interacção e Multimédia	IM	13	
Matemática	MAT	33	
Programação	PRO	32	
Sistemas de Informação	SI	24	
Sistemas Operativos e Redes	SOR	18	
Temas Multidisciplinares	TM	30	
Total		258	42

10 — Observações: ...
11 — Plano de estudos:

1.º ano

1.º semestre

QUADRO N.º 2

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Projecto FEUP	ASP	S	54	TP: 6; TC: 10	2	
Propedêuticas de Engenharia Informática I	AC + MAT + FP + SI	S	756	TP: 300; PL: 12	28	

2.º semestre

QUADRO N.º 3

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Propedêuticas de Engenharia Informática II	AC + FIS + MAT + PRO	S	810	TP: 282; PL: 12	30	

2.º ano

1.º semestre

QUADRO N.º 4

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Algoritmos e Estrutura de Dados	PRO	S	189	TP: 70	7	
Física II	FIS	S	162	TP: 48; PL: 8	6	
Métodos Estatísticos	MQG	S	135	TP: 56	5	
Microprocessadores e Computadores Pessoais	AC	S	162	TP: 56	6	
Sinais e Sistemas	MAT	S	162	TP: 56	6	

2.º semestre

QUADRO N.º 5

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Complementos de Programação e Algoritmos	PRO	S	189	TP: 56	7	
Computação Gráfica	IM	S	162	TP: 56	6	

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Laboratório de Computadores	AC	S	162	TP: 28; PL: 42	6	
Métodos Numéricos	MAT	S	135	TP: 56	5	
Teoria da Computação	FP	S	162	TP: 56	6	

3.º ano

1.º semestre

QUADRO N.º 6

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Bases de Dados	SI	S	162	TP: 56	6	
Engenharia de Software	ES	S	162	TP: 56	6	
Laboratório de Aplicações de Software	IM	S	189	TP: 28; PL: 42	7	
Programação em Lógica	PRO	S	135	TP: 56	5	
Sistemas Operativos	SOR	S	162	TP: 56	6	

2.º semestre

QUADRO N.º 7

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Compiladores	PRO	S	162	TP: 56	6	
Inteligência Artificial	IA	S	162	TP: 56	6	
Laboratório de Bases de Dados	SI	S	189	TP: 28; PL: 42	7	
Proficiência Pessoal e Interpessoal	ASP	S	135	TP: 56	5	
Redes de Computadores	SOR	S	162	TP: 56	6	

4.º ano

1.º semestre

QUADRO N.º 8

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Agentes e Inteligência Artificial Distribuída	IA	S	162	TP: 56	6	
Gestão de Empresas	MQG	S	162	TP: 56	6	
Laboratório de Engenharia de Software	ES	S	189	TP: 28; PL: 42	7	
Sistemas Distribuídos	SOR	S	162	TP: 56	5	
Disciplina de opção 1		S	162	TP: 42; OT: 14	6	

2.º semestre

QUADRO N.º 9

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas)		Créditos (6)	Observações (7)
			Total (4)	Contacto (5)		
Investigação Operacional	MQG	S	135	TP: 56	5	
Laboratório de Gestão de Projectos	ES	S	216	TP: 28; PL: 42	8	
Métodos Formais em Engenharia de Software	ES	S	135	TP: 56	5	
Disciplina de opção 2		S	162	TP: 42; OT: 14	6	
Disciplina de opção 3		S	162	TP: 42; OT: 14	6	

5.º ano

1.º semestre

QUADRO N.º 10

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas) Total (4)	Tempo de trabalho (horas) Contacto (5)	Créditos (6)	Observações (7)
Sistemas de Informação	SI	S	162	TP: 56	6	
Disciplina de opção 4		S	162	TP: 42; OT: 14	6	
Disciplina de opção 5		S	162	TP: 42; OT: 14	6	
Disciplina de opção 6		S	162	TP: 42; OT: 14	6	
Disciplina de opção 7		S	162	TP: 42; OT: 14	6	

2.º semestre

QUADRO N.º 11

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas) Total (4)	Tempo de trabalho (horas) Contacto (5)	Créditos (6)	Observações (7)
Dissertação/estágio/projecto	TM	S	810	E: 790; OT: 20	30	

Disciplinas optativas

QUADRO N.º 12

Unidades curriculares (1)	Área científica (2)	Tipo (3)	Tempo de trabalho (horas) Total (4)	Tempo de trabalho (horas) Contacto (5)	Créditos (6)	Observações (7)
Análise de Projectos de Investimento	MQG	S	162	TP: 42; OT: 14	6	Optativa (*)
Aplicações de Processamento Digital de Sinal	IM	S	162	TP: 42; OT: 14	6	Optativa (*)
Armazéns de Dados	SI	S	162	TP: 42; OT: 14	6	Optativa (*)
Arquitecturas de Redes e Serviços	SOR	S	162	TP: 42; OT: 14	6	Optativa (*)
Arquitectura de Sistemas de Software	ES	S	162	TP: 42; OT: 14	6	Optativa (*)
Arquitecturas Avançadas de Computadores	AC	S	162	TP: 42; OT: 14	6	Optativa (*)
Computação Móvel	SOR	S	162	TP: 42; OT: 14	6	Optativa (*)
Comunicações Móveis	SOR	S	162	TP: 42; OT: 14	6	Optativa (*)
Descrição, Armazenamento e Pesquisa de Informação	PRO	S	162	TP: 42; OT: 14	6	Optativa (*)
Engenharia de Requisitos de Sistemas de Software	ES	S	162	TP: 42; OT: 14	6	Optativa (*)
Extracção de Conhecimento	IA	S	162	TP: 42; OT: 14	6	Optativa (*)
Gestão da Qualidade	MQG	S	162	TP: 42; OT: 14	6	Optativa (*)
Gestão de Operações	MQG	S	162	TP: 42; OT: 14	6	Optativa (*)
Interacção Pessoa Computador	IM	S	162	TP: 42; OT: 14	6	Optativa (*)
Introdução à Investigação	TM	S	162	S: 28; TP 42	6	Optativa (*)
Linguagens de Anotação e Processamento de Documentos	PRO	S	162	TP: 42; OT: 14	6	Optativa (*)
Logística	MQG	S	162	TP: 42; OT: 14	6	Optativa (*)
Marketing	MQG	S	162	TP: 42; OT: 14	6	Optativa (*)
Metodologias Ágeis de Desenvolvimento de Software	ES	S	162	TP: 42; OT: 14	6	Optativa (*)
Metodologias de Planeamento e Escalonamento	IA	S	162	TP: 42; OT: 14	6	Optativa (*)
Multimédia e Novos Serviços	IM	S	162	TP: 42; OT: 14	6	Optativa (*)
Paradigmas da Programação	PRO	S	162	TP: 42; OT: 14	6	Optativa (*)
Planeamento e Administração de Redes e Serviços	SOR	S	162	TP: 42; OT: 14	6	Optativa (*)
Planeamento Estratégico de Sistemas de Informação	SI	S	162	TP: 42; OT: 14	6	Optativa (*)
Processamento da Fala	IM	S	162	TP: 42; OT: 14	6	Optativa (*)
Programação Distribuída e Paralela	PRO	S	162	TP: 42; OT: 14	6	Optativa (*)
Realidade Virtual e Aumentada	IM	S	162	TP: 42; OT: 14	6	Optativa (*)
Robótica	IA	S	162	TP: 42; OT: 14	6	Optativa (*)
Segurança em Sistemas Informáticos	SOR	S	162	TP: 42; OT: 14	6	Optativa (*)
Sistemas Críticos	AI	S	162	TP: 42; OT: 14	6	Optativa (*)
Sistemas de Apoio à Decisão	MQG	S	162	TP: 42; OT: 14	6	Optativa (*)
Sistemas Industriais	AI	S	162	TP: 42; OT: 14	6	Optativa (*)
Tecnologias de Bases de Dados	SI	S	162	TP: 42; OT: 14	6	Optativa (*)
Tecnologias de Distribuição e Integração	SOR	S	162	TP: 42; OT: 14	6	Optativa (*)
Tecnologias para Negócio Electrónico	IA	S	162	TP: 42; OT: 14	6	Optativa (*)
Teste e Qualidade do Software	ES	S	162	TP: 42; OT: 14	6	Optativa (*)

(*) Dependente da aprovação do director do curso, os alunos do MIEIC poderão realizar como disciplinas optativas disciplinas oferecidas em outros cursos da FEUP ou da UP.

28 de Março de 2006. — O Reitor, *José Ângelo Novais Barbosa.*

ANNEX A3 - **Resolution no. 1835/2009**

Despacho (extracto) n.º 14615/2009

Por despacho de 22-04-09 do Presidente da Escola de Ciências, da Universidade do Minho, por delegação:

Concedida equiparação a bolseiro, aos docentes a seguir mencionados:

Doutora Lúcia Fernández Suárez, professora auxiliar — pelo período de 10 dias, com início em 10-05-2009.

Doutora Maria Manuela da Silva Pires da Silva, professora auxiliar — no período de 23 a 30-05-2009.

23 de Junho de 2009. — O Director de Serviços, *Luís Carlos Ferreira Fernandes*.

201942512

Despacho (extracto) n.º 14616/2009

Por despacho de 15-04-09 do Presidente da Escola de Ciências, da Universidade do Minho, por delegação:

Concedida equiparação a bolseiro aos docentes a seguir mencionados:

Doutor Mikhail Vasilevskiy, professor catedrático — no período de 11 a 18-05-2009.

Doutor José Filipe Vilela Vaz, professor associado — no período de 07 a 12-06-2009.

Doutor Luís Manuel Fernandes Rebouta, professor associado — no período de 07 a 11-06-2009.

Doutor Carlos José Macedo Tavares, professor auxiliar — no período de 24 a 26-05-2009.

Doutor Luís António Carvalho Gachineiro Cunha, professor auxiliar — no período de 07 a 12-06-2009.

Doutor João Paulo Rodrigues Fernandes André, professor auxiliar — no período de 24 a 28-04-2009.

Doutor Carlos José Macedo Tavares, professor auxiliar — no período de 07 a 11-06-2009.

23 de Junho de 2009. — O Director de Serviços, *Luís Carlos Ferreira Fernandes*.

201942334

Despacho (extracto) n.º 14617/2009

Por despacho de 18-03-09 do Presidente da Escola de Ciências da Saúde, da Universidade do Minho, por delegação:

Doutor Manuel João Tavares Mendes Costa, professor auxiliar — concedida a equiparação a bolseiro no período de 23 a 31-03-2009.

23 de Junho de 2009. — O Director de Serviços, *Luís Carlos Ferreira Fernandes*.

201942618

UNIVERSIDADE NOVA DE LISBOA

Faculdade de Ciências Sociais e Humanas

Despacho (extracto) n.º 14618/2009

Por despacho de 16 de Junho de 2009, do Senhor Reitor da Universidade Nova de Lisboa:

Doutor Henrique Nuno Pires Severiano Teixeira — autorizada a celebração de contrato de trabalho em funções públicas, por tempo indeterminado, como Professor Associado, da Faculdade de Ciências Sociais e Humanas, com efeitos a partir da data do despacho do Senhor Reitor (16 de Junho de 2009), na sequência de procedimento concursal e nas condições previstas no n.º 1 do artigo 19.º do Estatuto da Carreira Docente Universitária, sendo remunerado pelo escalão 3 — índice 265 da tabela remuneratória aplicável aos docentes universitários"(Isento de fiscalização prévia do Tribunal de Contas)

22 de Junho de 2009. — O Director, *João Sàágua*.

201934704

UNIVERSIDADE DO PORTO

Reitoria

Deliberação n.º 1835/2009

Por despacho reitoral de 2009/05/08, no uso da competência delegada pela Secção Permanente do Senado de 9 de Julho de 2008, sob proposta do conselho científico da Faculdade de Engenharia da Universidade do Porto, foi aprovada, nos termos do disposto no artigo 76.º do Decreto-Lei n.º 74/2006, de 24 de Março, a alteração da Estrutura Curricular do Ciclo de Estudos Integrado conducente ao grau de mestre em Engenharia Informática e Computação, pela Universidade do Porto, através da Faculdade de Engenharia, adequado em 3 de Agosto de 2006.

A alteração da estrutura curricular e plano de estudos que a seguir se publicam foi comunicada à Direcção-Geral do Ensino Superior em 22 de Junho de 2009, de acordo com o estipulado no artigo 77.º do Decreto-Lei n.º 107/2008 de 25 de Junho.

1 — Estabelecimento de ensino:

Universidade do Porto

2 — Unidade orgânica (faculdade, escola, instituto, etc.):

Faculdade de Engenharia

3 — Curso:

Mestrado Integrado em Engenharia Informática e Computação

4 — Grau ou diploma:

Mestre

5 — Área científica predominante do curso:

Engenharia Informática e Computação

6 — Número de créditos, segundo o sistema europeu de transferência de créditos, necessário à obtenção do grau ou diploma:

300 ECTS

7 — Duração normal do curso:

10 semestres

8 — Opções, ramos, ou outras formas de organização de percursos alternativos em que o curso se estruture (se aplicável):

Não aplicável

9 — Áreas científicas e créditos que devem ser reunidos para a obtenção do grau ou diploma:

QUADRO N.º 1

Área científica	Sigla	Créditos	
		Obrigatórios	Optativos
Arquitectura de Computadores	AC	18,0	
Aspectos Sociais e Profissionais	ASP	7,0	
Automação Industrial	AI	0,0	
Engenharia de Software	ES	19,0	
Física	FIS	12,0	
Métodos Quantitativos e Gestão	MQG	10,0	
Fundamentos da Programação	FP	12,0	
Inteligência Artificial	IA	12,0	
Interacção e Multimédia	IM	13,0	
Matemática	MAT	32,0	
Programação	PRO	37,0	
Sistemas de Informação	SI	25,0	
Sistemas Operativos e Redes	SOR	18,0	
Temas Multidisciplinares	TM	43,0	
Total		258,0	42,0

10 — Observações:

Nota:

O item 9. é repetido tantas vezes quantas as necessárias para a descrição dos diferentes percursos alternativos (opções, ramos, etc.), caso existam, colocando em título a denominação do percurso.

11 — Plano de estudos:

Universidade do Porto

Faculdade de Engenharia

Mestrado Integrado em Engenharia Informática e Computação

Mestre

Engenharia Informática e Computação

1.º ano/1.º semestre

QUADRO N.º 2

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Projecto FEUP	ASP	S	54	TP: 6; TC: 10	2,0	
Álgebra	MAT	S	135	TP: 70	5,0	CH
Análise Matemática	MAT	S	162	TP: 70	6,0	CH
Arquitectura e Organização de Computadores	AC	S	162	TP: 56	6,0	N*
Fundamentos da Programação	FP	S	162	TP: 70	6,0	
Matemática Discreta	MAT	S	135	TP: 56	5,0	D

* Fusão

1.º ano/2.º semestre

QUADRO N.º 3

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Complementos de Matemática	MAT	S	162	TP: 56	6	
Física I	FIS	S	162	TP: 48; PL: 8	6	
Métodos Estatísticos	MAT	S	135	TP: 56	5	D
Microprocessadores e Computadores Pessoais	AC	S	162	TP: 56	6	D
Programação	PRO	S	189	TP: 70	7	

2.º ano/1.º semestre

QUADRO N.º 4

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Algoritmos e Estrutura de Dados	PRO	S	189	TP: 70	7,0	
Física II	FIS	S	162	TP: 48; PL: 8	6,0	
Laboratório de Computadores	AC	S	162	TP: 28; PL: 42	6,0	D
Métodos Numéricos	MAT	S	135	TP: 56	5,0	D
Teoria da Computação	FP	S	162	TP: 56	6,0	D

2.º ano/2.º semestre

QUADRO N.º 5

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bases de Dados	SI	S	162	TP: 56	6,0	D
Computação Gráfica	IM	S	162	TP: 56	6,0	
Concepção e Análise de Algoritmos	PRO	S	162	TP: 56	6,0	DEN; CR
Laboratório de Programação Orientada por Objectos	PRO	S	162	TP: 28; PL: 42	6,0	N
Sistemas Operativos	SOR	S	162	TP: 56	6,0	D

3.º ano/1.º semestre

QUADRO N.º 6

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Engenharia de Software	ES	S	162	TP: 56	6,0	
Laboratório de Aplicações com Interface Gráfica	IM	S	189	TP: 28; PL: 42	7,0	DEN
Linguagens e Tecnologias Web	SI	S	162	TP: 56	6,0	N
Programação em Lógica	PRO	S	135	TP: 56	5,0	
Redes de Computadores	SOR	S	162	TP: 56	6,0	D

3.º ano/2.º semestre

QUADRO N.º 7

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Compiladores	PRO	S	162	TP: 56	6,0	
Inteligência Artificial	IA	S	162	TP: 56	6,0	
Laboratório de Bases de Dados e Aplicações Web	SI	S	189	TP: 28; PL: 42	7,0	DEN
Proficiência Pessoal e Interpessoal	ASP	S	135	TP: 56	5,0	
Sistemas Distribuídos	SOR	S	162	TP: 56	6,0	D; CR

4.º ano/1.º semestre

QUADRO N.º 8

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Agentes e Inteligência Artificial Distribuída	IA	S	162	TP: 56	6,0	
Gestão de Empresas	MQG	S	135	TP: 56	5,0	CR
Laboratório de Desenvolvimento de Software	ES+TM	S	189	TP: 28; PL: 42	7,0	DEN
Métodos Formais em Engenharia de Software	ES	S	162	TP: 56	6,0	D; CR
Sistemas de Informação	SI	S	162	TP: 56	6,0	D

4.º ano/2.º semestre

QUADRO N.º 9

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Investigação Operacional	MQG	S	135	TP: 56	5,0	
Laboratório de Gestão de Projectos	ES+TM	S	189	TP: 28; PL: 42	7,0	CR
Unidade curricular de opção 1		S	162	TP: 42; OT: 14	6,0	D
Unidade curricular de opção 2		S	162	TP: 42; OT: 14	6,0	
Unidade curricular de opção 3		S	162	TP: 42; OT: 14	6,0	

5.º ano/1.º semestre

QUADRO N.º 10

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Preparação da Dissertação	TM	S	162	S: 28; TP 14; OT:14	6,0	N*
Unidade curricular de opção 4		S	162	TP: 42; OT: 14	6,0	
Unidade curricular de opção 5		S	162	TP: 42; OT: 14	6,0	

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unidade curricular de opção 6		S	162	TP: 42; OT: 14	6,0	
Unidade curricular de opção 7		S	162	TP: 42; OT: 14	6,0	

* Era Optativa

5.º ano/2.º semestre

QUADRO N.º 11

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dissertação	TM	S	810	OT: 28	30,0	DEN, CH

Unidades curriculares optativas

QUADRO N.º 12

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Algoritmos de Processamento de Sinal	IM	S	162	TP: 42; OT: 14	6,0	Optativa*, DEN
Análise de Projectos de Investimento	MQG	S	162	TP: 42; OT: 14	6,0	Optativa*
Armazéns de Dados	SI	S	162	TP: 42; OT: 14	6,0	Optativa*
Arquitectura de Sistemas de Software	ES	S	162	TP: 42; OT: 14	6,0	Optativa*
Arquitectura e Gestão de Redes e Sistemas	SOR	S	162	TP: 42; OT: 14	6,0	Optativa*, DEN
Arquitecturas Avançadas de Computadores	AC	S	162	TP: 42; OT: 14	6,0	Optativa*
Computação Móvel	SOR	S	162	TP: 42; OT: 14	6,0	Optativa*
Computação Paralela	PRO	S	162	TP: 42; OT: 14	6,0	Optativa*, DEN
Comunicações Móveis	SOR	S	162	TP: 42; OT: 14	6,0	Optativa*
Descrição, Armazenamento e Pesquisa de Informação	SI	S	162	TP: 42; OT: 14	6,0	Optativa*
Desenvolvimento de Jogos de Computador	IM	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Engenharia de Requisitos de Sistemas de Software	ES	S	162	TP: 42; OT: 14	6,0	Optativa*
Extracção de Conhecimento e Aprendizagem Computacional	IA	S	162	TP: 42; OT: 14	6,0	Optativa*, DEN
Gestão da Qualidade	ES+MQG	S	162	TP: 42; OT: 14	6,0	Optativa*
Gestão de Informação Empresarial	SI	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Gestão de Operações e Logística	MQG	S	162	TP: 42; OT: 14	6,0	Optativa*, N **
Interacção Pessoa-Computador	IM	S	162	TP: 42; OT: 14	6,0	Optativa*
Linguagens de Anotação e Processamento de Documentos	SI	S	162	TP: 42; OT: 14	6,0	Optativa*
Marketing	MQG	S	162	TP: 42; OT: 14	6,0	Optativa*
Metodologias Ágeis de Desenvolvimento de Software	ES	S	162	TP: 42; OT: 14	6,0	Optativa*
Metodologias de Planeamento e Escalonamento	IA	S	162	TP: 42; OT: 14	6,0	Optativa*
Modelação e Simulação de Sistemas	IA	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Multimédia e Novos Serviços	IM	S	162	TP: 42; OT: 14	6,0	Optativa*
Paradigmas da Programação	PRO	S	162	TP: 42; OT: 14	6,0	Optativa*
Planeamento Estratégico de Sistemas de Informação	SI	S	162	TP: 42; OT: 14	6,0	Optativa*
Processamento da Fala	IM	S	162	TP: 42; OT: 14	6,0	Optativa*
Realidade Virtual e Aumentada	IM	S	162	TP: 42; OT: 14	6,0	Optativa*
Robótica	IA	S	162	TP: 42; OT: 14	6,0	Optativa*
Segurança em Sistemas Informáticos	SOR	S	162	TP: 42; OT: 14	6,0	Optativa*
Seminário de Eng. de Software e Sistemas de Informação	ES+SI	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Seminário de Redes e Tecnologias da Informação	AC+SOR	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Seminário de Sist. Inteligentes, Interacção e Multimédia	IA+IM	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Serviços de Rede e de Sistema	SOR	S	162	TP: 42; OT: 14	6,0	Optativa*, DEN
Sinais e Sensores	AI	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Sistemas Críticos	AI	S	162	TP: 42; OT: 14	6,0	Optativa*
Sistemas de Apoio à Decisão	MQG	S	162	TP: 42; OT: 14	6,0	Optativa*
Sistemas Embutidos e de Tempo Real	AI	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Sistemas Geoespaciais	SI	S	162	TP: 42; OT: 14	6,0	Optativa*, N
Sistemas Industriais	AI	S	162	TP: 42; OT: 14	6,0	Optativa*
Tecnologias de Bases de Dados	SI	S	162	TP: 42; OT: 14	6,0	Optativa*
Tecnologias de Distribuição e Integração	SOR	S	162	TP: 42; OT: 14	6,0	Optativa*
Tecnologias para Negócio Electrónico	IA	S	162	TP: 42; OT: 14	6,0	Optativa*
Teste e Qualidade de Software	ES	S	162	TP: 42; OT: 14	6,0	Optativa*
Visão por Computador	IM	S	162	TP: 42; OT: 14	6,0	Optativa*, N

* Observações:

Dependente da aprovação do Director do Curso, os estudantes do MIEIC poderão realizar como unidades curriculares optativas unidades curriculares oferecidas em outros cursos da FEUP ou da UP.

As 3 unidades curriculares optativas de Seminário são mutuamente exclusivas.
Um estudante não pode escolher mais de 3 unidades curriculares optativas da área científica MQG (Métodos Quantitativos e Gestão).
N — nova; D — deslocada de ano ou semestre; DEN — denominação alterada; CH — alteração de horas de contacto; CR — alteração do número de créditos.

** Fusão

22 de Junho de 2009. — O Reitor, *José Carlos Diogo Marques dos Santos.*

201938399

Deliberação n.º 1836/2009

Por despacho reitoral de 2009/06/04, no uso da competência atribuída pela Secção Permanente do Senado de 9 de Julho de 2008, sob proposta do conselho científico da Faculdade de Engenharia da Universidade do Porto, foi aprovada, nos termos do disposto no artigo 76.º do Decreto-Lei n.º 74/2006, de 24 de Março, a alteração da Estrutura Curricular do Ciclo de Estudos Integrado conducente ao grau de mestre em Engenharia Química, pela Universidade do Porto, através da Faculdade de Engenharia, adequado em 31 de Julho de 2006.

A alteração da estrutura curricular e plano de estudos que a seguir se publicam foi comunicada à Direcção-Geral do Ensino Superior em 22 de Junho de 2009, de acordo com o estipulado no artigo 77.º do Decreto-Lei n.º 107/2008 de 25 de Junho.

1 — Estabelecimento de ensino: Universidade do Porto.
2 — Unidade orgânica (faculdade, escola, instituto, etc.): Faculdade de Engenharia.
3 — Curso: Mestrado Integrado em Engenharia Química.
4 — Grau ou diploma: Mestre.
5 — Área científica predominante do curso: Engenharia Química.
6 — Número de créditos, segundo o sistema europeu de transferência de créditos, necessário à obtenção do grau ou diploma: 300 (trezentos).
7 — Duração normal do curso: 5 Anos (10 semestres).
8 — Opções, ramos, ou outras formas de organização de percursos alternativos em que o curso se estruture (se aplicável):

Ramo Processos e Produto.
Ramo Energia e Ambiente.
Ramo Biotecnologia.

9 — Áreas científicas e créditos que devem ser reunidos para a obtenção do grau ou diploma:

Ramo Processos e Produto

QUADRO N.º 9.1

Área científica	Sigla	Créditos	
		Obrigatórios	Optativos
Ciências Tecnológicas (Engenharia Química)	CTEQ	103,5	10
Ciências Físicas (Química)	Q	38	
Ciências Físicas (Matemática)	M	36	
Ciências Físicas (Física)	F	12	
Ciências Tecnológicas (Outros)	CTO	31	4
Ciências Tecnológicas (Projecto)	CTP	48	
Ciências Sociais	CS	7	4
Ciências Naturais (Ciências Biológicas)	CN	6,5	
Total		282	18

Ramo de Energia e Ambiente

QUADRO N.º 9.2

Área científica	Sigla	Créditos	
		Obrigatórios	Optativos
Ciências Tecnológicas (Engenharia Química)	CTEQ	89,5	
Ciências Físicas (Química)	Q	38	
Ciências Físicas (Matemática)	M	36	
Ciências Físicas (Física)	F	12	
Ciências Tecnológicas (Outros)	CTO	36	
Ciências Tecnológicas (Projecto)	CTP	67	
Ciências Sociais	CS	11	4
Ciências Naturais (Ciências Biológicas, Engenharia Biológica)	CN	6,5	
Total		296	4

Ramo Biotecnologia

QUADRO N.º 9.3

Área científica	Sigla	Créditos	
		Obrigatórios	Optativos
Ciências Tecnológicas (Engenharia Química)	CTEQ	79,5	
Ciências Físicas (Química)	Q	45	
Ciências Físicas (Matemática)	M	36	
Ciências Físicas (Física)	F	12	
Ciências Tecnológicas (Outros)	CTO	13	
Ciências Tecnológicas (Projecto)	CTP	48	
Ciências Sociais	CS	6	5
Ciências Naturais (Ciências Biológicas, Engenharia Biológica)	CN	51,5	4
Total		291	9

(1) Indicar o número de créditos das áreas científicas optativas, necessários para a obtenção do grau ou diploma.

Nota:

O item 9. é repetido tantas vezes quantas as necessárias para a descrição dos diferentes percursos alternativos (opções, ramos, etc.), caso existam, colocando em título a denominação do percurso.

10 — Observações: Não aplicável.
11 — Plano de estudos:

Universidade do Porto — Faculdade de Engenharia

Mestrado Integrado em Engenharia Química

Tronco Comum

1.º Ano — 1.º semestre

QUADRO N.º 11.1

Unidades curriculares	Área científica	Tipo	Tempo de trabalho (horas)		Créditos	Observações
			Total	Contacto		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Algebra	M	Semestral	135	TP: 49	5	N
Análise Matemática I	M	Semestral	162	TP: 63	6	N

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