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UNIVERSITY POLITEHNICA OF BUCHAREST
BACHELOR PROGRAMS IN FOREIGN LANGUAGES

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1. Field of study: Computers and Information Technology

1.1 Information Engineering (taught in English)

a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The Information Engineering bachelor program, taught entirely in English, offers the abilities and knowledge to apply the best techniques and methods for designing and implementing high quality, safe, performant enterprise-level information systems based on advanced technologies. Graduates will also possess good foundations in electronics and system engineering allowing them to participate in the development of complex cyber-physical systems.

c) Other information

All the courses of the program are open for Erasmus incoming students.

d) Website: <http://ing.pub.ro/en/education/licence/>

e) Contact person: Mr. Andrei VASILATEANU, andrei.vasilateanu@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Calculus 1	3	2				5
1	1	Linear Algebra	2	2				4
1	1	Fundamentals of Electrical Engineering 1	2	1				3
1	1	Chemistry	2	1				3
1	1	Operating Systems Administration	2		2			4
1	1	Programming Languages	2		2			4
1	1	Computer Aided Graphics	1		1			3
1	1	Professional communication 1		2				2
1	1	Physical Education 1			1			2
1	2	Calculus 2	3	2				5
1	2	Physics 1	2	1	1			4
1	2	Fundamentals of Electrical Engineering 2	2	2				5
1	2	Electronic Devices	2	1	1			4
1	2	Data Structures and Algorithms	2		2			4
1	2	Introduction to Web Programming	2		2			4
1	2	Professional communication 2		2				2
1	2	Physical Education 2			1			2
Facultative subjects								
1	1	European Culture and Civilization 1	1	1				2
1	1	Foreign language 1	1	1				2
1	1	English for Engineering Academic Study 1	1	1				2
1	1	Romanian language for foreign students 1		2				2
1	1	Education psychology	2	2				5
1	2	European Culture and Civilization 2	1	1				2
1	2	Foreign language 2	1	1				2
1	2	English for Engineering Academic Study 2	1	1				2
1	2	Romanian language for foreign students 2		2				2
1	2	Pedagogy 1	2	2				5



Second Year Compulsory subjects								
2	1	Special Mathematics 1	2	2				4
2	1	Probabilities & Statistics	2	1				3
2	1	Physics II	2		1			4
2	1	Electronic Circuits	2		1			4
2	1	Digital Integrated Circuits	2		2			4
2	1	Databases	2		1	1		5
2	1	Object Oriented Programming	2		2			4
2	1	Microeconomics	1	1				4
2	2	Microprocessor Architecture	2		2			4
2	2	Signals and Systems	2	1	1			5
2	2	Fundamentals of Electrical Engineering 3	2		2			4
2	2	Numerical Methods	2		2			5
2	2	Operating Systems	3	1	1			5
2	2	Electronic Measurements, Sensors and Transducers	3		2			5
2	2	Macroeconomics	1	1				2
Facultative subjects								
2	1	Technical Writing 1		2				2
2	1	Romanian language for foreign students 3		2				2
2	1	Foreign Language 3		2				2
2	1	Physical Education 3			2			2
2	1	Pedagogy 2	2	2		2		5
2	2	Technical Writing 2		2				2
2	2	Romanian language for foreign students 4		2				2
2	2	Foreign Language 4		2				2
2	2	Physical Education 4			2			2
2	2	Didactics	2	2				5
Third Year Compulsory subjects								
3	1	Data Transmissions	2		1			4
3	1	Algorithm Design	2		1			4
3	1	Computer Networks	3		2			5
3	1	Formal Languages and Compilers	3		2			4



3	1	Advanced Computer Graphics	1		2			4
3	1	Money and Banking	1	1				2
3	1	Computer Architecture	2		2			4
3	2	Digital Signal Processing	2		1	1		3
3	2	Neural Networks and Genetic Algorithms	2		2			3
3	2	Functional Programming	2		2			3
3	2	Business Administration	1	1				2
3	2	Software Development Methods	2		1	1		3
3	2	Web Application Development	2		1	1		3
3	2	Project: Object Oriented Programming				2		2
3	2	Domain Internship					30	4
3	2	Specialty Internship					30	4
Optional Subjects								
3	1	Quality and Reliability	2		1			3
3	1	Mobile Device Application Development	2		1			3
3	2	Internet of Things	2		1	1		3
3	2	Human-Computer Interaction	2		1	1		3
Facultative subjects								
3	2	Ethics and Academic Integrity	2					2
Fourth Year Compulsory subjects								
4	1	Project: Web and Cloud Applications				2		2
4	1	Bioinformatics	2		2			4
4	1	Software Engineering	2		1	1		4
4	1	Software Design Techniques	2		1	1		5
4	1	Fundamentals of Management	1	1				2
4	2	Semantic Web	2		1	1		5
4	2	Distributed and parallel algorithms	2		1	1		5
4	2	Software Project Management	2		1	1		3
4	2	Security and Encryption	2		1			2
4	2	Industrial Management	1	1				2
4	2	Diploma Project				8		4
4	2	Diploma Project Practice					60	5



Optional Subjects								
4	1	Artificial Intelligence	2		1	1		5
4	1	Image Processing	2		1	1		5
4	1	Programmable Electronic Systems with FPGA	2		1	1		4
4	1	Systems Engineering	2		1	1		4
4	1	Mobile Systems and Programming for Wireless Networks	2		1	1		4
4	1	Microprocessor Systems	2		1	1		4
4	2	Robotics and virtual reality	2		1			4
4	2	Electronic CAD	2		1			4



1.2 Ingénierie de l'Information (enseigné en Français)

a) Faculté d'Ingénierie en Langues Etrangères

b) Description courte et objectives principaux :

Le diplôme en génie de l'information s'adresse aux étudiants attirés par les technologies de l'information, avec tous ses sous-domaines et applications. La formation couvre un **spectre large et pluridisciplinaire dans le domaine des ordinateurs et de la technologie de l'information**: micro-informatique, informatique, algorithmiques, électronique, langages de programmation, procédures relatives aux licences et garanties, procédures d'entretien de matériel informatique, règles de sécurité, télécoms, protection des données numériques, Logiciels de Gestion de Maintenance Assistée par Ordinateur (GMAO), logiciels de gestion de parc informatique, intelligence artificielle, applications web et mobiles.

La spécialisation a de **nombreux atouts**: les étudiants trouvent facilement un travail à la fin des études, la promotion de la mobilité étudiante, par l'envoi d'étudiants à l'étranger pour des périodes de pratique en entreprises, de perfectionnement linguistique et d'études dans des universités partenaires, mais aussi par l'accueil d'étudiants étrangers, la création pour les étudiants étrangers de conditions pour commencer directement les études, sans l'obligation de l'apprentissage du roumain au préalable. La spécialisation bénéficie également de la présence d'experts de l'industrie, qui interviennent dans les cours théoriques de la faculté.

Le plan d'enseignement est conçu d'une manière à couvrir et assurer le développement des compétences fondamentales de base pour un ingénieur, des compétences spécifiques à la spécialisation d'études, mais aussi des compétences complémentaires - linguistiques et de l'économie.

c) Autre information

Tous les sujets du programme sont enseignés en Français et ils sont ouvertes aux étudiants Erasmus, sauf le stage pratique qui se déroule pendant l'été.

Le programme se déroule sur une période de 4 années, chacune ayant 2 semestres. Il faut avoir 240 ECTS obligatoires pour obtenir son diplôme.

Une présentation du programme est disponible au lien suivant :

d) **Site web:** <http://ing.pub.ro/fr/education/licence/>

e) **Personnes de contact:** Mme. Maria-Iuliana Dascalu, maria.dascalu@upb.ro; M. George Dragoi, george.dragoi@upb.ro

f) Curriculum :

Année d'étude	Sem	Sujet	Nombres des heures par semaine				Stage	ECTS
			Cours	TD	TP	Projet		
BAC+1 Sujets obligatoires								
1	1	Analyse I	2	2				4
1	1	Algèbre linéaire	2	2				4
1	1	Bases de l'électrotechnique 1	2		1			3
1	1	Chimie générale	2	1				3
1	1	Systèmes d'exploitation 1	1		2			4
1	1	Langages de programmation	2		2			4
1	1	Graphique assistée par ordinateur	1		1			2
1	1	Expression et communication 1	1	1				2
1	1	Education physique et sport I		1				2
1	1	Techniques et sytèmes de travail collaboratif 1		2				2
1	2	Analyse mathématique 2	2	2				4
1	2	Physique I	2	1	1			4
1	2	Dispositifs électroniques	2		1			4
1	2	Programmation en Web	2		2			4
1	2	Expression et communication 2	1	1				2
1	2	Structures de données et algorithmes	2		2			4
1	2	Bases de l'électrotechnique 2	2		2			4
1	2	Education physique et sport 2			1			2
1	2	Techniques et systèmes de travail collaboratif 2			2			2
Sujets optionnelles								
1	1	Langue étrangère 1		2				2
1	1	Langue française pour les ingénieurs	1	1				2
1	1	Langue et culture roumaine pour les étudiants étrangers 1		2				2
1	2	Culture et civilisation europeenne		2				2
1	2	Langue étrangères 2		2				2
1	2	Langue et culture roumaine pour les étudiants étrangers 2		2				2
BAC+2 Sujets obligatoires								
2	1	Mathématiques spéciales 1	2	2				4
2	1	Probabilités et statistiques	2	2				4
2	1	Physique 2	2		1			4
2	1	Programmation orientée objets	2		2			4
2	1	Microéconomie	1	1				2
2	1	Circuits fondamentaux électroniques	2		1			4

2	1	Bases de données	2	1	1			4
2	2	Mathématiques spéciales 2	2	2				4
2	2	Circuits intégrés numériques	2		1			4
2	2	Architecture des microprocesseurs	2		2			4
2	2	Méthodes numériques	2		2			4
2	2	Systèmes d'exploitation 2	2	1	1			4
2	2	Mesures électroniques, capteurs et traducteurs (conception corps solides)	1		1			2
2	2	Automates, langages formels et compilateurs	2		2			4
2	2	Macroéconomie	1	1				2
Sujets au choix (un sujet obligatoire parmi les deux)								
2	1	Acquisition et traitement de données/ Conception des algorithmes	2		1			4
2	2	Traitement des documents techniques 2/ Traitement de documents et services Internet/ Bases de l'électrotechnique 3		2				2
Sujets optionnelles								
2	1	Langue étrangère 3		2				2
2	1	Langue et culture roumaine pour les étudiants étrangers 3		2				2
2	1	Education physique et sport 3		2				2
2	1	Traitements avancés des documents techniques		2				2
2	2	Education physique et sport 4		2				2
2	2	Langue et culture roumaine pour les étudiants étrangers 4		2				2
2	2	Langue étrangère 4		2				2
BAC+3 Sujets obligatoires								
3	1	Architecture des ordinateurs	2		2			4
3	1	Systemes de traitement graphique	2		2			4
3	1	Réseaux d'ordinateurs	2		2			4
3	1	Programmation fonctionnelle	2		2			4
3	1	Théorie des signaux et des systèmes	2	1	1			4
3	1	Administration des affaires	1	1				2
3	1	Transmission de données	2		1			4
3	2	Développement des applications Web	2		1	1		3
3	2	Interface homme machine	2		1			2
3	2	Administration des bases de données	2		1	1		3
3	2	Projet: Programmation orientée objets				2		2
3	2	Théorie et traitement numériques des signaux	2	1	1			3
3	2	Fondements du management	1	1				2
3	2	Méthodes et techniques de développement des logiciels	2		1	1		3
3	2	Pratique de domaine					30	4
3	2	Pratique de spécialité					30	4

Sujets au choix (un sujet obligatoire parmi les deux)								
3	1	Systèmes de réglage automatique/ Technologie des microsensors (Dispozitive MEMS)	2		1			4
3	2	Fiabilité et controle de la qualité/ Systèmes programmables avec FPGA	1		1			2
3	2	Réseaux de neurones et algorithmes génétiques/ Apprentissage automatique	2		1			2
Sujets optionnelles								
3	2	Systèmes de controle automate	2		1			3
3	2	Instrumentation virtuelle	2		1	1		4
BAC+4 Sujets obligatoires								
4	1	Projet: Developpement des applications Web			2			2
4	1	Analyse et traitements d'images	2		1			4
4	1	Intelligence artificielle	2		1			4
4	1	Génielogiciel	2		1	1		4
4	1	Sécurité et cryptage	2		1	1		4
4	2	Développement des applications pour les plateformes mobiles	2		1	1		4
4	2	Hacking éthique et défense du système	2		1			4
4	2	Robotique et agents intelligents	2		1			3
4	2	Management des projets logiciels	2		1	1		3
4	2	Préparation du projet de fin d'études					60	5
4	2	Pratique pour le projet de fin d'études					60	5
Sujets au choix (un sujet obligatoire parmi les deux)								
4	1	Semantique Web/ Systèmes de communications/ Théorie statistique des signaux	2		1	1		4
4	1	Commerce électronique et sécurité des systèmes de paiement électronique/ /Communications mobiles et par satellite/ Bioinformatique	2		1	1		4
4	1	Techniques d'optimisation des systems/ Internet des dispositifs intelligents/ /Réalité virtuelle et augmeentée	2		1	1		4
4	2	Ingénierie des systems/ Systèmes à microprocesseur	2		1			2
4	2	Paradigmes de programmation/ Algorithmesparallèles et distribués	2		1			4
Sujets optionnelles								
4	1	Architectures matériels reconfigurables	2		1			3
4	1	Systèmes embarqués	2		1			3
4	1	Systèmes de controle intelligent	2		1			3
4	2	Electronique et informatique industrielle	2		1			3



2. Field of study: Electronic Engineering, Telecommunications and Information Technologies

2.1 Applied Electronics (taught in English)

a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The program has run for 30 years and produced graduates working in key positions in renowned companies, some started up as their own entrepreneurial initiatives, as well as in research and academia. It achieves a balanced arrangement between general engineering training, specific training in the electronic engineering and information technologies fields, combined with efficient professional communication skills and management aptitudes.

c) Other information

✓ This program yearly receives incoming Erasmus students for one semester or one entire year.

d) **Website:** <http://ing.pub.ro/en/education/licence/>

e) **Contact person:** Mr. Bujor PAVALOIU, bujor.pavaloiu@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Calculus 1	3	2				5
1	1	Linear Algebra	2	2				4
1	1	Fundamentals of Electrical Engineering 1	2	1				3
1	1	Chemistry	2	1				3
1	1	Operating systems 1	2		2			4
1	1	Programming Languages	2		2			4
1	1	Computer aided Graphics	1		1			3
1	1	Professional communication 1		2				2
1	1	Physical Education 1			1			2
1	2	Calculus 2	3	2				5
1	2	Physics 1	2	1	1			4
1	2	Fundamentals of Electrical Engineering 2	2	2				5
1	2	Electronic Devices	2	1	1			4
1	2	Data Structures and Algorithms	2		2			4
1	2	Introduction to Web Programming	2		2			4
1	2	Professional communication 2		2				2
1	2	Physical Education 2			1			2
Facultative subjects								
1	1	European Culture and Civilisation 1	1	1				2
1	1	Foreign language 1	1	1				2
1	1	English for Engineering Academic Study 1	1	1				2
1	1	Romanian Language for Foreign Students 1		2				2
1	2	European Culture and Civilisation 2	1	1				2
1	2	Foreign Language 2	1	1				2
1	2	English for Engineering Academic Study 2	1	1				2
1	2	Romanian Language for Foreign Students 2		2				2
Second Year Compulsory subjects								
2	1	Special Mathematics 1	2	2				4
2	1	Probabilities & Statistics	2	1				3
2	1	Physics II	2		1			4
2	1	Fundamental Electronic Circuits	2		1			4
2	1	Digital integrated Circuits	2		2			4
2	1	Databases	2		1	1		5
2	1	Object Oriented Programming	2		2			4
2	1	Microeconomics	1	1				2
2	2	Microprocessor Architecture	2		2			4



2	2	Signals and Systems	2	1	1			5
2	2	Fundamentals of Electrical Engineering 3	2	1	1			4
2	2	Numerical Methods	2		2			5
2	2	Operating Systems 2	3	1	1			5
2	2	Electronic Measurements, Sensors and Transducers	3		2			5
2	2	Macroeconomics	1	1				2
Facultative subjects								
2	1	Technical Writing 1		2				2
2	1	Romanian Language for Foreign Students 3		2				2
2	1	Foreign Language 3		2				2
2	1	Physical Education 3			2			2
2	2	Technical Writing 2		2				2
2	2	Romanian Language for Foreign Students 4		2				2
2	2	Foreign Language 4		2				2
2	2	Physical Education 4			2			2
Third Year Compulsory subjects								
3	1	Data Transmissions	2		1			4
3	1	Project Digital Integrated Circuits				2		2
3	1	Computer Networks	3		2			4
3	1	Analog Integrated Circuits	2		1			3
3	1	Advanced Computer Graphics	1		2			3
3	1	Money and Banking	1	1				2
3	1	Computer Architecture	2		2			4
3	2	Digital Signal Processing	2		1	1		3
3	2	Neural Networks and Genetic Algorithms	2		2			3
3	2	Microwaves	2		1	1		3
3	2	Business Administration	1	1				2
3	2	Internet Programming Technologies	2		1			2
3	2	Microcontrollers	2		1	1		3
3	2	Domain Internship					30	4
3	2	Specialty Internship					30	4
Optional Subjects								
3	1	Reliability and Quality Control	2		1			4
3	1	Application Development for Mobile Devices	2		1			4
3	1	Algorithm Design and Complexity	2		1			4
3	1	Internet of Things	2		1			4
3	2	Human-Computer Interaction	2		1			3
3	2	Micro-sensors Technology (MEMS)	2		1			3
3	2	Multiplexed Transmission Systems	2		1	1		3
3	2	Nanotechnology applications in	2		1	1		3



		electronics and telecommunications						
Facultative subjects								
3	2	Ethics and Academic Integrity	1					2
Fourth Year Compulsory subjects								
4	1	Image Processing	2		1	1		5
4	1	Project Neural Networks and Genetic Algorithms				2		2
4	1	Television	2		2			4
4	1	Software Engineering	2		1	1		4
4	1	Fundamentals of Management	1	1				2
4	2	Optoelectronics	3		2			5
4	2	Security and Encryption	2		1	1		5
4	2	Electronic CAD	2		2			5
4	2	Industrial Management	1	1				2
4	2	Diploma Project				8		4
4	2	Diploma Project Practice					60	5
Optional Subjects								
4	1	Microprocessor Systems	2		1	1		4
4	1	Mobile Systems and Programming for Wireless Networks	2		1	1		4
4	1	Analog & Digital Transmissions	2		1	1		5
4	1	Systems Engineering	2		1	1		5
4	1	Programmable Electronic Systems with FPGA	2		2			4
4	1	Bioinformatics	2		2			4
4	2	Architectures and Protocols for Integrated Net	2		2			4
4	2	Medical Electronics	2		2			4



2.2 Technologies and Telecommunication Systems (taught in English)

a) Faculty of Electronics, Telecommunications and Information Technology

b) Short description and main objectives:

In the context of the current technological progress of telecommunication area, the fields of activity are practically unlimited: fixed and mobile communications, wireless networks, hardware, software and various related services, Internet of Things, audio engineering and more.

The Technologies and Telecommunication Systems study program provides the graduates with adequate skills for the needs of current qualifications and modern scientific and technical training, highly qualitative and competitive, which allows them to get hired quickly after graduation, and, also, offers international openness.

c) Other information

All the courses of the program are open for Erasmus incoming students.

This study program is EUR-ACE certified since 2017.

d) **Website:** <http://www.electronica.pub.ro/>

e) **Contact person:** Mr. Octavian FRATU, octavian.fratu@upb.ro



f) Curriculum:

Year	Se m	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Mathematical Analysis 1	3	1				4
1	1	Algebra and Geometry	3	1				5
1	1	Physics 1	3	1	1			5
1	1	Computers Programming	2		2			4
1	1	Fundamentals of Electrical Engineering 1	3	2				5
1	1	Chemistry	2		1			3
1	1	Foreign Language 1		2				2
1	1	Physical Education and Sport 1		2				2
1	2	Mathematical Analysis 2	3	2				5
1	2	Physics 2	3		1			4
1	2	Algorithms and Data Structures	2		1			4
1	2	Fundamentals of Electrical Engineering 2	3	1				5
1	2	Measurements in Electronics and Telecommunications	2		1.5			4
1	2	Special Mathematics	3	1				4
Optional Subject O1								
1	2	Office Software	1		1			2
1	2	Engineering Graphics and Technical Drawing	1		1			2
1	2	3D Models and Design	1		1			2
1	2	Practical Implementation of Electronic Schemes - Getting Started	1		1			2
Optional Subject O2								
1	2	Philosophy	2					2
1	2	Sociology	2					2
1	2	Psychology	2					2
1	2	Communication	2					2



1	2	European Culture and Civilization	2					2
1	2	European Political and Administrative Institutions	2					2
1	2	European Integration	2					2
Facultative subjects								
1	2	Internet Services	1		1			2
1	2	Foreign Language 2		2				2
1	2	Physical Education and Sport 2		2				2
1	1	Educational Psychology	2	2				5
1	2	Pedagogy 1	2	2				5
Second Year Compulsory subjects								
2	1	Signals and Systems	3	2	1			6
2	1	Electronic Materials	3		1.5			5
2	1	Electronic Devices	3	2	1			6
2	1	Passive Components and Circuits	2		1.5			4
2	1	Object Oriented Programming	2		1			3
2	1	Project - Signals and programming				1		1
2	2	Basic Electronic Circuits	3	2				5
2	2	Digital Integrated Circuits	3	1	1			4
2	2	Microprocessor Architecture	3		1			5
2	2	Circuits Analysis and Synthesis	3	2	2			6
2	2	Electronic Circuits - Laboratory			1.5			2
2	2	Physical Education and Sport 4		2				2
Optional Subject O1								
2	1	Macroeconomics	2					2
2	1	Microeconomics	2					2
2	1	Elements of Law and Business Legislation	2					2
Optional Subject O2								
2	1	Numerical Methods	1		1			3
2	1	A.I. Systems Engineering	1		1			3
2	1	CAD Techniques for Electronic Modules Design	1		1			3
Optional Subject O3								



2	2	Electronic Components Models for SPICE	1		1			3
2	2	Electronic Interconnections Technologies	1		1			3
2	2	Programming for Android	1		1			3
Optional Subject O4								
2	2	Management	2		1			3
2	2	Marketing	2		1			3
Facultative subjects								
2	1	Foreign Language 3		2				2
2	1	Physical Education and Sport 3		2				2
2	2	Foreign Language 4		2				2
2	1	Pedagogy II	2	2				5
2	2	Didactics of the specialization	2	2				5
Third Year Compulsory subjects								
3	1	Information Transmission Theory	3	1	1			5
3	1	Microwaves	3	1	1			5
3	1	Analogic Integrated Circuits	3	1	1			5
3	1	Electronic Measuring Instruments	3		1.5			4
3	1	Microcontrollers	2		1			3
3	1	Programming competences - Certifying Exam	1					2
3	1	Project 1 - Electronic Devices and Circuits				1		2
3	1	Training activity – Project 2				0.5		1
3	2	Decision and expectation in Information Processing	3	1	1			5
3	2	Practical Activity (3rd year)					30	6
3	2	Digital Signal Processing	3	1	1	1		5
3	2	Analog and Digital Communications	3	1				3
3	2	Network Architectures and Internet	2		1			3
3	2	Microwave Circuits	2	1	1			3
Optional Subjects O1								
3	1	Automatic Control in Electronics and Telecommunications	2		1			3
3	1	Electromagnetic Compatibility	2		1			3



3	1	Audio Engineering	2		1			3
3	1	Fundamentals of Information Science	2		1			3
3	1	Applied Programming of Interfaces	2			1		3
Optional Subjects O2								
3	2	Project 2				1		2
Optional Subjects O3								
3	2	Television	2		1			3
3	2	Networks and Services Security	2		1			3
3	2	Basics of Operating Systems and Virtualization	2		1			3
3	2	Fundamentals of Cryptology	2		1			3
Facultative subjects								
3	1	Development of Innovative Android Applications	1		1	1		3
3	1	Physical Education and Sport 5		2				2
3	2	Physical Education and Sport 6		2				2
3	1	Computer-assisted instruction	1	1				2
3	1	Pedagogical practice in pre-university education (1)					3	3
3	2	Classroom management	1	1				3
3	2	Pedagogical practice in pre-university education (2)					3	2
3	2	Graduation exam: level 1 – Didactical Portfolio						5
Fourth Year Compulsory subjects								
4	1	Data Communications	3	1				5
4	1	Communications Networks	2		1.5			4
4	1	Signal Processors for Communications	2		1.5			4
4	1	Radio Communications Systems and Equipment	2		1.5			4
4	1	Antennas and Propagation	2		1			3
4	1	Databases	2		1			3
4	1	Analog and Digital Communications - Laboratory			2			2
4	2	Mobile Communications	2	0.5	1.5			6
4	2	Multimedia Coding - Techniques and Applications	2		1.5			4
4	2	Multiplex Transmission Techniques and Systems	2		1.5			4



Optional Subjects O1								
4	1	Radar	2		1			3
4	1	Transmission Media	2		1			3
4	1	Fundamentals of Cryptology 2	2		1			3
Optional Subjects O2								
4	1	Project 3				1		2
Optional Subjects O3								
4	2	Multiple Access Techniques	2		1			3
4	2	Optical Communications	2		1			3
4	2	Traffic Engineering	2		1			3
4	2	Neural Networks and Fuzzy Systems	2		1			3
Optional Subjects O4								
4	2	Quality and Reliability	1		1			3
4	2	Management and Legislation in Telecom and Electronics	1		1			3
Diploma Project								
4	2	Practical Activity for Diploma Project					4	5
4	2	Diploma Project Preparation Activities					30	5
Facultative subjects								
4	1	Automotive electronics	2		1			3
4	1	Practical Activity S7					30	2
4	1	Introduction to Astronomy	1		1			2



2.3 Applied Electronics (taught in English)

a) Faculty of Electronics, Telecommunications and Information Technology

b) Short description and main objectives:

In the context of the current technological progress of electronic devices, the fields of activity are practically unlimited: industrial electronics, automation, medical electronics, artificial intelligence, information technologies, image processing, military, geological, security, robotics applications (human-machine interface systems) and more.

This provides graduates with adequate skills with the needs of current qualifications and a modern scientific and technical training, quality and competitive, which allows them to hire quickly after graduation. The Applied Electronics study program is perfectly framed in the policy of the current field, both in terms of content and structure, as well as in terms of international skills and openness offered to students.

c) Other information

All the courses of the program are open for Erasmus incoming students.

This study program is EUR-ACE certified since 2017.

d) **Website:** <http://www.electronica.pub.ro/>

e) **Contact person:** Mr. Bogdan FLOREA, bogdan.florea@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Mathematical Analysis 1	3	1				4
1	1	Algebra and Geometry	3	1				5
1	1	Physics 1	3	1	1			5
1	1	Computers Programming	2		2			4
1	1	Fundamentals of Electrical Engineering 1	3	2				5
1	1	Chemistry	2		1			3
1	1	Foreign Language 1		2				2
1	1	Physical Education and Sport 1		2				2
1	2	Mathematical Analysis 2	3	2				5
1	2	Physics 2	3		1			4
1	2	Algorithms and Data Structures	2		1			4
1	2	Fundamentals of Electrical Engineering 2	3	1				5
1	2	Measurements in Electronics and Telecommunications	2		1.5			4
1	2	Special Mathematics	3	1				4
Optional Subject O1								
1	2	Office Software	1		1			2
1	2	Engineering Graphics and Technical Drawing	1		1			2
1	2	3D Models and Design	1		1			2
1	2	Practical Implementation of Electronic Schemes - Getting Started	1		1			2
Optional Subject O2								
1	2	Philosophy	2					2
1	2	Sociology	2					2
1	2	Psychology	2					2
1	2	Communication	2					2



1	2	European Culture and Civilisation	2					2
1	2	European Political and Administrative Institutions	2					2
1	2	European Integration	2					2
Facultative subjects								
1	2	Internet Services	1		1			2
1	2	Foreign Language 2		2				2
1	2	Physical Education and Sport 2		2				2
1	1	Educational Psychology	2	2				5
1	2	Pedagogy 1	2	2				5
Second Year Compulsory subjects								
2	1	Signals and Systems	3	2	1			6
2	1	Electronic Materials	3		1.5			5
2	1	Electronic Devices	3	2	1			6
2	1	Passive Components and Circuits	2		1.5			4
2	1	Object Oriented Programming	2		1			3
2	1	Project - Signals and programming				1		1
2	2	Basic Electronic Circuits	3	2				5
2	2	Digital Integrated Circuits	3	1	1			4
2	2	Microprocessor Architecture	3		1			5
2	2	Circuits Analysis and Synthesis	3	2	2			6
2	2	Electronic Circuits - Laboratory			1.5			2
2	2	Physical Education and Sport 4		2				2
Optional Subject O1								
2	1	Macroeconomics	2					2
2	1	Microeconomics	2					2
2	1	Elements of Law and Business Legislation	2					2
Optional Subject O2								
2	1	Numerical Methods	1		1			3
2	1	A.I. Systems Engineering	1		1			3
2	1	CAD Techniques for Electronic Modules Design	1		1			3
Optional Subject O3								

2	2	Electronic Components Models for SPICE	1		1			3
2	2	Electronic Interconnections Technologies	1		1			3
2	2	Programming for Android	1		1			3
Optional Subject O4								
2	2	Management	2		1			3
2	2	Marketing	2		1			3
Facultative subjects								
2	1	Foreign Language 3		2				2
2	1	Physical Education and Sport 3		2				2
2	2	Foreign Language 4		2				2
2	1	Pedagogy II	2	2				5
2	2	Didactics of the specialization	2	2				5
Third Year Compulsory subjects								
3	1	Information Transmission Theory	3	1	1			5
3	1	Microwaves	3	1	1			5
3	1	Analogic Integrated Circuits	3	1	1			5
3	1	Electronic Measuring Instruments	3		1.5			4
3	1	Microcontrollers	2		1			3
3	1	Programming competences - Certifying Exam	1					2
3	1	Project 1 - Electronic Devices and Circuits				1		2
3	1	Training activity – Project 2				0.5		1
3	2	Decision and expectation in Information Processing	3	1	1			5
3	2	Practical Activity (3rd year)					30	6
3	2	Digital Signal Processing	3		1	1		4
3	2	Television	2		1			3
3	2	Sensors and Signal Conditioning Circuits	2		1			3
3	2	Communications Systems	2		1			2
3	2	Industrial Electronics and Informatics	2		1			2
3	2	Programming Technologies for Internet	2		1			3
Optional Subjects O1								



3	1	Automatic Control in Electronics and Telecommunications	2		1			3
3	1	Electromagnetic Compatibility	2		1			3
3	1	Audio Engineering	2		1			3
3	1	Fundamentals of Information Science	2		1			3
3	1	Applied Programming of Interfaces	2			1		3
Optional Subjects O2								
3	2	Project 2 – Programmable Electronics				1		2
Facultative subjects								
3	1	Development of Innovative Android Applications	1		1	1		3
3	1	Physical Education and Sport 5		2				2
3	2	Physical Education and Sport 6		2				2
3	1	Computer-assisted instruction	1	1				2
3	1	Pedagogical practice in pre-university education (1)					3	3
3	2	Classroom management	1	1				3
3	2	Pedagogical practice in pre-university education (2)					3	2
3	2	Graduation exam: level 1 – Didactical Portfolio						5
Fourth Year Compulsory subjects								
4	1	Computer Architectures	2		2			4
4	1	Programmable Electronic Systems	2		1			5
4	1	Medical imaging	2		2			4
4	1	Medical electronics and informatics	2		2			4
4	1	Power Electronic Processors	2		1			4
4	1	3D Graphics	2		1.5			4
4	1	Databases	2		1			3
4	2	Robotics	2		1			4
4	2	Automatic Testing of Equipment and Processes	2		1			3
4	2	Reconfigurable Computing Systems	2		1			3
4	2	Computer aided analysis of power electronic circuits	2		2			4
4	2	Neural Networks and Fuzzy Systems	2		1			3
Optional Subjects O1								



4	1	Project 3				1		2
Optional Subjects O2								
4	2	Quality and Reliability	1		1			3
4	2	Management and Legislation in Telecom and Electronics	1		1			3
Diploma Project								
4	2	Activity for Diploma Project Preparation					4	5
4	2	Practice for Diploma Project					30	5
Facultative subjects								
4	1	Automotive electronics	2		1			3
4	1	Practical Activity S7					30	2
4	1	Peripherals equipment	2		1			2



2.4 Electronique appliquée (enseigné en Français)

a) Faculté d'Ingénierie en Langues Etrangères

b) Description courte et objectives principaux :

Le diplôme en electronique appliquée s'adresse aux étudiants attirés par électronique, télécommunications et technologies de l'information, avec tous ses sous-domaines et applications. La formation couvre un **spectre large et pluridisciplinaire dans le domaine des ordinateurs et de la technologie de l'information**: procédures de maintenance de systèmes d'information, procédures d'entretien de systèmes d'information, audiovisuel électronique, optronique, électronique, techniques de communication, système d'information et de communication, outils bureautiques, méthode de classement et d'archivage, électromécanique, programmation et développement d'applications mobiles.

La spécialisation a de **nombreux atouts**: les étudiants trouvent facilement un travail à la fin des études, la promotion de la mobilité étudiante, par l'envoi d'étudiants à l'étranger pour des périodes de pratique en entreprises, de perfectionnement linguistique et d'études dans des universités partenaires, mais aussi par l'accueil d'étudiants étrangers, la création pour les étudiants étrangers de conditions pour commencer directement les études, sans l'obligation de l'apprentissage du roumain au préalable. La spécialisation bénéficie également de la présence d'experts de l'industrie, qui interviennent dans les cours théoriques de la faculté.

Le plan d'enseignement est conçu d'une manière à couvrir et assurer le développement des compétences fondamentales de base pour un ingénieur, des compétences spécifiques à la spécialisation d'études, mais aussi des compétences complémentaires - linguistiques et de l'économie.

c) Autre information

Tous les sujets du programme sont enseignés en Français et ils sont ouverts aux étudiants Erasmus, sauf le stage pratique qui se déroule pendant l'été.

Le programme se déroule sur une période de 4 années, chacune ayant 2 semestres. Il faut avoir 240 ECTS obligatoires pour obtenir son diplôme.

Une présentation du programme est disponible au lien suivant :

d) **Site web** : <http://ing.pub.ro/fr/education/licence/>

e) **Person de contact**: M. George Dragoi, george.dragoi@upb.ro



f) Curriculum :

Année d'étude	Sem	Sujet	Nombres des heures par semaine				Stage	ECTS
			Cours	TD	TP	Projet		
BAC+1 Sujets obligatoires								
1	1	Analyse mathématique 1	2	2				4
1	1	Algèbre linéaire et géométrie descriptive	2	2				4
1	1	Bases de l'électrotechnique 1	2		1			3
1	1	Chimie générale	2	1				3
1	1	Systèmes d'exploitation 1	1		2			4
1	1	Programmation des ordinateurs et langages de programmation	2		2			4
1	1	Graphique assistée par ordinateur	1		1			2
1	1	Expression et communication 1	1	1				2
1	1	Education physique et sport I		1				2
1	1	Techniques et systèmes de travail collaboratif 1		2				2
1	2	Analyse mathématique 2	2	2				4
1	2	Physique I	2	1	1			4
1	2	Dispositifs électroniques	2		1			4
1	2	Technologies de programmation Internet 1	2		2			4
1	2	Expression et communication 2	1	1				2
1	2	Structures de données et algorithmes	2		2			4
1	2	Bases de l'électrotechnique 2	2		2			4
1	2	Education physique et sport 2			1			2
1	2	Techniques et systèmes de travail collaboratif 2			2			2
Sujets optionnelles								
1	1	Langue étrangère 1		2				2
1	1	Langue française pour les ingénieurs	1	1				2
1	1	Langue et culture roumaine pour les étudiants étrangers 1		2				2
1	2	Culture et civilisation européenne		2				2
1	2	Langue étrangères 2		2				2
1	2	Langue et culture roumaine pour les étudiants étrangers 2		2				2
BAC+2 Sujets obligatoires								
2	1	Mathématiques spéciales 1	2	2				4
2	1	Probabilités et statistiques	2	2				3
2	1	Physique 2	2		1			4
2	1	Modèles SPICE	1		1			2

2	1	Programmation orienté e objets	2		2			4
2	1	Micro économie	1	1				2
2	1	Circuits fundament aux électronique	2		1			3
2	1	Bases de données	2	1	1			4
2	2	Mathématiques spéciales 2	2	2				4
2	2	Circuits intégrés numériques	2		1			4
2	2	Architecture des microprocesseurs	2		2			4
2	2	Méthodes numériques	2		2			4
2	2	Systèmes d'exploitation 2	2	1	1			4
2	2	Mesures électroniques, capteurs et traducteurs (conception corps solides)	1		1			4
2	2	Automates, langages formels et compilateurs	2		2			3
2	2	Macroéconomie	1	1				2
Sujets au choix (un sujet obligatoire parmi les deux)								
2	1	Traitement des documents techniques / Traitement de documents et services Internet		2				2
2	2	Compatibilité électromagnétique / Bases de l'électrotechnique 3	2		1			4
Sujets optionnelles								
2	1	Langue étrangère 3		2				2
2	1	Langue et culture roumaine pour les étudiants étrangers 3		2				2
2	1	Education physique et sport 3		2				2
2	1	Traitement avancés des documents techniques		2				2
2	2	Education physique et sport 4		2				2
2	2	Langue et culture roumaine pour les étudiants étrangers 4		2				2
2	2	Langue étrangère 4		2				2
BAC+3 Sujets obligatoires								
3	1	Architecture des ordinateurs	2		2			4
3	1	Transmission de données	2		1			4
3	1	Réseaux d'ordinateurs	2		2			4
3	1	Systèmes de réglage automatique	2		1			4
3	1	Projet: Circuits intégrés numériques			2			2
3	1	Administration des affaires	1	1				2
3	1	Théorie des signaux et des systèmes	2	1	1			4
3	1	Bases des systèmes d'acquisition des données	2		1			4
3	2	Interface homme machine	2		1			3
3	2	Microcontrôleurs	2		2			2
3	2	Electronique de puissance	2		1	1		3
3	2	Circuits intégrés analogiques	1		1			2
3	2	Théorie et traitement numériques des signaux	2		1	1		3

3	2	Fondements du management	1	1				2
3	2	Matériaux pour genie électrique	2	1	1			3
3	2	Pratique de domaine					30	4
3	2	Pratique de spécialité					30	4
Sujets au choix (un sujet obligatoire parmi les deux)								
3	1	Installations et appareillage esélectriques/ Genie Logiciel	2		1			2
3	2	Fiabilité et controle de la qualité/ Systèmes programmables avec FPGA	1		1			2
3	2	Techologies de programmation en Internet 2/ Systèmes de communications	2		1			2
Sujets optionnelles								
3	2	Technologie des microsensors (Dispozitive MEMS)	2		1			3
3	2	Méthodes et techniques de développement des logiciels	3		1	1		4
BAC+4 Sujets obligatoires								
4	1	Projet: Réseaux d'ordinateurs			2			2
4	1	Analyse et traitements d'images	2		1			4
4	1	CAO et commande des systèmes automates	2		1			3
4	1	Systèmes de transmissions par multiplexage	2		1			3
4	1	Management du projet	1		1			2
4	1	Sécurité et cryptage	2		1	1		4
4	2	Développement des applications pour les plateformes mobiles	2		1	1		4
4	2	Théorie statistique des signaux	2	1				4
4	2	Robotique et agents intelligents	2		1			3
4	2	Automatisation en électronique et télécommunications	2		1			3
4	2	Préparation du projet de fin d'études					60	5
4	2	Pratique pour le projet de fin d'études					60	5
Sujets au choix (un sujet obligatoire parmi les deux)								
4	1	Instrumentation électronique de mesure/ Architecture des réseaux et Internet/ Bioinformatique	2		1	1		4
4	2	Ingénierie des systèmes/ Décision et estimation dans le traitement des informations	2		1			2
4	1	Identification et commande des systèmes automatiques/ /Communications mobiles et par satellite/ Technologies Web et Semantique Web	2		1	1		4
4	1	Machines électriques et entraînements/ /Internet des dispositifs intelligents/ Réseaux de neurones et algorithmes génétiques	2		1			4
4	2	Commande des convertisseurs statiques/ Systèmes asservis non linéaires	2		1	1		4



Sujets optionnelles								
4	1	Architectures matérielsre configurables	2		1			3
4	1	Systèmes embarqués	2		1			3
4	1	Systèmes de controle intelligent	2		1			3
4	2	Electronique et informatique industrielle	2		1			3



2.5 Applied electronics (taught in German)

a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The mission of the program is to help future engineers to develop competencies in a range from classical to modern disciplines of electronics. Essential for the future engineer in applied electronics is to be able to adapt for a diversity of problems based on the knowledge of basic functional blocs and instruments. This relates to the name of the program.

The program is both research oriented and applied. Within practical labs, the students learn to apply knowledge acquired in the whole program. Knowledge of technical German answers the needs of the labour market, where Germany belongs to Romania's top business partners.

The program is the only program in Romania that offers applied electronics in German and reacts according to its mission to the requirements of both companies, as well as students.

Our graduates find well paid and challenging jobs at all levels and in all industrial sectors, in small and middle high tech, as well as international enterprises, in the administration or as entrepreneurs. Interdisciplinary courses, such as economics or project management, prepare the graduates for future management roles.

c) Other information

- All the courses of the program are open for Erasmus incoming students and the program has incoming and outgoing Erasmus students for one or two semesters each year.
- The bachelor program is carried out in cooperation with companies such as Siemens, Infineon, Hornbach, IBM, P&G, Honeywell, Lidl, HP, Microsoft.
- The Bachelor Thesis can be carried out in cooperation with enterprises or foreign universities.

d) **Website:** <http://ing.pub.ro/en/education/licence/>

e) **Contact person:** Mrs. Ioana Guică, ioana.guica@upb.ro

f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Mathematik 1a	2	2	-	-		3
1	1	Mathematik 1b	2	2				3
1	1	Physik	2		2	-		4
1	1	Angewandte Informatik 1	2		1	-		3
1	1	Computergraphik	1			2		3
1	1	Allgemeine Wirtschaftslehre	0			-		2
1	1	Grundlagen der Elektrotechnik 1	2	1	1	-		4
1	1	Buchführung	2			-		3
1	1	Datenbanken 1		2				3
1	2	Mathematik 2	4	2				
1	2	Informatik 2	2		2			6
1	2	Komponenten und passive Schaltkreise	2		2			4
1	2	Deutsch Interkulturell 1		2				4
1	2	Halbleiterbau elemente	2		2			2
1	2	Grundlagen der Elektrotechnik 2	2	1	1			4
1	2	Sport 1		2				5
Elective subjects								
1	1	Fachkommunikation 1		2				2
1	1	Expression et communication 1		2				2
1	2	Fachkommunikation 2		2				2
1	2	Expression et communication 2		2				2
Facultative subjects								
1	1	Erziehungspsychologie (in rumänischer Sprache)	2	-	-	-		2
1	1	Landeskunde 1		2				2
Second Year Compulsory subjects								
2	1	Mathematik 3 für ETiT	4	2				6
2	1	Programmierung von Computern und Programmiersprachen	2		3			5

2	1	Messungen in Elektronik und Telekommunikation	2		2			4
2	1	Signale und Systeme	3			1		4
2	1	Labview	1		2			4
2	1	Matlab	2		2			5
2	2	Sensoren und Aktuatoren	2		2			3
2	2	Grundlagen der Mechanik und Mechanismen	2	2				4
2	2	Digitalisignalverarbeitung	2		2			4
2	2	CAD Technik			2			2
2	2	Alternative Energiequellen	2	1				3
2	2	Marketing	2					2
2	2	Elektronische Grundsaltungen	2					3
2	2	Spice-Modelle	1		2			5
2	2	Projektseminar:Elektronische Grundsaltungen				2		2
Elective subjects								
2	1	Unternehmenskommunikation 1	2					2
2	1	Wirtschaftsenglisch 1	2					2
2	2	Unternehmenskommunikation 2		2				2
2	2	Langue francais pour ingenieurs		2			C	2
Facultative subjects								
2	1	Landeskunde 2		2				2
2	1	Fredsprache		2				2
2	1	Sport 2		2				2
Third Year Compulsory subjects								
3	1	Regelungstechnik 1	3	1				4
3	1	Logischer Entwurf	3	1	1			5
3	1	Leistungselektronik	3		2			5
3	1	Elektrische Antriebe	2		2			4
3	1	Grundlagen der Nachrichtentechnik	3	1				5
3	2	Numerische Berechnungsverfahren	1	2				3
3	2	Analoge Schaltungen	2	2	2			5

3	2	Kommunikationstechnik	3		1			3
3	2	Projektseminar:Entwurf eingebetteter Systeme				2		2
3	2	Rechnersysteme 1	2	2				4
3	2	Werkstoffe der Elektrotechnik	2		2			3
3	2	Technisches Praktikum					240	4
3	2	Technisches Praktikum					120	4
Elective Subjects								
3	1	Moderieren und Präsentieren		2				2
3	1	Einführung in das wissenschaftliche Arbeiten		2				2
3	1	Datenstrukturen und Betriebssysteme	2	2				5
3	1	Die Grundlagen von Datenerfassungssystemen	2	2				5
3	2	Softwaresysteme	2	2				2
3	2	Bionik	2	2				2
Facultative subjects								
3	1	Pädagogik 1 (in rumänischer Sprache)	2	2				4
3	1	General Management		4				4
3	2	EBCL		3				3
3	2	Pädagogik 2 (in rumänischer Sprache)	2					2
Fourth Year Compulsory subjects								
4	1	Kommunikationsnetze	3	2			E	5
4	1	Rechnersysteme 2	2		2		E	4
4	1	Regelungstechnik 2	2				E	4
4	1	Projektseminar Regelungstechnik 2				2	C	4
4	1	Hochfrequenztechnik	2	1	1		E	2
4	1	Projektmanagement	2	2			E	4
4	1	Technologie hochintegrierter Schaltungen	2		1		E	3
4	2	Embedded Systems	2		2		C	2
4	2	Kommunikationssysteme	2		2		C	2
4	2	Mikroelektronik	2		2		C	2



4	2	Computernetze	2		2		C	2
4	2	Erarbeitung Bachelor Thesis					8	5
4	2	Praktikum Bachelor Thesis						5
Elective Subjects								
4	1	Kollaborative Techniken und Systeme	2		2		C	4
4	1	Internet-Programmiertechnologien	2		2		C	4
4	2	Bearbeitung von technischen Dokumenten	2				C	2
4	2	Dokumentenverarbeitung und Internetdienste	2				C	2
4	2	Qualität und Zuverlässigkeit	2				C	3
4	2	Zuverlässigkeit	2				C	3
Facultative subjects								
4	1	Unterrichtspraktikum (in rumänischer Sprache)				2		2
4	1	Methodik des Faches (in rumänischer Sprache)	2					2
4	2	Business Plan		2				2
4	2	Europäische Studien	2					2



3. Field of study: Mechanical Engineering

3.1 Mechanical Engineering (taught in English)

a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The bachelor program in Mechanical Engineering targets students attracted to Engineering Sciences in the various application fields of Mechanics, whether it is: fluid mechanics, power engineering (heat engines, turbines, air conditioning, etc.) and also environmental engineering, structural mechanics, mechanics of materials, robotics etc.

The training covers a **broad and multidisciplinary spectrum in the field of mechanical engineering** which allows graduate engineers to access all the positions in a company: design, production, maintenance, quality, safety. Having an **orientation towards the design, modeling and numerical simulation in mechanical engineering** by covering at the same time the mechanics of solids, fluids and power engineering, the main outlet remains the careers of engineering in design positions.

The educational plan is intended to ensure the development of fundamental skills for an engineer, complementary skills, linguistic and economic ones included.

c) Other information

All the lectures of the program are fully taught in English and they are open for Erasmus incoming students.

The program extends on 4 study years, each one having two semesters. A total of 240 compulsory ECTS are required to graduate the program.

d) Website: <http://ing.pub.ro/en/education/licence/>

e) Contact person: Mrs. Camelia STANCIU, camelia.stanciu@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Calculus I	3	2				6
1	1	Linear Algebra	2	2				4
1	1	Engineering Graphics I	1		2			4
1	1	Chemistry	2	1				3
1	1	Materials Science I	2		1			4
1	1	Professional Communication		2				2
1	1	European Culture & Civilization I	1	1				2
1	2	Calculus II	3	2				6
1	2	Physics I	2	1	1			5
1	2	Mechanics I	2	1				3
1	2	Engineering Graphics II	2		2			4
1	2	Programming Languages	1		2			3
1	2	Materials Science II	2		1			3
Elective subjects (one subject must be chosen among the following)								
1	1	Applied Informatics	2		2			3
		Discrete Mathematics	2	2				3
1	1	Physical Education I			2			2
		Foreign Language b (French/ German/Spanish)		2				2
1	2	European Culture & Civilization II	1	1				2
		Ethics and Academic Integrity	1	1				2
1	2	Physical Education II			2			2
		Foreign Language b (French/ German/Spanish)		2				2
Optional subjects								
1	1	English for Engineering Academic Study I	1	1				2
1	1	Romanian Language (for foreign students) I		2				2
1	1	Langue francaise pour ingenieurs I		2				2



1	1	Educational Psychology	2	2				5
1	2	English for Engineering Academic Study II	1	1				2
1	2	Romanian Language (for foreign students) II		2				2
1	2	Langue francaise pour ingenieurs II		2				2
1	2	Pedagogy 1	2	2				5
Second Year Compulsory subjects								
2	1	Mathematics for Engineers I	2	2				5
2	1	Probabilities & Statistics	2	1				2
2	1	Physics II	2		1			4
2	1	Strength of Materials I	2	1	1			4
2	1	Introduction to Mechanical Engineering	1		2			4
2	1	Electrical engineering I	2	1				3
2	1	Mechanics II	2	1	1			4
2	1	Collaborative Work II		2				2
2	1	Microeconomics	1	1				2
2	2	Material Technology	2		1			3
2	2	Mechanics III	1	1				2
2	2	Strength of Materials II	2	1				3
2	2	Manufacturing Processes I	2		1			3
2	2	Machine Elements & Mechanisms I	2		1			4
2	2	Numerical Methods	2	2				5
2	2	Software Tools for Mechanical Engineering I (solid body design)	1		2			3
2	2	Technical writing		2				2
2	2	Macroeconomics	1	1				2
Elective subjects								
2	2	Electrical engineering II (Electrical machines)	2	1				3
		Electrical measurements & Transducers	2	1				3
Optional subjects								
2	1	Romanian Language (for foreign students) III		2				2
2	1	Pedagogy 2	2	2				5



2	2	Romanian Language (for foreign students) IV		2				2
2	2	Didactics of the specialization	2	2				5
Third Year Compulsory subjects								
3	1	Finite Element Analysis	2		2			4
3	1	Engineering Thermodynamics	2	1	1			5
3	1	Fluid Mechanics	2	1				4
3	1	Machine Elements & Mechanisms II	2		1	2		5
3	1	Manufacturing Processes II	2		1			3
3	1	Design for recycling	2			2		3
3	1	Mechanical Behavior of Materials	2	1				4
3	1	Money & Banking	1	1				2
3	2	Heat & Mass Transfer	3	1	1			4
3	2	Dynamics of Machinery	2		2			3
3	2	Mechanical Transmissions	3		1			3
3	2	Computational Structural Mechanics	2	1	1			3
3	2	Mechanical Transmissions Project				2		2
3	2	Practical Workshop						4
3	2	Practical Workshop						4
3	2	Business Administration	1	1				2
Elective Subjects								
3	2	Mechanical Measurements	2		1			2
		Electronic Devices & Circuits	2		1			2
3	2	Engineering analysis and control technics	2		2			3
		Applied Fluid Dynamics (Pumps,...)	2		2			3
Fourth Year Compulsory subjects								
4	1	Software Tools for Mechanical Engineering II (thermal design)	2		2			4
4	1	Tribology	2		2			5
4	1	Design of Innovative Products	1			2		3
4	1	Nanotechnology applications in mechanical engineering	1			2		3
4	1	Heat Engines I (Internal Combustion Engines)	2		1	2		6



4	1	Fundamentals of management	1	1				2
4	2	Heat Engines II (Turbines & Steam Generators)	2		2			4
4	2	Refrigeration and Air Conditioning	2	1	2			5
4	2	Environmental Engineering	2	1				3
4	2	Diploma Project				8		4
4	2	Diploma Project Internship						6
4	2	Compressors and Fans	2			1		3
4	2	Fluid Power Systems	2		1			3
Elective Subjects								
4	1	Electronics	2		1			4
		Control Theory	2		1			4
4	1	Advanced Manufacturing Processes and Quality Assurance	2		1			3
		Image Processing	2		1			3
4	2	Industrial Management	1	1				2
		Robotics & Virtual Reality	1		1			2



3.2 Ingénierie Mécanique (enseigné en Français)

a) Faculté d'Ingénierie en Langues Etrangères

b) Description courte et objectives principaux :

La Licence en Ingénierie Mécanique s'adresse à des étudiants attirés par les Sciences de l'Ingénieur dans les différents domaines d'applications de la Mécanique, qu'il s'agisse de: la mécanique des fluides, l'énergétique (moteurs, turbines, conditionnement de l'air, etc) et l'environnement, la mécanique des structures, la mécanique des matériaux, la robotique etc.

La formation couvre un **spectre large et pluridisciplinaire dans le domaine de la mécanique** ce qui permet aux ingénieurs diplômés d'accéder à toutes les fonctions d'une entreprise: bureaux d'études, de production, maintenance, qualité, sécurité. Ayant une **orientation vers la conception, modélisation et simulation numérique en mécanique** en couvrant à la fois la mécanique des solides, des fluides et l'énergétique le principal débouché demeure les carrières de l'ingénierie dans les bureaux d'études.

Le plan d'enseignement est conçu d'une manière à couvrir et assurer le développement des compétences fondamentales de base pour un ingénieur, des compétences complémentaires, linguistiques et de l'économie.

c) Autre information

Tous les sujets du programme sont enseignés en Français et ils sont ouverts aux étudiants Erasmus, sauf le stage pratique qui se déroule pendant l'été.

Le programme se déroule sur une période de 4 années, chacune ayant 2 semestres. Il faut avoir 240 ECTS obligatoires pour obtenir son diplôme.

d) Site web : <http://ing.pub.ro/en/education/licence/>

e) Person de contact : Mme. Camelia STANCIU, camelia.stanciu@upb.ro

f) Curriculum:

Année d'étude	Sem	Sujet	Nombres des heures par semaine				Stage	ECTS
			Cours	TD	TP	Projet		
BAC+1 Sujets obligatoires								
1	1	Analyse I	2	2				4
1	1	Algèbre linéaire, géométrie analytique et différentielle	2	2				4
1	1	Graphique technique et infographie I	1		2			4
1	1	Chimie	2	1				4
1	1	Science et ingénierie des matériaux I	2		1			4
1	1	Communication I	1	1				2
1	1	Techniques et systèmes de travail collaboratif I		2				2
1	1	Education physique et sport I			1			1
1	2	Analyse II	2	2				5
1	2	Physique I	2	1	1			4
1	2	Mécanique I	2	1				3
1	2	Graphique technique et infographie II	2		2			4
1	2	Science et ingénierie des matériaux II	2		1			4
1	2	Langages de programmation	2		2			3
1	2	Communication II	1	1				2
1	2	Techniques et systèmes de travail collaboratif II		2				2
1	2	Education physique et sport II			1			1
Sujets au choix (un sujet obligatoire parmi les deux)								
1	1	Informatique appliquée/ Probabilités et statistique mathématique	1		2			3
1	1	Langue Anglaise I / Langue Allemande I	1	1				2
1	2	Langue Anglaise II / Langue Allemande II		1				2
Sujets optionnelles								
1	1	Langue Roumaine (pour étudiants étrangers) I		2				2
1	1	English for Engineering Academic Study I	1	1				2
1	1	Langue française pour ingénieurs I		2				2
1	1	Psychologie de l'éducation	2	2				5
1	2	Langue Roumaine (pour étudiants étrangers) II		2				2
1	2	English for Engineering Academic Study II	1	1				2
1	2	Langue française pour ingénieurs I		2				2
1	2	Pedagogie 1	2	2				5
BAC+2 Sujets obligatoires								

2	1	Mathématiques pour ingénieurs I	2	2			4
2	1	Physique II	2		1		4
2	1	Resistance des matériaux I	2	2			4
2	1	Conception assiste par ordinateur	2		2		5
2	1	Electrotechnique	2	1			3
2	1	Mécanique II	2	1			3
2	1	Traitement des documents techniques I		2			2
2	1	Education physique et sport III			1		1
2	1	Microéconomie	1	1			2
2	2	Mathématiques pour ingénieurs II	2	2			4
2	2	Resistance des matériaux II	2	1			4
2	2	Procédés de fabrication I	2		1		4
2	2	Eléments des machines I	2		1		4
2	2	Méthodes numériques	2		2		3
2	2	Logiciels de génie mécanique I (conception corps solides)	2		1		3
2	2	Traitement des documents techniques II		2			2
2	2	Macroéconomie	1	1			2
Sujets au choix (un sujet obligatoire parmi les deux)							
2	1	Langue Anglaise III / Langue Allemande III		1			2
2	2	Langue Anglaise IV / Langue Allemande IV			1		1
2	2	Machines électriques/ Tolérance et contrôle dimensionnel	2		1		3
Sujets optionnelles							
2	1	Langue Roumaine (pour étudiants étrangères) III		2			2
2	1	Pedagogie 2	2	2			5
2	2	Langue Roumaine (pour étudiants étrangères) IV		2			2
2	2	Didactique de la spécialité	2	2			5
BAC+3 Sujets obligatoires							
3	1	Analyse par éléments finis	2		2		4
3	1	Thermodynamique technique	2	1	1		5
3	1	Mécanique des fluides	2	1			4
3	1	Systèmes de réglage automatique	2		1		4
3	1	Eléments des machines II	2		1	2	5
3	1	Procédés de fabrication II	2		1		3
3	1	Mécanique III	1	1			2
3	2	Transfert de chaleur et de masse	3	1	1		3
3	2	Dynamique des machines	2		2		3
3	2	Eléments des machines III (Transmissions mécaniques)	3		1		3
3	2	Mécanique des fluides et machines hydrauliques (pompes,...)	2		2		3
3	2	Mécanique structurale	2	1	1		3
3	2	Eléments des machines III (projet de transmissions mécaniques)				2	2
3	2	Stage industriel en domaine					4
3	2	Stage industriel de spécialité					4
3	2	Management (Fondements du management)	1	1			2
Sujets au choix (un sujet obligatoire parmi les deux)							

3	1	Resistance des matériaux III (Mécanique appliquée des matériaux)/ Technologies des matériaux	2		1			3
3	2	Mesures mécaniques/ Systèmes d'acquisitions et interfaces	2		1			3
Sujets optionnelles								
3	1	Administration des affaires	1	1				2
BAC+4 Sujets obligatoires								
4	1	Logiciels de génie mécanique II (conception thermique)	2		2			5
4	1	Tribologie	2		2			4
4	1	Conception des produits innovants	2			2		4
4	1	Asservissement hydraulique et pneumatiques	2		1			4
4	1	Electronique appliquée	2		1			4
4	1	Machines thermiques I (Moteurs à combustion interne)	2	1	1	1		6
4	2	Machines thermiques II (Turbines et Générateurs de vapeurs)	2	1	2			5
4	2	Réfrigération et conditionnement de l'air	2	1	2			5
4	2	Projet de fin d'études				8		4
4	2	Stage pour projet fin d'étude (60h)						6
4	2	Compresseurs et ventilateurs	2			1		3
Sujets au choix (un sujet obligatoire parmi les deux)								
4	1	Assurance de la qualité/ Management des projets industriels	2		1			3
4	2	Eco-conception/ Energie renouvelables (solaire thermique)	2			1		3
4	2	Génie de l'environnement/ Optimisation en génie mécanique	2	1				4



4. Field of study: Chemical Engineering

4.1 Chemical Engineering (taught in English)

a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The program of Chemical Engineering taught in English at the Faculty of Engineering in Foreign Languages aims at providing participants with competencies and skills according to the European Qualifications Framework regarding the area of Chemical Engineering. The subjects studied are grouped in three main directions: ***general engineering subjects***, ***subjects regarding the wider knowledge of the chemistry domain*** and ***subjects of higher specialization in specific areas of chemical engineering*** (by means of a series of optional disciplines). During the 4 years of the Bachelor cycle, the students are going to acquire both theoretical knowledge, as well as practical skills, by a balanced curriculum that includes lectures, tutorials and laboratory works. By a series of optional classes, they can target their knowledge either on ***polymer science*** (synthesis, characterization, processing, materials and biomaterials) or ***organic chemistry*** (natural products, catalysis, tensioactive compounds, dyes).

After completing the Bachelor cycle, the studies can be continued in a Master cycle – both at the Faculty of Engineering in Foreign Languages and at the Faculty of Applied Chemistry and Materials Science (in English, as well as in Romanian) or abroad. Graduates can work in all areas of chemistry and chemical engineering, such as: research, manufacture, characterization or sales of chemical products. Examples of hiring industries are: petrochemistry, organic chemistry, rubber industry, plastics industry, cosmetics, paints, environmental protection, polymer recycling, biomaterials, etc.

c) Other information

- ✓ This program yearly receives incoming Erasmus+ and other foreign students for one semester or one entire year.
- ✓ There are several partnerships with various research and production units where students may participate in internships.
- ✓ Several university research centers offer possibilities of participating in outstanding *research activities* for both students and graduates. For example, the ***Center for Advanced Research on New Materials, Products and Innovative Processes - CAMPUS***, integrates several labs, equipped at European standards, that cover various scientific areas. The Advanced Polymer Materials Group (APMG), as part of the Faculty of Applied Chemistry and Materials Science from the University POLITEHNICA of Bucharest, dedicates a lot of research to the field of Polymer Science and Engineering.

d) **Website:** <http://ing.pub.ro/en/education/licence/>

e) **Contact person:** Mrs. Adriana Lungu, adriana.lungu@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				ECTS
			Lecture	Tutorial	Labwork	Project	
First Year Compulsory subjects							
		Basic Subjects					
1	1	Calculus 1	3	1			6
1	1	Linear Algebra	2	1			4
1	1	Inorganic Chemistry 1	3	2			4
1	1	Analytical Chemistry 1	2		3		4
		Basic Engineering Courses					
1	1	Introduction to information technology	1		2		3
1	1	Engineering Graphics I	1		1		3
		Humanities and Social Sciences					
1	1	Professional Communication		2			2
1	1	European Culture and Civilization 1	1	1			2
		Optional Subjects					
		Humanities and Social Sciences					
1	1	Foreign Language B (Spanish Language I)		2			2
1	1	Physical Education I		2			2
		Free Choice Subjects					
		Complementary topics					
1	1	English for Engineering Academic Study 1		2			2
		Humanities and Social Sciences					
1	1	Romanian Language and Culture (for foreigners)		2			2
		Compulsory subjects					
		Basic Subjects					
1	2	Calculus 2	3	1			6
1	2	Physics I	2		1		5
1	2	Inorganic Chemistry 2	2	2	2		5
1	2	Analytical Chemistry 2	2		2		3
1	2	Programming Languages	1		1		3
		Basic Engineering Courses					
1	2	Transition Metals Chemistry	2	1			2
1	2	Theoretical Mechanics	1	1			2
		Specialties					
1	2	Collaborative Work 1		2			2
		Humanities and Social Sciences					2
1	2	European Culture and Civilization 2	1	1			



		Optional Subjects					
		<i>Humanities and Social Sciences</i>					
1	2	Foreign Language B (Spanish Language 2)		2			2
		Free Choice Subjects					
		<i>Complementary topics</i>					
1	2	English for Engineering Academic Study 2	1	1			2
		<i>Humanities and Social Sciences</i>					
1	2	Romanian Language and Culture (for foreigners)		2			2
1	2	Pedagogy I	2	2			5
		Second Year Compulsory subjects					
		<i>Basic Subjects</i>					
2	1	Probabilities and Statistics	1	1			2
2	1	Physics 2	2		1		4
2	1	Physical Chemistry 1	3	2			5
2	1	Physical Chemistry 1 Lab			2		2
2	1	Organic Chemistry 1	3	1	2		6
		<i>Basic Engineering Courses</i>					
2	1	Strength of Materials 1	2	1			4
2	1	Electrical Engineering 1	2	1			3
		<i>Specialties</i>					
2	1	Collaborative Work II		2			2
		<i>Economics</i>					
2	1	Microeconomics	1	1			2
		Free Choice Subjects					
		<i>Humanities and Social Sciences</i>					
2	1	Romanian Language and Culture (for foreigners)		2			2
		Compulsory subjects					
		<i>Basic Subjects</i>					
2	2	Physical Chemistry 2	3	2			6
2	2	Physical Chemistry 2 Lab			2		4
2	2	Organic Chemistry 2	3	1	2		7
		<i>Basic Engineering Courses</i>					
2	2	Instrumental Analysis in Organic Chemistry	2		2		6
2	2	Numerical Methods	2		2		3
		<i>Specialties</i>					
2	2	Technical Writing		2			2
		<i>Economics</i>					
2	2	Macroeconomics	1	1			2
		Free Choice Subjects					
		<i>Humanities and Social Sciences</i>					
2	2	Romanian Language and Culture (for foreigners)		2			



Third Year Compulsory subjects							
Basic Subjects							
3	1	Organic Chemistry 3	2		2		4
Basic Engineering Courses							
3	1	Transport Processes 1	3	1	2		6
3	1	Organic and Composite Materials	3		2		5
3	1	Electrochemistry	2		2		4
3	1	Reaction Mechanisms	2	1			4
3	1	Organic Technologies	2		2		5
Management							
3	1	Money and Banking	1	1			2
Compulsory subjects							
Basic Engineering Courses							
3	2	Inorganic Industrial Chemistry	2	1			2
3	2	Biochemistry	2		2		3
3	2	Organic Technologies I	2		2		5
3	2	Oxide and Metallic Materials	3		2		4
3	2	Macromolecular Compounds I	3		2		4
3	2	Unit Operations I	2	1	1		4
Specialties							
3	2	Practical Workshop					6
Management							
3	2	Business Administration	1	1			2
Fourth Year Compulsory subjects							
Basic Engineering Courses							
4	1	Unit Operations 2	3	1	1	1	6
4	1	Macromolecular Compounds 2	3		1		5
Management							
4	1	Fundamentals of Management	1		1		2
Optional Subjects							
Specialties A – Organic Chemistry^{*)}							
4	1	Pesticides	2				3
4	1	Stereochemistry	2	1			3
4	1	Drugs	2				2
4	1	Fine Organic Syntheses			5		5
4	1	Dyes	2		2		4
Specialties B – Polymer Science^{*)}							
4	1	Polymer Physics	3		3		6
4	1	Technologies of Polymer Synthesis	3		3		6
4	1	Biopolymers and Bio-composites	2		2		5
Compulsory subjects							
Specialties							
4	2	Chemical Reactors	3		2	1	6
4	2	Diploma Project				4	1-
Management							
4	2	Industrial Management	1	1			2



Optional Subjects							
<i>Specialties A – Organic Chemistry^{*)}</i>							
4	2	Petrochemical and Carbochemical Technologies	2		1		2
4	2	Tensioactive Compounds	2		2		3
4	2	Catalysis	2		2		3
4	2	Natural Products	2		1		2
4	2	Pollution and Depollution	2				2
<i>Specialties B – Polymer Science^{*)}</i>							
4	2	Polymer Processing	3		2		4
4	2	Industrial Polymer Materials	3		2		3
4	2	Adhesives, Paints and Putties	2		1		3
4	2	Polymer Recycling	2		1		2

^{*)} – specialties A and B are alternating every other year



5. Field of study: Engineering and Management

5.1 Business Engineering and Management (taught in English)

a) Faculty of Entrepreneurship, Business Engineering and Management

b) Short description and main objectives:

The Business Engineering and Management Bachelor's Degree Program offers an undergraduate specialization which is highly appreciated by employers of the national and international labour markets. The courses provided in this program ensure an understanding of the foundations of management and business, encouraging students to develop general and specific competences, such as creativity, analytical thinking, independence, teamwork, goal setting and problem solving. As a distinguishing element, the program offers a wide range of entrepreneurial, technical and management competences, proving to be a valuable solution for a successful management or entrepreneurship career. Also, the students can access study mobilities by the faculty's development programs and, in addition, they will receive the benefits of a multicultural, global learning environment, due to the interactions with international students enrolled to this program.

c) Other information

All the courses of the program are open for Erasmus incoming students.

d) Website: <http://faima.pub.ro/programe.php?hl=ro>

e) Contact person: Mrs. Dana Corina DESELNICU, dana.deselnicu@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Mathematical Analysis	2	2	0	0		5
1	1	Physics 1	2	0	2	0		5
1	1	Chemistry	2	0	2	0		5
1	1	Computer Programming 1	2	0	2	1		5
1	1	Fundamentals of Economics 1	2	1	0	0		4
1	1	English for Engineering 1	1	1	0	0		3
1	1	Physical Education and Sport 1	0	2	0	0		3
1	2	Linear Algebra, Analytic and Differential Geometry	2	2	0	0		4
1	2	Physics 2	2	0	2	0		4
1	2	Fundamentals of Economics 2	2	1	0	0		4
1	2	Computer Programming 2	2	0	2	0		4
1	2	Biotechnology	2	1	0	0		4
1	2	English for Engineering 2	1	1	0	0		3
1	2	Introduction to Materials Science and Engineering	2	0	1	0		4
1	2	Physical Education and Sport 2	0	2	0	0		1
Optional subjects								
1	1	Entrepreneurial Culture	1	1	0	0		2
1	1	Corporate Social Responsibility	1	1	0	0		2
1	2	Sociology	2	1	0	0		2
1	2	Psychology	2	1	0	0		2
Facultative subjects								
1	1	The Psychology of Education	2	2	0	0		5
1	1	German Language 1	1	1	0	0		3
1	2	Pedagogy 1	2	2	0	0		5
1	2	German Language 2	1	1	0	0		3
Second Year Compulsory subjects								
2	1	Statistics and Stochastics	2	2	0	0		5



2	1	Mechanics and Strength of Materials	2	0	2	0		4
2	1	Production, Transmission and Distribution of Energy	2	0	2	0		4
2	1	Fundamentals of Electrical Engineering	2	2	0	0		5
2	1	Fundamentals of Management	2	1	0	0		5
2	1	English for Engineering 3	0	2	0	0		2
2	1	Physical Education and Sport 3	0	2	0	0		1
2	2	Advanced Mathematics for Decision Making	2	2	0	0		5
2	2	Mechanical Technologies and Equipment	2	0	2	0		5
2	2	Marketing	2	2	0	0		4
2	2	Electronic Measurements and Technical Systems	2	0	2	0		5
2	2	Applied Informatics	2	0	1	0		4
2	2	English for Engineering 4	0	2	0	0		2
2	2	Physical Education and Sport 4	0	1	0	0		1
Optional subjects								
2	1	Processing of Business Data	2	2	0	0		5
2	1	Algorithms and Data Structures	2	1	2	0		3
2	2	Statistical Techniques in Business Processes	2	2	0	0		4
2	2	Economic Statistics	2	2	0	0		4
Facultative subjects								
2	1	Pedagogy 2	0	2	0	0		2
2	1	German Language 3	0	0	2	0		2
2	2	Didactics of the specialization	2	2	0	0		5
2	2	German Language 4	0	2	0	0		4
Third Year Compulsory subjects								
3	1	Human Resources Management	2	2	0	0		5
3	1	Operations and Supply Chain Management	3	2	0	1		5
3	1	Quality Engineering	2	2	0	0		5
3	1	Computer Aided Design and Technical Drawing	2	0	2	0		5
3	1	Risk Assessment Techniques in Industrial Organizations	2	2	0	0		4
3	2	Management of Technology and	2	2	0	0		4



		Innovation						
3	2	Financial Management	2	2	0	0		4
3	2	Business Research Methods	2	2	0	0		3
3	2	Organizational Behaviour	2	1	0	0		2
3	2	Industrial Logistics	2	2	0	0		4
3	2	Business Law	2	1	0	0		2
3	2	Practical Stage (12 weeks)	0	0	0	2	360	8
Optional Subjects								
3	1	Management Accounting	2	2	0	0		3
3	1	Financial Accounting	2	2	0	0		3
3	2	Cost-Benefit Analysis for Business	2	2	0	0		3
3	2	Business Forecasting	2	2	0	0		3
Facultative subjects								
3	1	Computer aided training	1	1	0	0		2
3	1	Pedagogical practice in compulsory pre-university education (1)	0	3	0	0		3
3	1	Business English	0	2	0	0		4
3	1	German Language 5	0	2	0	0		4
3	2	Pedagogical practice in compulsory pre-university education (2) (12 weeks)	0	3	0	0		2
3	2	Student class management	1	1	0	0		3
3	2	Graduation Exam - Level 1	0	0	0	0		5
3	2	Business English	0	2	0	0		4
3	2	German Language 6	0	2	0	0		4
Fourth Year Compulsory subjects								
4	1	Project Management	2	0	2	1		5
4	1	Business Process Modelling and Simulation	2	0	2	0		4
4	1	Business Integrated Information Systems	2	0	2	0		5
4	1	Entrepreneurship	2	2	0	0		5
4	1	Intellectual Property	2	1	0	0		3
4	1	Organizational Design and Change Management	2	1	0	0		4
4	2	International Law	2	1	0	0		4
4	2	Factory Planning and Ergonomics	2	2	0	2		5



4	2	Electronic Businesses	2	2	0	0		4
4	2	Business Start-up with Innovative Products	2	2	0	1		5
4	2	Management Communication	2	2	0	0		4
4	2	Development of Graduate Project	0	0	0	4		4
4	2	Practical stage for development of Graduate Project (60 hours)	0	0	0	0	60	4
Optional Subjects								
4	1	Sustainable Development	2	1	0	0		4
4	1	Eco-technology	2	1	0	0		4
Facultative Subjects								
4	1	Business English	0	2	0	0		4
4	1	German Language 7	0	2	0	0		4
4	2	Business English	0	2	0	0		4
4	2	German Language 8	0	2	0	0		4
		Diploma Exam	0	2	0	0		10

5.2 Mechanical Engineering and Management (taught in German)



a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The Faculty of Engineering in Foreign Languages (FILS) established and developed the bachelor program “*Mechanical Engineering and Management*” together with renown Professors of Technical University of Darmstadt, Technical University of Braunschweig, the University of Applied Sciences of München and offers an interdisciplinary combination disciplines from business, engineering and law sciences for students which already master German as well as for those who graduate a preparatory year with intensive teaching of German with accent on technical language and communication.

c) Other information

- All the courses of the program are open for Erasmus incoming students and the program has incoming and outgoing Erasmus students for one or two semester each year.
- The bachelor program is carried out in cooperation with companies as Stein & Partner Management Consulting, Hewlett-Packard Enterprise und APT Resources and Services.
- The Bachelor Thesis can be carried out in cooperation with enterprises or foreign universities.

d) Website: <http://ing.pub.ro/en/education/licence/>

e) Contact person: Mrs. Laura TRIFAN, laura.trifan@upb.ro

f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Mathematik 1a	2	2	-	-		3
1	1	Mathematik 1b	2	1				3
1	1	Grundlagen der Wirtschaftslehre	1	1	-	-		2
1	1	Allgemeine Wirtschaftslehre 1	1	1	-	-		3
1	1	Betriebswirtschaftslehre 1	2	1	1	-		3
1	1	Technische Mechanik 1	3	2	-	-		5
1	1	Physik	2	-	1	-		3
1	1	Buchführung	2	-	-	-		3
1	1	Technologie der Fertigungsverfahren	2	-	1	-		4
1	1	Angewandte Informatik 1	2					2
1	2	Mathematik 2	4	2				6
1	2	Betriebswirtschaftslehre 2	1	1				2
1	2	Technische Mechanik 2	2		2			4
1	2	Wirtschaftsinformatik	1	1				3
1	2	Angewandte Informatik 2	-	-	2			2
1	2	Elektrotechnik u. elektrische Maschinen	2	-	1			3
1	2	Werkstoffkunde und –prüfung	2	-	1			3
1	2	Vertragsrecht	2	-	-			3
1	2	Deutsch Interkulturell 1		2				2
Elective subjects								
1	1	Fachkommunikation 1	2					2
1	1	Expression et communication 1	2					2
1	2	Fachkommunikation 2		2				2
1	2	Expression et communication 2		2				2
Facultative subjects								
1	1	Psihologia educației (Ro)	2	-	-	-		2
1	1	Landeskunde 1		2				2

Second Year Compulsory subjects								
2	1	Mathematik 3 für MB	2	2				4
2	1	Technische Thermodynamik 1	2	1				4
2	1	Mechanismen u. Maschinenelemente 1	2		2			5
2	1	Projekt Mechanismen und Maschinenelemente 1				2		2
2	1	Technisches Zeichnen und Infografik I	2			2		4
2	1	E-Commerce	1	2				3
2	1	Wahrscheinlichkeitstheorie und mathematische Statistik 1	2	2				3
2	1	Sport 1		2				3
2	2	Technische Thermodynamik 2	2	2				5
2	2	Mechanismen u. Maschinenelemente 2	4		2			6
2	2	Projekt Mechanismen u Maschinenelemente 2				2		3
2	2	Numerische Berechnungsverfahren	1	2				4
2	2	Investition und Finanzierung	2					2
2	2	Marketing	2					2
2	2	Operations Research	2	2				3
2	2	Wahrscheinlichkeitstheorie und mathematische Statistik 2	2	2				3
Elective subjects								
2	1	Unternehmenskommunikation 1	2					2
2	1	Wirtschaftsenglisch 1	2					2
2	2	Unternehmenskommunikation 2		2				2
2	2	Wirtschaftsenglisch 2		2				2
Facultative subjects								
2	1	Landeskunde 2		2				2
2	2	Landeskunde 3		2				2
Third Year Compulsory subjects								
3	1	Mechanische Schwingungen	3	2				6
3	1	Regelungstechnik	3	1				4
3	1	Technische Strömungslehre	2	1	1			4
3	1	Unternehmensführung	2					2

3	1	Wirtschafts- und Finanzpolitik	2					2
3	1	Produktion und Supply Chain Management	2					3
3	1	Empirische Wirtschaftsforschung	2					2
3	1	Seminar VWL/BWL		2				3
3	1	Moderieren und Präsentieren		2				2
3	2	Kosten- und Leistungsrechnung	2	1				2
3	2	Produkt Design Projekt	1			2		2
3	2	Modellierung und Simulation im MB	1		2			2
3	2	Wärme- und Stoffübertragung	2		2			3
3	2	Werkzeugmaschinen und Industrieroboter	2		2			3
3	2	Einführung in das wissenschaftliche Arbeiten		2				2
3	2	Technisches Praktikum (240 h)					20	4
3	2	Technisches Praktikum (120 h)					10	4
3	2	Einführung in die Makroökonomie	2	1				2
3	2	Bilanzierung	2					2
Elective Subjects								
3	1	Unternehmensrecht	2					2
3	1	Arbeitsrecht	2					2
3	2	Produktdatentechnologie	2	2				4
3	2	Procédés de fabrication	2	2				4
Facultative subjects								
3	1	Pedagogie 1 (lb. română)	2	2				4
3	1	Logistik	2					2
3	2	Bionik	2					2
3	2	Pedagogie 2 (lb. română)	2					2
Fourth Year Compulsory subjects								
4	1	Verbrennungskraftmaschinen	2		2			5
4	1	Virtual Prototype 1	2		2			4
4	1	Modellierung und Systemanalyse	1		2			4
4	1	Projektmanagement	2	1				4

4	1	Öffentlichkeitsarbeit		2				2
4	1	Projektmanagement	2	2				4
4	1	Wirtschaftstheorie 1	2	1				3
4	1	Ökonometrie	2	1				2
4	2	Geschäftskompetenzen				2		2
4	2	Qualitätssicherung / F&E	2					2
4	2	Technische Dokumentation	2					2
4	2	Wirtschaftstheorie 2	2			1		3
4	2	Controlling	2					2
4	2	Arbeitsrecht	2					2
4	2	Erarbeitung Bachelor Thesis					8	5
4	2	Praktikum Bachelor Thesis						5
Elective Subjects								
4	1	Maschinendynamik	2		2			4
4	1	Angewandte Informatik (fr.)	2		2			4
4	1	Betriebliche Organisation	2					2
4	1	General Management	2					2
4	2	Produkt Design Projekt 1				3		3
4	2	Webdesign				3		3
4	2	Messtechnik für MB	2			2		4
4	2	Tribologie	2			2		4
Facultative subjects								
4	1	Unterrichtspraktikum (in rumänischer Sprache)				2		2
4	1	Methodik des Faches (in rumänischer Sprache)	2					2
4	2	Business Plan		2				2
4	2	Europäische Studien	2					2



5.3 Electrical Engineering and Management (taught in German)

a) Faculty of Engineering in Foreign Languages

b) Short description and main objectives:

The Faculty of Engineering in Foreign Languages (FILS) established and developed the bachelor program “*Electric Engineering and Management*” together with renown Professors of Technical University of Darmstadt, Technical University of Braunschweig, the University of Applied Sciences of München and it offers an interdisciplinary combination of disciplines of business, engineering and law for students who already master German, as well as for those who graduate from a preparatory year with intensive teaching of German with stress on technical language and communication.

c) Other information

- All the courses of the program are open for Erasmus incoming students and the program has incoming and outgoing Erasmus students for one or two semesters each year.
- The bachelor program is carried out in cooperation with reputed companies: Stein & Partner Management Consulting, Bosch Romania, Selgros Cash and Carry Romania, Honeywell Garret Romania, IBM Romania, Microsoft Romania, Hewlett-Packard Enterprise und APT Resources and Services.
- The Bachelor Thesis can be carried out in cooperation with enterprises or foreign universities.

d) Website: <http://ing.pub.ro/en/education/licence/>

e) Contact person: Mr. Cristian MUSTAȚĂ, cristian.mustata@upb.ro

f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Mathematik 1	4	2	-	-		6
1	1	Physik	2	1				3
1	1	Informatik 1	2					2
1	1	Grundlagen der Wirtschaftslehre 1	1	1		-		2
1	1	Betriebswirtschaftslehre I	1	1				3
1	1	Grundlagen der Elektrotechnik 1	3	2		-		6
1	1	Buchführung	2	1		-		3
1	1	Datenbanken		2				3
1	2	Mathematik 2	4	2				6
1	2	Informatik 2			2			2
1	2	Betriebswirtschaftslehre II	1	1				2
1	2	Halbleiterbauelemente	2		2			4
1	2	Grundlagen der Elektrotechnik 2	3	2				6
1	2	Wirtschaftsinformatik	1	1				3
1	2	Vertragsrecht	2					3
Elective subjects								
1	1	Fachkommunikation 1		2				2
1	1	Expression et communication 1		2				2
1	2	Deutsch Interkulturell 1		2				2
1	2	Fachkommunikation 2		2				2
1	2	Expression et communication 2		2				2
Facultative subjects								
1	1	Erziehungspsychologie (in rumänischer Sprache)	2	-	-	-		2
Second Year Compulsory subjects								
2	1	Mathematik 3 für ETiT	4	2				6
2	1	Grundlagen der Elektrotechnik 3	3	2				6
2	1	Elektrische Messtechnik	2		1			4

2	1	Objektorientierte Softwareentwicklung	2		2			4
2	1	Kosten- und Leistungsrechnung	2	1				3
2	1	Statistik I	2	1				3
2	1	Unternehmensrecht	2					2
2	2	Sensoren und Aktuatoren	2		1			3
2	2	Technische Mechanik	2	2				4
2	2	Digitalsignalverarbeitung	3		1			5
2	2	e-Commerce	1		2			4
2	2	Grundlagen der Energietechnik	2	1				2
2	2	Marketing	2					2
2	2	Operations Research	2	1				3
2	2	Unternehmensführung	2					2
2	2	Statistik II	2	1				3
Elective subjects								
2	1	Unternehmenskommunikation 1	2					2
2	1	Wirtschaftsenglisch 1	2					2
2	2	Unternehmenskommunikation 2		2				2
2	2	Langue francaise pour ingenieurs		2				2
Facultative subjects								
2	1	Landeskunde		2				2
2	1	Fredsprache		2				2
2	1	Sport		2				2
Third Year Compulsory subjects								
3	1	Regelungstechnik 1	3	1				4
3	1	Logischer Entwurf	3	1				5
3	1	Investition und Finanzierung	2					2
3	1	Wirtschafts- und Finanzpolitik	2					2
3	1	Produktion und Supply Chain Management	2					2
3	1	Marketingforschung	2					3
3	1	Moderieren und Präsentieren		2				2
3	2	Numerische Berechnungsverfahren	1	2				4

3	2	Analoge Schaltungen	2	2				3
3	2	Softwaresysteme	2	1				2
3	2	Einführung in das wissenschaftliche Arbeiten		2				2
3	2	Bilanzierung	2					2
3	2	Einführung in die Makroökonomie	1	1				2
3	2	Werkstoffe der Elektrotechnik	2		2			3
3	2	Praktikum					30	6
Elective subjects								
3	1	Leistungselektronik	3					4
3	1	Grundlagen der Nachrichtentechnik	3	1				4
3	1	Sport		2				2
3	2	Rechnersysteme 1	3	1				3
3	2	Elektrische Maschinen und Antriebe	2		2			3
Facultative subjects								
3	1	Pädagogik 1 (in rumänischer Sprache)	2	2				4
3	1	Logistik	2					2
3	1	Wirtschaftsenglisch		2				2
3	2	Grundlagen der Wirtschaftslehre 2	2					2
3	2	Bionik	2					2
3	2	Pädagogik 2 (in rumänischer Sprache)	2					2
Fourth Year Compulsory subjects								
4	1	Übertragungstechnik	2		2			5
4	1	Modellierung und Systemanalyse	1		2			4
4	1	Seminar BWL/VWL		3				3
4	1	Öffentlichkeitsarbeit		2				2
4	1	Hochfrequenztechnik	2	1	1			5
4	1	Projektmanagement	2	1				4
4	1	Wirtschaftstheorie I	2	1				3
4	1	Ökonometrie	2					2
4	1	Betriebliche Organisation	2					2
4	2	Geschäftskompetenzen				2		2

4	2	Qualitätsmanagement	2					2
4	2	Elektrische Energieversorgung	2	1				3
4	2	Controlling	2					2
4	2	Hochspannungstechnik	2	1				4
4	2	Wirtschaftstheorie II	2			2		3
4	2	Technische Dokumentation	2					2
4	2	Arbeitsrecht	2					2
4	2	Bachelorthesispraktikum					8	10
Facultative subjects								
4	1	Unterrichtspraktikum (in rumänischer Sprache)			2			2
4	1	Methodik des Faches (in rumänischer Sprache)	2					2
4	2	Business Plan		2				2
4	2	EBCL		3				3
4	2	General Management II		4				4
4	2	Europäische Studien	2					2



6. Field of study: Aerospace Engineering

6.1 Air Navigation (taught in English)

a) Faculty of Aerospace Engineering

b) Short description and main objectives:

The program provides the theoretical and applied knowledge for engineers in the field of aerospace engineering. Air Navigation was established in 2009, with the objective to be adapted to the needs of current civil aviation and aligned to the International Civil Aviation Organization – Next Generation of Aviation Professionals (ICAO NGAP) strategy. The Air Navigation bachelor program is taught entirely in English and starts separately from the First Year. The bachelor program in Air Navigation targets students attracted to the Aerospace Engineering domain. The AN program includes the process of planning and controlling the movement of an aircraft and mechanical engineering.

b) Other information

All the courses of the program are open for Erasmus incoming students.

c) **Website:** <http://www.aero.pub.ro/wordpress/index.php/en/bachelor-programs-2/>

d) **Contact person:** Mr. Octavian Thor PLETER, octavian.pleter@upb.ro



e) Curriculum:

Year	Sem	Subject name	Weekly number of hours				Practice	ECTS
			Lecture	Tutorial	Labwork	Project		
First Year Compulsory subjects								
1	1	Differential and Integral Calculus	2	2				4
1	1	Algebra	2	2				4
1	1	Programming Languages 1	2		2			4
1	1	Aircraft Materials	2		2			4
1	1	Atmosphere Physics	2	1				4
1	1	Descriptive Geometry	2		2			4
1	1	Aviation English 1		2				2
1	2	Geometry	2	2				4
1	2	Mechanics (Matter, Statics, Kinematics)	2	1	1			4
1	2	Programming Languages 2	2		2			4
1	2	Engineering Drawings, Diagrams, Standards	2		2			4
1	2	Electrical Fundamentals	2	2				4
1	2	Meteorology	2		1			4
1	2	Aviation English 2		2				2
Optional Subjects								
1	1	Geomatics	2	1				4
1	1	Astronomy	2	1				4
1	2	Aviation Legislation and Regulations	2	1				4
1	2	Aviation International and National Requirements	2	1				4
Second Year Compulsory subjects								
2	1	Differential Equations	2	2				4
2	1	Solid Dynamics	2	2				4
2	1	Fluid Dynamics	2	1	1			4
2	1	Electrical Machines	2	1	1			4

2	1	Mechanical Engineering	2	1				4
2	1	Fundamentals of Navigation	2	1				3
2	2	Statistics and Probability Theory	2	2				4
2	2	Calculus (Numerical Methods)	2		2			4
2	2	Microprocessors and Microcontrollers	2		1			4
2	2	Aerodynamics and Theory of Flight	2	1	1			4
2	2	Strength of Materials	2		2			4
2	2	Electronic Circuits	2		2			4
2	2	Aeronautical Charts	1	1				3
Optional Subjects								
2	1	Human Factors	1	2				3
2	1	Human Performance	1	2				3
2	1	Programming Languages 3	1	1		1		4
2	1	Software Engineering	1	1		1		4
2	2	Optics and Acoustics	2		1			3
2	2	Vibrations and Noise	2		1			3
Third Year Compulsory subjects								
3	1	Thermodynamics	2	2				4
3	1	Flight Dynamics and Stability	2			2		4
3	1	Digital Avionics	2	1	1			4
3	1	Composite Materials	2		2			4
3	1	Business Strategy	2	1				4
3	1	Electrical Power Systems	2		2			4
3	1	Aeronautical Information	1		1			3
3	2	Electronic Flight Instrument Systems	2		1			3
3	2	Flight Controls	2	2				3
3	2	Aircraft Structure and Systems	2	2				3
3	2	Financial Accounting	2	2				3
3	2	Interchange of Aeronautical Data	2		2			3
3	2	Airport Operations and Navigation	2	1				3
3	2	Navigation Systems Databases	1	1				3



3	2	Internship (30 hours/week *12 weeks)					30	6
Optional Subjects								
3	1	Safety Analysis	1	1				3
3	1	Quality Assurance	1	1				3
3	2	Aviation Databases	2			1		3
3	2	Computer Interfacing	2			1		3
Fourth Year Compulsory subjects								
4	1	Systems Engineering 1	2	1				4
4	1	Automatic Flight Control	2	1		1		3
4	1	Turbine Engines	2		2			4
4	1	Air Navigation Services	2	1				4
4	1	Radio Navigation Systems	2		2			3
4	1	Flight Operations	1	1				2
4	1	Aircraft Maintenance	2	1				3
4	1	Project Preparation 1				3		4
4	2	Systems Engineering 2	2	1				3
4	2	Avionics Integrated Systems	2	2				4
4	2	Management	2	2				4
4	2	Surveillance Systems (Radars)	2	1	1			4
4	2	Air Traffic Management	2	2				4
4	2	Environmental Aviation	1	1				2
4	2	Procedures for Air Navigation Services OPS	1	1				2
4	2	Project Preparation 2				4		4
Optional Subjects								
4	1	Financial Management	2	1				3
4	1	Financial Analysis	2	1				3
4	2	Accident Investigation	2	2				3
4	2	Systemic Occurrence Analysis	2	2				3



7. Field of study: Industrial Engineering

7.1 Industrial Engineering (taught in English)

a) Faculty of Industrial Engineering and Robotics



b) Short description and main objectives:

The Industrial Engineering bachelor study program aims to prepare students so as to acquire technical, managerial and economic skills in order to be able to enroll in agile, sustainable, resilient companies designing and implementing competitive technologies and complex products in line with market requirements and regulations etc.

The study program covers basic engineering technical skills and deepens conception, design and implementation of manufacturing technologies, equipment and tools and it finally offers the enterprise strategy perspective with controlled processes and flows in compliance competitive conditions.

The educational plan is intended to ensure the development of professional competences for an engineer, complementary skills, linguistic and economic ones included.

c) Other information

All the lectures of the program are fully taught in English. The program welcomes ERASMUS students, usually the group being quite heterogeneous, supporting the fostering of the multicultural dimension. Teamwork is organized so as both home and incoming students should join it.

The program extends on 4 study years, each one having two semesters. A total of 240 compulsory ECTS are required to graduate the program.

Companies such as Siemens, Tenaris, Dr. Kocher, Hesper, AssaAbloy, Renault, General Turbo, Segula Technologies, Makita, Cameron, Arctic (Beko) a.s.o., offering internships for the 8-week long practical compulsory period, express the need for trained staff in terms of CAD/CAM, manufacturing processes modelling & control, production planning & scheduling, creativity in product development & design, intellectual property, quality assurance. Additive manufacturing linked to Robotics plays a central role in the students' projects, student teams being involved in design, manufacturing and processes improvement as topics of their final diploma papers.

d) Website: <http://www.imst.pub.ro>

e) Contact person: Mrs. Irina SEVERIN, irina.severin@upb.ro



f) Curriculum:

Year	Sem	Subject name	Weekly number of hours				ECTS
			Lecture	Tutorial	Labwork	Project	
First Year Compulsory subjects							
1	1	Technical Mechanics	2		2		5
1	1	General Chemistry	2		2		4
1	1	Mathematics 1	2	2			5
1	1	Computer Programming 1 *	3		2	1	5
1	1	Communication *	3		1		4
1	1	English language *	1		1		4
Optional Subjects							
1	1	Foreign Language 1 (French)	1		1		3
		Foreign Language 1 (Romanian)					
Elective Courses							
1	1	Sport		1			2
1	1	Ethics	2	2			5
Compulsory subjects							
1	2	Mechanics of Materials 1	2	2	1	0	6
1	2	Mathematics 2	2	2	0	0	6
1	2	General Physics	2	0	2	0	5
1	2	Materials Science	2	0	2	0	5
1	2	Computer Programming 2 *	3	0	2	1	5
Optional Subjects							
1	2	European Culture and Civilization	2	1			3
		European Integration					
Elective Courses							
1	2	Sport**		1			2
1	2	Practical stage	60 hours				2
1	2	Foreign Languages 2 - French	1		1		5
1	2	Foreign Languages 2 - English	1		1		5
1	2	Volunteering 1	70 hours				3
Second Year Compulsory subjects							
2	1	Technical Drawing	2	1	2		6
2	1	Mechanics of Materials 2	2	2	2		7
2	1	Probability and Statistics	2	2			5
2	1	Computer Aided Design 1	2		2	1	6



2	1	Databases *	2		2	2	6
Elective Courses							
2	1	Sport		1			2
2	1	Foreign Languages 3 - French	2		2		5
		Foreign Languages 3 - English	2		2		5
Compulsory subjects							
2	2	Tolerances Design	2		2		5
2	2	Materials Technology	2		2		5
2	2	Economics Lab	3	1			4
2	2	Computer Aided Design	3		1	2	6
		Machine Elements	2		1	2	6
Optional Subjects							
2	2	Modelling and Simulation	2		1		4
		Mechanical Vibrations					
Elective Courses							
2	2	Sport		1			2
2	2	Practical stage	60 hours / 2 weeks				2
2	2	Foreign Languages 4 - French	2		2		5
2	2	Foreign Languages 4 - Romanian	2		2		5
2	2	Volunteering 1	70 hours				3
Third Year Compulsory subjects							
3	1	Mechanical Systems Design	2		2		4
3	1	Instrumentation and Measurement	2		2		4
3	1	System and Project Management*	2			2	6
3	1	Manufacturing Processes 1	2		2		6
3	1	Computer Aided Engineering	3		1	2	6
Optional Subjects							
3	1	Biomechanical structures	2		2		4
		Finite Element Analysis of Solids					
Elective Courses							
3	1	Psychology	2		2		5
Compulsory subjects							
3	2	Production and Operation Management	2		1	2	5
3	2	Machine Tools	2		1	1	4
3	2	Robotics	2		2		4
3	2	Manufacturing Processes 2	3		1		2
3	2	Manufacturing Processes 2 - Project				2	2
3	2	Engineering Economics	2		2		4



3	2	Practical Internship	(300 hours/10 weeks)				6
Optional Subjects							
3	2	Supply Chain Management	2			2	3
		Industrial Management					
Elective Courses							
3	2	Volunteering 1	70 hours				3
Fourth Year Compulsory subjects							
4	1	Computer Aided Manufacturing	3		1	2	6
4	1	Industrial Logistics	3	0	1	2	7
4	1	Product Design and Development	2		2		5
4	1	Product Design and Development - Project				2	2
4	1	Integrated Production Systems	3		1	2	7
Optional Subjects							
4	1	Leadership Lab	1		1		3
		Internship Lab					
Elective Courses							
4	1	Intercultural cooperation	2	2			5
Compulsory subjects							
4	2	Entrepreneurship and Innovation*	4			2	6
4	2	Technology Strategy	3			3	7
4	2	Quality Assurance	3		1	2	7
4	2	Graduate project				4	4
4	2	Practical stage for Graduate Project/Interdisciplinary project European Project Semester				4	6
Elective Courses							
4	2	Organizational Management	2	2			5
4	2	Volunteering 4	70 hours				3
NB	* courses to be selected by Erasmus Incoming students, as part of the European Project Semester; other courses may be selected upon request **Two SPORT semesters will be mandatory for all four years						