Future competences pathways for marketing and ICT education (FuseIT)

A1: Analysis of existing programs and curricula at project targeted Digital Marketing

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CONTENTS

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Future competencies
pathways for marketing
and ICT education

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INTRODUCTION

"*The European Union needs to ensure that the knowledge, skills, competence and creativity of the European workforce - especially its ICT practitioners - meet the highest global professional standard and are constantly updated in a process of effective lifelong learning.*" - Michel Catinat, Head of Unit, ICT for Competitiveness and Industrial Innovation, DG Enterprise and Industry, European Commission, 2015.

ICT is among the leading sectors in Europe making an increasingly important contribution to the economic growth and jobs creation in advanced economies. Despite of that according E-skill in Europe Report (2014) the shortage of ICT specialists is increasing. The demand for them is expected to increase in the next few years. For example, at the moment large international banks are opening their departments in Lithuania and thus increase the demand for highly skilled ICT specialists. Experts assert that many young people are still choosing studies different from ICT. Some school graduates who might be interested in ICT studies in the future do not study subjects related to ICT, choosing a different specialization at school. Those who finish ICT studies have a decent qualification, which, however, should be more proficient. High schools and universities provide students with only basic ICT knowledge. If students want to work with a specific ICT, they must additionally study in centers of competence development. Current situation justifies need for multi-disciplinary approach to ICT education, new curriculum design and creation of opportunities (and conditions) to get required skills and knowledge's ASAP (e.g. by using online courses, lifelong learning principles and etc.). From looking of long period perspectives ICT departments will be forced to accept new approach to the ICT education which could help to decrease gaps and mismatches between needs of the labor market and societal needs (or expectations) of students. According to the European Schoolnet (EUN), skills in science, technology, engineering and mathematics (STEAM) are becoming an increasingly important part for basic literacy in today's knowledge economy. There is a need for one million additional researchers by 2020 in order to keep the Europe growing. Science education can no longer be viewed as only elite training for future scientists or engineers. It is clearly visible that only science-aware citizens can make informed decisions and engage in dialogue on science-driven societal issues. As stated in the recent Report of the European Commission (EC) – Science Education for Responsible Citizenship, knowledge of and about science are integral to preparing our population to be actively engaged and responsible citizens, creative and innovative, able to work collaboratively and fully aware of and conversant with the complex challenges facing society. Unfortunately, According EUN (2016) STEAM shortages are prevalent throughout Europe and apply to almost all technical jobs, including ICT.

Fuse IT (Future competences pathways for marketing and ICT education) project addresses the education and labor market requirements for professional skills and knowledge for students and graduates in university (including life-long learning activities). The project will analyze, design, develop and implement an up-to-date curriculum, e-learning materials, blended learning environment, ICT knowledge and skills self-evaluation and knowledge evaluation system simulations. The main intellectual outputs are related to marketing and future competencies and they will include:

1. Guidelines and study analysis in HE.
2. Curriculum development and localization.
3. E-learning material in separate parts for different subjects.
4. Simulations for education.
5. Self-evaluation and knowledge evaluation system.
6. Methodological guidelines

There are 2 level of beneficiaries which will be impacted by the project. The primary target group includes:

1. Students at university.
2. Educators, university staff, adult education centres etc.
3. Business sector

This target group will benefit from the project by participating in training and knowledge evaluation, which will improve their knowledge and competencies in the labour market. Educators and university staff are responsible for skills upgrade and raising of qualification. The secondary target group are universities which could use project results and implement updated marketing study program and/or implement separate parts of marketing in ICT studies. How to implement project results and other useful information will be described in the Methodological guidelines for implementation for implementation marketing module.

1. RESEARCH GOALS AND ACTIVITIES OF IO1

The main goals of IO1 are to develop major requirements for building the Fuse IT program by using the IO1 results for target groups' DMC (Digital Marketing Competence) needs on a base of EU labour market, existing experience of partners best practices in marketing and ICT. ICT are essential skills for future workplaces (The use of ICT has increased significantly in the last five years in more than 90% of workplaces), but advanced users like technicians, professionals (both 50%) and managers (30%) are required to have specialist digital skills, especially in larger workplaces. This study will also identify the skills gap in the Digital Marketing area in Lithuania, Latvia, Portugal and Romania. The training needs will then be becoming apparent and become a base for creating learning and certification solutions in the following activities of the project.

For those purposes there is the plan:

- **Prepare recommendations** about which competencies are required for target group being well prepared, self-confident, and competitive in the digital market. This will be done after analysis of existing programs and curricula at project targeted DMC (Digital Marketing Competences) available at EU partner organizations and comparing with Digital Competence Frameworks such as The Digital Competence Framework for Consumers and The Digital Competence Framework for Citizens 2.1 (1.1);
- **Prepare study analysis** of future digital marketing competences. This will be done by performing surveys and interviews: at least 50 marketing and ICT students interviewing through each HEI, marketing specialists interviewing, at least 10 through each HEI; DC training centres representatives interviewing, minimum 5 per participate country.
- **Prepare guidelines** how Digital Marketing competences could be integrated in ICT related subjects. This will be done by using target group' surveys and interviews results.

The outcomes of the IO1 will be used for building effective DMC training module based on mentoring of DMC needs. All project partners take active roles in delivering these results. As the leading partner, the VU is responsible for the smooth and efficient management of IO1 and selection of partners' institution on the leading role in special task of IO1.

The goal of IO1 A1 - analysis and report on the existing programs and curricula at project targeted DMC available at EU partner organizations and comparing with Digital Competence Frameworks.

Results of IO1 will be free available and could be easy integrated in other countries' universities or training organisations.

2. METHODOLOGY OF ANALYSIS

The leader IO1 is Vilnius university having huge experience by developing guidelines how to prepare study in each country designed template for analysis of existing programs and curricula at project targeted DMC available at EU partner organizations

Table 1. Template for analysis of existing programs and curricula at project targeted DMC available at EU partner organizations

Institution	
Programme name	
Programme type	
Group of study fields	
Study field	
Degree	
Duration	
Workload	
Language of instruction	
The objective of programme	
Career opportunities	
Key learning outcomes	
Course information	

VU is responsible for developing plan for this output, contacted continuously with partners and was responsible for preparation output report. Surveys and analysis is performed in all partner countries: Lithuania Latvia, Portugal and Romania. Partners VU, ISMA, UPB-CAMIS and IPT collected required data from domestic universities and fulfilled template- form (1 table).

Regarding Project proposal existing programs and curricula at project targeted DMC (Digital Marketing Competences) available at EU partner organizations should be compare with Digital Competence Frameworks such as The Digital Competence Framework for Consumers[1] and The Digital Competence Framework for Citizens 2.1[2] Comparison is realized by similitude of analysed study programmes and curricula's Key Learning Outcomes and Course Information with competences presented in Digital Competence Frameworks:

The list of DigCompConsumers competences (Digital Competence Framework for Consumers)

Table 2. DigCompConsumers competences

Competence areas	Competences
1. Pre-purchase	1.1 Browsing, searching and filtering information on goods and services
	1.2 Evaluating and comparing information on goods and services
	1.3 Recognising and evaluating commercial communication and advertisement
	1.4 Managing digital identity and profile in the digital marketplace
	1.5 Considering responsible and sustainable consumption in digital markets
2. Purchase	2.1 Interacting in the digital marketplace to buy and sell
	2.2 Participating in collaborative economy platforms
	2.3 Managing payments and finances through digital means
	2.4 Understanding copyrights, licences, and contracts of digital goods and services
	2.5 Managing personal data and privacy
	2.6 Protecting health and safety

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[1] Brečko, B., Ferrari, A., edited by Vuorikari R., Punie Y. (2016). The Digital Competence Framework for Consumers; Joint Research Centre Science for Policy Report; EUR 28133 EN; doi:10.2791/838886.

[2] https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_(online).pdf

Competence areas	Competences
3. Post-purchase	3.1 Sharing information with other consumers in the digital marketplace
	3.2 Asserting consumer rights in the digital marketplace
	3.3 Identifying digital consumer competence gaps and limits

The competences of of DigComp 2.1 (The Digital Competence Framework for Citizens 2.1)

Table 3. The competences of of DigComp 2.1

Competence area:	Competences:
1: Information and data literacy	1.1 Browsing, searching, filtering data, information and digital content
	1.2 Evaluating data, information and digital content
	1.3 Managing data, information and digital content
2: Communication and collaboration	2.1 Interacting through digital technologies
	2.2 Sharing throught digital technologies
	2.3 Engaging in citizenship through digital technologies
	2.4 Collaborating through digital technologies
	2.5 Netiquette
	2.6 Managing digital identity
3: Digital content creation	3.1 Developing digital content
	3.2 Integrating and re-elaborating digital content
	3.3 Copyright and licences
	3.4 Programming
4: Safety	4.1 Protecting devices
	4.2 Protecting personal data and privacy
	4.3 Protecting health and well-being
	4.4 Protecting the environment
5: Problem solving	5.1 Solving technical problems
	5.2 Identifying needs and technological responses
	5.3 Creatively using digital technologies
	5.4 Identifying digital competence gaps

Having on mind nature and purpose of study programmes and curriculas (to develop and educate firstly creator (developer), but not user) and noticing that DigCompConsumers competences (Table 2) is in substance integrated into list of competences of of DigComp 2.1 (Table 3), further comparison is provided through similitude with competences provided only on Table3.

For a more accurate comparison is invoked the scale of Levels in DigComp 2.1 (The Digital Competence Framework for Citizens 2.1) (Table 4).

Table 4. Main keywords that feature the proficiency levels

Levels in DigComp 1.0	Levels in DigComp 2.1	Complexity of tasks	Autonomy	Cognitive domain
Foundation	1	Simple tasks	With guidance	Remembering
	2	Simple tasks	Autonomy and with guidance where needed	Remembering
Intermediate	3	Well-defined and routine tasks, and	On my own	Understanding

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Future competencies
pathways for marketing
and ICT education

fuse IT

		straightforward problems		
	4	Tasks, and well-defined and non-routine problems	Independent and according to my needs	Understanding
Advanced	5	Different tasks and problems	Guiding others	Applying
	6	Most appropriate tasks	Able to adapt to others in a complex context	Evaluating
Highly specialised	7	Resolve complex problems with limited solutions	Integrate to contribute to the professional practice and to guide others	Creating
	8	Resolve complex problems with many interacting factors	Propose new ideas and processes to the field	Creating

Source: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_(online).pdf

The results of existing programs and curricula at project targeted DMC (Digital Marketing Competences) available at EU partner organizations internal project expert comparison with competences of DigComp 2.1 is provided in Chapter No.3

3. RESULTS OF ANALYSIS

After necessary information and data collection it is stated that from all researched academic units only Vilnius university has complete study programmes dedicated to marketing field. In the rest of analysed academic institutions there is range of additional study curriculums dedicated to marketing field and integrated to different study programmes. Collected data and information about analysed study programmes and curricula's is provided in Annexes No.1-4.

Vilnius university (*Vilniaus universitetas*, VU), the largest Lithuanian scientific institution, has deservedly earned the status of a leader in science and research. Established in 1579, the University comprises 12 faculties, 7 institutes, 2 university hospitals, 4 interfaculty centres of study and research. The student body of the University includes ~20,000 students. Year after year listed by QS World University Rankings among the top four per cent of the best universities in the world. Vilnius University has 4 study programmes dedicated to marketing field (see Annex. No.1). Comparison of study programmes is provided in Table No.5

Table 5. Comparison of study programmes at Vilnius university

Programme name	Digital Marketing	Marketing and Integrated Communication	Marketing and Trade Management	Global marketing
Programme type	Master`s Studies	Master`s Studies	Master`s Studies	Bachelor
Group of study fields	Business and Public Administration	Business and Public Administration	Business and Public Administration	Business and Public Administration
Study field	Marketing	Marketing	Marketing	Marketing
Degree	Master`s Degree in Business Management	Master`s Degree in Business Management	Master`s Degree in Business Management	Bachelor in Business Management
Duration	1.5 years (3 semesters)	1.5 years (3 semesters) or 2 years (4 semesters) in case of double degree	2 years (4 semesters)	3,5 years, full-time (7 semesters)
Workload	90 ECTS	90 or 120 ECTS (in case of double degree)	120 ECTS	210 ECTS
Language of instruction	Lithuanian/ English	Lithuanian/ English	Lithuanian	Lithuanian/ English
Curriculum (modules) directly related with Marketing discipline	Marketing Management; Integrated Marketing Communication; Communication Channels in Marketing; Strategic Brand Management; Innovation and Change Management; Pricing; Creative Message;	Corporate Communication Management; Strategic Marketing; Marketing Analytics; Global Marketing Management; Integrated Marketing Communication; Strategic Brand Management; Sales Management; Marketing Management; Pricing;	Consumer Behaviour; Theory and Methods of Market Analysis; Theory and Practice of Advertising; Strategic Marketing and Sales Management; Brand Management; International Marketing; Marketing Communications Management;	Fundamentals of Marketing; Consumer Behavior; International Marketing; Service Marketing; Retail Management and Marketing; Product and Brand Management; Pricing and Sales Promotions; Fundamentals of Marketing Research; Marketing Communication;

Programme name	Digital Marketing	Marketing and Integrated Communication	Marketing and Trade Management	Global marketing
				B2B Marketing and Personal Sales; Business Marketing Management; Advertising and Content Development;
Curriculum (modules) related with IT implementation	Data Collection and Analysis Methods; Digital Marketing Strategies and Planning; Digital Marketing Tools; E-Commerce; Mobile Marketing; Web and Social Media Analytics; Consumer Behavior in Internet;	Statistical Data Analysis of Survey Using SPSS; Digital Marketing Communication; International E-Commerce and E-Marketing;	Internet Marketing and Technologies;	Information Technology; E-Business; Digital Marketing;

3 out of 4 study programmes are Master studies level's and holds Master`s Degree in Business Management. All 4 analysed study programmes belong to Business and Public Administration study field. 3 out of 4 study programmes are taught in English and all of them in Lithuanian. The typical workload of curriculum (module) is 5 ECTS.

Table 6. The levels of DigComp 2.1 competences in study programmes of Vilnius university

Competence area:	Competences:	Levels in DigComp 2.1
1: Information and data literacy	1.1 Browsing, searching, filtering data, information and digital content	8
	1.2 Evaluating data, information and digital content	8
	1.3 Managing data, information and digital content	6
2: Communication and collaboration	2.1 Interacting through digital technologies	5
	2.2 Sharing through digital technologies	5
	2.3 Engaging in citizenship through digital technologies	5
	2.4 Collaborating through digital technologies	6
	2.5 Netiquette	5
	2.6 Managing digital identity	5
3: Digital content creation	3.1 Developing digital content	6
	3.2 Integrating and re-elaborating digital content	5
	3.3 Copyright and licences	5
	3.4 Programming	4
4: Safety	4.1 Protecting devices	6
	4.2 Protecting personal data and privacy	6
	4.3 Protecting health and well-being	6

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Future competencies
pathways for marketing
and ICT education

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Competence area:	Competences:	Levels in DigComp 2.1
	4.4 Protecting the environment	7
5: Problem solving	5.1 Solving technical problems	4
	5.2 Identifying needs and technological responses	8
	5.3 Creatively using digital technologies	8
	5.4 Identifying digital competence gaps	5

The highest level of evaluation is related with managerial and professional skills like 1.1 Browsing, searching, filtering data, information, and digital content; 1.2 Evaluating data, information and digital content; 5.2 Identifying needs and technological responses; 5.3 Creatively using digital technologies. The lowest level of evaluation is related with technical skills like 3.4 Programming.

Polytechnic Institute of Tomar (*Instituto Politecnico de Tomar*, IPT), Portugal, dates back to 1983, as an independent Higher School of Technology, and the first undergraduate courses started in 1986. On January 1st 1997 it became the current Institute, with 3 Higher Schools, 2 based in Tomar and 1 in Abrantes. It is a public Higher Education Institution and it currently comprises two campuses: the main campus in Tomar with over 10ha and the Abrantes campus. Today, about 4500 members integrate our academic community: 4000 students, 300 lecturers and 125 staff. With well-equipped laboratories in the technology, heritage and arts sectors, it offers over 20 undergraduate courses, several Master programmes and also various technical courses.

Comparison of study modules (curricula) related with DMC and realized at IPT is provided in Table No.7

Table 7. Comparison of study modules (curricula) related with DMC and realized at IPT

Name	Programme type	Study field	Degree	Workload	Language
Marketing Planning and Innovation	Master Studies	Management	Master Degree in Management	5 ECTS	Portuguese / English
International Marketing	Master Studies	Management	Master Degree in Management	5 ECTS	Portuguese / English
Digital Marketing	Bachelor Studies	Business Communication	Bachelor in Social Communication	5 ECTS	Portuguese / English
Introduction to Marketing	Bachelor Studies	Business Communication	Bachelor in Social Communication	5 ECTS	Portuguese / English
Marketing	Bachelor Studies	Business Sciences	Bachelor in Design and Graphic Arts	4 ECTS	Portuguese / English
Digital Marketing	Bachelor Studies	Marketing and Advertising	Technical Bachelor in Multimedia Design	4 ECTS	Portuguese / English
Marketing Strategies	Bachelor Studies	Business Communication	Bachelor in Social Communication	5 ECTS	Portuguese / English
Geo Marketing	Post Graduate Studies		Post Graduate in Territorial Marketing	4 ECTS	Portuguese / English
Digital Marketing and Social Networks	Bachelor Studies	Multimedia Technologies	Bachelor in Multimedia Technologies and Informatics	5 ECTS	Portuguese / English
Marketing Principles	Bachelor Studies	Marketing	Technical Bachelor in Sales and Commercial Management	6 ECTS	Portuguese / English

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Future competencies
pathways for marketing
and ICT education

fuse IT ▷▷

Name	Programme type	Study field	Degree	Workload	Language
Marketing Operational	Bachelor Studies	Marketing	Bachelor in Business Administration	5 ECTS	Portuguese / English
Tourist Marketing	Bachelor Studies	Marketing	Bachelor in Tourism and Culture Management	6 ECTS	Portuguese / English
Tourist Marketing	Bachelor Studies	Marketing	Technical Bachelor in Production of Activities for Cultural Tourism	6 ECTS	Portuguese / English
Marketing Planning	Master Studies	Marketing	Master's degree in Development of Cultural Tourism Products	6 ECTS	Portuguese / English

10 out of 14 analysed modules belongs to Bachelor Studies programmes (3 to Master Studies programmes and 1 to Post Graduate studies). All modules are taught in Portuguese and English. The workload of 7 out of 14 modules is 5 ECTS, 4 modules-6 ECTS and rest 3-4 ECTS. 9 out of 14 modules is realised in Social Sciences study programmes, 5 in Technology Sciences.

Table 8. The levels of DigComp 2.1 competences in study modules (curricula) related with DMC and realized at IPT

Competence area:	Competences:	Levels in DigComp 2.1
1: Information and data literacy	1.1 Browsing, searching, filtering data, information and digital content	8
	1.2 Evaluating data, information and digital content	8
	1.3 Managing data, information and digital content	6
2: Communication and collaboration	2.1 Interacting through digital technologies	7
	2.2 Sharing throught digital technologies	7
	2.3 Engaging in citizenship through digital technologies	7
	2.4 Collaborating through digital technologies	7
	2.5 Netiquette	6
	2.6 Managing digital identity	7
3: Digital content creation	3.1 Developing digital content	6
	3.2 Integrating and re-elaborating digital content	5
	3.3 Copyright and licences	5
	3.4 Programming	8
4: Safety	4.1 Protecting devices	6
	4.2 Protecting personal data and privacy	6
	4.3 Protecting health and well-being	6
	4.4 Protecting the environment	6
5: Problem solving	5.1 Solving technical problems	6
	5.2 Identifying needs and technological responses	5
	5.3 Creatively using digital technologies	5

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Future competencies
pathways for marketing
and ICT education

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Competence area:	Competences:	Levels in DigComp 2.1
	5.4 Identifying digital competence gaps	5

In case IPT is school of Technology, naturally the highest level of evaluation is related with technological skills like1.1 Browsing, searching, filtering data, information, and digital content; 1.2 Evaluating data, information and digital content; 3.4 Programming. The lowest level of evaluation is related with managerial-social skills like 5.2 Identifying needs and technological responses; 5.3 Creatively using digital technologies; 5.4 Identifying digital competence gaps.

ISMA University (*Informacijas sistemu menedzmenta augstskola*, SIA), Latvia, is one of the leading higher educational institutions in Latvia. ISMA has rich traditions and clear future vision within the common area of European higher education. ISMA students are provided with an opportunity to make their dreams come true by obtaining the required knowledge in the five directions, which are accredited by the Ministry of Science and Education of the Republic of Latvia:

- **Information Technology**
- **Economics**
- **Management and Administration**
- **Real Estate Management**
- **Tourism, Hotel and Restaurant Business**

ISMA successfully ensures continuing development, which nowadays is an advantage on the Latvian and European labour markets while offering competitive education, which combines both theory and practice.

Comparison of study modules (curricula) related with DMC and realized at ISMA is provided in Table No.4

Table 9. Comparison of study modules (curricula) related with DMC and realized at ISMA

Name	Programme type	Study field	Degree	Workload	Language
Digital Marketing	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Basics of Marketing	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Marketing	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Marketing Visual Communication	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Electronic Commerce	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Marketing Research	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Back-end-programming	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Graphic Web Design	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
Front-end programming	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English

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Future competencies
pathways for marketing
and ICT education

fuse IT

Name	Programme type	Study field	Degree	Workload	Language
Digital Application Planning and Prototyping	Professional Bachelor	Business Administration	Professional Bachelor in Management	3 ECTS	Latvian / English
International Marketing Management	Professional Master	Business Administration	Professional Master of Business Administration	6 ECTS	Latvian / English

10 out of 11 analysed study modules are from Professional bachelor's in management study level which workload is the same- 3ECTS. One module is from Professional Master study field of Business Administration and carries workload of 6 ECTS. All modules are taught in Latvian and English. 4 modules are directly related with IT field (Back-end-programming; Graphic Web Design; Front-end programming; Digital Application Planning and Prototyping).

Table 10. The levels of DigComp 2.1 competences in study modules (curricula) related with DMC and realized at ISMA

Competence area:	Competences:	Levels in DigComp 2.1
1: Information and data literacy	1.1 Browsing, searching, filtering data, information and digital content	8
	1.2 Evaluating data, information and digital content	8
	1.3 Managing data, information and digital content	8
2: Communication and collaboration	2.1 Interacting through digital technologies	7
	2.2 Sharing throught digital technologies	7
	2.3 Engaging in citizenship through digital technologies	7
	2.4 Collaborating through digital technologies	7
	2.5 Netiquette	6
	2.6 Managing digital identity	7
3: Digital content creation	3.1 Developing digital content	8
	3.2 Integrating and re-elaborating digital content	7
	3.3 Copyright and licences	6
	3.4 Programming	8
4: Safety	4.1 Protecting devices	7
	4.2 Protecting personal data and privacy	6
	4.3 Protecting health and well-being	6
	4.4 Protecting the environment	6
5: Problem solving	5.1 Solving technical problems	7
	5.2 Identifying needs and technological responses	7
	5.3 Creatively using digital technologies	7
	5.4 Identifying digital competence gaps	7

ISMA demonstrates mostly balanced results in case equally develops both managerial and technical skills of students by realizing study programmes in social science and technological science study fields. The lowest level of evaluation is related with additional adaptable disciplines related with safety, environment, copyrights (2.5 Netiquette; 3.3 Copyright and licences; 4.2 Protecting personal data and privacy; 4.3 Protecting health and well-being; 4.4 Protecting the environment)

University Politehnica of Bucharest (*Universitatea politehnica din Bucuresti*, UPB) is the largest Technical University in Romania greatly contributing to the development of Higher Education in the country. It has a vast range of expertise in fostering innovation and creativity in Technical Engineering, including the novel concepts of Industry 4.0, these concepts being taught to students for several years. This include courses on CAD/CAM technologies, additive manufacturing, eco-

design and eco-technologies that are also among core skills for our students, concepts that are taught for several years to Engineering students.

Comparison of study modules (curricula) related with DMC and realized at UPB is provided in Table No.11

Table 11. Comparison of study modules (curricula) related with DMC and realized at UPB

Name	Programme type	Study field	Degree	Workload	Language
Marketing (* there are small variations of names depending on the faculty / specialization)	Bachelor studies	Business Engineering and Management	Bachelor	3-4 ECTS (depending on the faculty)	Romanian
Marketing researches	Master Studies	Business Engineering and Management	Master Degree in Business Administration	4 ECTS	Romanian
Marketing of products and services	Master Studies	Business Engineering and Management	Master Degree in Business Administration	4 ECTS	Romanian

Module "Marketing" is implemented in 15 faculties departments with minor adjustments to the objectives of particular study programme (in subject/ modules name and volume in ECTS). All modules are taught in national (Romanian) language.

Table 12. The levels of DigComp 2.1 competences in study modules (curricula) related with DMC and realized at UPB

Competence area:	Competences:	Levels in DigComp 2.1
1: Information and data literacy	1.1 Browsing, searching, filtering data, information and digital content	8
	1.2 Evaluating data, information and digital content	8
	1.3 Managing data, information and digital content	6
2: Communication and collaboration	2.1 Interacting through digital technologies	5
	2.2 Sharing through digital technologies	5
	2.3 Engaging in citizenship through digital technologies	5
	2.4 Collaborating through digital technologies	5
	2.5 Netiquette	5
	2.6 Managing digital identity	5
3: Digital content creation	3.1 Developing digital content	5
	3.2 Integrating and re-elaborating digital content	5
	3.3 Copyright and licences	5
	3.4 Programming	5
4: Safety	4.1 Protecting devices	5
	4.2 Protecting personal data and privacy	6
	4.3 Protecting health and well-being	6
	4.4 Protecting the environment	6
5: Problem solving	5.1 Solving technical problems	6
	5.2 Identifying needs and technological responses	7
	5.3 Creatively using digital technologies	8
	5.4 Identifying digital competence gaps	8

It is necessary to emphasize that underline evaluating is provided using only within particular study modules (curricula) related with DMC and included to this Study. Having on mind that UPB is the largest Technical University in Romania greatly contributing to the development of Higher Education in the country provided low evaluation marks for competences

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pathways for marketing
and ICT education

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related with technical skills <u>is not assessed in further studies of the Project.</u> Study modules (curricula) related with marketing at UPB is treated as additional to technological modules material so there is no need to increase technical skills true it.

Annexes

Annex 1. Project targeted DMC study programmes in Vilnius university

Institution	Vilnius university (VU)
Programme name	Digital Marketing
Programme type	Master`s Studies
Group of study fields	Business and Public Administration
Study field	Marketing
Degree	Master`s Degree in Business Management
Duration	1.5 years (3 semesters)
Workload	90 ECTS
Language of instruction	Lithuanian/English
The objective of programme	In the age of technology when the world is over fulfilled with information, marketing is no longer just a struggle of goods, but also a struggle of stories and images. The aim of this study program is to educate marketing and communication professionals who are capable to create user-friendly business stories, and to be able to manage the image of companies and products, as well as quickly and effectively solve communication crises, and develop marketing and communication strategies.
Career opportunities	Progamme's aim is to prepare Digital Marketing professionals who can efficiently lead marketing projects in fast changing environment both in private and in public sectors. It is the only study program of this kind in Lithuania. Here it is possible to deepen your knowledge in both traditional and digital marketing. After graduation you will be able to manage campaigns and communication in social networks, as well as to work on digital advertising, media and traditional marketing projects. The program is taught by professionals from Lithuania and abroad who share their unique professional experience with students.
Key learning outcomes	*Project management*. You will be able to make decisions and execute marketing activities both in the local and international market, as well as divide complex problems into specific tasks. *Strategy of digital marketing*. You will be able to choose the most appropriate marketing actions for your business in the digital space. *Analytical skills*. You will be able to analyze marketing data and understand consumer behavior in the digital space. *Working with communication*. You will be able to give critical evaluation of marketing communication and plan digital marketing actions.
Course information	Marketing Management Data Collection and Analysis Methods; Digital Marketing Strategies and Planning; Digital Marketing Tools E-Commerce; Master Thesis: Final Part; Consumer Behavior in Internet; Integrated Marketing Communication; Communication Channels in Marketing; Master Thesis: Theoretical Part; Strategic Brand Management; Mobile Marketing; Web and Social Media Analytics; Innovation and Change Management; Pricing; Creative Message;

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Institution	Vilnius university (VU)
Programme name	Marketing and Integrated Communication
Programme type	Master`s Studies
Group of study fields	Business and Public Administration
Study field	Marketing
Degree	Master`s Degree in Business Management
Duration	1.5 years (3 semesters) or 2 years (4 semesters) in case of double degree
Workload	90 or 120 ECTS (in case of double degree)
Language of instruction	Lithuanian/English
The objective of programme	Marketing and Integrated Communication programme is developing specialists up to the highest professional standards, in order to make them capable of analysing market situation, planning and implementing relevant strategies of marketing and communication. The programme offers a Double degree possibility for the best students with Naples Parthenope University in Italy; similar agreements with other universities are in the process of negotiation.
Career opportunities	1. Marketing and communication manager in business companies and other organizations 2. Expert in marketing, advertising, public relations and communication agencies, consulting firms and market research companies
Key learning outcomes	The graduates of the programme develop abilities: - to plan and perform research on the basis of theoretically sound methodology; - to collect and analyse secondary and primary data; - to interpret findings in order to use them in marketing strategies; - to develop marketing strategies in accordance with company objectives and market specifics.
Course information	Corporate Communication Management; Strategic Marketing; Marketing Analytics; Research Methods; Global Marketing Management; Statistical Data Analysis of Survey Using SPSS; Digital Marketing Communication; Integrated Marketing Communication; Strategic Brand Management; Research Project I; Research Project II; Master Final Thesis; Sales Management; Cross-Cultural Management; International E-Commerce and E-Marketing; Marketing Management; Pricing; Organizational Psychology; Management of Organisation Image

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Institution	Vilnius university (VU)
Programme name	Marketing and Trade Management
Programme type	Master`s Studies
Group of study fields	Business and Public Administration
Study field	Marketing
Degree	Master`s Degree in Business Management
Duration	2 years (4 semesters)
Workload	120 ECTS
Language of instruction	Lithuanian
The objective of programme	The aim of the study programme is to prepare high-profile specialists in marketing and trade management with the ability to perceive the organisation of marketing, and the processes of trade and logistics; prepare actual projects and programmes, analytically and critically asses market changes; integrate knowledge of various scientific fields with the focus on solving the problems of organizations marketing and trade management within the framework of international management.
Career opportunities	Having finished this study programme, students acquire knowledge and skills necessary for their successful competition in the market within the fields of marketing, trade and management. Graduates of the programme may work as marketing, market research or trade specialists, consultants, project managers in national, international organizations as well as state institutions. Moreover, graduates of marketing may pursue PhD studies in the fields of management, and administration and economics.
Key learning outcomes	Graduates will be able to: • organize processes of marketing, trade and market research; • prepare actual projects and programmes either individually or in a team; • analytically and critically assess market changes; • determine the market, customer needs and know how the company should work so that it would meet the needs in an ever-changing external as well as internal environment; • creatively interpret received results and use different theoretical paradigms and internet marketing technologies by making strategic and tactical solutions in different areas of marketing and trade management; • communicate in either written or verbal form within the cross-cultural environment.
Course information	Interpersonal and International Communication; Scientific Research Work I/II; Scientific Research Work II/II; International Human Resource Management; Consumer Behaviour; Theory and Methods of Market Analysis; Theory and Practice of Advertising; Master's Thesis (field: Marketing); Innovation Management; Strategic Marketing and Sales Management; Internet Marketing and Technologies; Brand Management; International Marketing; International Trade; Methodology of Scientific Research; Marketing Communications Management; International Commercial Law; International Logistics; Total Quality Management; Cross-Cultural Management.

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Institution	Vilnius university (VU)
Programme name	Global marketing
Programme type	Bachelor
Group of study fields	Business and Public Administration
Study field	Marketing
Degree	Bachelor in Business Management
Duration	3,5 years, full-time
Workload	210 ECTS
Language of instruction	Lithuanian/English
The objective of programme	Global marketing programme is designed for students who want to get knowledge about essential and digital marketing elements, to understand consumers' behavior, to learn to analyse and manage marketing resources in a global business environment. Students will know how to use variety of contemporary marketing and communication tools , and learn to assess consumers' needs by analysing examples from international businesses.
Career opportunities	Sales Manager; Marketing Expert; Business Manager; Business Developer.
Key learning outcomes	• to get knowledge about essential and digital marketing elements, • to understand consumers' behavior, • to learn to analyse and manage marketing resources in a global business environment.
Course information	Economic Theory; Management; Business Development and Management; Fundamentals of Marketing; Business Law; Corporate Social Responsibility and Ethics; Global Business; Consumer Behavior; Business Statistics ; Information Technology; Fundamentals of Accounting; International Marketing; Fundamentals of Intercultural Management; Service Marketing; Retail Management and Marketing; Project Management; Business Strategies; E-Business; Product and Brand Management; Pricing and Sales Promotions; Personnel Management; Fundamentals of Finance; Organizational Behaviour; Fundamentals of Marketing Research; Marketing Communication; Business-to-Business Marketing and Personal Sales; Business Logistics; Company Performance Assessment; Tax System; Quality Management; Innovation Management; Marketing Management; Marketing Analytics; Digital Marketing; Course Paper; Corporate Communication; Advertising and Content Development; Intercultural Negotiation; Cross Cultural Communication; Professional Internship; Bachelor Thesis

Annex 2. Project targeted DMC study curricula (modules) in Instituto Politecnico de Tomar

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Marketing Planning and Innovation
Programme type	Master Studies
Group of study fields	
Study field	Marketing
Degree	Master Degree in Management
Duration	1 Semester
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	1. A theoretical-practical perspective of Marketing with focus on case study. 2. An approach to marketing mix management with focus on the critical role of brand as an instrument of greater aggregation of value to supply in heavily competitive markets. 3. Understanding the brand management process and its impact on value added to products, services and organizations. 4. Specific skills on planning tools and marketing strategy in the digital age. 5. Critical appraisal skills of marketing communication concepts in na integrated perspective with the other elements of the marketing mix. 6. Understanding the role of brand on innovation to co-create value. 7. Understanding the dynamics of country of origin effects and na organizational reputation management and their impact on formation and aggregation value in contemporary economies 1. 8. Understanding all these concepts and their impact on the competitiveness of organizations and nations in the global economy
Career opportunities	
Key learning outcomes	
Course information	1. The Marketing area and its evolution 2. The Strategy area and its evolution 3. Marketing Strategy applied to Digital Marketing 4. The Marketing Plan and planning Digital Marketing 5. SWOT analysis in the digital age 6. Positioning, target and segmentation of marketing plan 7. 7) Innovation in Marketing

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Institution	Instituto Politécnico de Tomar (IPT)
Programme name	International Marketing
Programme type	Master Studies
Group of study fields	
Study field	Management
Degree	Master Degree in Management
Duration	2 years (4 semesters)
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	Encouraging the spirit of observation of international environments, innovation and participation in change Stimulate the capacity for teamwork Develop analytical faculty of various documents author of texts, press releases, statistics, among others between the habits and methods of study Encourage the effectiveness of understanding and oral and written communication Stimulate critical capacity
Career opportunities	
Key learning outcomes	1. Understand the functioning of international markets 2. Understand the importance of international organizations 3. Identify the activities and performance of international marketing managers 4. Develop international management skills of an independent, ethical and socially responsible 5. Develop na International Marketing Plan
Course information	1. Size and challenges of international marketing 2. The wider context of international marketing 3. International product and service 4. International communication 5. International distribution and logistics 6. International price policy 7. Risks, organisation and implementation of international marketing activities.

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Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Digital Marketing
Programme type	Bachelor Studies
Group of study fields	
Study field	Social Science
Degree	Bachelor in Social Communication
Duration	3 years (6 semesters)
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	1. An overview of digital marketing and the challenges it places in the era of Web 3.0. 2. Students should be able to interpret, plan and implement communication and digital marketing actions as part of on and offline communication plans.
Career opportunities	
Key learning outcomes	
Course information	1. Introduction and definitions. 2. E-Commerce. 3. Online promotions. 4. Marketing Databases. 5. Evaluation and control.

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Introduction to Marketing
Programme type	
Group of study fields	
Study field	Social Science
Degree	Bachelor in Social Communication
Duration	3 years (6 semesters)
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	Students will have contact with the fundamental principles of Marketing from a theoretical point of view as well as through the analysis of its concrete application by a series of leading companies at national and international level. They must understand and, above all, be able to recognize and define the actions necessary to achieve the strategic and operational objectives that are the object of Corporate Communication.
Career opportunities	
Key learning outcomes	
Course information	1. Introduction 2. Marketing planning 3. Consumer Behavior 4. Market segmentation 5. Positioning 6. Marketing Policies 7. Marketing and Communication 8. Presentation and discussion of works 9. Written evaluation

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Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Marketing
Programme type	Bachelor
Group of study fields	
Study field	Graphic Design and Graphic Technologies
Degree	Bachlor in Design and Graphic Arts
Duration	3 years (6 semester)
Workload	4 ECTS
Language of instruction	Portuguese / English
The objective of programme	1. Understand market players and dynamics from the point of view of marketing; 2. Become familiar with the key market research methods; 3. Develop a marketing plan including the various strategic variables; 4. Have an understanding of the peculiarities of brand management.
Career opportunities	
Key learning outcomes	
Course information	1. Introduction 2. Market Analysis 3. Market research 4. Explanatory consumer behaviour theories and models 5. Segmentation 6. Positioning 7. Branding 1. 8. Marketing-Mix

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Digital Marketing
Programme type	
Group of study fields	
Study field	Graphic Design and Graphic Technologies
Degree	Technical Bachelor in Multimedia Design
Duration	2 years (4 semesters)
Workload	4 ECTS
Language of instruction	Portuguese / English
The objective of programme	Students should know how to develop a Digital Marketing plan, acquire skills to create websites, applications and content for DM. They should be able to use social media, web analytics tools, optimize websites, and use competitive intelligence software.
Career opportunities	
Key learning outcomes	
Course information	1. Digital Marketing 2. Website Development for Digital Marketing 3. Development of Digital Marketing applications for mobile devices 4. Creating content for digital marketing 5. Social media (Social Media) 6. Web Analytics (Web Analytics) 7. Optimization of websites for search engines 2. 8. Competitive Intelligence (Competitive Intelligence)

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Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Marketing Strategies
Programme type	
Group of study fields	
Study field	Social Science
Degree	Bachelor in Social Communication
Duration	3 years (6 semester)
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	This curricular unit aims to deepen the knowledge taught in Introduction to Marketing in a perspective of learning and applying the methodologies of Marketing planning, scenario analysis, the study of strategic options and decision-making according to the intended objectives. Students will learn about the Marketing strategies developed by renowned authors in the field in order to apply them in situations that justify it, knowing in advance the benefits and the inherent risks. Above all, they should be able to identify, apply and implement the right mix to pursue the Marketing and Communication objectives.
Career opportunities	
Key learning outcomes	
Course information	1. Marketing and creating value 2. Marketing Planning 3. Marketing and consumption 4. Marketing strategies 5. From Marketing 1.0 to 4.0 6. Types of Marketing

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Geo Marketing
Programme type	
Group of study fields	
Study field	Marketing
Degree	Post Graduate in Territorial Marketing
Duration	1 year (3 quarter)
Workload	4 ECTS
Language of instruction	Portuguese / English
The objective of programme	Acquisition of instrumental skills (cognitive, methodological, technological and terminological), interpersonal competencies (interaction and cooperation in personal and group performance) and systemic competencies (understanding, sensitivity and generic and specific knowledge about the reality of curricular unit), in methodology in the field of documental sciences.
Career opportunities	
Key learning outcomes	
Course information	1. The scientific methodology and access to systematic knowledge. 2. The research process: objectives, phases, tools and results. 3. Methods of research. 4. Technical procedures. 5. The methodological structure and language appropriate to each case research. 6. The research project: subject, object of study and processes. 3. 7. Presentation, implementation and results.

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Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Digital Marketing and Social Networks
Programme type	
Group of study fields	
Study field	Information and communications technology
Degree	Bachelor in Multimedia Technologies and Informatics
Duration	3 years (6 semesters)
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	On completion of the course students should be able to develop a Digital Marketing Plan on social media that will allow them to apply acquired knowledge and skills.
Career opportunities	
Key learning outcomes	
Course information	1. Introduction to Marketing 2. "Analog Marketing" and "Digital Marketing" 3. Means 4. Analogical (TV, Media, Public Relations) 5. (Sites, Newsletter, Search Engines, Social Networks, Apps, Gaming) 6. Social Networks 7. Brand 8. Brand building process Brand "eBranding" 9. Content 10. E-Content 11. Consumer Behaviors 12. Digital Customer Journey 13. Digital Marketing Plan 14. Diagnosis 15. SWOT Analysis 16. Goals 17. Strategic Options 18. Operational plan 19. Action plans 20. Review and Return 21. Project Definition 22. Company / Product / Service to Work / Rationale in Pitch 23. Elevator Pitch 24. Marketing Plan in Action

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Marketing Principles
Programme type	Technical Bachelor
Group of study fields	
Study field	Marketing
Degree	Technical Bachelor in Sales and Commercial Management
Duration	2 years (4 semesters)
Workload	6 ECTS
Language of instruction	Portuguese / English
The objective of programme	Discuss and think about the ethics of business management; Understand the market agents and dynamics Know the main market research techniques; Create a marketing plan; Knowing the specifics of marketing and brand management;

Career opportunities	
Key learning outcomes	
Course information	1. Marketing history and ethics; 2. Market analysis; 3. Segmentation and Positioning; 4. Marketing Mix; 5. Marketing plan; 6. Branding management.

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Marketing Operational
Programme type	Bachelor
Group of study fields	
Study field	Marketing
Degree	Bachelor in Business Administration
Duration	3 years (6 semesters)
Workload	5 ECTS
Language of instruction	Portuguese / English
The objective of programme	Implement a marketing plan through the management of marketing policies. Development of a communication and digital marketing plan. Develop new products, pricing and define distribution channels. Merchandising policies. After-sales service and quality control.
Career opportunities	
Key learning outcomes	
Course information	1-Product; 2-Price; 3-Place; 4-Promotion; 5-Digital Marketing and the new media; 6-Merchandising and point of sale management; 7-After-sales service and quality control.

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Tourist Marketing
Programme type	Bachelor
Group of study fields	
Study field	Marketing
Degree	Bachelor in Tourism and Culture Management
Duration	3 years (6 semesters)
Workload	6 ECTS
Language of instruction	Portuguese / English
The objective of programme	Upon completion of the course, students should be able to analyse and develop a tourist marketing plan, use marketing mix tools and develop a promotional plan for a tourist destination.
Career opportunities	
Key learning outcomes	
Course information	1. General Concepts of Tourism Marketing 2. Analysis of the Surroundings of Tourism Marketing 3. Tourist offer 4.Distribution channels 5. Tourism Marketing Plan

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Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Tourist Marketing
Programme type	Technical Bachelor
Group of study fields	
Study field	Marketing
Degree	Technical Bachelor inProduction of Activities for Cultural Tourism
Duration	2 years (4 semesters)
Workload	6 ECTS
Language of instruction	Portuguese / English
The objective of programme	Analyze and develop a tourism marketing plan, identifying the main elements of the tourism market that allow the operationalization of the marketing mix variables; provide the development of technical skills for the development of a promotional plan for the tourist destination.
Career opportunities	
Key learning outcomes	
Course information	1. General Concepts of Tourism Marketing; 2. Tourist demand; 3. Tourist offer; 4. Marketing Plan

Institution	Instituto Politécnico de Tomar (IPT)
Programme name	Marketing Planning
Programme type	Master Studies
Group of study fields	
Study field	Marketing
Degree	Master's degree in Development of Cultural Tourism Products
Duration	2 years (4 semesters)
Workload	6 ECTS
Language of instruction	Portuguese / English
The objective of programme	At the end of the course students should be able to develop the marketing plan of a cultural tourism product either through the analysis of case studies or through the development of new products.
Career opportunities	
Key learning outcomes	
Course information	1. Introduction to tourism marketing; 2. Consumer behavior and market segmentation in tourism; 3. Strategic marketing of tourist destinations: conceptual and methodological aspects; 4.Characterization of Marketing Plan;

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Annex 3. Project targeted DMC study curricula (modules) in Informacijas sistemu menedzmenta augstskola SIA (Latvia)

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Digital Marketing
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To understand the principles of planning an effective Internet marketing strategy and to navigate the advanced tools of online promotion.
Career opportunities	
Key learning outcomes	**Knowledge** - knowledge of online advertising channels and trends; SEO-optimized website development principles; principles of the analysis of advertising campaigns, optimization of their effectiveness. **Skills** - to plan and create sales-oriented SEO-website development tasks; to be able to apply search promotion principles and criteria in the digital environment. **Competences** - the ability to work with tools and instruments for creating websites and digital presentations, and for pushing it further in the digital environment The ability to use information technologies for performing their activities
Course information	1. Introduction to digital marketing and its evolution. 2. Brand assessment and setting goals for promotion. Digital marketing strategy. 3. Website promotion channels (organic search, contextual advertising, email marketing, social networks, affiliate / affiliate marketing). 4. The principles and practice of organizing and structuring convertible offers. Creating a website content plan. 5. Principles for writing compelling conversion texts. Tools for analysing and selecting targeted keywords when writing content in order to occupy leading positions in search engines. Application Keyword Planner Tool. 6. Test work with evaluation mark: "Planning and creation of a conversion site structure using targeted key requests for conversion". 7. Payment models and principles for building effective contextual advertising campaigns. 8. The principles and theory of planning and organizing an effective advertising campaign affiliate marketing (affiliate marketing). 9. Criteria for quality search engine optimization SEO sites 10. Criteria for quality search engine optimization SEO sites 11. Test work with evaluation mark: "Criteria for successful digital promotion". 12. Opportunities and practice of using commercial platforms for the rapid creation of sites (WIX, SHOPIFY and others). 13. Connect, configure and work with statistics (Google Analytics, etc.) 14. Website SEO audit tools (SERANKING, DMOZ, etc.). Connect and use the Google Search Console. 15. Test work with evaluation mark: "Building a Conversion SEO-Oriented Website".

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Basics of Marketing
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To provide knowledge of the basics of marketing and its practical applications in business, including marketing strategies, marketing environments, customer segmentation and behaviour, marketing mix, tools of marketing analysis.
Career opportunities	
Key learning outcomes	The ability to organize the marketing department according to the objectives and market situation. The ability to conduct marketing research and apply the results obtained in business **Knowledge** - In compliance with the Standard students shall: - plan, organize and manages the company's marketing strategy, control the execution of work, and provide communication of the economy (conception level). - understand the principles of marketing and its role in the strategic development of the company (awareness level). - Skills – In compliance with the Standard: - To analyse the marketing processes taking place in the economic environment and to make decisions according to the changes in the situation. - To analyse, systematize, synthesize, and integrate marketing information necessary for the operation of an enterprise. - To use modern technologies of marketing information acquisition, processing and systematization. - To formulate the marketing aims of an enterprise, to draw up a strategic development plan and evaluate its implementation. - To understand the principles of marketing and their role in the strategic development of an enterprise. - Competences - In compliance with the Standard: - The ability to plan and forecast the effective marketing activity of an enterprise in accordance with the set aims, economic environment and labour market situation. - The ability to organise the rational marketing operations of an enterprise with the set aims, economic environment and labour market situation
Course information	1. Marketing definition, concepts 2. Marketing environment 3. Test with the evaluation: "Marketing environment" 4. Consumer markets and consumer behaviour, market analysis 5. Test with the evaluation: "Consumer Markets and Consumer Behaviour, Market Analysis" 6. Segmentation and positioning in the market 7. Test with the evaluation: "Segmentation and positioning in the market" 8. Products, service, brand 9. Test with the evaluation: "Products, Service, Brand" 10. Pricing policy 11. Test with the evaluation: "Pricing Policy " 12. Promotion and distribution of goods 13. Test with the evaluation: "Promotion and distribution of goods " 14. Marketing communication, complex internet marketing 15. Test with the evaluation: "Marketing Communication, Complex Internet Marketing"

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Marketing
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To understand the place and role of marketing management in the management of a company / organization, to understand the importance of marketing function in business. To acquire the basics of marketing management and its application in practice, to master the directions and spheres of marketing management. To develop the ability to structure and analyse marketing problems and provide appropriate solutions with appropriate tools and techniques. To be able to apply marketing management functions in practice.
Career opportunities	
Key learning outcomes	Successfully learning this course, students get **Knowledge** (1) on the nature of the marketing management function, its place and role in the modern business world; on the organisation and management of the marketing function; (2) how to address marketing problems and model the firm's behaviour in a competitive environment through marketing management; **Skills**: (1) identifying, analysing and evaluating data, facts and information related to marketing opportunities and threats in the modern situation; (2) conducting strategic marketing analysis to develop relevant marketing objectives and strategies; (3) skills to develop a marketing plan and control mechanism for the implementation of the plan; (4) skills to work in a digital economy; **Competencies**: ability of planning, implementing and controlling a company's activities in the field of marketing management; ability of reflecting social and ethical issues about the role of companies in society.
Course information	1. The place and role of marketing management. Defining Marketing in the 21st Century. Marketing in a turbulent environment. Globalization processes and marketing. 2. Marketing planning system. Strategic planning in business units. Development of marketing strategies and plans. Innovative marketing. Marketing management in consumer and business segments. 3. Marketing information system Components of a modern marketing information system. Collection and identification of information. Internal data. Competition research. Macro-environment data. 4. Planning and management of marketing mix. Marketing and Customer Value creation. Strategic analysis of competition. 4.1. Product Strategies. Services as a product. 4.2. Brand strategies. 4.3. Pricing strategies. 4.4. Distribution strategies. 4.5. Communication strategies Measuring marketing effectiveness 5. Marketing control system

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Marketing Visual Communication
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To provide knowledge of the basics of visual communication marketing and its practical applications in business, including: visual communication marketing strategies, visual communication marketing environments, customer segmentation and behavior, visual communication marketing mix, tools of visual communication marketing analysis.
Career opportunities	
Key learning outcomes	**Knowledge** - plan, organize and manages the company's visual communication marketing strategy, control the execution of work, and provide communication (conception level). Understand the principles of visual communication marketing and its role in the strategic development of the company (awareness level). **Skills** - To analyse the visual communication marketing processes taking place in the economic environment and to make decisions according to the changes in the situation. -To analyse, systematize, synthesize, and integrate visual communication marketing information necessary for the operation of an enterprise. -To use modern technologies of visual communication marketing information acquisition, processing, and systematization. - To formulate the visual communication marketing aims of an enterprise, to draw up a strategic development plan and evaluate its implementation. - To understand the principles of visual communication marketing and their role in the strategic development of an enterprise. **Competences** - The ability to plan and forecast the effective visual communication marketing activity of an enterprise in accordance with the set aims, economic environment and labour market situation. -The ability to organise the rational visual communication marketing operations of an enterprise in accordance with the set aims, economic environment and labour market situation. **Additional:** The ability to conduct visual communication marketing research and apply the results obtained in business.
Course information	1. Visual communication marketing definition, concepts 2. Visual communication marketing environment 3. Test with the evaluation: "Visual communication marketing environment" 4. Consumer markets and consumer behavior, market analysis 5. Test with the evaluation: "Consumer Markets and Consumer Behavior, Market Analysis in the field" 6. Segmentation and positioning in the market 7. Test with the evaluation: "Segmentation and positioning in the market " 8. Products, service, brand 9. Test with the evaluation: "Products, Service, Brand in the field " 10. Pricing policy 11. Test with the evaluation: "Pricing Policy" 12. Promotion and distribution of goods 13. Test with the evaluation: "Promotion and distribution of goods " 14. Marketing visual communication, complex internet visual communication marketing

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
	15. Test with the evaluation: "Marketing visual Communication, Complex Internet Visual communication marketing "

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Electronic Commerce
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To be able to manage contextual analysis campaign management tools
Career opportunities	
Key learning outcomes	**Knowledge** - The principles of contextual advertising use and work, as well as knowledge of methods of calculating the efficiency coefficients of advertising campaigns **Skills** - To analyse, systematize, synthesize, and integrate information necessary for the operation of enterprise. -To use modern technologies of information acquisition, processing, and systematization. -To implement advanced solutions and methods in the organization of operations, production, and management of company. -Skills in working with tools and tools for contextual advertising campaigns. -Ability to calculate efficiency coefficients **Competences** - Independently create, configure, and manage contextual advertising campaigns as well as optimize the effectiveness of advertising campaigns.
Course information	1. Definition of contextual advertising. Introducing Google Ads. The principles of Google Ads and display advertising. 2. Create your first Google Ads advertising account. Google Ads Interactive. The structure of the advertising account of Google Ads (Campaigns - Groups - Ads and key searches) 3. Features and characteristics of creating effective text ads. 4. Creation and configuration of the first advertising campaigns (including display network, location, languages, daily budget, display time and period, type of bidding). 5. Test work with a mark: "Setting up an advertising campaign and its basic characteristics". 6. Planning and creating the structure of advertisement groups. Ad groups and setting up ad extensions. 7. Keyword research basics. Use the Keyword Planner Tool to analyse and list key queries for future ad campaigns. 8. Match types and purpose of key queries (broad, phrase, exact). Quality Score and Ad Rank as a quality indicator of bid value optimization. 9. Negative keywords in Google Ads. Using ready-made lists of negative keywords and assigning them to certain levels of your Google Ads advertising account. Analysis of conversion statistics for key queries, analysis of effectiveness and replenishment of the list of negative keywords. 10. Create and configure remarketing campaigns, Display Network, Gmail Ads. 11. Test work with a mark: "Creating, planning, setting up and launching advertising campaigns with Google Ads". 12. Using the site's navigation, structure to structure Google's advertising campaigns.

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
	13. Conversion Tracking Basics
	14. The value and principles of calculating the coefficients for evaluating the effectiveness of advertising campaigns: ROI, ROAS.
	15. The principle of calculating the maximum allowable cost-per-click, based on the coefficient (%) and conversion value.
	16. Test work with a mark: "Integrated configuration of advertising campaigns in Google Ads with setting up conversion accounting and correction of rates".

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Marketing Research
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	• The aim of the course is to provide the necessary knowledge and skills for the organization and application of the marketing research process in the planning and management of the company's marketing activities. • The course aims to examine both the theoretical and practical sides of the marketing research process. • The course is designed to equip the students with the knowledge to be able to design and implement theoretically sound marketing research projects in business environment. • Explore the place and role of marketing research in management decision-making. • To master the methodology of marketing research in order to manage research process. • The course also aims to provide students with the practical knowledge of analysing the data gathered in the result of a marketing research project, in order to enable effective decision-making.
Career opportunities	
Key learning outcomes	As a result of the course students acquire **knowledge** about the role of marketing research in the development of marketing strategies and plans. Based on theory and practical examples, students acquire **skills** in organizing marketing research; develop **skills** in research questionnaire design, analysis of obtained survey results and appropriate decision making for marketing problem solutions. As a result of the course the student acquires **competencies**: how to identify marketing problems through research before proposing their solutions.
Course information	1. The place and role of marketing research in the system of enterprise management. Areas of marketing research. 2. Marketing research system. 3. Methods of marketing research. 4. Primary and secondary research. 5. Secondary research sources: company internal data and external data forms. 6. Information search capabilities in a digital environment. 7. Qualitative and quantitative research 8. Differences between qualitative and quantitative research 9. Development of questionnaires for research. Evaluation, processing and analysis of information 10. Forms of qualitative research. 11. Research in consumer and business segments

	12. Services research
	13. Global and international marketing research
	14. Marketing Research Ethics

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	International Marketing Management
Programme type	Professional Master Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Master of Business Administration
Duration	1 Semester
Workload	6 ECTS
Language of instruction	Latvian / English
The objective of programme	The student will gain an insight into the impact of international economic, political, legal and cultural factors on marketing planning. This course will allow students to acquire the analytical skills needed to develop international marketing plans and implement elements of marketing complex in the international environment.
Career opportunities	
Key learning outcomes	**Knowledge** - At conceptual level: on nature, content and forms of rights, the legislative process as well as on branches of law and legal behaviour. Awareness: Able to navigate key legislation, analyse current issues in specific areas of law such as civil, administrative, criminal, and commercial law. Application level: can correctly analyse practical situations in commercial activities, is able to make decisions on the choice of legal form and amendments, is able to independently draw up internal and external documents for the operation of the merchant. **Skills** Analyse, systematize, synthesize and integrate information necessary for the operation of the company; To become familiar with the documents regulating the activities of enterprises and normative acts. **Competences** Ability to represent the company in dealings with other companies, organizations, institutions, including municipalities and state institutions; Ability to work with other companies, owners, and other stakeholder groups to achieve company goals; Institutions, including municipalities and state institutions; Ability to organize the rational operation of the company according to the set goals, economic environment and labour market situation
Course information	1-2. The essence of international marketing. The dynamic environment of international trade. 3-4. Economic development of the various regions. Cultural dynamics in different world markets 5-6. Global vision through marketing research. Foreign market valuation possibilities. Competition in international markets. 7-8. International marketing management: planning and organization. Specifics of management in countries with different cultures. 9-10. International Marketing Mix decisions: products and services. 11. Pricing policy in foreign markets. 12. Distribution in foreign markets. 13. Principles and decisions of logistics in international business. 14-15. Promotion strategies in international marketing. Web marketing, online marketing, social media marketing complex – forms, benefits, problems.

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
	16. Foreign market entry strategies.

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Back-end-programming
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To acquire programming skills in PHP, as well as to understand the principles of PHP interaction with databases.
Career opportunities	
Key learning outcomes	**Knowledge** - Understanding the logic of building and organizing program code and its interaction with databases **Skills** - Students are able to independently create program code in PHP using the logical functions created by them and to use SQL commands **Competences** - Can program a functional website with interactive service capabilities
Course information	1. Introduction to PHP. The purpose of the PHP language. History and evolution of PHP. Installation and first familiarization with PHP. 2. Language Syntax. Data types. Use of variables. 3. Expressions and Operators. Test work with a mark: "First PHP Program". Logical operators, loops. 4. Writing Functions. Work with strings. 5. Using arrays, objects in PHP. Test work with a mark: "Writing Functions". 6. Principles of interaction between PHP and MySQL. 7. Creating Databases and tables in MySQL. The operands of searching, loading and unloading information from the MySQL database. 8. Creating authorization module. Test work with a mark: "PHP and MySQL interaction".

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Graphic Web Design
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To provide knowledge about programs, tools and techniques for working with raster graphics in order to create and prepare interactive presentations, advertising, website design and applications..
Career opportunities	
Key learning outcomes	**Knowledge** Raster graphics application principles; Knowledge of advanced raster graphics tools **Skills** - Able to use modern tools for working with raster graphics **Competences** - Designing web solutions and digital applications
Course information	1. Principles, concepts and general provisions in working with raster graphics. 2. The first acquaintance with the environment of the program Adobe Photoshop. Adobe Photoshop Toolbar.

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
	3. Image tools: resolution, size, color correction. Image retouching tools. Test work with a mark: "Features of raster graphics and image processing principles". 4. Types of Selection Tools. Techniques for modifying the desired image area using selection tools. 5. The principles of using layers and working with them in Photoshop. Apply effects and styles in Photoshop. Test work with a mark:"Image Processing" 6. Work with masks and channels in Photoshop. 7. Typographic design. Vector drawing technique. 8. Layout in Photoshop and the principles of building a "layout" of a site or application. Test work with a mark:"Website or application design".

Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Front-end programming
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To master the basics of building separate HTML documents, as well as static, interconnected web pages. To learn to create and design your interconnected set of web pages, thereby creating a static website
Career opportunities	
Key learning outcomes	**Knowledge -** To master HTML / HTML5, CSS / CSS3 markup technologies / languages. - Know the basic tags of the above languages and their meaning. **Skills** - Skills to work with code in text layout editors. - Communicate and collaborate with a team of programmers and web developers **Competences** -Ability to use front-end web programming languages to work with web solutions for selling online. - Create and convert graphical presentations in the form of websites and applications. - Make content changes in digital presentations.
Course information	1. Introduction to HTML / HTML5. HTML document structure. HTML tags. 2. Link building. Embed images in HTML documents. 3. Creating a menu for a multi-page static site. Lists. Test work with a mark"Work with content update in HTML". 4. Creating HTML tables. Nested tables and the location of information in an HTML document. Test work with a mark "Organizing pages content using tables". 5. Rules for the description of frames. Interaction between frames; Test work with a mark "Work with frames" 6. CSS / CSS3 Introduction Color Assignment Methods in .css. The purpose of the fonts. Font units and usage examples. 7. Assigning and working with <DIV> and .class in CSS. Arrangement and alignment of elements. 8. Other document formatting options. Test work with a mark"Static-type website creation".

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Institution	Informacijas sistemu menedzmenta augstskola SIA (ISMA)
Programme name	Digital Application Planning and Prototyping
Programme type	Professional Bachelor Study Programme Business Administration
Group of study fields	
Study field	Business Administration
Degree	Professional Bachelor in Management
Duration	1 Semester
Workload	3 ECTS
Language of instruction	Latvian / English
The objective of programme	To provide knowledge on the principles and trending methodologies for planning digital application interfaces. To teach using popular software for prototyping applications / applications.
Career opportunities	
Key learning outcomes	**Knowledge -** Importance and methods of prototyping digital solutions; - Knowledge of modern prototyping tools **Skills** - Able to use appropriate software tools **Competences** - Can design digital solution interfaces using popular interface planning applications
Course information	1. Definitions of prototyping. Principles, concepts and general provisions. 2. The process and methods of prototyping. Advanced tools and prototyping techniques. Using prototypes in the workflow of your project to interact with the team and all interested parties. 3. First introduction to the AXURE program environment. Test work with a mark: "Features and approach to prototyping as a tool for working with expectations." Prototyping an intro page: sitemap, using widgets. Prototyping an intro page: styling widgets, creating "slide" carousels. Navigation widgets: checkboxes, elements of interactive forms, tables. Create and manage application categories and pages. Test work with a mark: "Prototyping the application intro page and dynamic elements". 4. Appointment, creation and use of masters. Setting logical conditions for interaction and mathematical functions. Adaptive page views. Test work with a mark: "Prototyping a digital application".

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Annex 4. Project targeted DMC study curricula (modules) in Universitatea politehnica din Bucuresti (Romania)

Institution	Universitatea politehnica din Bucuresti (UPB)
Programme name	**Marketing** * there are small variations of names depending on the faculty / specialization: • Entrepreuneurship, Business Engineering and Management • The Faculty of Power Engineering • The Faculty of Electrical Engineering • The Faculty of Automatic Control and Computer Science • The Faculty of Electronics, Telecommunications and Information Technology • The Faculty of Mechanical Engineering and Mechatronics • Faculty of Industrial Engineering and Robotics • The Faculty of Transports • The Faculty of Applied Chemistry and Materials Science • The Faculty of Aerospace Engineering • The Faculty of Material Science and Engineering • The Faculty of Engineering in Foreign Languages • The Faculty of Biotechnical Systems Engineering • The Faculty of Applied Sciences • The Faculty of Entrepreuneurship, Business Engineering and Management • The Faculty of Medical Engineering
Programme type	Bachelor
Group of study fields	Business Engineering and Management
Study field	
Degree	
Duration	1 Semester
Workload	3-4 ECTS (depending on the faculty)
Language of instruction	Romanian
The objective of programme	General objective of the course: • Understanding the role of marketing in organizations, specific methods and techniques for their use in practice Specific objectives: • Developing the ability to analyze and interpret the marketing environment • Developing problem-solving abilities using marketing techniques • Developing communication and teamwork skills
Career opportunities	
Key learning outcomes	Professional competences: • Elaboration and interpretation of technical, economic and managerial documentation. Transversal competences: • Applying the principles, norms and values of professional ethics responsibly in carrying out professional tasks and identifying the objectives to be achieved, the available resources, the working steps, the execution times, the related implementation deadlines and the related risks. • Identifying roles and responsibilities in a multidisciplinary team and applying effective relationship and work techniques within the team

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Institution	Universitatea politehnica din Bucuresti (UPB)
Course information	Faculty of Entrepreuneurship, Business Engineering and Management , Department of Entrepreneurship and Management. The faculty addresses both young people interested in building a career in the business environment (in industrial and other fields), and those who wish to develop their own business. Students have course support on the MOODLE platform http://curs.pub.ro Content: • The concept of marketing • Marketing environment • Marketing in the organization • Consumer behavior • Market • Marketing research • Product • The price of products • Product promotion • Distribution of products • Promotion techniques • Case study

Institution	Universitatea politehnica din Bucuresti (UPB)
Programme name	**Marketing of products and services** at Faculty of Entrepreuneurship, Business Engineering and Management
Programme type	Master Studies
Group of study fields	Management and Administration
Study field	Business Engineering and Management
Degree	Master Degree in Business Administration
Duration	1 Semester
Workload	4 ECTS
Language of instruction	Romanian
The objective of programme	General objective of the course: • Understanding the role of marketing in organizations, specific methods and techniques for their use in practice • The basis of the decisions regarding the quality of products and services in relation to the situation of the business environment Specific objectives: • Developing the ability to analyze and interpret the marketing environment • Developing problem-solving abilities using marketing techniques • Developing communication and teamwork skills
Career opportunities	Achieving good collaboration by conducting research / practice of students in industrial organizations, identifying companies' expectations regarding the competences obtained by students to identify the needs of consumers and finding ways to satisfy them.
Key learning outcomes	Professional competences:

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Institution	Universitatea politehnica din Bucuresti (UPB)
	• Elaboration and interpretation of technical, economic and managerial documentation. • Designing and technical-economic and managerial analysis of products, processes and business systems. Transversal competences: • Applying the principles, norms and values of professional ethics responsibly in carrying out professional tasks and identifying the objectives to be achieved, the available resources, the working steps, the execution times, the related implementation deadlines and the related risks. • Identifying roles and responsibilities in a multidisciplinary team and applying effective relationship and work techniques within the team
Course information	Faculty of Entrepreuneurship, Business Engineering and Management , Department of Entrepreneurship and Management. Students have course support on the MOODLE platform http://curs.pub.ro Content: • Conceptual marketing elements: operational elements, historical development, factors of the marketing environment • Individual and industrial consumers: types, behavior, purchasing decision-making process • The product: Goods and services, Brand, Life cycle • Price of products and services • Techniques for promoting products and services • Distribution of goods • Ethics and social responsibility in marketing

Institution	Universitatea politehnica din Bucuresti (UPB)
Programme name	**Marketing researches** at Faculty of Entrepreuneurship, Business Engineering and Management
Programme type	Master Studies
Group of study fields	Management and Administration
Study field	Business Engineering and Management
Degree	Master Degree in Business Administration
Duration	1 Semester
Workload	4 ECTS
Language of instruction	Romanian
The objective of programme	General objective of the course: • Understanding the role of marketing in organizations, specific methods and techniques for their use in practice Specific objectives: • Developing the ability to analyze and interpret the marketing environment • Developing problem-solving abilities using marketing techniques • Developing communication and teamwork skills
Career opportunities	Market Analyst, Public Relations, Advertising Manager, Brand Management

Institution	Universitatea politehnica din Bucuresti (UPB)
Key learning outcomes	Professional competences: • Elaboration and interpretation of technical, economic and managerial documentation. • Performing calculations, demonstrations and applications for solving specific tasks of engineering and quality management based on the knowledge of the fundamental and engineering sciences. • Evaluation and capitalization of the results of marketing research projects. Transversal competences: • Applying the principles, norms and values of professional ethics responsibly in carrying out professional tasks and identifying the objectives to be achieved, the available resources, the working steps, the execution times, the related implementation deadlines and the related risks. • Identifying roles and responsibilities in a multidisciplinary team and applying effective relationship and work techniques within the team • Efficient use of language skills and knowledge of information and communication technology.
Course information	Faculty of Entrepreuneurship, Business Engineering and Management , Department of Entrepreneurship and Management. Students have course support on the Moodle platform http://curs.pub.ro Content: • Marketing research - introduction and conceptual elements. • The approach as a process of marketing research. Macro design of marketing research processes. • Detailed design of marketing research processes. • Performance analysis of marketing research processes. • Outline of a marketing research project • Case studies