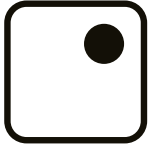




Sveučilište u Zagrebu  
Grafički fakultet

Izvještaj o samoanalizi  
Grafičkoga fakulteta  
Sveučilišta u Zagrebu



# University of Zagreb Faculty of Graphic Arts

## Self Evaluation Report Faculty of Graphic Arts University of Zagreb

Zagreb, December 2011.

Name of higher education institution:	FACULTY OF GRAPHIC ARTS
Name of university of which the institution is a constituent:	UNIVERSITY OF ZAGREB
Year of establishment:	5. September 1990
Address:	Zagreb (10 000), Getaldičeva 2
Phone:	+385 1 2371 080
Fax:	+385 1 2371 077
Internet	address: <a href="http://www.grf.unizg.hr">www.grf.unizg.hr</a>
E-mail:	<a href="mailto:info@grf.hr">info@grf.hr</a>
Name and academic grade of the head of HEI:	Prof. D.Sc. Diana Milčić
Name of the bank and account number of HEI:	Zagreb county banka d.d.; Bank account: 2360000 - 1101243148



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Povjerenstvu za izradu samoanalize pridružena je stručna savjetnica za poslove međunarodne suradnje Ivana Žganjar, dipl. ing.

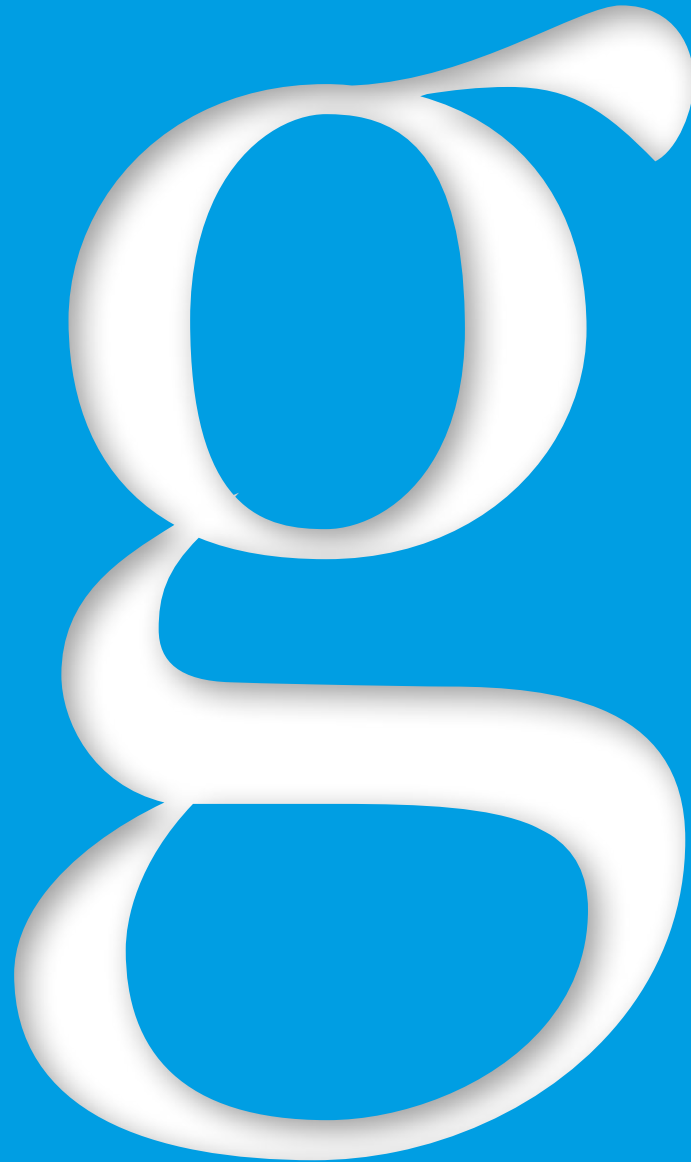


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# 1. Management of HE institution and quality assurance



### 1.1 REVIEW OF THE DEVELOPMENT OF THE FACULTY OF GRAPHIC ARTS AND IMPORTANT EVENTS IN THE PAST 10 YEARS (ORGANISATIONAL CHANGES, RELOCATIONS, SIGNIFICANT PROBLEMS IN OPERATION).

The Faculty of Graphic Arts came into being by the development of the two-year Post-secondary Graphic Arts School, which was founded on the initiative of the former Yugoslavian Association of Graphic Companies. In 1959, the Post-secondary Graphic Arts School became a full member of the University of Zagreb in 1979.

In 1982, the Joint Graphic Technology Studies were founded for the education of graduates in graphics technology.

In 1990, the Faculty of Graphic Arts was founded, its core activity being the education of graphic engineers and graduates in graphic technology.

In AY 2004/2005, the last generation of students was enrolled in undergraduate university studies of graphic engineering which had two career tracks: Technical and Technological study track, and Graphic Products Design.

As the need for the education of scientists at faculties of graphic arts and at graphic institutions, who will achieve academic levels of doctors of science upon the completion of their scientific studies, became apparent in the world, the need for research staff has been also felt in Croatia. The initiation of doctoral study programmes was motivated by an institutional and educational need to create research and teaching staff from the area of technical sciences, within the field of graphic technology, and also in the economy, where the need is felt for the solving of increasingly more complex problems, as well as for the education of manpower in the area of science. In 2000, upon the approval by the Ministry and University, the first postgraduate research study programme was instituted at the Faculty of Graphic Arts under the name "Graphic Engineering".

With the changes that have occurred in the European higher education area and requirements of the Bologna process, the Faculty of Graphic Arts has developed new teaching plans and curricula.

In 2005, the Republic of Croatia Ministry of Science, Education and Sports issued to the Faculty the Accreditation to perform undergraduate university studies of Graphic Technology for the study tracks: Technical and Technological; and Graphic Products Design.

In the same year, the Faculty received the Accreditation to perform graduate university studies of Graphic Technology, with the study tracks mentioned above.

In 2007, the MSES issued the Accreditation to the Faculty to perform postgraduate doctoral studies of Graphics Engineering and Graphic Products Design.

In 2006, the Ministry of Science, Education and Sports made a Decision on conducting one part of the procedure for the appointment to academic rank for the following scientific field: technical sciences; scientific field: graphic technology; scientific branch: graphic reproduction processes.

Since the beginning of its work, the Faculty of Graphic Arts has functioned in the building which it shares with the Secondary School of Graphic Arts. In view of the unresolved property-rights related to the land and the building, the issues associated with the lack of space are constantly present, in despite of the construction of smaller extensions of the existing building. A part of the building's ground-floor was adapted in 2009. In the same year, three new computer classrooms were equipped,



the facade on the southern side of the building was improved, and all wooden window-frames were replaced with PVC window-frames. All these adaptations were carried out through the use of the University's credit instruments and own means. Unfortunately, the recession has stopped the realization of plans related to the further adaptation of the building and solving of problems with the boiler-room, shared by the Secondary School and the Faculty.

The Physical Plan for the University Development has foreseen the moving of the Faculty into new premises within the Campus Borongaj.

The greater part of the space where the research work and classes are carried out is continually maintained and equipped in accordance to financial possibilities, predominantly through the use of funds obtained by tuition fees. Having in mind that this is a question of a technical faculty, a constant following of the technological development and renovation of facilities and equipment are required, which in turn demands significant financial means. There are four computer classrooms at the Faculty where exercises are performed, and this also requires a periodic renewal of computer equipment.

## **1.2 DIAGRAM OF INTERNAL ORGANIZATIONAL STRUCTURE OF THE FACULTY OF GRAPHIC ARTS WITH NUMBERS OF FULL-TIME EMPLOYEES BY EACH ORGANISATIONAL UNIT. DESCRIPTION OF THE COMPOSITION AND FUNCTION OF PARTICULAR ELEMENTS OF THE STRUCTURE.**

The total number of the Faculty Council members as of 30th September 2011 was 44, and was made up of:

- staff with research & teaching; arts & teaching; and teaching position,
- associate staff members' representatives (or their deputies),
- student representatives (or their deputies) and
- Head of the Library.

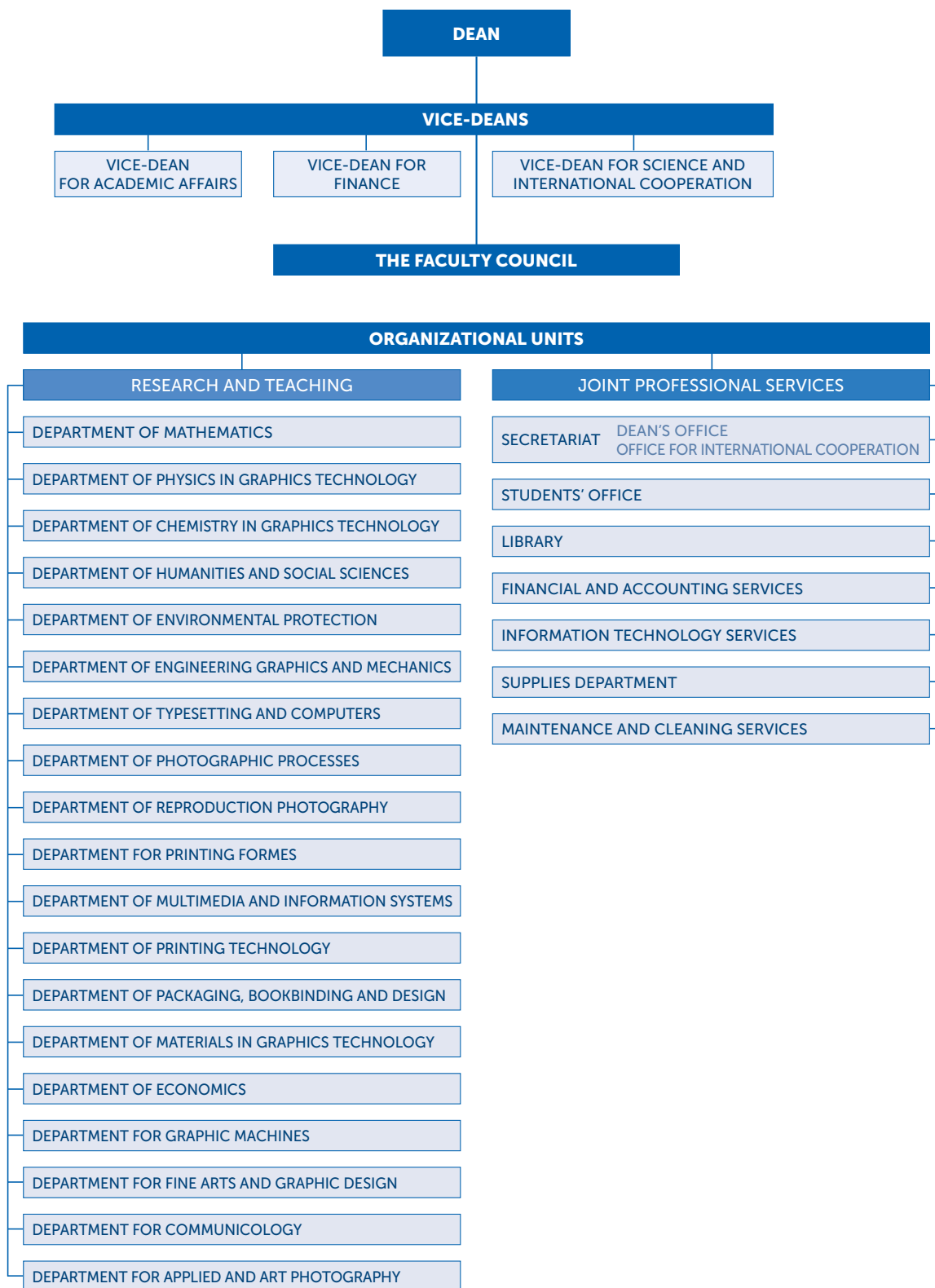
The Dean and the Faculty Council manage the Faculty pursuant to the Act on Scientific Activity and Higher Education, Statute of the University of Zagreb, Statute of the Faculty of Graphic Arts and other general acts of the Faculty.

The following organizational units were organized at the Faculty:

- Departments as research and teaching organizational units, and
- Organizational units performing joint professional services: Secretariat (with two subunits; Dean's Office and Office for the International Cooperation); Students' Office; Library; Accounting and Financial Services; Supplies Department; Information Technology Services; and Maintenance and Cleaning Services.



The Chart of the Internal Organizational Structure in accordance with the Statute and Regulations on the Internal Organization and Work Position Systematization of the Faculty of Graphic Arts, University of Zagreb:



### 1.3 ROLE AND CONTRIBUTION OF OTHER PARTICIPANTS (STUDENTS, EMPLOYERS, AND OTHERS) IN THE ADMINISTRATIVE STRUCTURES OF THE FACULTY..

Students were included in administrative structures of the Faculty through:

- *Student Council* - the first constituent assembly of the Faculty's Student Council took place in 2010 (during the term of tenure from AY 2010/2011 to AY 2011/2012), at which the Student Council appointed the President and Vice-president of the Student Council; the Student Ombudsman; Student Representatives in the Student Council, and a member and deputy-member of the Disciplinary Committee (for students);
- *Faculty Council* - student representatives make up 15% of the total number of the Faculty Council members. Students appoint their representatives and the representatives' deputies in the Faculty Council in each year of undergraduate and graduate studies, and they appoint a representative of doctoral studies as well, keeping in view that the representation of students is even according to study programmes and years of studies. Student Representatives in the Faculty Council have a right of suspensive veto in making decisions on issues that are of a special interest for students.

A suspensive veto is put on some decision by the majority vote of all student representatives in the Faculty Council. Following a suspensive veto, the Faculty Council re-discusses the issue in question, upon the expiry of eight-day-time-limit at the earliest. In the repeated decision making a decision is made by the majority vote of all Faculty Council members, and a suspensive veto may not be applied to their decision.

During the past five years the student representatives have not used a suspensive veto.

- *By having a consultation with Student Council representatives in the work of the Board of Deans* - when making decisions that affect students, or when discussing on certain issues that are of an interest for students, the president of the Student Council;
- *Disciplinary Committee for students* - As per Article 6, paragraph 4 of the Regulations on Disciplinary Liability of Students (as of 26 January 2009), at the session of the Faculty Council held on 18 October 2010, a student representatives member and his/her deputy were appointed to the Disciplinary Committee for Students. In AY 2010/2011, one disciplinary procedure was carried out.
- *Curriculum and Teaching Plan Committee* - At the session of the Faculty Council, held on 14 December 2009, the Curriculum and Teaching Planning Committee was appointed with two student representatives members (at the Student Council's proposal);
- *Quality Management Committee* - At the session of the Faculty Council, held on 16 November 2009, the Quality Management Committee was appointed with one student representatives member (at the Student Council's proposal);
- *Mandated Committee* - At the session of the Faculty Council, held on 15 February 2010, a Mandated Committee was appointed with one student representatives member (at the Student Council's proposal).

### 1.4 STRUCTURE OF THE FACULTY MANAGEMENT (DEAN, VICE-DEANS, HEAD OF DEPARTMENT, AND OTHERS) AND SHORT DESCRIPTION OF THEIR ROLE AND METHOD OF THEIR APPOINTMENT.

**DEAN** is an executive head of the Faculty who manages the Faculty and takes up all legal actions on behalf and at the expense of the Faculty, in accordance with the Act on Scientific Activity and Higher Education, Statute of the University of Zagreb, Statute of the Faculty of Graphic Arts and other gen-



eral acts of the Faculty. Dean's term of office and authority last for three years. The term of office may be consecutively repeated only once.

The last appointment of a Dean for the term of office from academic year 2010/2011 to academic year 2012/2013, was carried out at the Faculty on 19 April 2010, when Prof., D. Sc. Diana Milčić was appointed to one more consecutive term of office.

A Dean reports for his/her work to the Faculty Council and to Rector. In the absence of a Dean, he/she is replaced by one of the Vice-deans authorized by a Dean in writing. A Dean may, through authorization, delegate to other persons his authority to represent the Faculty in the legal circulation. A Dean determines the content and volume of such authorization in accordance with provisions of the law that regulates obligatory relations.

A Dean performs the following tasks:

- presents and represents the Faculty,
- organizes the work and business operation of the Faculty,
- makes business decisions in accordance with regulations,
- at the proposal of professional bodies of the Faculty, makes decisions on staff assignments within the Faculty,
- calls the Faculty Council into session, presides the session and proposes agenda for a session,
- by his/her position he/she is a member of the relevant council for the area,
- by his/her position he/she is a member of the Senate,
- makes proposals for the Faculty Council on actions required for the promotion of the Faculty work,
- carries out decisions made by the professional council, decisions made by the Senate, and decisions made by the council for the area, and
- also performs other tasks in accordance with Law, Statute of the Faculty and Statute of the University.

A Dean is entitled to make operating decisions on behalf and at the expense of the Faculty; however, the value of such decisions should not exceed one million HRK. For all legal actions, the worth of which is up to three million HRK, a Dean needs the Faculty Council's consent, and the consent of the Senate if the worth of legal actions exceeds the said amount.

Once a year, a Dean submits to the Faculty Council and to the Rector the Faculty Activity Report, including the Report on the Proposed Faculty's Budget and its Execution. A Dean also performs the teaching tasks with number of teaching hours equal to 20% of the norm for a research and teaching staff member. Any staff member of the Faculty with a research and teaching academic rank of a full or associate professor may be appointed as a Dean. A Dean is appointed by the Faculty Council in the manner provided under the Science and Higher Education Act, Statute of the University of Zagreb, and Statute of the Faculty of Graphic Arts, University of Zagreb.

Vice-deans assist a Dean in his/her work in accordance with the Statute. Term of office of a Vice-dean is equal to the term of office of the Dean at whose proposal the Vice-dean in question has been appointed. The appointment of Vice-deans from the ranks of research and teaching staff at the proposal of a Dean, confirms the Faculty Council. The term of a Vice-dean office lasts as long as that of the Dean at whose proposal the Vice-dean in question has been appointed and may be repeated.



As of 30 September 2011, the Faculty had two Vice-deans: a Vice-dean for Academic Affairs, and a Vice-dean for Finance.

The last appointment of a Vice-dean was made on 13 September 2010, for the term of office from academic year 2010/2011 to academic year 2012/2013; at which time were appointed for one more consecutive term of office: Assist. Prof., D. Sc Željka Barbarić-Mikočević as a Vice-dean for Science and Academic Affairs, and Assist. Prof. D. Sc Jasenka Pibernik as a Vice-dean for Finance. On 14 March 2011, both Vice-deans were appointed to research & teaching positions of Associate Professor.

By Amendments to Statutes of the Faculty of Graphic Arts, University of Zagreb, enacted by the Faculty Council on 18 March 2011 and approved by the University of Zagreb on 16 June 2011, the positions of the following three Vice-deans were established: Vice-dean for Academic Affairs; Vice-dean for Science and International Cooperation; and Vice-dean for Finance.

With the appointment of the Vice-dean for Science and International Cooperation (which started in November 2011) the former Vice-dean for Academic Affairs and Science has become a Vice-dean for Academic Affairs.

**A VICE-DEAN FOR ACADEMIC AFFAIRS** performs the following tasks:

- development of the programmes for educational activity in undergraduate, graduate and postgraduate study programmes,
- organizes the carrying out of the selection procedure for the admission of students to graduate studies,
- organizes the tasks related to the admission of students to undergraduate and postgraduate studies,
- organizes the development of the academic calendar and schedule of exams,
- collects data for various types of reports requested by the University or by the competent Ministry (the teachers' workload; list of associates; enrolment quotas; data related to student participation in tuition fees, etc.),
- consolidates the tasks related to the realization and development of the Faculty programmes for science and international cooperation,
- organizes the implementation of student exchange programme,
- in cooperation with the University, co-ordinates the international co-operation of students and that of the Faculty staff and, jointly with the project implementing agency, coordinates the performing of research activity, and
- also performs the tasks related to teaching, with teaching hours equal to 50% of the norm for a research and teaching staff member.

**A VICE-DEAN FOR FINANCE** performs the following tasks:

- consolidates the tasks related to creation of business and development policy, financial plan, annual implementation plan and programme of the Faculty, and takes up all steps necessary for the preparation of such documents, as well as the steps needed for their realization and for the providing of sources of financing,
- takes up all steps required for the coordination of the functioning of particular organizational units,





- participates in the work of bodies in their effort to resolve issues from their own scope of work, and performs other tasks for the requirements of the Faculty, as per an injunction of the Dean and a decision made by the Faculty Council,
- takes part in the process of entering into agreements on behalf and at the expense of the Faculty, and takes care of their realization,
- takes care of the Faculty's website lay-out,
- plans the procurement and maintenance of IT equipment,
- organizes tasks related to public procurement,
- along with the Dean, he/she is authorized to co-sign requests for particular payments and orders for the purchase of expendable, office and other materials for Departments and other organizational units; to co-sign financial documents and to monitor the allocation of available financial resources of the Faculty.
- also performs the tasks related to teaching, with teaching hours equal to 50% of the norm for a research and teaching staff member.

**HEAD OF DEPARTMENT** manages the work of the Department, and is appointed by the Faculty Council at the proposal of Department members. The last appointment of a Head of Department was carried out on 13 June 2011, for a period from academic year 2011/2012 to academic year 2012/2013, in accordance with the Decision on Conditions and Manner of Appointing Heads of Departments at the Faculty of Graphic Arts, University of Zagreb (Regular and Extraordinary Appointments), made by the Faculty Council on 21 January 2011.

**A SECRETARY OF THE FACULTY** is a director of organizational units which perform joint professional tasks. He/she performs the following tasks:

delivers to a Dean and to the Faculty Council expert and legal opinions and interpretations on the application of laws and other regulations,

prepares minutes of the Faculty Council sessions and shapes proposals of the Faculty's general acts,

directly takes care of and is responsible for the execution of organizational, administrative, legal and other general services of the Faculty.

The Acting Secretary of the Faculty, Jaka Mustapić, jurist, has been employed since 1 October 2008.

### **1.5 ELEMENTS OF INTEGRATION OF THE FACULTY OF GRAPHIC ARTS INTO THE UNIVERSITY OF ZAGREB.**

The Faculty of Graphic Arts (hereinafter referred to as: Faculty) is a research and teaching component of the University of Zagreb. The Faculty appears in the legal circulation under the name of the University of Zagreb and under its own name. The Dean of the Faculty reports for his/her work to the Faculty Council and Rector, and a Rector is entitled to supervise the lawfulness of the work of the Faculty. Rector is entitled to draw the attention of the Dean and that of the Faculty Council to any actions or decisions which are contrary to the Statute of the University of Zagreb, as well as to stop the execution of any decision made by a Dean or by any other body of the Faculty contrary to Law or to the Statute of the University of Zagreb. In case of a serious and permanent violation of the Law or of the Statute, or of decisions based upon the Statute, Rector may suspend a Dean and appoint an Acting Dean.





A Dean of the Faculty is a Senate member.

The Faculty of Graphic Arts is considered as one of the technical faculties; therefore, the majority of its staff members with a research and teaching position or with a teaching and associate position belong to scientific area of technical sciences.

The Student Council, made up from student representatives from all component parts of the Faculty, is active at the University of Zagreb. At the constituent assembly of the FGA (Faculty of Graphic Arts, University of Zagreb) Student Council, held on 4 October 2010, Josip Šušnjar, undergraduate student, was appointed to represent the Faculty of Graphic Arts, University of Zagreb in the Student Council of the University of Zagreb.

By the Faculty Council Decision made on 14 September 2009 Prof. D. Sc. Diana Milčić was appointed as a member of the University Senate, and Assoc. Prof. D. Sc. Jesenka Pibernik was appointed as her deputy. By the same Decision, the following members and their deputies were appointed to the Technical Council of the University of Zagreb: Assoc. Prof. D. Sc. Željka Barbarić-Mikočević as a member, and Assist. Prof. D. Sc. Igor Zjakić as her deputy; Assist. Prof. D. Sc. Lidija Mandić as a member and Assoc. Prof. D. Sc. Maja Brozović as her deputy; Assoc. Prof. D. Sc. Klaudio Pap as a member and Assist. Prof. D. Sc. Saja Mahović Poljaček as his deputy.

Prof., D. Sc. Diana Milčić is a member of the Quality Assurance Committee, University of Zagreb.

#### **1.6 FUNDAMENTAL VALUES AND WAYS OF SUPERVISION OF ETHICAL CONDUCT IN THE ACTIVITIES RELATED TO RESEARCH, TEACHING, AND ATTITUDE TOWARD STUDENTS.**

In its work, the Faculty adheres to the rules and principles of the Code of Ethics (passed by the Senate of the University of Zagreb on 15 May 2007), pursuant to which all scientists, teachers and associates of the Faculty must respect in their work, activity and conduct the fundamental principles of the University, as well as the principles of scientific criticism. Teachers base their educational and scientific activity upon the principles of academic freedom of scientific creativity, as well as on the principles of the University autonomy. The core values and manner of supervision of ethical conduct in activities related to research, teaching and treatment of students are promoted by the incorporation of relevant contents/provisions into the Faculty's general acts, primarily into the Statute of the Faculty of Graphic Arts, University of Zagreb, as well as through the work of the Faculty Ethics Committee. The principles of the Code of Ethics must be observed by all students, and the Ethics Committee provides by its work opinions on matters of principle and a coordinated acting in particular cases.

The Acting Ethics Committee of the Faculty of Graphic Arts of the University of Zagreb was appointed at the Faculty Council session held on 14 June 2010.

The Faculty has incorporated the protection of fundamental values and promotion of ethical conduct into provisions of the Regulations on Students' Disciplinary Liability (passed in 2009), by making provisions for and by describing of minor and major offences, as well as by the pronouncing of adequate sanctions for disciplinary offences, with an aim to achieve a re-education measure which will prevent a particular perpetrator and all other students to commit disciplinary offences in the future.

Informal methods for the protection of fundamental values and for the promotion of ethical principles among students are implemented through the organization of student competitions such as: Luka Ritz (Annual) Award (for schools without violence); Design Against Fur (against unnecessary killing of animals), etc.



#### 1.7 MISSION AND VISION OF THE FACULTY IN ACCORDANCE WITH THE STRATEGY AND ASSESSMENT OF THE STRATEGY'S REALIZATION THROUGH THE PROGRAMMES PERFORMED BY THE FACULTY (STUDY PROGRAMMES, EMPLOYMENT POLICY, INTERNATIONAL DIMENSION, SCIENTIFIC ACTIVITY, CARE FOR STUDENTS, QUALITY ASSURANCE, FINANCIAL TRANSACTIONS, ETC.)

##### MISSION OF THE FACULTY OF GRAPHIC ARTS

Mission of the Faculty of Graphic Arts, University of Zagreb is to realize lifelong education of staff in the area of graphic technology and design by a multidisciplinary approach to the development of teaching processes and study programme; and to transfer knowledge and results of research achieved in the area of graphic technology and communications into the public and private sector, particularly in cooperation with other higher education institutions from the region.

The Mission of the Faculty of Graphic Arts, University of Zagreb is entirely determined by:

- the scope of Faculty's activities within the environment;
- modern European trends in the development of higher education;
- dynamic and significant changes in the market which require transfer of knowledge and implementation of research results.

##### VISION OF THE FACULTY OF GRAPHIC ARTS

The Faculty of Graphic Arts wants to be a leading faculty in the region in terms of excellence in education, research work and transfer of knowledge in the area of graphic technology, design, and other interdisciplinary activities related to graphic technology.

The Vision of the Faculty of Graphic Arts lays stress upon:

- identifying of new areas of interest for the Faculty of Graphic Arts;
- excellence in research;
- quality in higher education through the implementation of most recent knowledge and standards;
- transfer of the knowledge acquired by research into public and private sectors.

To be a leading institution in the region with a multidisciplinary approach to the development of the teaching process and study programmes for lifelong education of staff in the area of graphic technology and design.

Transfer of knowledge and results of research within the area of graphic technology and communications into private and public sectors, in cooperation with other higher education institutions in the region.

##### OBJECTIVES

1. According to the Mission:

- to develop an optimal organizational structure in accordance with the Mission,
- to increase the number of professional projects in cooperation with the economy,
- to increase cooperation with other higher education institutions,



- to increase and improve the number of study programmes,
- to increase the number of research-projects,

## 2. Toward users:

- to increase the number of secondary school students interested in our programme,
- to raise the average success and pass rates of students,
- to improve the Quality of teaching process.

The Strategy for the Development of Study Programmes is implemented through the work of the Teaching Plan and Curriculum Committee. The priority task of the work is an analysis of the existing undergraduate study programme and proposal of a new one. A goal was set for the undergraduate study programme to train those students who do not wish to enrol in graduate studies for the work in the economy. For this reason it is necessary to make corrections or modifications to the plan for the performing of some courses. The Committee has processed the following analyses:

1. Lack of logic in some themes and subjects and their obsolescence in individual areas
2. List of activities and knowledge required by the economy but the existing programme does not offer them
3. Methods how to increase students' practical skills, or the need to increase practical work during the studies.
4. Discussion on possible new organizational charts of the Faculty of Graphic Arts
5. Discussion about possible modalities of change in the manner and organization of exams, such as an introduction of midterm exams week
6. Statements which characterize the present condition of programmes at the Faculty of Graphic Arts.

### The following premises were reached:

- It is emphasized that a diploma for both study tracks is a diploma in engineering, i.e. both diplomas are for a technical study track, which must be kept in mind while defining competences and learning outcomes
- An inflation of Humanities and Social Sciences subjects occurred as compared with technical and technological subjects. Of about 50% of subjects and their contents, in both study tracks, are from the area of social sciences
- The contents taught must be at the level of engineering, not at an IT level, informative level, or at the level of plain use of software and machine tools
- A too great turning aside towards the areas of social sciences (and even towards the areas of fine arts) has occurred, where we are threatened by the competition of study programmes of the Faculty of Humanities and Social Sciences and those of the Faculty of Informatics (FOI).
- It should be insisted that subjects offering a basic engineering mark must be mandatory subjects, while other subjects may be facultative for students.

### EMPLOYMENT STRATEGY AND POLICY

The Faculty follows the existing policy toward the employment of junior research assistants by the University; according to this policy a candidate for this position must be a Croatian citizen and one of the 10% most successful students in his/her study track, while success is measured by GPA (grade point average). The newly recruited junior research assistants are mainly recent graduates of the Fac-



ulty, however a competition requirement for assistants in the Department of Physics in Graphic Technology and in the Department of Mathematics was a diploma of the relevant faculty. For all work positions the candidates with highest qualifications are sought, so that some of the competitions were repeated due to the lack of adequate candidates.

## **THE INTERNATIONAL DIMENSION OF THE STRATEGY**

### **Strategy and scientific activity**

- support to Acta Graphica, a scientific journal
- organization of scientific and professional conferences: Printing industry, Blaž Baromić
- support in the preparation of documentation for projects of European and Croatian funds
- support in the organization of the school for young researchers within the framework of the COST Project
- support to students of postgraduate doctoral studies
- continual procurement of new research equipment

### **Strategy and care for students**

- encouraging the gifted students to take part in the research work and publish their own papers (Rector's Award; Tehnologijada, a cultural, educational and sports event organized for students of technical faculties; and Symposium "Blaž Baromić")
- continual organization and implementation of the Study-as-you-work Scheme
- the including of students into the Erasmus Programme (European Community Action Scheme for the mobility of university students)
- organization of national and international student competitions in the area of graphic design and technology
- continual organization of professional lectures
- organization of meetings for the discussion on students' problems
- organization of providing a support to students through the mentoring system
- support to different organizations dealing with student scholarship programmes and employment of students after their graduation
- support to students with special needs and organization of e-courses in cooperation with the association "Zamisli"
- continual and noticeable participation and presentation at the University Fair

### **Strategy and actions for quality assurance**

In the area of science

- Establishing and raising the criteria for the appointment to research & teaching or arts & teaching academic positions within the given area and their checking in a particular process of appointment
- encouraging junior staff to their professional development in foreign institutions
- Awards to the Faculty staff for the publication of their papers in A Category scientific journals



- The development of Regulations on Postgraduate University Studies of Graphic Engineering and Graphic Products Design at The Faculty of Graphic Arts, University of Zagreb

#### Professional and pedagogical development of teachers

- Pedagogical development of teachers through the achieving of diplomas of the programme called “Active Learning and Critical Opinion in Higher Education Teaching” made possible. On the basis of the programme workshops were organized for the teachers at the Faculty.
- Including of the teachers in the Erasmus Mobility Programme.
- Co-organization of professional events with lectures, such as INTERGRAFIKA, PRINT FORUM, FORUM NOVIH TEHNOLOGIJA (NEW TECHNOLOGIES FORUM)

#### In the area of organization

- Continual (professional) development of staff through foreign languages school and through their attending of professional seminars
- notification of job openings via EURAXESS service centre, which contains all information necessary to facilitate the coming of mobile researchers to Croatia for the purpose of cooperation with Croatian scientific organizations.
- rewards to students with best grade point averages
- carrying out a student survey in each academic year
- rewards for e-Learning?

### STRATEGY AND OPERATING ACTIVITIES

Taking into account the increasingly more complex requirements from its clients and proportionally scarce resources, efforts are made to organize the operating processes in a pragmatic way as much as possible, while emphasizing the importance of cost-effectiveness and respect for material and other rights of the staff. In the organization of these processes an increasingly greater attention is paid to the planning and management of resources, as well as to the increasing of the proportion of own sources of income in the overall structure of income. In this process, the greatest problem poses the issue of the development of market orientation and its bringing into line with the providing of high quality educational programmes and autonomy in the research activity.

#### 1.8 SIGNIFICANCE AND SPECIFIC QUALITY OF THE FACULTY OF GRAPHIC ARTS IN RELATION TO SIMILAR INSTITUTIONS IN THE REPUBLIC OF CROATIA IN THE SAME SCIENTIFIC FIELD.

The Faculty of Graphic Arts, University of Zagreb is a unique learning and teaching institution in the Republic of Croatia that operates in the scientific area: Technical sciences, scientific field: Graphic Technology, scientific branch: Graphic reproduction processes. A specific quality of the Faculty is present in the structure of curriculum, scientific staff members and possession of research expertise and equipment. Also, the Faculty is unique in the area of the Western Balkans by its organization of Postgraduate Doctoral Studies in the area of graphic technology and graphic products design.



**1.9 OVERLAPPING OF THE FACULTY OF GRAPHIC ARTS ACTIVITIES WITH ACTIVITIES OF SIMILAR INSTITUTIONS AT THE SAME UNIVERSITY.**

Similar institutions at the same university would be other faculties from the technical group, such as: Faculty of Textile Technologies; Faculty of Chemical Engineering and Technology; and the School of Design at the Faculty of Architecture. However, the overlappings in the curriculum and scientific activity are not present with regards to specific qualities of graphic reproduction processes, as the reproduction is performed within individual technical and technological units, which is recognized in the entire world.

**1.10 DOCUMENT ON THE STRATEGY AND PROCEDURES FOR THE QUALITY ASSURANCE IN SCIENTIFIC AND TEACHING ACTIVITIES AT THE FACULTY OF GRAPHIC ARTS, ASSESSMENT OF THE LEVEL OF ITS IMPLEMENTATION AND STATEMENT ON THE ANNUAL REPORTING.**

TO ENCLOSE

Regulations on the Quality Assurance System at the Faculty of Graphic Arts, University of Zagreb (18 April 2011).

**1.11 BODIES WHICH ARE CONTINUALLY DEALING WITH QUALITY ASSURANCE AREA AND ASSESSMENT OF THEIR WORK IN THE PAST 5 (FIVE) YEARS.**

The Dean and the Quality Management Committee.

**1.12 THE MAIN STRATEGIC GOALS WHICH THE FACULTY ADMINISTRATION TRIES TO ACHIEVE DURING ITS MANDATE, DIFFICULTIES THAT IT IS FACED WITH DURING THEIR REALIZATION (STUDY PROGRAMMES, EMPLOYMENT POLICY, INTERNATIONAL DIMENSION, TRANSACTIONS, ETC.)**

Analysis of the teaching plan and curriculum for undergraduate studies; employment of associate staff members and junior research assistants who earned their degree as students among the top ten students at the Faculty; employment of learning and teaching, art and teaching, teaching and all other staff on the basis of excellence and achievements in their former work; raising the required level of education as a precondition for the performing of administrative and other tasks; requirement to know English and at least one other world language for all work positions, except for those of technical and auxiliary staff; encouraging the student and teacher mobility; encouraging the Student Council work.

Reorganization of the Faculty, that is: downsizing the number of Departments for their more efficient operation; better organization of teaching, and research and art work.



### **1.13 STRENGTHS AND WEAKNESSES OF THE PROGRAMME, STAFF AND MATERIAL POTENTIALS OF THE FACULTY.**

The essential advantage of the curriculum potentials consists of the quality of teaching contents that have been developed for a long time and with a great care, and that are being developed continually in accordance with new technological and scientific insights. The numerousness of facultative courses offers an opportunity for students to create a unique specialization. An advantage of staff potentials lies in a great number of young and ambitious scientists dedicated to work with students. The planned moving to Campus Borongaj will also open new spatial capacities for the development.

A shortcoming of the existing programmes is their lack of coordination with national priorities (which have not been developed yet) and with the requirements of the economy (which have not been clearly defined yet). Similarly, an imbalance has been observed between research, teaching and project activities; efforts will be made to correct this imbalance by an active implementation of the strategy. There is a need for the additional space required for the accommodation of machines and equipment, as well as for the activities of student organizations. The building has not been adapted for students with special needs.

### **1.14 A FOREIGN HIGHER EDUCATION INSTITUTION THAT WE COMPARE OURSELVES WITH AND AN EXPLANATION OF THE COMPARISON CRITERIA.**

Foreign colleges and universities that we can compare ourselves with in terms of a similar area (graphic technology) are: Arteveldehogeschool, Gent, Belgium; Hochschule der Meiden, Stuttgart; University in Ljubljana; The Faculty of Technical Science, Department for Graphic Engineering, Novi Sad, Serbia. However, the study programmes are different, and the level of equipment, methods of financing and organization of operating activities are essentially different. The University has entered into bilateral agreements with the mentioned polytechnics, which has opened new opportunities for cooperation and learning from the examples of a good practice.

### **1.15 PARTICIPATION IN THE MAKING OF DECISIONS WHICH ARE OF A PUBLIC INTEREST.**

The Faculty staff were offering their opinion and critical comments on bills regulating the science and higher education activities and were actively participating in round tables with e-Learning thematics.

Data on such activities have not been collected systematically at the Faculty.

### **1.16 SATISFACTION WITH THE EXISTING STATUS AND PROPOSALS FOR POSSIBLE IMPROVEMENTS.**

If we compare ourselves, when assessing the satisfaction with the existing situation, with European polytechnics, we can be satisfied with the quality and organization of teaching, with the quality of education programmes, with success of our students in national and international competitions, and with the rate of their employment (since the beginning of the recession in Croatia). Improvements are possible, particularly with regards to the attracting of secondary school students with higher level of achievements at the national Matura exams, which has been emphasized in the strategic plans. Similarly, constant efforts are being made in the monitoring of contemporary achievements and in





the raising of the quality of teaching and organization of different additional activities that help better integration of the entire functioning of the Faculty into contemporary European flows.

As regards the assessment of the quality and productivity of the scientific research work, we can express only a partial satisfaction. There is a large room for better integration and cooperation with national and international scientists, and the additional efforts have been made in this direction. We are aware of rather modest work conditions and difficulties related to the transition that our scientists are faced with, as compared with foreign experts.

We can express a major dissatisfaction in the area of applying for European projects and in the area of realization of professional projects together with the economy. Reasons for such situation that exist presently primarily come from inadequate levels of communication and information both of the Faculty staff and the business community; thus we believe that the implementation of strategic objectives will contribute to an improvement of the current situation. Issues related to finances and relying on income earned from student tuition participation are a difficult organizational and operational burden for the shoulders of all Faculty employees. We see possible improvements in better cooperation with the economy, in getting a larger number of national and European projects, as well as in the coming out of the economy from the recession.





**Table 1.1.** Internal quality assurance

Type of activity	Responsible for the activity (name of the body or persons)	Frequency of the activity (number of annual meetings or activities)	Number of reports made in the course of specific activity in the last 5 years	Practical results of activities (descriptive)	
Thematic sessions on teaching quality *Thematic items of agenda at sessions of the Faculty working bodies	Board of Deans	30	4	Decisions of the Dean, Board of Deans proposals	
	Vice-dean for Science and Academic Affairs	Continually	4 15		
	Faculty Council		3	Proposals to the Board of Deans and to the Faculty Council	
	Doctoral Study Committee		10 (on a monthly basis)		Decisions, opinions and recommendations of the Faculty Council Enactment of general acts
			10 (as required, on a monthly basis)		Development of the draft general act: Regulations on Doctoral Study Programme Graphic Engineering and Graphic Products Design at the Faculty of Graphic Arts, University of Zagreb Meeting of students of doctoral study programme (at the beginning of an academic year) in connection with studying at the level of doctoral study programme Development of the Draft Decisions on the including of three new courses into the Teaching Plan and Study Programme for Doctoral Studies (of 22 March 2010)
	Teaching, Final Examinations, and Graduation Theses Committee		10 As required		Development of draft general acts; Regulations on Studying at Undergraduate and Graduate Studies (of 26 January 2009) Regulations on Graduation Thesis and Final Examination at the Faculty of Graphic Arts, University of Zagreb (of 17 May 2010) The Protocol of the Final Thesis Defence at the Faculty of Graphic Arts, University of Zagreb in AY 2011/2012 (of 16 June 2011)

Type of activity	Responsible for the activity (name of the body or persons)	Frequency of the activity (number of annual meetings or activities)	Number of reports made in the course of specific activity in the last 5 years	Practical results of activities (descriptive)
Activity of the board (committee) for teaching quality monitoring	Quality Management Committee Prof. D. Sc. Miroslav Gojo Prof. D.Sc. Diana Milčić	4 times a year	4	General acts Draft of the Quality Management Handbook (in 2010) Regulations on the Quality Assurance System at the Faculty of Graphic Arts, University of Zagreb (of 18 April 2011);  Amendments to undergraduate study programmes Graphic Technology; study tracks: Technical and Technological, and Graphic Products Design (of 2010)
Student questionnaire (implementation, processing, informing students, teachers' responses)	Vice-dean for Science and Academic Affairs Student Council	2	2	Results of the Student survey
SWOT analysis at the level of the institution	-	-	-	-
Monitoring quality indicators at HEI*	Faculty Council	4	4	Report on the work of the Dean and of the Faculty of Graphic Arts, University of Zagreb
Other forms of evaluation	Surveys of doctoral students	1	1	Results of the Student survey

\*Ordinance on the content of license and conditions for issuing license for carrying out activities of higher education, carrying out study programmes and re-accreditation of higher education institutions (Official Gazette, no. 24/10 and Ordinance on conditions for issuing licence for carrying out scientific activity, re-accreditation of scientific organisations and content of license (Official Gazette, no. 83/2010)

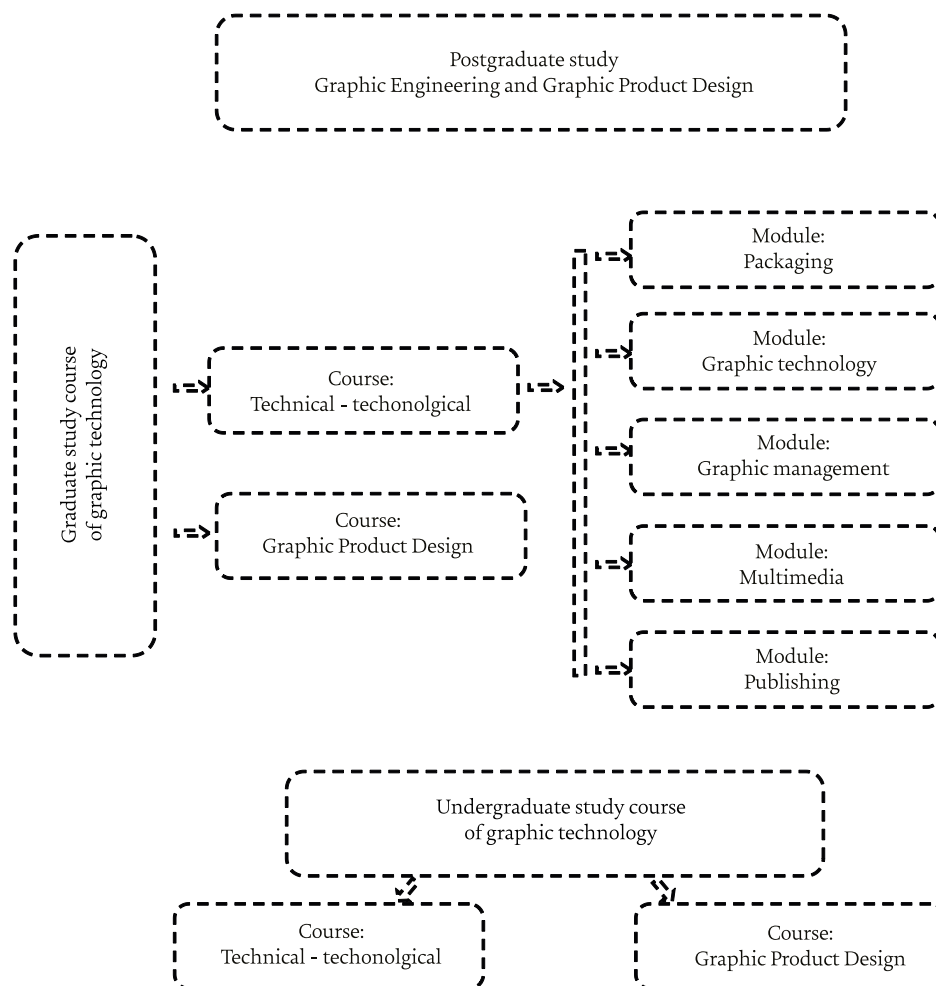




## 2. Study Programmes



**2.1 CONFIGURATION DIAGRAM OF ALL STUDY PROGRAMMES BY VERTICAL STRUCTURE (UNDERGRADUATE, GRADUATE AND POSTGRADUATE) WITH RELEVANT STUDY TRACKS. DESCRIPTION OF THE STRUCTURE OF STUDIES AND REVIEW OF FUNCTIONAL REASONS FOR THE EXISTING CONFIGURATION, ESPECIALLY IN TERMS OF THE REALIZATION OF OPTIMAL EDUCATIONAL OUTCOMES (EMPLOYABILITY, STUDY CONTINUATION, MOBILITY) WITH PROJECTED ENROLMENT QUOTAS.**



Three year undergraduate and two year graduate university studies are divided into two tracks: technics and technology track and graphic product design track. Upon completing undergraduate university studies in graphic technology, the bachelors can continue their education by enrolling in graduate studies at a faculty track. Furthermore, according to Bologna process rules, bachelors are free to continue their studies at a different university, i.e. a different graduate studies programme in Croatia or Europe. Enrolling a track within the Faculty of Graphic Arts graduate studies does not require graduating from the same undergraduate studies track. Certain mandatory courses from each of the undergraduate study tracks are offered as facultative courses at the other track, preparing undergraduate students for both tracks, i.e. possible change of track upon starting graduate studies. For instance, technics and technology track undergraduate students can opt for the graduate studies design track if they meet the design track appointment procedure requirements. Graduate studies are also open to bachelors from undergraduate studies at other schools or professional study programmes at colleges (Technical College in Zagreb, Varaždin college...). Transferring from professional studies is based on

differential subjects within undergraduate studies, defined by the Faculty Council prior to enrolling the first generation of graduate students in the AY 2008/09. Technical-technological track of graduate studies contains following modules: Publishing, Multimedia, Graphic management, Graphic Technology and Packaging. Graduate students choose modules and combine facultative courses in order to define the gamut of knowledge and competencies they wish to acquire.

Based on the three-year experience (since AY 08/09), there is a need to categorize differential subjects as a differential semester or a differential year due to the number of subjects and students' load expressed as the number of ECTS credits.

Upon completing graduate studies, candidates from the Faculty of Graphic Arts, as well as other candidates that completed undergraduate studies or graduate studies at another university (usually in the fields of technical, natural and social sciences) can enroll in the Postgraduate doctoral studies in Graphics Engineering and Graphic Product Design, scheduled to last 3 years/ 6 semesters (2 semesters of courses and 4 semesters of scientific research).

The Faculty organizes and executes postgraduate doctoral studies in the scientific field of technical sciences, scientific domain of graphic technology, branch of graphic reproduction processes. The postgraduate doctoral study tracks are: graphics engineering and graphic product design. The basic traits of studies are research and studying through research, interdisciplinarity, internationalization, application of international quality standards and international competitiveness.

Upon enrolling in postgraduate doctoral studies, candidates having completed undergraduate studies or graduate studies of another university need to enroll and take differential subjects / exams from undergraduate and graduate studies of the Faculty of Graphic Arts.

In order to achieve interdisciplinarity, the Ph.D. students can enroll some lecture courses and carry out parts of research at the University or other institutions. A Ph.D. student does not need to cover every aspect of studies, but only the ones that the mentor considers best for the Ph.D. student and his research activity.

The Faculty of Graphic Arts at the University of Zagreb has for many years been the only one in Croatia to provide the labour market with graduates in graphics technology and, starting from AY 2008/09, graphics technology bachelors, as well as masters of graphics technology (since 2010/11). Apart from full-time studies, part-time studies have been organized for a number of years. In the academic year 2006/07, displaced courses have been organized for part-time undergraduate studies in Split, primarily due to the need of Slobodna Dalmacija d.d. for staff with high education. Lecturers held courses in Split, while seminars and practice were carried out at the Faculty in Zagreb. Since Slobodna Dalmacija d.d. no longer had the need to educate staff and the financial crisis took its toll, new generations of part-time studies - distance education in Split were no longer enrolled.

## **2.2 OVERLAPS OF STUDY PROGRAMMES AT THE FACULTY OF GRAPHIC ARTS WITH SIMILAR STUDY PROGRAMMES AT OTHER UNIVERSITY COMPONENTS.**

For each of the following types of study; undergraduate, graduate, integrated and postgraduate (separately for postgraduate specialist study programmes) as well as professional study programmes (if any) answer the following:



### **2.2.1 CRITERIA USED DURING THE PROPOSING OF ENROLMENT QUOTAS FOR PARTICULAR LEVELS OF STUDYING. ASSESSMENT OF THE SUITABILITY OF ENROLMENT QUOTAS WITH REGARD TO SOCIAL NEEDS AND NUMBER OF THE UNEMPLOYED, POSSIBILITY OF THE FACULTY TO PROVIDE QUALITY EDUCATION IN GROUPS AND THE NUMBER OF CAPABLE STUDENTS MOTIVATED FOR EFFICIENT STUDYING IN LINE WITH THE GIVEN PROGRAMME.**

There is no system for defining enrollment quotas based on the needs of the society and real demand at the labour market in place at the University of Zagreb or anywhere in Croatia. In this context, the Faculty of Graphic Arts is the only faculty in the Republic of Croatia that has for a number of years been providing the labour market with graduates in graphics technology (undergraduate studies). Apart from those, starting from the academic year 2008/09, the labour market has been provided with bachelors of graphic technology (undergraduate studies), as well as Masters of Graphic Technology (graduate study). Considering the statistics of the Croatian Employment Service (Table 3.2), showing the number of unemployed graduates of the Faculty of Graphic Arts, there is no need to adjust the enrollment quotas of individual study programmes, which remain the same since the implementation of the Bologna programme.

Most students having completed the undergraduate studies continued their education at graduate studies of the Faculty of Graphic Arts, a lesser number moved on to other studying facilities, with only a few that did not continue their education. The Faculty adjusted group sizes based on the usual references, investing major efforts in e-Learning in order to provide students with additional quality of the teaching process. The number of courses implementing e-Learning has been increasing with each academic year.

Over the last years (since academic year 2007/08), the interest in part-time undergraduate studies has dropped significantly. According to our knowledge, most students consider the study programme too demanding to handle on top of existing duties at their workplace. In light of this, the University did not submit a request for the enrollment quota for part-time university studies.

The introduction of Bologna regulations of studying, such as regular completion of duties within courses, limited number of opportunities to take course exams within a single AY or the necessity of gaining a minimum number of ECTS credits (35 in two academic years) resulted in decreased interest of employed students in part-time studies.

### **2.2.2 PASS RATE ANALYSIS AT THE FIRST YEAR OF STUDIES AND CORRELATION WITH THE ENROLMENT CRITERIA, IN VIEW OF THE TYPE OF SECONDARY SCHOOL THAT THE CANDIDATES CAME FROM AND THEIR AVERAGE GRADES DURING THEIR SECONDARY EDUCATION.**

Starting from AY 2010/11, the enrollment was based upon achieved results at high school graduation, as opposed to AY 2009/10, when students were enrolled based on the results achieved in the course of the appointment procedure. Average pass rate in the first year of undergraduate studies at the level of individual subjects differs slightly (63,6% in AY 2009/10 compared to 61,0% in AY 2010/11), with significant variations among subjects (see appended table 2.3.2.1 Analysis of taking exams and passing them in 2009/10, table 2.3.2.2 Analysis of taking exams and passing them 2010/11)

Pass rate for basic courses (maths, physics, chemistry) is somewhat below average pass rate of all first year study programme courses in both AYs, even though success in these subjects was rated as part of the appointment procedure, i.e. state high school graduation. In the last AY (state high school gradu-



ation), the pass rate for physics and maths is better than it was in the previous generation (appointment procedure). Reasons for this may include better preparation of students during the final grade of high school education for state high school graduation and admission to colleges. This presumption will be confirmed/invalidated by monitoring the success of students in generations to come.

Regarding the high school that the enrolled students graduated from, high school students achieved better first year results in both academic years based on the average number of attained ECTS credits (47 ECTS in AY 2009/10 and 53 ECTS in AY 2010/11) compared to vocational secondary school graduates (38 ECTS in AY 2009/10 and 40 ECTS in AY 2010/11), as shown in table 2.3. Students' success depending on their high school education in the appendix.

Likewise, pass rate for basic courses is higher for high school graduates. E.g. Physics 1 is a first semester course. In the AY 2009/10, 61% of „high school students“ and 35% of „vocational school students“ passed the exam, and in AY 2010/11 63% „high school students“ and 39% „vocational school students“ passed. Similar pass rate differences were identified for chemistry and maths exams.

### **2.2.3 METHODOLOGY USED IN DETERMINING THE LEARNING OUTCOMES DURING THE PLANNING OF STUDY PROGRAMMES. RELATING OF OBLIGATORY COURSES TO COMPETENCES WHICH ARE ACQUIRED.**

Plans for studying programmes at the Faculty of Graphic Arts were created based on years of research and consideration, observing similar programmes in Europe and elsewhere in the world, implementing their contents in the programme proposal and modifying the programme to allow for differences in the Croatian market. In other words, study goals were devised based on the Bloom taxonomy and competencies rely on comparisons to similar technical faculties and market needs, taking into consideration predictions for future development of the profession.

In keeping with this, undergraduate university Graphic Technology mandatory courses were defined and connected in order to achieve well rounded professional competencies. Students of the Technics and Technology track gain basic knowledge and skills in the fields of mathematics, physics, chemistry and computer informatics relevant for graphic technology, which creates foundations for comprehension of the technical-technological process involved in creating a graphics product. Students acquire specific knowledge and skills through topics forming the core of curriculum: materials in graphical production, printing forms, reproduction photography, typography, press, bookbinding, packaging, organization of graphical production, multimedia communications, marketing and quality control. Based on this programme, the undergraduate studies in graphic technology empower students for independent work in graphics industry, performing a wide gamut of different tasks. Persons having completed undergraduate studies in graphic technology will have acquired knowledge, skills and capabilities enabling them to independently lead and manage the quality of graphical production. This implies that they will be capable of managing any printing plant (preparation, processing or printing), performing various jobs related to technological preparation for the operation of printing systems and developing the printing production process.

### **2.2.4 THE MOST IMPORTANT GOALS IN IDENTIFYING THE LEARNING OUTCOMES AND ASSESSMENT OF LEVELS ACHIEVED IN THE REALIZATION OF THE GOALS DEFINED DURING THE CREATION OF NEW STUDY PROGRAMMES.**

Defining learning outcomes attempted to:

- assess the relevance of studies with respect to the needs of labour market and modify the existing program of the studies accordingly



- link the content of the studies to contemporary scientific findings
- synchronize the content of the curriculum with programmes of reputable foreign institutions
- find partners outside the system of higher education
- facilitate individualization and student mobility

Defined goals are achieved with significant difficulties. For the most part, difficulties arise upon finding a partner outside the system in higher education, as well as enabling individualization and student mobility, primarily due to global crisis and lack of material assets.

#### **2.2.5 PROCEDURES FOR THE ALIGNMENT OF ALLOCATED ECTS POINTS AND A REALISTIC ASSESSMENT OF THE LEVEL OF STUDENT WORKLOAD.**

ECTS credits for individual courses were awarded by teachers based on their teaching experience prior to introduction of the Bologna process, according to the number of hours students invested in lectures and independent mastering of course content. For certain courses in the semester, students submit written reports on the activities performed within a certain time span, which are graded by assistants and teachers. Teaching Committee altered the Plan and curriculum, adjusting certain ECTS credits according to teachers' experiences and based on student surveys (overloading students or overlapping of some course contents).

Likewise, an attempt is made to shift the educational process for certain courses from teachers' knowledge transfer model towards a model focusing on students, developing and gaining their own competencies. Consistent with that, e-Learning is introduced in an attempt to synchronize the number of allocated ECTS credits to actual situation.

#### **2.2.6 ASSESSMENT OF COMPETENCES OF PROFESSIONALS WHO HAVE COMPLETED STUDIES AT THE FACULTY OF GRAPHIC ARTS IN COMPARISON TO SIMILAR STUDIES AT PROMINENT UNIVERSITIES IN EUROPE AND IN THE WORLD. ALIGNMENT OF PROGRAMMES TO RECOMMENDATIONS FROM EUROPEAN OR INTERNATIONAL PROFESSIONAL ORGANISATIONS.**

Competences of experts completing their studies at the Faculty are satisfactory when compared to graduates of related studies in Europe. The analysis of related programmes determined that our programme has an optimal balance between core science subjects and professional subjects. Experiences of employees involved in the mobility programmes prove the competitiveness of our programme in European context.

#### **2.2.7 THE PROCESS OF MONITORING AND DEVELOPING THE STUDY PROGRAMMES AND THEIR ADJUSTMENT TO NEW INVESTIGATIONS. MODIFICATIONS IN BOLOGNA STUDY PROGRAMMES WHICH WERE FORMERLY ACCEPTED AND AN EXPLANATION AS TO WHY THEY WERE MADE.**

Once the undergraduate studies reached full functioning of all study years, a review of curriculum was initiated. Changes included (appended table 2.3.7.1 Changes within initially adopted study programmes):





- cancelling certain facultative courses at the Technical and Technology track based on an estimate that a larger number of facultative courses from one's proper field were needed,
- cancelling certain facultative courses at the Graphic Product Design track based on an estimate that a larger number of facultative courses from one's proper field were needed,
- switching some mandatory courses At the Technical and Technology track to facultative courses (mandatory At the Graphic Product Design track) in order to allow for more facultative courses and vice versa.
- changing the semester schedule for some courses due to the fact some courses have a more demanding content while others are a precondition to attend higher semester courses,
- alterations made in order to improve programme coherence and semester load (minimum 30 ECTS credits per semester).

#### **2.2.8 GRADUATE PROFESSIONAL AND SPECIALIST STUDY PROGRAMMES**

Professional and specialist graduate studies are not carried out at the Faculty of Graphic Arts.

#### **2.3 MECHANISMS USED FOR CHECKING REGULAR CLASS ATTENDANCE AND AN OPINION ON THESE METHODS.**

Faculty web site published the system for grading students' activities during lectures and outside course lectures for each Department, detailing requirements for taking an exam (regular attendance at some elements of teaching, presentations of seminar works, on-line homeworks). Teachers perform random lecture attendance checks not less than 5 times during the semester. Students' attendance at seminars and practices is compulsory and a log is being kept. Should a student have valid reasons for not being able to attend, she or he will be provided with an opportunity to catch up as agreed with the lecturer.

Even though e-Learning is considered very important, traditional forms of teaching still play a major role due to direct transfer of teacher's knowledge to students, discussion among students and so on. E-Learning course attendance is checked using a software application. We consider these approaches adequate, but they can be improved by putting more emphases on e-Learning.

#### **2.4 DESCRIPTION AND ASSESSMENT OF TEACHING METHODS, AS WELL AS OF HOLDING PRACTICAL AND FIELD CLASSES, WITH A VIEW OF PROBLEMS RELATED TO THIS AND POSSIBLE IMPROVEMENTS.**

The teaching process uses various individual and group methods, such as:

- lecturing (standard and video conference - for students with special needs),
- presentations and demonstrations,
- problem solving, handling tasks that encourage creativity, project participation and students' participation in research,
- answering questions, solving tests,
- solving tests and homeworks within the e-Learning system,



- repetition and practicing while acquiring skills; teamwork in posing, analysis, solving of problems and working on projects,
- independent acquiring and analysis of information from various sources

Practical part of some courses is performed in several companies that the Faculty has been successfully collaborating with for years. The goal of practical courses is direct students' introduction to work organization, problems and solutions in realistic contexts of graphic reproduction, quality control, publishing industry, sales and such. Students attend specialized professional lectures, talk to experts on work conditions, problems emerging, possible employment and so on.

One of the problems is a limited number of companies interested and capable of providing proper conditions for practical lessons.

There is little room for improvement due to specific conditions regarding the number of students, area of interest and so on. Improvements are therefore focused on organizing invited lectures by experts from reputable companies as part of Faculty courses.

By participating in the international professional trade organizations, Faculty attempts to organize new forms of teaching: summer schools, workshops within the framework of research projects, student competitions related to professional problems and performance of professional practice with foreign partners.

## **2.5 DESCRIPTION AND ASSESSMENT OF HOLDING A PART OF CLASSES OUTSIDE THE FACULTY (PROFESSIONAL PRACTICE). AN EXPLANATION OF THE SYSTEM USED FOR MAKING RECORDS ON THE CARRYING OUT OF PROFESSIONAL PRACTICE WITH A SPECIAL VIEW OF RELEVANT PROBLEMS AND POSSIBLE SOLUTIONS.**

Undergraduate studies practice is regulated by Regulations on professional practice. Professional practice coordinator suggests companies where students can perform professional practice, keeps track of the comprehensive documentation in the form of a professional practice log book. Problems have been identified, as businessmen tend to avoid including students in adequate tasks related to professional practice, thus precluding the anticipated outcome. Parts of teaching have been carried out for a number of years within some companies (Radin Zagreb, Istragrafika Rovinj, Vjesnik d.d., Slobodna Dalmacija d.d., Bilokalnik Koprivnica...), allowing students to gain new knowledge and insights related to graphic profession.

## **2.6 AN ASSESSMENT OF ACCESSIBILITY AND QUALITY OF WEB-CONTENTS OF STUDY PROGRAMMES.**

Departments are obliged to publish and update the contents of their websites. Systematic inclusion of e-Learning in all study programmes aims to improve upon existing teaching methods. High quality content has been introduced and supported by application of pedagogical principles. Content included publication of usual presentations employed by teachers during lectures, video and audio materials, animations and simulations prepared by teachers, as well as free, publicly available content. Furthermore, links to interesting web documents have been posted and various web 2.0 learning tools are used. Particular significance is attributed to communication channels (forum, chat etc.) in order to facilitate the exchange of information within certain communities (teams, seminar groups or students attending a course).



## **2.7 PROGRAMMES CONCEPT; PROPOSALS AND PLANS FOR A MODIFICATION OF STUDY PROGRAMMES**

Revision of undergraduate studies programme is carried out continuously at the end of each academic year since 2005/06 and was incorporated in the AY 2008/09, i.e. upon completion of the studies by the first generation of undergraduate students. Awareness of development tendencies within graphic technology and design resulted in a need to revise study programmes and suggest new ones. Curriculum and Teaching Planning Committee has been founded and tasked with suggesting new study tracks in keeping with perceived weaknesses of the existing programme and market requirements.

## **2.8 LIFELONG LEARNING PROGRAMMES AT THE FACULTY OF GRAPHIC ARTS.**

Cooperation between the Agency for vocational and adult education and the Faculty results in periodic Teachers professional conferences covering the education sector of graphic technology and audio-visual technology. Cooperation between Zagreb Fair and the Faculty yields the organization of professional lectures within the Intergrafika and Modernpak fairs, held biannually. ECTS credits are not awarded for these programmes.

## **2.9 EXPLAIN THE SYSTEM FOR RECOGNITION OF PRIOR COMPETENCES (INFORMAL AND NON-FORMAL EDUCATION). COMMENT ON THE SYSTEM FOR ACADEMIC RECOGNITION OF FOREIGN HIGHER EDUCATION QUALIFICATIONS.**

Acknowledgement of qualifications already gained at foreign higher education institutions (academic acknowledgement) is under the jurisdiction of the University of Zagreb, and the procedure is initiated upon individual request in order to resume education at some of the colleges and universities within the Republic of Croatia.

Recognition of a period of studies spent at a foreign higher education institution is within Faculty jurisdiction, i.e. the Committee carrying out the recognition of courses at the request of an individual in order to allow for continuation within of the Faculty study programmes. Faculty Council reaches the final decision, which is delivered to the University.

Faculty did not develop a system for recognition of non-formal education.

## **2.10 FORMAL METHODS FOR APPROVING, REVIEWING, AND MONITORING OF PROGRAMMES AND QUALIFICATIONS.**

Evaluation of Faculty study programmes is carried out in accordance to legal documents regulating the evaluation criteria:

- Act on Quality Assurance in Science and Higher Education,
- Ordinance regarding license content and requirements for issuing the license to perform HE activities, carrying out study programmes and re-accreditation of higher education institutions,
- Regulations on the procedure for evaluation of study programmes for undergraduate, graduate, integrated undergraduate and graduate, and professional studies of the University of Zagreb,
- European guidelines for quality assurance (ESG).



Programmes and Faculty qualifications are approved in phases and monitored through formal mechanisms. Faculty Council nominates the Curriculum and Teaching Planning Committee, tasked with developing the programme proposal. Faculty Council approves the programme, sends it back for modification or rejects it. Once the study programme proposal has been accepted, it is delivered to the University, which carries out the procedure according to the Regulations on the procedure of study programmes evaluation.

## 2.11 THE EXISTING SITUATION - SATISFACTION AND PROPOSALS FOR AN IMPROVEMENT

Curricula quality is an important factor in competitiveness and an important precondition for integrating higher education into the European Union system. Considering the fact that it is an important task of each Croatian higher education institution including the Faculty of Graphic Arts to carry out all preparations for adjustment of the Croatian higher education according to European standards, we need to provide our students with quality throughout the educational process. It is of particular importance to evaluate the quality at the Faculty of Graphic Arts, measure and monitor it via student experience and satisfaction, since student as education users have better insight into system weaknesses. In keeping with this, the Faculty of Graphic Arts has will continue to carry out numerous anonymous surveys for students of all study programmes, used to indicate the need for change and improvement in several domains of the educational processes. We believe that senior years students surveyed provide a satisfactory sample for acquiring necessary information, as they possess certain studying experiences enabling them to form opinions on the quality of study programmes.

In order to ensure the adjustment of approved curricula to accommodate the development of our scientific field and the development of practice in the graphic profession, the Faculty of Graphic Arts will continue to regularly carry out institutional evaluation and monitoring of study programmes (self-evaluation).

In order to perform self-evaluation, we have and will continue to use appropriate instruments, including student opinion surveys (polls, discussions), course evaluation reports, labour market surveys etc.

Faculty study programmes have been regularly updated in recent years, not solely regarding their content, but also by implementing modern teaching methods, particularly e-Learning. This approach contributes to better learning outcomes and higher students pass rates.

On the other hand, lack of human resources in teaching and student support does not allow for further steps towards increasing the quality of the teaching process. (smaller student groups in all teaching activities, individual work with students etc.).



**Table 2.1.1.1. List of courses and lectures at the Undergraduate Study Course of Graphic Technology**

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Packaging 1	C	3	4	L	1	30	60	Babić Darko	permanent basis	full professor/ graphic technology
				E	15	12	180	Lajić Branka	temporary basis	Senior research assistant/ graphic technology
Automata theory and maintenance of printing machines	O	3	4	L	1	30	60	Banić Dubravko	permanent basis	Assistant professor/graphic technology
				S	1	30	45	Banić Dubravko	permanent basis	Assistant professor/graphic technology
				L	1	20	40	Pap Klaudio	permanent basis	Associate professor/graphic technology
				L	1	10	20	Žiljak Vilko	permanent basis	full professor, tenured/graphic technology
Digital multimedia 1	O	4	5	E	6	30	180	Koren Tajana	temporary basis	Senior research assistant/graphic technology
				E	3	30	90	Rudolf Maja	temporary basis	Research assistant/graphic technology
Graphic media design 1	O	3	4	S	1	15	22,5	Pibernik Jesenka	permanent basis	Associate professor/graphic technology
English for specific purposes 1	O	2	3	E	4	30	120	Bilušić Iva	temporary basis	Research assistant/graphic technology
				L	2	15	60	Nemec Ana	permanent basis	lecturer/philology
English for specific purposes 2	O	2	3	S	2	15	45	Nemec Ana	permanent basis	lecturer/philology
				L	1	15	30	Nemec Ana	permanent basis	lecturer/philology
English for specific purposes 3	O	2	3	S	1	15	22,5	Nemec Ana	permanent basis	lecturer/philology
				L	1	15	30	Nemec Ana	permanent basis	lecturer/philology
English for specific purposes 4	O	2	3	S	1	15	22,5	Nemec Ana	permanent basis	lecturer/philology
				L	1	30	60	Modrić Damir	permanent basis	Assistant professor/graphic technology
Physics 1	C	4	5	S	3	15	67,5	Petric-Maretić Katja	temporary basis	Research assistant/graphic technology
				E	8	15	120	Itrić Katarina	temporary basis	Research assistant/graphic technology
				E	4	15	60	Petric-Maretić Katja	temporary basis	Research assistant/graphic technology
				L	1	30	60	Modrić Damir	permanent basis	Assistant professor/graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Physics 2				L	1	30	60	Džimbeg-Malčić Vesna	permanent basis	Associate professor/graphic technology
				S	3	15	67,5	Itrić Katarina	temporary basis	Research assistant/graphic technology
	C	4	5	E	3	15	45	Džimbeg-Malčić Vesna	permanent basis	Associate professor/graphic technology
				E	3	15	45	Modrić Damir	permanent basis	Assistant professor/graphic technology
				E	3	15	45	Itrić Katarina	temporary basis	Research assistant/graphic technology
Applied Physics				E	5	15	75	Petric-Maretić Katja	temporary basis	Research assistant/graphic technology
	C(eng)	3	4	L	1	30	60	Džimbeg-Malčić Vesna	permanent basis	Associate professor/graphic technology
Photographic processes				S	2	15	45	Džimbeg-Malčić Vesna	permanent basis	Associate professor/graphic technology
	C	3	4	L	1	30	60	Knešaurek Nina	permanent basis	Associate professor/graphic technology
Major printing techniques				E	14	15	210	Kulčar Rahela	temporary basis	Senior research assistant/graphic technology
				L	1	30	60	Bolanča Stanislav	permanent basis	Full professor, tenured/graphic technology
				E	2	30	60	Bak Ivana	temporary basis	Research assistant/graphic technology
	C	4	5	E	8	30	240	Golubović Kristijan	temporary basis	Junior researcher-research assistant/ graphic technology
				E	5	30	150	Majnarić Igor	temporary basis	Senior research assistant/graphic technology
Graphic design 1				E	2	30	60	Matijević Mile	temporary basis	Research assistant/graphic technology
	C(des)	4	4	L	1	15	30	Brozović Maja	permanent basis	Associate professor/graphic technology
Graphic design 2				E	3	45	135	Kovačević Dorotea	temporary basis	Research assistant/graphic technology
	C(des)	4	4	L	1	15	30	Brozović Maja	permanent basis	Associate professor/graphic technology
Graphic programming languages				E	3	45	135	Kovačević Dorotea	temporary basis	Research assistant/graphic technology
	O(eng)	3	4	L	1	30	60	Pap Klaudio	permanent basis	Associate professor/graphic technology
				E	3	15	45	Koren Tajana	temporary basis	Junior researcher-senior research assistant/ graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Printing machines 1	C	3	4	L	1	30	60	Banić Dubravko	permanent basis	Assistant professor/graphic technology
				S	2	15	45	Banić Dubravko	permanent basis	Assistant professor/graphic technology
Printing machines 2	C(eng)/O	3	4	L	1	30	60	Banić Dubravko	permanent basis	Assistant professor/graphic technology
				S	2	15	45	Banić Dubravko	permanent basis	Assistant professor/graphic technology
Industry and environment	C	3	4	L	1	30	60	Bolanča Zdenka	temporary basis	Full professor, tenured/graphic technology
				S	1	15	22,5	Bolanča Zdenka	temporary basis	Full professor, tenured/graphic technology
Informatics 1	C	2	3	L	1	15	30	Koren Antun	permanent basis	Associate professor/graphic technology
				E	5	15	75	Koren Antun	permanent basis	Associate professor/graphic technology
Informatics 2	O	2	3	E	6	15	90	Petrač Stjepan	piece work agreement	Research assistant/graphic technology
				L	1	15	30	Koren Antun	permanent basis	Associate professor/graphic technology
Engineering Graphics	C	3	4	E	5	15	75	Petrač Stjepan	piece work agreement	Research assistant/graphic technology
				L	1	30	60	Bjelovučić-Kopilović Sanja	permanent basis	Associate professor/mechanical engineering
Chemistry 1	C	4	5	E	14	15	210	Jokić Tigran	permanent basis	Expert assistant/graphic technology
				L	1	30	60	Barbarić Mikočević Željka	permanent basis	Associate professor/graphic technology
Chemistry 2	C	3	4	S	3	15	67,5	Barbarić Mikočević Željka	permanent basis	Associate professor/graphic technology
				E	14	15	210	Kučić Dajana	temporary basis	Research assistant/graphic technology
Applied chemistry	C(eng)	3	4	L	1	30	60	Rožić Mirela	permanent basis	Associate professor/graphic technology
				E	13	15	195	Miličević Tamara	temporary basis	Junior researcher-research assistant/graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Bookbinding 1	C(eng)/O	4	5	L	1	30	60	Babić Darko	permanent basis	Full professor/ graphic technology
				E	5	30	150	Lajić Branka	temporary basis	Senior research assistant, graphic technology
				E	6	30	180	Pasanec Preprotić Suzana	temporary basis	Research assistant, graphic technology
Communication science	C(des)/O	3	4	L	1	30	60	Popović Goran	piece work agreement	Assistant professor/information science
				S	1	15	22,5	Mustić Daria	temporary basis	Junior researcher/ research assistant, graphic technology
Quality control	C(eng)/O	3	4	L	1	30	60	Milčić Diana	permanent basis	Full professor, graphic technology
				S	1	15	22,5	Donevski Davor	temporary basis	Senior research assistant/graphic technology
Qualitative research methods of colour reproduction	O	3	4	L	1	30	60	Knešaurek Nina	permanent basis	Associate professor/graphic technology
				E	4	15	60	Kulčar Rahela	temporary basis	Senior research assistant/graphic technology
Visual arts practice 1	C(des)	3	3	L	1	15	30	Jozić Josip	piece work agreement	Lecturer/fine arts
				E	3	30	90	Jurković-Benić Vanda	temporary basis	Research assistant/fine arts
Visual arts practice 2	C	3	3	L	1	15	30	Brozović Maja	permanent basis	Associate professor/graphic technology
				E	2	30	60	Jurković-Benić Vanda	temporary basis	Research assistant/fine arts
Visual arts practice 3	C	4	4	L	1	15	30	Jozić Josip	piece work agreement	Lecturer/fine arts
				E	2	45	90	Jurković-Benić Vanda	temporary basis	Research assistant/fine arts
Visual arts practice 4	C	4	4	L	1	15	30	Brozović Maja	permanent basis	Associate professor/graphic technology
				E	2	45	90	Jurković-Benić Vanda	temporary basis	Research assistant/fine arts
History of visual communications 1	C(des)/O	3	3	L	1	30	60	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology
				S	2	15	45	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology
History of visual communications 2	C(des)/O	2	2	L	1	15	30	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology
				S	1	15	22,5	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology



Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Minor printing techniques	C(eng)/O	4	5	L	1	30	60	Bolanča Stanislav	permanent basis	Full professor, tenured/graphic technology
				E	3	30	90	Golubović Kristijan	temporary basis	Junior researcher-research assistant/graphic technology
				E	5	30	150	Majnarić Igor	temporary basis	Senior research assistant/graphic technology
Marketing 1	C(eng)/O	3	4	L	1	30	60	Juri Božidar	piece work agreement	Associate professor/business management
				S	1	15	22,5	Bratić Diana	temporary basis	Research assistant/graphic technology
Mathematics 1	C	6	7	L	1	45	90	Budimir Ivan	permanent basis	Lecturer/mathematics
Mathematics 2	C	6	7	S	3	45	202,5	Budimir Ivan	permanent basis	Lecturer/mathematics
				L	1	45	90	Budimir Ivan	permanent basis	Lecturer/mathematics
Multimedia communications 1	O	4	5	S	3	45	202,5	Budimir Ivan	permanent basis	Lecturer/mathematics
				L	1	30	60	Skala Karolj	piece work agreement	Full professor/graphic technology
				E	4	30	120	Levačić Goran	piece work agreement	Research assistant/graphic technology
German for specific purposes 1	O	2	3	E	3	30	90	Skala Tibor	temporary basis	Senior lecturer/graphic technology
				L	1	15	30	Nemec Ana	permanent basis	Lecturer/philology
German for specific purposes 2	O	2	3	S	1	15	22,5	Nemec Ana	permanent basis	Lecturer/philology
				L	1	15	30	Nemec Ana	permanent basis	Lecturer/philology
German for specific purposes 3	O	2	3	S	1	15	22,5	Nemec Ana	permanent basis	Lecturer/philology
				L	1	15	30	Nemec Ana	permanent basis	Lecturer/philology
				S	1	15	22,5	Nemec Ana	permanent basis	Lecturer/philology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field				
Optoelectronic systems 1	O	4	5	L	1	30	60	Skala Karolj	temporary basis	Full professor/electrical engineering				
				E	3	30	90	Skala Tibor	temporary basis	Senior research assistant/graphic technology				
Organization of printing production	C	3	4	L	1	30	60	Juri Božidar	piece work agreement	Associate professor/business management				
				S	1	15	22,5	Bratić Diana	temporary basis	Research assistant/graphic technology				
Original graphics 1	C(des)	3	3	L	1	15	30	Jozic Josip	piece work agreement	Lecturer/fine arts				
				E	4	30	120	Jozic Josip	piece work agreement	Lecturer/fine arts				
Original graphics 2	C(des)	3	3	L	1	15	30	Jozic Josip	piece work agreement	Lecturer/fine arts				
				E	4	30	120	Jozic Josip	piece work agreement	Lecturer/fine arts				
Original graphics 3	C(des)	3	3	L	1	15	30	Jozic Josip	piece work agreement	Lecturer/fine arts				
				E	4	30	120	Jozic Josip	piece work agreement	Lecturer/fine arts				
Original graphics 4	C(des)	3	3	L	1	15	30	Jozic Josip	piece work agreement	Lecturer/fine arts				
				E	3	30	90	Jozic Josip	piece work agreement	Lecturer/fine arts				
Principles of computers and programming	C(eng)/O	3	3	L	1	15	30	Pap Klaudio	permanent basis	Associate professor/graphic technology				
				S	1	15	22,5	Pap Klaudio	permanent basis	Associate professor/graphic technology				
				S	1	15	22,5	Rudolf Maja	temporary basis	Research assistant/graphic technology				
				E	7	15	105	Rudolf Maja	temporary basis	Research assistant/graphic technology				
				E	7	15	105	Bernašek Aleksandra	temporary basis	Research assistant/graphic technology				

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Paper	C	3	4	L	1	30	60	Kropar-Vančina Vesna	permanent basis	Full professor, tenured/graphic technology
				E	11	15	165	Jamnicky Sonja	temporary basis	Senior research assistant/graphic technology
Polymer materials	O	2	3	L	1	30	60	Kropar-Vančina Vesna	permanent basis	Full professor, tenured/graphic technology
				L	1	30	60	Mikota Miroslav	permanent basis	Senior lecturer/graphic technology
Applied photography 1	C(des)	4	4	E	4	15	60	Pavlovic Ivana	piece work agreement	Research assistant/graphic technology
				L	1	30	60	Lozo Branka	permanent basis	Associate professor/graphic technology
Application and investigation of printed materials	O	3	4	E	4	15	60	Lozo Branka	permanent basis	Associate professor/graphic technology
				L	1	30	60	Agic Darko	permanent basis	Associate professor/graphic technology
Reproduction photography 1	C	3	4	L	1	30	60	Mandić Lidija	permanent basis	Assistant professor/graphic technology
				E	9	15	135	Mandić Lidija	permanent basis	Assistant professor/graphic technology
Reproduction photography 2	C	3	4	E	8	15	120	Poljičak Ante	temporary basis	Junior researcher-research assistant/ graphic technology
				E	4	15	60	Strgar Kurečić Maja	permanent basis	Assistant professor/graphic technology
Manual production of boxes	O(eng)	3	3	L	1	15	30	Agic Darko	permanent basis	Associate professor/graphic technology
				E	2	15	30	Mandić Lidija	permanent basis	Assistant professor/graphic technology
Handbinding	O(eng)	3	4	E	3	15	45	Poljičak Ante	temporary basis	Research assistant/graphic technology
				E	4	15	60	Strgar Kurečić Maja	permanent basis	Assistant professor/graphic technology
Handbinding	O(eng)	3	4	L	1	15	30	Babić Darko	permanent basis	Full professor/graphic technology
				E	2	30	60	Lajić Branka	temporary basis	Senior research assistant/graphic technology
Handbinding	O(eng)	3	4	L	1	15	30	Babić Darko	permanent basis	Full professor/graphic technology
				E	6	30	180	Pasanec Preprotić Suzana	temporary basis	Research assistant/graphic technology



Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Sociology of design	C(des)/O	2	3	L	1	30	60	Pibernik Jesenka	permanent basis	Associate professor/graphic technology
Technical mechanics	O	3	4	L	1	30	60	Bjelovučić-Kopilović Sanja	permanent basis	Associate professor/mechanical engineering
				S	1	15	22,5		Jokić Tiigran	permanent basis
Technical presentable systems	C(eng)/O	3	4	L	1	30	60	Bjelovučić-Kopilović Sanja	permanent basis	Associate professor/mechanical engineering
				E	8	15	120		Jokić Tiigran	permanent basis
Design theory	C(des)	1	2	L	1	15	30	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology
Typography	C	4	5	L	1	30	60	Žiljak Stanimirović Ivana	permanent basis	Assistant professor/graphic technology
				S	3	15	67,5		Žiljak Stanimirović Ivana	permanent basis
				S	1	15	22,5	Žiljak Vilko	permanent basis	Full professor, tenured/graphic technology
				E	8	15	120	Bernašek Aleksandra-Z	temporary basis	Research assistant/graphic technology
				E	8	15	120	Žiljak Stanimirović Ivana	permanent basis	Assistant professor/graphic technology
Printing process 1	C	4	5	L	1	30	60	Mrvac Nikola	permanent basis	Associate professor/graphic technology
				E	2	21	42	Bates Irena	temporary basis	Research assistant/graphic technology
				E	2	21	42	Golubović Kristijan	temporary basis	Junior researcher-research assistant/ graphic technology
				E	6	21	126	Matijević Mile	temporary basis	Research assistant/graphic technology
Printing and design	C(des)	3	4	E	10	9	90	Mrvac Nikola	permanent basis	Associate professor/graphic technology
				L	1	30	60	Mrvac Nikola	permanent basis	Associate professor/graphic technology
				E	3	4	12	Mrvac Nikola	permanent basis	Associate professor/graphic technology
				E	3	11	33	Matijević Mile	temporary basis	Research assistant/graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Printing inks	C(eng)/O	3	4	L	1	30	60	Kropar-Vančina Vesna	permanent basis	Full professor, tenured/graphic technology
				E	13	15	195	Jamnicki Sonja	temporary basis	Senior research assistant/graphic technology
Printing plates 1	C	3	4	L	1	30	60	Gojo Miroslav	permanent basis	Full professor /graphic technology
				L	1	30	60	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology
				E	7	30	210	Gigula Tomislav	temporary basis	Research assistant/graphic technology
				E	7	30	210	Dragčević Kresimir	temporary basis	Senior research assistant/graphic technology
Printing plates 2	C(eng)	3	4	E	2	30	60	Mahović Poljaček Sanja	permanent basis	Assistant professor/graphic technology
				L	1	30	60	Lovreček Mladen	permanent basis	Associate professor/graphic technology
				E	1	15	15	Gigula Tomislav	temporary basis	Research assistant/graphic technology
				E	2	15	30	Dragčević Kresimir	temporary basis	Senior research assistant/graphic technology
Physical education 1	C	2	0	E	5	15	75	Tomašegović Tamara	temporary basis	Junior researcher-research assistant/graphic technology
				E	4	30	120	Šolc-Pervan Vilma	permanent basis	Senior lecturer/physical education
				E	4	30	120	Šolc-Pervan Vilma	permanent basis	Senior lecturer/physical education
				E	4	30	120	Šolc-Pervan Vilma	permanent basis	Senior lecturer/physical education
Offset printing management	O(eng)	4	5	L	1	30	60	Zjakić Igor	permanent basis	Assistant professor/graphic technology
				E	3	30	90	Bates Irena	temporary basis	Research assistant/graphic technology
Introduction into printing technology	O	2	3	L	1	30	60	Babić Darko	permanent basis	Full professor/graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Visual communications	C(des)/O	3	4	L	1	30	60	Popović Goran	piece work agreement	Assistant professor/information science
				E	3	15	45	Mustić Daria	temporary basis	Junior researcher-research assistant/ graphic technology
Probability and statistics	C(eng)/O	3	4	L	1	30	60	Pusić Zoran	piece work agreement	Senior lecturer/mathematics
				S	2	15	45	Pusić Zoran	piece work agreement	Senior lecturer/mathematics
Environmental science and design	C(des)	3	4	L	1	30	60	Bolanča Zdenka	temporary basis	Full professor, tenured/graphic techno- logy
				S	1	15	22,5	Jakovljević Maja	temporary basis	Research assistant/graphic technology

Legenda:

O(eng) – compulsory for the study course of Graphic engineering

O(des) – compulsory for the study course of Graphic product design



Table 2.1.2. List of courses and lectures at the Graduate Study Course of Graphic Technology

Course/lecture	Compulsory/optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Packaging 2	C(p)/O	4	6	L	1	30	60	Babić Darko	permanent basis	full professor, graphic technology
				E	1	30	30	Lajić Branka	temporary basis	senior research assistant, graphic technology
Packaging and environment	C(p)/O	3	5	L	1	30	60	Bolanča Zdenka	temporary basis	full professor, tenured, graphic technology
				S	1	15	22,5	Bolanča Zdenka	temporary basis	full professor, tenured, graphic technology
Packaging and technology 1	O(p)/O	4	6	L	1	30	60	Babić Darko	permanent basis	full professor, graphic technology
				E	1	30	30	Jurečić Denis	temporary basis	research assistant, graphic technology
Packaging and technology 2	C(p)/O	4	6	L	1	30	60	Babić Darko	permanent basis	full professor, graphic technology
				E	1	30	30	Jurečić Denis	temporary basis	research assistant, graphic technology
Workflow automation	O	3	5	L	1	30	60	Pap Klaudio	permanent basis	associate professor/graphic technology
				E	1	15	15	Pap Kludio	permanent basis	associate professor/graphic technology
Colour in digital environment	O	2	3	L	1	3	6	Agić Darko	permanent basis	associate professor/graphic technology
				L	1	27	54	Mandić Lidija	permanent basis	assistant professor/ graphic technology
CTP technology	O	4	6	L	1	30	60	Lovreček Mladen	permanent basis	associate professor/ graphic technology
				S	1	15	22,5	Gigula Tomislav	temporary basis	research assistant, graphic technology
Digital basis of printing standards	O	3	4	E	1	15	15	Gigula Tomislav	temporary basis	research assistant, graphic technology
				L	1	15	30	Pap Kludio	permanent basis	associate professor/graphic technology
Digital multimedia 2	C(m)/O	4	6	E	1	30	30	Pap Kludio	permanent basis	associate professor/graphic technology
				L	1	20	40	Žiljak Vilko	permanent basis	full professor, tenured, graphic technology
				L	1	10	20	Pap Kludio	permanent basis	associate professor/graphic technology
				E	2	30	60	Koren Tajana	temporary basis	junior researcher-senior research assistant /graphic technology

Course/lecture	Compulsory/optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Digital print	O	4	6	L	1	30	60	Bolanča Stanislav	permanent basis	full professor, tenured, graphic technology
				E	1	30	30	Golubović Kristijan	temporary basis	research assistant/graphic technology
				E	3	30	90	Majnarić Igor	temporary basis	senior research assistant/graphic technology
Graphic media design 2	C(p.a.)/O	4	6	L	1	30	60	Pibernik Jesenka	permanent basis	associate professor/graphic technology
				E	1	30	30	Bilušić Iva	temporary basis	research assistant, graphic technology
Design and environment	C(des)	3	5	L	1	30	60	Bolanča Zdenka	temporary basis	full professor, tenured, graphic technology
				S	1	15	22,5	Jakovljević Maja-Z	temporary basis	research assistant/graphic technology
Product design: case study	C(des)	4	5	L	1	15	30	Pibernik Jesenka	temporary basis	associate professor/graphic technology
				E	2	45	90	Bota Josip	temporary basis	research assistant, graphic technology
				E	4	45	180	Dilberović Ivan	permanent basis	research assistant/graphic technology
Graphic design 3	C(des)	4	5	L	1	15	30	Brozović Maja	permanent basis	associate professor/graphic technology
				E	3	45	135	Kovačević Dorotea	temporary basis	research assistant, graphic technology
Graphic design 4	C(des)	4	5	L	1	15	30	Brozović Maja	permanent basis	associate professor/graphic technology
				E	3	45	135	Kovačević Dorotea	temporary basis	research assistant/graphic technology
Printing materials in conventional and digital printing processes	O	2	4	L	1	30	60	Kropar-Vančina Vesna	permanent basis	full professor, tenured/graphic technology
				L	1	30	60	Žiljak Vilko	permanent basis	full professor, tenured, graphic technology
Documents and securities graphics	O	3	5	E	4	15	60	Koren Tajana	temporary basis	junior researcher-senior research assistant/graphic technology
				L	1	30	60	Modrić Damir	permanent basis	assistant professor/graphic technology
Holography	C(m)/O	3	5	S	1	15	22,5	Modrić Damir	permanent basis	assistant professor/graphic technology
				L	1	30	60	Mrvac Nikola	permanent basis	associate professor/graphic technology
Multimedia systems	C(m)/O	4	6	E	4	30	120	Matijević Mile	temporary basis	research assistant, graphic technology
				L	1	30	60	Babić Darko	permanent basis	full professor, /graphic technology
Bookbinding 2	O	4	6	E	1	30	30	Pasanec Preprotić Suzana	temporary basis	research assistant/graphic technology



Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/ artistic field
Graphic design communicationology	O	4	6	L	1	30	60	Popović Goran	piece work agreement	assistant professor/information science
				E	2	30	60	Mustić Daria	temporary basis	junior researcher-research assistant/ graphic technology
Quality control and assurance in graphic production	C(p.a.)/O	3	5	L	1	30	60	Milčić Diana	permanent basis	full professor/graphic technology
				E	3	15	45	Donevski Davor	temporary basis	senior research assistant/graphic technology
Marketing 2	O	3	5	L	1	30	60	Juri Božidar	piece work agreement	associate professor/business management
				S	1	15	22,5	Bratić Diana	temporary basis	research assistant/graphic technology
Mechanical simulations in computer animations	C(m)/O	3	4	L	1	15	30	Bjelovučić-Kopilović Sanja	permanent basis	associate professor/mechanical engineering
				E	2	30	60	Jokić Tigran	permanent basis	Expert assistant/graphic technology
Multimedia communications 2	C(m)/O	4	6	L	1	30	60	Skala Karolj	piece work agreement	full professor/electrical engineering
				E	3	30	90	Levačić Goran	piece work agreement	research assistant/graphic technology
Quality management	O	4	6	L	1	30	60	Milčić Diana	permanent basis	full professor/graphic technology
				S	1	30	45	Donevski Davor	temporary basis	senior research assistant/graphic technology
Optimization of printing system	O	4	6	L	1	30	60	Mrvac Nikola	permanent basis	associate professor/graphic technology
				E	2	30	60	Matijević Mile	temporary basis	research assistant/graphic technology
Optoelectronic systems 2	C(m)/O	4	6	L	1	30	60	Skala Karolj	piece work agreement	full professor/electrical engineering
				E	2	30	60	Skala Tlbor	temporary basis	senior research assistant/graphic technology
Composing scientific and professional papers	O	2	3	L	1	15	30	Koren Antun	permanent basis	associate professor/graphic technology
				S	1	15	22,5	Koren Antun	permanent basis	associate professor/graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/ artistic field
Principles of applied photography	C(p.a.)/O	3	5	L	1	30	60	Mikota Miroslav	permanent basis	senior lecturer/graphic technology
				E	6	15	90	Pavlović Ivana	piece work agreement	research assistant/graphic technology
Packaging technology	C(p)/O	3	5	L	1	30	60	Donevski Davor	temporary basis	senior research assistant/graphic technology
				S	1	15	22,5	Milčić Diana	permanent basis	full professor/graphic technology
Motion graphics	C(des)/O	4	6	L	1	30	60	Pibernik Jesenka	ne temporary basis	associate professor/graphic technology
				E	6	30	180	Dolić Jurica	temporary basis	research assistant/graphic technology
Business communication	O	4	6	L	1	30	60	Popović Goran	piece work agreement	assistant professor/information science
				S	1	30	45	Mustić Daria	temporary basis	junior researcher-research assistant/graphic technology
Business and security printing	O	4	6	L	1	30	60	Zjakić Igor	permanent basis	associate professor/graphic technology
				S	1	30	45	Zjakić Igor	permanent basis	assistant professor/graphic technology
Applied photography 2	C(des)	4	6	L	1	30	60	Mikota Miroslav	permanent basis	senior lecturer/graphic technology
				E	6	30	180	Pavlović Ivana	piece work agreement	research assistant/graphic technology
Application of digital photography in reproduction media	O	3	4	L	1	3	6	Agić Darko	permanent basis	associate professor/graphic technology
				L	1	27	54	Strgar Kurečić Maja	permanent basis	assistant professor/graphic technology
Computer typography	O	4	6	E	4	15	60	Strgar Kurečić Maja	permanent basis	assistant professor/graphic technology
				L	1	30	60	Žiljak Vilko	permanent basis	full professor, tenured/graphic technology
History of printing	C(p.a.)/O	3	5	E	1	30	30	Koren Tajana	temporary basis	junior researcher- senior research assistant/graphic technology
				L	2	30	120	Lozo Branka	permanent basis	associate professor/graphic technology
Realizations of general solutions 1	C(p.a.des)/O	3	5	S	3	15	67,5	Lozo Branka	permanent basis	associate professor/graphic technology
				L	1	30	60	Brozović Maja	permanent basis	associate professor/graphic technology
				E	8	15	120	Kovačević Dorotea	temporary basis	research assistant/graphic technology

Course/lecture	Compulsory/ optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/ artistic field
Realizations of general solutions 2	C(p.a./des)/O	3	5	L	1	30	60	Bota Josip	temporary basis	research assistant/graphic technology
				E	6	15	90	Brozović Maja	permanent basis	associate professor/graphic technology
Re-engineering in the printing production	O	4	6	L	1	30	60	Banić Dubravko	permanent basis	assistant professor/graphic technology
				S	1	30	45	Banić Dubravko	permanent basis	assistant professor/graphic technology
Reproduction of the image infor- mation	O	4	6	L	1	30	60	Agić Darko	permanent basis	associate professor/graphic technology
				S	1	15	22,5	Agić Darko	permanent basis	associate professor/graphic technology
				E	1	15	15	Agić Darko	permanent basis	associate professor/graphic technology
Paper restoration and preservation	O	2	4	L	1	30	60	Kropar-Vančina Vesna	permanent basis	full professor, tenured, graphic technology
Broadband network applications	C(m)/O	4	6	L	1	30	60	Skala Karolj	piece work agreement	full professor/electrical engineering
				E	2	30	60	Poljak Ervin	piece work agreement	research assistant/graphic technology
Technical editing and run manage- ment	C(p.a.)/O	4	6	L	1	30	60	Zjakić Igor	permanent basis	assistant professor/graphic technology
				E	6	30	180	Bak Ivana	temporary basis	research assistant/graphic technology
Digital photography printing	O	3	5	L	1	30	60	Mikota Miroslav	permanent basis	senior lecturer/graphic technology
				E	7	15	105	Mikota Miroslav	permanent basis	senior lecturer/graphic technology
Packaging printing	C(p)/O	3	5	L	1	30	60	Bolanča Stanislav	permanent basis	full professor, tenured, graphic technology
				E	4	15	60	Bak Ivana	temporary basis	research assistant/graphic technology
Art photography 1	C(des)	4	6	L	1	30	60	Mikota Miroslav	permanent basis	senior lecturer/graphic technology
				E	4	30	120	Pavlović Ivana	piece work agreement	research assistant/graphic technology
Art photography 2	C(des)	4	6	L	1	30	60	Mikota Miroslav	permanent basis	senior lecturer/graphic technology
				E	9	30	270	Pavlović Ivana	piece work agreement	research assistant/graphic technology

Course/lecture	Compulsory/optional	ECTS	Workload	Type of lecturing	Number of groups	Periods per week	Teaching load	Lecturer	Type of employment	Scientific degree and scientific/artistic field
Introduction into the theory of experimental work	O	3	5	L	1	30	60	Modrić Damir	permanent basis	assistant professor/graphic technology
				S	1	15	22,5	Modrić Damir	permanent basis	assistant professor/graphic technology
WEB design 1	C(m)/O	4	6	L	1	30	60	Pibernik Jesenka	permanent basis	associate professor/graphic technology
				E	6	30	180	Bilušić Iva	temporary basis	research assistant/graphic technology
WEB design 2	C(m)/O	4	6	L	1	30	60	Žiljak Vujic Jana	piece work agreement	assistant professor/graphic technology
				E	1	30	30	Rudolf Maja	temporary basis	research assistant/graphic technology
				E	1	30	30	Žiljak Vilko	permanent basis	full professor, tenured/graphic technology

Legend: C(m) – compulsory for the module Multimedia (study course of Graphic engineering)  
C(p.a.) – compulsory for the module Publishing art (study course of Graphic engineering)  
C(p) – compulsory for the module Packaging (study course of Graphic engineering)  
C(des) – compulsory for the study course of Graphic product design

**Table 2.2.1** Course of lectures for the academic year 2008/09

FACULTY OF GRAPHIC ARTS  
 Getaldićeva 2, tel. 23 71 080, tel. / fax 23 71 077  
 E-mail: dekan@grf.hr URL: www.unizg.grf.hr

I. FACULTY MANAGEMENT	
Dean and vice-deans	
Dean: Ph.D. Diana Milčić, associate professor	
Vice-dean for Finance and General Affairs: Ph.D. Jesenka Pibernik, assistant professor	
Vice-dean for Academic Affairs: Ph.D. Željka Barbarić Mikočević, assistant professor	
Faculty Council	
Dean as chairperson, teaching staff, research assistants' representatives, four students' representatives	
II. FACULTY SECRETARY'S OFFICE	
Getaldićeva 2, telefon 23 71 080, telefon / telefaks 23 71 077	
Faculty secretary: Jaka Mustapić, expert in law	
1. Full professors	
a) Full-time employment	
Bolanča, ph.D. Stanislav	Major printing techniques, Minor printing techniques, Packaging printing, Digital print
Bolanča, ph.D. Zdenka	Industry and environment, Environment management system
Gojo, ph.D. Miroslav	Printing plates 1, Photosensitive copying layers, Surface phenomena on printing plates
Kropar-Vančina, ph.D. Vesna	Polymer materials, Paper, Paper restoration and preservation, Printing materials in conventional and digital printing processes
	papira, Grafički materijali konvencionalnog i digitalnog tiska
Plenković, ph.D. Mario	Communicology, Visual communications, Graphic design communicology, Media communication
Žiljak, ph.D. Vilko	Principles of computers and programming, Typeface, Typography, Graphic programming languages, Computer graphics, Computer typography
2. Associate professors	
a) Full-time employment	
Agić, ph.D. Darko	Reproduction photography 1, Reproduction photography 2, Reproduction of the image information, Application of digital photography in reproduction media, Colour in digital environment
Babić, ph.D. Darko	Introduction into printing technology, Graphic products design, Manual production of boxes, Hand binding, Packaging 1, Packaging 2, Bookbinding 1, Bookbinding 2, Packaging and technology
Juri, ph.D. Božidar	Marketing 1, Organization of printing production, Principles of microeconomics, Marketing 2
Jurković, mr.sc. Mato	History of visual communications 1, 2, Design theory, Visual arts
Knešaurek, ph.D. Nina	Photographic processes, Qualitative research methods of colour reproduction
Koren, ph.D. Antun	Informatics 1, 2,
Lovreček, ph.D. Mladen	Printing plates 2, Standardization of printing plates *, CTP technology



Milčić, ph.D. Diana	Quality control, Principles of quality control, Packaging technology
Mrvac, ph.D. Nikola	Printing process 1, Printing and design
Salamon, ph.D. Velimir	Printing machines 1, 2, Automata theory and maintenance of printing machines
3. Assistant professors	
a) Full-time employment	
Brozović, ph.D. Maja	Graphic design 1, 2, 3, 4, Realizations of general solutions 1, 2, WEB design 2
Barbarić Mikočević, ph.D. Željka	Chemistry 1
Bolanča Mirković, ph.D. Ivana	Environmental science and design, Design and environment
Džimbeg-Malčić, ph.D. Vesna	Physics 2, Applied physics, Optical measuring methods of printing surfaces
Lozo, ph.D. Branka	Application and investigation of printed materials, Paper
Mandić, ph.D. Lidija	Reproduction photography 1, Reproduction photography 2,
Pap, ph.D. Klaudio	Principles of computers and programming, Graphic programming languages, Typography, Typeface, Workflow automation
Pibernik, ph.D. Jesenka	Graphic media design 1 i 2, WEB design 1
Rožić, ph.D. Mirela	Chemistry 2, Applied chemistry
Zjakić, ph.D. Igor	Offset printing management, Technical editing and run management, Business and security printing
4. Senior lecturers	
a) Full-time employment	
Mikac-Dadić, Višnja	Physics 1, Physics 2
Mikota, ph.D. Miroslav	Art photography 1, Applied photography 1, 2, Principles of applied photography, Digital photography printing
Pusić, Zoran	Mathematics 1, Mathematics 2, Probability and statistics
Šolc-Pervan, Vilma	Physical education 1, 2, 3, 4
5. Senior research assistants	
a) Full-time employment	
Banić, ph.D. Dubravko	Printing machines 1, 2, Automata theory and maintenance of printing machines, Re-engineering in the printing production
Laić, ph.D. Branka	Manual production of boxes, Packaging 1, 2
Majnarić, ph.D. Igor	Major printing techniques, Minor printing techniques, Digital print
Modrić, ph.D. Damir	Physics 1, Physics 2, Holography
Žiljak, ph.D. Ivana	Typography
6. Research assistants	
a) Full-time employment	
Bates, Irena	Major printing techniques, Minor printing techniques, Offset printing management, Printing and design, Technical editing and run management, Packaging printing
Bratić, Diana	Organization of printing production, Marketing 1
Budimir, Ivan	Mathematics 1, Mathematics 2, Probability and statistics
Cigula, Tomislav	Printing plates 1, Printing plates 2, Standardization of printing plates, CTP technology, Photosensitive copying layers, Surface phenomena on printing plates
Dolić, Jurica	Graphic media design 1, 2, WEB design 1



Donevski, Davor	Quality control
Dragčević, Krešimir	Printing plates 1, Printing plates 2, Standardization of printing plates
Golubović, Kristijan	Major printing techniques, Minor printing techniques
Jamnicky, Sonja	Paper, Application and investigation of printed materials
Jurečić, Denis	Graphic products design
Jurković-Benić, Vanda	History of visual communications 1 and 2, Visual arts practice 1, 2, 3, 4,
Koren, Tajana	Principles of computers and programming, Typeface, Typography, Graphic programming languages, Computer graphics
Kulčar, Rahela	Photographic processes, Qualitative research methods of colour reproduction
Matijević, Mile	Printing process 1
Mustić, Daria	Visual communications, Graphic design communicology,
Pasanec Preprotić, Suzana	Bookbinding 1, 2, Hand binding
Plazonić, Ivana	Chemistry 1, 2
Poljičak, Ante	Reproduction photography 1, Reproduction photography 2,
Rudolf, Maja	Principles of computers and programming, Typeface, Typography, Graphic programming languages, Computer graphics
Skala, Tibor	Digital multimedia 1, Multimedia communications 1, 2,
Strgar Kurečić, ph.D. Maja	Reproduction photography 1, Reproduction photography 2, Application of digital photography in reproduction media
Stanić, Nikolina	Typography, Typeface slog, Computer graphics
9. Expert assistants	
a) full-time employment	
Jokić, Tigran	Engineering graphics, Technical presentable systems, Technical mechanics
Petric-Maretić, Katja	Physics 1, 2
10. Other associates	
Bilušić, Iva	Printing plates 1, Printing plates 2, Standardization of printing plates, Graphic media design 2
Bogdanović, Siniša	WEB design 2
Futač, Nikola	Reproduction photography 1
Jozić, Josip, akademski slikar	Original graphics 1, 2, 3, 4
Matić, Vijeko	Visual arts practice 2, 4
Nemec, prof, Ana	Foreign language for specific purposes 1, 2, 3, 4
Pavlović, Ivana	Art photography 1, Applied photography 1, 2, Principles of applied photography, Digital photography printing
Radoš, Goran	Communicology
Skala, ph.D. Karolj, red. prof.	Digital multimedia 1, 2, Multimedia communications 1, 2, Optoelectronic systems 1, 2
Vuco Češnovar, Jesika	Visual arts practice 1, 3
Vukošić, Hrvoje	Digital multimedia 1, 2, Multimedia communications 1, 2, Optoelectronic systems 1, 2
Žeželj, ph.D. Dragan	Engineering graphics, Technical presentable systems, Technical mechanics



Study course: Undergraduate study course of graphic technology  
Study program: Tehnical - Tehnological

Academic year: 1.

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
COMPULSORY COURSES AND LECTURES									
Pusić, Z.	Mathematics 1,	3	3	0	7				
Mikac-Dadić, V.	Physics 1	2	1	1	5				
Barbarić-Mikočević, Ž.	Chemistry 1	2	1	1	5				
Žeželj, D.	Engineering graphics	2	0	1	4				
Koren, A.	Informatics 1	1	0	1	3				
Pusić, Z.	Mathematics 2					3	3	0	7
Mikac-Dadić, V.	Physics 2					2	1	1	5
Rožić, M.	Chemistry 2					2	0	1	4
Knešaurek, N.	Photographic processes					2	0	1	4
Žeželj, D.	Technical presentable systems					2	0	1	4
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES AND LECTURES									
Jurković, M.	History of visual communications 1	2	1	0	3				
Babić, D.	Introduction into graphic technology	2	0	0	3				
Žeželj, D.	Technical mechanics	2	1	0	4				
Nemec, A.	Foreign language for specific purposes 1	1	1	0	3				
Nemec, A.	Foreign language for specific purposes 2					1	1	0	3
Jurković, M.	History of visual communications 2					1	1	0	2
Koren, A.	Informatics 2					1	0	1	3
Jurković, M.	Design theory					1	0	0	2
Skala, K.	Digital multimedia 1					2	0	2	5

Academic year: 2

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
COMPULSORY COURSES AND LECTURES									
Džimbeg-Malčić, V.	Applied physics	2	1	0	4				
Rožić, M.	Applied chemistry	2	1	0	4				
Pusić, Z.	Probability and statistics	2	1	0	4				
Žiljak, V.	Principles of computers and programming	1	1	1	3				
Salamon, V.	Printing machines 1	2	1	0	4				
Gojo M.	Printing plates 1	2	0	2	5				
Agić, D.	Reproduction photography 1	2	0	1	4				
Salamon, V.	Printing machines 2					2	1	0	4





Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
COMPULSORY COURSES AND LECTURES									
Lovreček, M.	Printing plates 2					2	0	1	4
Žiljak, V.	Typography					2	1	1	5
Kropar-Vančina, V.	Paper					2	0	1	4
Mrvac N.	Printing process 1					2	0	2	5
Agić, D.	Reproduction photography 2					2	0	1	4
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES AND LECTURES									
Skala, K.	Multimedia communications	2	0	2	5				
FPlenković, M.	Communicology	2	1	0	4				
Nemec, A.	Foreign language for specific purposes 3	1	1	0	3				
Nemec, A.	Foreign language for specific purposes 4					1	1	0	3
Plenković, M.	Visual communications					2	1	0	4
Pibernik, J.	Graphic media design					2	1	0	4
Skala, K.	Optoelectronic systems 1					2	0	2	5

Academic year: 3.

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		P	S	E		P	S	E	
COMPULSORY COURSES AND LECTURES									
Juri, B.	Organisation of printing production	2	1	0	4				
Agić, D.	Reproduction photography 1	2	0	1	4				
Babić, D.	Packaging 1	2	0	1	4				
Bolanča, S.	Major printing techniques	2	0	2	5				
Bolanča, Z.	Industry and environment	2	1	0	4				
Kropar-Vančina, V.	Polymer materials	2	0	0	3				
Milčić, D.	Quality control					2	1	0	4
Bolanča, S.	Minor printing techniques					2	0	2	5
Juri, B.	Marketing 1					2	1	0	4
Babić, D.	Bookbinding 1					2	0	2	5
	Professional practice and final project					0	12	0	6
OPTIONAL COURSES AND LECTURES									
Žiljak, V.	Graphic programming languages	2	0	1	4				
Lovreček, M.	Printing plates 2	2	0	1	4				
Babić, D.	Hand binding	1	0	2	3				
Salamon, V.	Automata theory and maintenance of printing machines	2	1	0	4				
Juri, B.	Principles of microeconomics					2	1	0	4
Agić, D.	Reproduction photography 2					2	0	1	4



Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		P	S	E		P	S	E	
Knešaurek, N.	Qualitative research methods of colour reproduction					2	0	1	4
Žiljak, V.	Typeface					2	0	1	4
Lozo, B.	Application and investigation of printed materials					2	0	1	4
Zjakić, I.	Offset printing management					2	0	2	5
Babić, D.	Manual production of boxes					1	0	2	3
Lovreček, M.	Standardization of printing plates					2	0	1	4



Study course: Undergraduate study course of graphic technology  
 Study program: Graphic product design

Academic year: 1.

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
COMPULSORY COURSES AND LECTURES									
Pusić, Z.	Mathematics 1	3	3	0	7				
Mikac-Dadić, V.	Physics 1	2	1	1	5				
Barbarić-Mikočević, Ž.	Chemistry 1	2	1	1	5				
Žeželj, D.	Engineering graphics	2	0	1	4				
Jurković, M.	History of visual communications 1	2	1	0	3				
Jurković, M.	Visual arts practice 1	1	0	2	3				
Koren, A.	Informatics 1	1	0	1	3				
Pusić, Z.	Mathematics 2					3	3	0	7
Mikac-Dadić, V.	Physics 2					2	1	1	5
Rožić, M.	Chemistry 2					2	0	1	4
Jurković, M.	History of visual communications 2					1	1	0	2
Knešaurek, N.	Photographic processes					2	0	1	4
Jurković, M.	Design theory					1	0	0	2
Jurković, M.	Visual arts practice 2					1	0	2	3
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES AND LECTURES									
Babić, D.	Introduction into graphic technology	2	0	0	3				
Žeželj, D.	Technical mechanics	2	1	0	4				
Nemec, A.	Foreign language for specific purposes 1	1	1	0	3				
Koren, A.	Informatics 2					1	0	1	3
Žeželj, D.	Technical presentable systems					2	0	1	4
Nemec, A.	Foreign language for specific purposes 2					1	1	0	3
Skala, K.	Digital multimedia 1					2	0	2	5

Academic year: 2

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
COMPULSORY COURSES AND LECTURES									
Jurković, M.	Visual arts practice 3	1	0	3	4				
Jurković, M.	Original graphics 1	1	0	2	3				
Plenković, M.	Communicology	2	1	0	4				
Salamon, V.	Printing machines 1	2	1	0	4				
Gojo M.	Printing plates 1	2	0	2	5				
Agić, D.	Reproduction photography 1	2	0	1	4				



Jurković, M.	Visual arts practice 4					1	0	3	4
Jurković, M.	Original graphics 2					1	0	2	3
Plenković, M.	Visual communications					2	1	0	4
Žiljak, V.	Typography					2	1	1	5
Kropar-Vančina, V.	Paper					2	0	1	4
Mrvac N.	Printing process 1					2	0	2	5
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES AND LECTURES									
Žiljak, V.	Principles of computers and programming	1	1	1	3				
Pusić, Z.	Probability and statistics	2	1	0	4				
Skala, K.	Multimedia communications 1	2	0	2	5				
Nemec, A.	Foreign language for specific purposes 3	1	1	0	3				
Nemec, A.	Foreign language for specific purposes 4					1	1	0	3
Salamon, V.	Printing machines 2					2	1	0	4
Pibernik, J.	Graphic media design 1					2	1	0	4
Skala, K.	Optoelectronic systems 1					2	0	2	5

Academic year: 3

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
COMPULSORY COURSES AND LECTURES									
Jurković, M.	Original graphics 3	1	0	2	3				
Jurković, M.	Graphic design 1	1	0	3	4				
Juri, B.	Organisation of printing production	2	1	0	4				
Babić, D.	Packaging 1	2	0	1	4				
Bolanča, S.	Major printing techniques	2	0	2	5				
Bolanča, Z.	Environmental science and design	2	1	0	4				
Jurković, M.	Original graphics 4					1	0	2	3
Jurković, M.	Graphic design 2					1	0	3	4
Mrvac, N.	Printing and design					2	0	1	4
Mikota, M.	Applied photography					2	0	1	4
	Professional practice and final project					0	12	0	6
OPTIONAL COURSES AND LECTURES									
Lovreček, M.	Printing plates 2	2	0	1	4				
Agić, D.	Reproduction photography 1	2	0	1	4				
Žiljak, V.	Graphic programming languages	2	0	1	4				
Kropar-Vančina, V.	Polymer materials	2	0	0	3				
Salamon, V.	Automata theory and maintenance of printing machines	2	1	0	4				
Milčić, D.	Quality control					2	1	0	4
Bolanča, S.	Minor printing techniques					2	0	2	5



Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
Juri, B.	Marketing 1					2	1	0	4
Babić, D.	Bookbinding 1					2	0	2	5
Knešaurek, N.	Qualitative research methods of colour reproduction					2	0	1	4
Žiljak, V.	Typeface					2	0	1	4
Lozo, B.	Application and investigation of printed materials					2	0	1	4
Lovreček, M.	Standardization of printing plates					2	0	1	4



## Study course: Graduate study course of graphic technology

Academic year: 1.

Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
Babić, D.	Packaging 2	2	1	1	6				
Bolanča, S.	Packaging printing	2	0	1	5				
Mikota, M.	Art photography 2	2	0	1	5				
Juri, B.	Marketing 2	2	1	0	5				
Žiljak, V.	Computer typography	2	0	2	6				
Agić, D.	Reproduction of the image information	2	1	1	6				
Agić, D.	Application of digital photography in reproduction media	1	0	2	4				
Kropar Vančina, V.	Printing materials in conventional and digital printing processes	2	0	0	4				
Babić, D.	Bookbinding 2	2	0	2	6				
Bolanča, S.	Digital printing	2	0	2	6				
Milčić, D.	Principles of quality control	2	2	0	6				
Skala, K.	Multimedia communications 2	2	0	2	6				
Modrić, D.	Holography	2	1	0	5				
Mikota, M.	Principles of art photography	2	0	1	5				
Zjakić, I.	Technical editing and run management	2	0	2	6				
Brozović, M.	Realizations of general solutions 1	2	0	1	5				
Pibernik, J.	WEB design 1	2	0	2	6				
Plenković, M.	Graphic design communicology	2	0	2	6				
Brozović, M.	Graphic design 3	1	0	3	5				
Milčić, D.	Packaging technology					2	1	0	5
Mikota, M.	Art photography 1					2	0	1	5
Bolanča Mirković, I.	Design and environment					2	1	0	5
Bolanča, Z.	Environment management system					2	1	0	5
Zjakić, I.	Business and security printing					2	2	0	6
Gojo, M.	Surface phenomena on printing plates					2	1	0	5
Lovreček, M.	CTP technology					2	0	2	6
Žiljak, V.	Computer graphics					1	0	2	4
Gojo, M.	Photosensitive copying layers					2	1	0	5
Agić, D.	Colour in digital environment					1	1	0	3
Pap, K.	Workflow automation					2	0	1	5
Kropar Vančina, V.	Paper restoration and preservation					2	0	0	4
Babić, D.	Graphic products design					2	1	1	6
Salamon, V.	Re-engineering in the printing production					2	2	0	6
Mikota, M.	Digital photography printing					2	0	1	5
Džimbeg Malčić, V.	Optical measuring methods of printing surfaces					2	0	1	5
Skala, K.	Digital multimedia 2					2	0	2	6



Lecturer	Type of lecturing	Winter semester			ECTS	Summer semester			ECTS
		L	S	E		L	S	E	
Skala, K.	Optoelectronic systems 2					2	0	2	6
Mrvac, N.	Optimization of printing system					2	0	2	6
Pibernik, J.	Graphic media design 2					2	0	2	6
Brozović, M.	Graphic design 4					1	0	3	5
Brozović, M.	Realizations of general solutions 2					2	0	1	5
Plenković, M.	Media communication					2	0	2	6
Babić, D.	Packaging and technology1					2	0	2	6
Brozović, M	WEB design 2					2	0	2	6



## Tablica 2.2.2. Course of lectures for the academic year 2009/10

FACULTY OF GRAPHIC ARTS

Getaldićeva 2, tel. +385 (0)1 23 71 080, tel. / fax +385 (0)1 23 71 077

E-mail: dekan@grf.hr URL: www.grf.unizg.hr

I. FACULTY MANAGEMENT	
Dean and vice-deans	
Dean: Ph.D. Diana Milčić, associate professor	
Vice-dean for Finance and General Affairs: Ph.D. Jesenka Pibernik, assistant professor	
Vice-dean for Academic Affairs: Ph.D. Željka Barbarić Mikočević, assistant professor	
Faculty Council	
Dean as chairperson, all teaching staff, research assistants' representatives and five students' representatives.	
II. FACULTY SECRETARY'S OFFICE	
Getaldićeva 2, tel. +385 (0)1 23 71 080, tel. / fax +385 (0)1 23 71 077	
Faculty secretary: Jaka Mustapić, expert in law	
1. Full professors	
a) Full-time employment	
Babić, Ph.D. Darko	Introduction into printing technology, Graphic products design, Manual production of boxes, Hand binding, Packaging 1, 2, Bookbinding 1, 2, Packaging and technology 1, 2
Bolanča, Ph.D. Stanislav	Major printing techniques, Minor printing techniques, Packaging printing, Digital print
Bolanča, Ph.D. Zdenka	Industry and environment, Environment management system, Packaging and environment
Gojo, Ph.D. Miroslav	Printing plates 1, Photosensitive copying layers, Surface phenomena on printing plates
Kropar-Vančina, Ph.D. Vesna	Polymer materials, Paper, Paper restoration and preservation, Printing materials in conventional and digital printing processes
Milčić, Ph.D. Diana	Quality control, Selected chapters of quality management, Packaging technology, Quality control and assurance in graphic production
Plenković, Ph.D. Mario	Communicology, Visual communications, Graphic design communicology, Media communication, Business communicology
Žiljak, Ph.D. Vilko	Principles of computers and programming, Typeface, Typography, Graphic programming languages, Computer graphics, Computer typography, Documents and securities graphics
2. Associate professors	
a) Full-time employment	
Agić, Ph.D. Darko	Reproduction photography 1, 2, Reproduction of the image information, Application of digital photography in reproduction media, Colour in digital environment
Bjelovučić Kopilović, Ph.D. Sanja	Technical presentable systems
Juri, Ph.D. Božidar	Marketing 1, 2, Organization of printing production, Principles of microeconomics, Marketing communications





Jurković, MSc. Mato	History of visual communications 1, 2, Design theory, Visual arts practice 1, 2, 3, 4, Original graphics 1, 2, 3, 4, Graphic design 1, 2, 3, 4
Knešaurek, Ph.D. Nina	Photographic processes, Qualitative research methods of colour reproduction
Koren, Ph.D. Antun	Informatics 1, 2, Writing of scientific and professional papers
Lovreček, Ph.D. Mladen	Printing plates 2, Standardization of printing plates, CTP technology
Mrvac, Ph.D. Nikola	Printing process 1, Printing and design, Multimedia systems, Optimization of printing system
Salamon, Ph.D. Velimir	Printing machines 1, 2, Automata theory and maintenance of printing machines
3. Assistant professors	
a) Full-time employment	
Brozović, Ph.D. Maja	Graphic design 1, 2, 3, 4, Realizations of general solutions 1, 2, WEB design 2
Barbarić Mikočević, Ph.D. Željka	Chemistry 1
Bolanča Mirković, Ph.D. Ivana	Environmental science and design, Design and environment
Džimbeg-Malčić, Ph.D. Vesna	Physics 2, Applied physics, Optical measuring methods of printing surfaces, Introduction into the theory of experimental work
Lozo, Ph.D. Branka	Application and investigation of printed materials, Paper, History of printing
Mahović Poljaček, Ph.D. Sanja	Printing plates 1, 2, Standardization of printing plates
Mandić, Ph.D. Lidija	Reproduction photography 1, 2
Pap, Ph.D. Klaudio	Principles of computers and programming, Graphic programming languages, Typography, Typeface, Workflow automation, Digital bases of printing standards
Pibernik, Ph.D. Jesenka	Graphic media design 1 i 2, WEB design 1, Motion graphics, Product design: case study
Rožić, Ph.D. Mirela	Chemistry 2, Applied chemistry
Zjakić, Ph.D. Igor	Offset printing management, Technical editing and run management, Business and security printing, Measurement methods in printing
4. Senior lecturers	
a) Full-time employment	
Mikota, Ph.D. Miroslav	Art photography 1, 2, Applied photography 1, 2, Principles of applied photography, Digital photography printing
Pusić, MSc. Zoran	Mathematics 1, 2, Probability and statistics
Šolc-Pervan, Vilma	Physical education 1, 2, 3, 4
5. Senior research assistants	
a) Full-time employment	
Banić, Ph.D. Dubravko	Printing machines 1, 2, Automata theory and maintenance of printing machines, Re-engineering in the printing production
Laić, Ph.D. Branka	Manual production of boxes, Packaging 1, 2
Majnarić, Ph.D. Igor	Major printing techniques, Minor printing techniques, Digital print
Modrić, Ph.D. Damir	Physics 1, 2, Holography
Žiljak, Ph.D. Ivana	Typography

6. Research assistants	
a) Full-time employment	
Bates, Irena	Major printing techniques, Minor printing techniques, Offset printing management, Printing and design, Technical editing and run management, Packaging printing
Bratić, MSc. Diana	Organization of printing production, Marketing 1
Budimir, MSc. Ivan	Mathematics 1, 2, Probability and statistics
Cigula, Tomislav	Printing plates 1, 2, Standardization of printing plates, CTP technology, Photosensitive copying layers, Surface phenomena on printing plates
Dolić, Jurica	Graphic media design 1, 2, WEB design 1, Motion graphics
Donevski, Davor	Quality control, Quality control and assurance in graphic production
Dragčević, Krešimir	Printing plates 1, 2, Standardization of printing plates
Golubović, Kristijan	Major printing techniques, Minor printing techniques
Jamnicky, Sonja	Paper, Application and investigation of printed materials
Jurečić, MSc. Denis	Graphic products design, Packaging and technology 1, 2
Jurković-Benić, MSc. Vanda	History of visual communications 1, 2, Visual arts practice 1, 2, 3, 4
Koren, Tajana	Principles of computers and programming, Typeface, Typography, Graphic programming languages, Computer graphics, Computer typography, Digital bases of printing standards
Kulčar, Rahela	Photographic processes, Qualitative research methods of colour reproduction
Matijević, Mile	Printing process 1, Multimedia systems, Optimization of printing system
Mustić, Daria	Visual communications, Graphic design communicology, Business communicology
Pasanec Preprotić, Suzana	Bookbinding 1, 2, Hand binding
Petric-Maretić, Katja	Physics 1, 2
Plazonić, Ivana	Chemistry 1, 2
Poljičak, Ante	Reproduction photography 1, 2
Rudolf, Maja	Principles of computers and programming, Typeface, Typography, Graphic programming languages, Computer graphics, Digital bases of printing standards
Skala, Tibor	Digital multimedia 1, Multimedia communications 1, 2
Strgar Kurečić, Ph.D. Maja	Reproduction photography 1, 2, Application of digital photography in reproduction media
Stanić Loknar, MSc. Nikolina	Typography, Typeface, Computer graphics, Documents and securities graphics
9. Expert assistants	
a) full-time employment	
Jokić, Tigran	Engineering graphics, Technical presentable systems, Technical mechanics
10. Other associates	
Bak, Ivana	Technical editing and run management, Packaging printing
Bilušić, Iva	WEB design 1
Bota, Josip	Product design: case study
Jozić, Josip, academic painter	Original graphics 1, 2, 3, 4
Kovačević, Dorotea	Graphic design 1, 3, Realizations of general solutions 1
Krpan-Kobeščak, Kristina	Graphic design 3
Levačić, Goran	Multimedia communications 1
Matić, Vijeko	Visual arts practice 1, 3



Mikac-Dadić, MSc. Višnja	Physics 1
Nemec, prof. Ana	Foreign language for specific purposes 1, 2, 3, 4
Pavlović, Ivana	Art photography 1,2, Applied photography 1,2, Principles of applied photography, Digital photography printing
Poljak, Ervin	Multimedia communications 2, Broadband network applications
Skala, Ph.D. Karolj, full professor	Digital multimedia 1, 2, Multimedia communications 1, 2, Optoelectronic systems 1, 2, Broadband network applications
Vranić, Dean	Product design: case study
Wolf, Ph.D. Hinko, associate professor	Technical mechanics
Žeželj, Ph.D. Dragan	Engineering graphics



Study course: Undergraduate study course of graphic technology  
 Course: Technical technological

Academic year: 1

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Pusić, Z.	Mathematics 1	3	3	0	7				
Mikac-Dadić, V.	Physics 1	2	1	1	5				
Barbarić-Mikočević, Ž.	Chemistry 1	2	1	1	5				
Žeželj, D.	Engineering graphics	2	0	1	4				
Koren, A.	Informatics 1	1	0	1	3				
Pusić, Z.	Mathematics 2					3	3	0	7
Mikac-Dadić, V.	Physics 2					2	1	1	5
Rožić, M.	Chemistry 2					2	0	1	4
Knešaurek, N.	Photographic processes					2	0	1	4
Bjelovučić Kopilović, S.	Technical presentable systems					2	0	1	4
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES									
Jurković, M.	History of visual communications 1	2	1	0	3				
Babić, D.	Introduction into graphic technology	2	0	0	3				
Wolf, H.	Technical mechanics	2	1	0	4				
Nemec, A.	Foreign language for specific purposes 1	1	1	0	3				
Nemec, A.	Foreign language for specific purposes 2					1	1	0	3
Jurković, M.	History of visual communications 2					1	1	0	2
Koren, A.	Informatics 2					1	0	1	3
Jurković, M.	Design theory					1	0	0	2
Skala, K.	Digital multimedia 1					2	0	2	5

Academic year: 2

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Džimbeg-Malčić, V.	Applied physics	2	1	0	4				
Rožić, M.	Applied chemistry	2	1	0	4				
Pusić, Z.	Probability and statistics	2	1	0	4				
Žiljak, V., Pap, K.	Principles of computers and programming	1	1	1	3				
Salamon, V.	Printing machines 1	2	1	0	4				



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Gojo M.	Printing plates 1	2	0	2	5				
Agić, D.	Reproduction photography 1	2	0	1	4				
Salamon, V.	Printing machines 2					2	1	0	4
Lovreček, M.	Printing plates 2					2	0	1	4
Žiljak, V.	Typography					2	1	1	5
Kropar-Vančina, V.	Paper					2	0	1	4
Mrvac, N.	Printing process 1					2	0	2	5
Agić, D.	Reproduction photography 2					2	0	1	4
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES									
Skala, K.	Multimedia communications 1	2	0	2	5				
Plenković, M.	Communicology	2	1	0	4				
Nemec, A.	Foreign language for specific purposes 3	1	1	0	3				
Nemec, A.	Foreign language for specific purposes 4					1	1	0	3
Plenković, M.	Visual communications					2	1	0	4
Pibernik, J.	Graphic media design					2	1	0	4
Skala, K.	Optoelectronic systems 1					2	0	2	5

Academic year: 3

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Juri, B.	Organization of printing production	2	1	0	4				
Babić, D.	Packaging 1	2	0	1	4				
Bolanča, S.	Major printing techniques	2	0	2	5				
Bolanča, Z.	Industry and environment	2	1	0	4				
Kropar-Vančina, V.	Printing inks	2	0	1	4				
Milčić, D.	Quality control					2	1	0	4
Bolanča, S.	Minor printing techniques					2	0	2	5
Juri, B.	Marketing 1					2	1	0	4
Babić, D.	Bookbinding 1					2	0	2	5
	Professional practice and final project/paper					0	12	0	6
OPTIONAL COURSES									
Žiljak, V.	Graphic programming languages	2	0	1	4				
Babić, D.	Hand binding	1	0	2	4				
Salamon, V.	Automata theory and maintenance of printing machines	2	1	0	4				
Pibernik, J.	Sociology of design	2	0	0	3				



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Juri, B.	Principles of microeconomics					2	1	0	4
Kropar-Vančina, V.	Polymer materials					2	0	0	3
Knešaurek, N.	Qualitative research methods of colour reproduction					2	0	1	4
Žiljak, V.	Typeface					2	0	1	4
Lozo, B.	Application and investigation of printed materials					2	0	1	4
Zjakić, I.	Offset printing management					2	0	2	5
Babić, D.	Manual production of boxes					1	0	2	3
Lovreček, M.	Standardization of printing plates					2	0	1	4



Study course: Undergraduate study course of graphic technology  
 Course: Graphic product design

Academic year: 1

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Pusić, Z.	Mathematics 1	3	3	0	7				
Mikac-Dadić, V.	Physics 1	2	1	1	5				
Barbarić-Mikočević, Ž.	Chemistry 1	2	1	1	5				
Žeželj, D.	Engineering graphics	2	0	1	4				
Jurković, M.	History of visual communications 1	2	1	0	3				
Jurković, M.	Visual arts practice 1	1	0	2	3				
Koren, A.	Informatics 1	1	0	1	3				
Pusić, Z.	Mathematics 2					3	3	0	7
Mikac-Dadić, V.	Physics 2					2	1	1	5
Rožić, M.	Chemistry 2					2	0	1	4
Jurković, M.	History of visual communications 2					1	1	0	2
Knešaurek, N.	Photographic processes					2	0	1	4
Jurković, M.	Design theory					1	0	0	2
Jurković, M.	Visual arts practice 2					1	0	2	3
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES									
Babić, D.	Introduction into graphic technology	2	0	0	3				
Wolf, H.	Technical mechanics	2	1	0	4				
Nemec, A.	Foreign language for specific purposes 1	1	1	0	3				
Koren, A.	Informatics 2					1	0	1	3
Bjelovučić Kopilović, S.	Technical presentable systems					2	0	1	4
Nemec, A.	Foreign language for specific purposes 2					1	1	0	3
Skala, K.	Digital multimedia 1					2	0	2	5

Academic year: 2

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Jurković, M.	Visual arts practice 3	1	0	3	4				
Jozić, J.	Original graphics 1	1	0	2	3				
Plenković, M.	Communicology	2	1	0	4				
Salamon, V.	Printing machines 1	2	1	0	4				



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Gojo, M.	Printing plates 1	2	0	2	5				
Agić, D.	Reproduction photography 1	2	0	1	4				
Jurković, M.	Visual arts practice 4					1	0	3	4
Jozić, J.	Original graphics 2					1	0	2	3
Plenković, M.	Visual communications					2	1	0	4
Žiljak, V.	Typography					2	1	1	5
Kropar-Vančina, V.	Paper					2	0	1	4
Mrvac, N.	Printing process 1					2	0	2	5
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
<b>OPTIONAL COURSES</b>									
Žiljak, V., Pap, K.	Principles of computers and programming	1	1	1	3				
Pusić, Z.	Probability and statistics	2	1	0	4				
Skala, K.	Multimedia communications 1	2	0	2	5				
Nemec, A.	Foreign language for specific purposes 3	1	1	0	3				
Nemec, A.	Foreign language for specific purposes 4					1	1	0	3
Salamon, V.	Printing machines 2					2	1	0	4
Pibernik, J.	Graphic media design 1					2	1	0	4
Skala, K.	Optoelectronic systems 1					2	0	2	5

Academic year: 3

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
<b>COMPULSORY COURSES</b>									
Jozić, J.	Original graphics 3	1	0	2	3				
Jurković, M., Brozović, M.	Graphic design 1	1	0	3	4				
Babić, D.	Packaging 1	2	0	1	4				
Bolanča, S.	Major printing techniques	2	0	2	5				
Bolanča, Z.	Sociology of design	2	1	0	4				
Pibernik, J.	Science of environment and design	2	0	0	3				
Jozić, J.	Original graphics 4					1	0	2	3
Jurković, M., Brozović, M.	Graphic design 2					1	0	3	4
Mrvac, N.	Printing and design					2	0	1	4
Mikota, M.	Applied photography 1					2	0	1	4
	Professional practice and final project/paper					0	12	0	6
<b>OPTIONAL COURSES</b>									
Pap, K.	Graphic programming languages	2	0	1	4				





Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Juri, B.	Organization of printing production	2	1	0	4				
Kropar-Vančina, V.	Printing inks	2	0	1	4				
Salamon, V.	Automata theory and maintenance of printing machines	2	1	0	4				
Milčić, D.	Quality control					2	1	0	4
Bolanča, S.	Minor printing techniques					2	0	2	5
Juri, B.	Marketing 1					2	1	0	4
Babić, D.	Bookbinding 1					2	0	2	5
Knešaurek, N.	Qualitative research methods of colour reproduction					2	0	1	4
Žiljak, V.	Typeface					2	0	1	4
Kropar-Vančina, V.	Polymer materials					2	0	0	3
Lozo, B.	Application and investigation of printed materials					2	0	1	4



## Study course: Graduate study course of graphic technology

Academic year: 1

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Babić, D.	Packaging 2	2	1	1	6				
Bolanča, S.	Packaging printing	2	0	1	5				
Mikota, M.	Applied photography 2	2	0	2	6				
Juri, B.	Marketing 2	2	1	0	5				
Žiljak, V.	Computer typography	2	0	2	6				
Agić, D.	Reproduction of the image information	2	1	1	6				
Agić, D.	Application of digital photography in reproduction media	1	0	2	4				
Kropar Vančina, V.	Printing materials in conventional and digital printing processes	2	0	0	4				
Babić, D.	Bookbinding 2	2	0	2	6				
Bolanča, S.	Digital print	2	0	2	6				
Milčić, D.	Selected chapters of quality management	2	2	0	6				
Skala, K.	Multimedia communications 2	2	0	2	6				
Džimbeg Malčić, V.	Holography	2	1	0	5				
Mikota, M.	Principles of applied photography	2	0	1	5				
Zjakić, I.	Technical editing and run management	2	0	2	6				
Brozović, M.	Realizations of general solutions 1	2	0	1	5				
Pibernik, J.	WEB design 1	2	0	2	6				
Plenković, M.	Communicology of graphic design	2	0	2	6				
Jurković, M., Brozović, M.	Graphic design 3	1	0	3	5				
Milčić, D.	Packaging technology					2	1	0	5
Mikota, M.	Art photography 1					2	0	2	6
Bolanča Mirković, I.	Design and environment					2	1	0	5
Bolanča, Z.	Environment management system					2	1	0	5
Zjakić, I.	Business and security printing					2	2	0	6
Gojo, M.	Surface phenomena on printing plates					2	1	0	5
Lovreček, M.	CtP technology					2	0	2	6
Žiljak, V.	Computer graphics					1	0	2	4
Gojo, M.	Photosensitive copying layers					2	1	0	5
Agić, D.	Colour in digital environment					1	1	0	3
Pap, K.	Workflow automation					2	0	1	5
Kropar Vančina, V.	Paper restoration and preservation					2	0	0	4
Babić, D.	Graphic products design					2	1	1	6
Salamon, V.	Re-engineering in the printing production					2	2	0	6



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Mikota, M.	Digital photography printing					2	0	1	5
Džimbeg Malčić, V.	Optical measuring methods of printing surfaces					2	0	1	5
	Mechanical simulations in computer animations					1	0	2	4
Skala, K.	Digital multimedia 2					2	0	2	6
Skala, K.	Optoelectronic systems 2					2	0	2	6
Pibernik, J.	Graphic media design 2					2	0	2	6
Jurković, M., Brozović, M.	Graphic design 4					1	0	3	5
Brozović, M.	Realizations of general solutions 1					2	0	1	5
Plenković, M.	Media communication					2	0	2	6
Babić, D.	Packaging and technology 1					2	0	2	6
Brozović, M.	WEB design 2					2	0	2	6

Academic year: 2

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Bolanča, Z.	Packaging and environment	2	1	0	5				
Juri, B.	Marketing communications	2	1	0	5				
Plenković, M.	Business communicology	2	2	0	6				
Žiljak, V.	Documents and securities graphics	2	0	1	5				
Pap, K.	Digital bases of printing standards	1	0	2	4				
Džimbeg Malčić, V.	Introduction into the theory of experimental work	2	1	0	5				
Koren, A.	Writing of scientific and professional papers	1	1	0	3				
Mrvac, N.	Multimedia systems	2	0	2	6				
Skala K.	Broadband network applications	2	0	2	6				
Mrvac, N.	Optimization of printing system	2	0	2	6				
Milčić, D.	Quality control and assurance in graphic production	2	0	1	5				
Lozo, B.	History of printing	2	1	0	5				
Babić, D.	Packaging and technology 2	2	0	2	6				
Zjakić, I.	Measurement methods in printing	1	1	0	3				
Pibernik, J.	Motion graphics	2	0	2	6				
Pibernik, J.	Product design: case study	1	0	3	5				
Mikota, M.	Art photography 2	2	0	2	6				



**Table 2.2.3.** Course of lectures for the academic year 2010/11

FACULTY OF GRAPHIC ARTS

Getaldićeva 2, 10 000 Zagreb, tel. +385 (0)1 23 71 080, tel. / fax +385 (0)1 23 71 077

e-mail: dekan@grf.hr URL: www.grf.unizg.hr

I. FACULTY MANAGEMENT	
Dean and vice-deans	
Dean: Ph.D. Diana Milčić, associate professor, tel. +385 (0)1 23 71 080/105	
Vice-dean for Finance and General Affairs: Ph.D. Jesenka Pibernik, assistant professor, tel. +385 (0)1 23 71 080/106	
Vice-dean for Academic Affairs: Ph.D. Željka Barbarić Mikočević, assistant professor, tel. +385 (0)1 23 71 080/106	
Faculty Council	
Dean as chairperson, all teaching staff, research assistants' representatives and seven students' representatives.	
II. FACULTY SECRETARY'S OFFICE	
Getaldićeva 2, 10 000 Zagreb, tel. +385 (0)1 23 71 080, tel. / fax +385 (0)1 23 71 077	
Faculty secretary: Jaka Mustapić, expert in law	
III. LECTURERS AND ASSOCIATES	
1. Full professors	
a) Full-time employment	
Babić, Ph.D. Darko	Introduction into printing technology, Graphic products design, Manual production of boxes, Hand binding, Packaging 1, 2, Bookbinding 1, 2, Packaging and technology 1, 2
Bolanča, Ph.D. Stanislav	Major printing techniques, Minor printing techniques, Packaging printing, Digital print
Bolanča, Ph.D. Zdenka	Industry and environment, Environment management system, Packaging and environment, Environmental science and design
Gojo, Ph.D. Miroslav	Printing plates 1, Photosensitive copying layers, Surface phenomena on printing plates
Kropar-Vančina, Ph.D. Vesna	Polymer materials, Paper, Paper restoration and preservation, Printing materials in conventional and digital printing processes, Printing inks
Milčić, Ph.D. Diana	Quality control, Selected chapters in quality control, Packaging technology, Quality control and assurance in graphic production
Žiljak, Ph.D. Vilko	Typeface, Typography, Documents and securities graphics, Computer graphics, Computer typography, Digital multimedia 1, 2
b) Extra-University associates	
Skala, Ph.D. Karolj	Multimedia communications 1, 2, Optoelectronic systems 1, 2, Broadband network applications



2. Associate professors	
a) Full-time employment	
Agić, Ph.D. Darko	Reproduction photography 1, Reproduction photography 2, Reproduction of the image information, Application of digital photography in reproduction media
Bjelovučić Kopilović, Ph.D. Sanja	Technical mechanics, Technical presentable systems, Engineering graphics, Mechanical simulations in computer animations
Brozović, Ph.D. Maja	Graphic design 1, 2, 3, 4, Realizations of general solutions 1, 2, Art practice 2, 4
Knešaurek, Ph.D. Nina	Photographic processes, Qualitative research methods of colour reproduction
Koren, Ph.D. Antun	Informatics 1, 2, Composing scientific and professional papers
Lovreček, Ph.D. Mladen	Printing plates 2, Standardization of printing plates, CTP technology
Mrvac, Ph.D. Nikola	Printing process 1, Printing and design, Multimedia systems, Optimization of printing system
Pap, Ph.D. Klaudio	Principles of computers and programming, Graphic programming languages, Typography, Typeface, Workflow automation, Digital basis of printing standards, Digital multimedia 1, 2
Rožić, Ph.D. Mirela	Chemistry 2, Applied chemistry
b) Extra-University associates	
Juri, Ph.D. Božidar	Marketing 1, 2, Organization of printing production, Marketing communications
3. Assistant professors	
a) Full-time employment	
Banić, Ph.D. Dubravko	Printing machines 1, 2, Automata theory and maintenance of printing machines, Re-engineering in the printing production
Barbarić Mikočević, Ph.D. Željka	Chemistry 1
Bolanča Mirković, Ph.D. Ivana	Design and environment
Džimbeg-Malčić, Ph.D. Vesna	Physics 2, Applied physics, Optical measuring methods of printing surfaces
Lozo, Ph.D. Branka	Application and investigation of printed materials, History of printing
Mahović Poljaček, Ph.D. Sanja	Printing plates 1, 2, History of visual communications 1, 2, Design theory
Mandić, Ph.D. Lidija	Reproduction photography 1, 2, Colour in digital environment
Modrić, Ph.D. Damir	Physics 1, 2, Holography, Introduction into the theory of experimental work
Pibernik, Ph.D. Jesenka	Graphic media design 1, 2, WEB design 1, Motion graphics, Product design: case study, Sociology of design
Strgar Kurečić, Ph.D. Maja	Reproduction photography 1, 2, Application of digital photography in reproduction media
Zjakić, Ph.D. Igor	Offset printing management, Technical editing and run management, Business and security printing
Žiljak Stanimirović, Ph.D. Ivana	Tipography
b) Extra-University associates	
Popović, Ph.D. Goran	Communicology, Visual communications, Communicology of graphic design, Media communications, Business communicology
Žiljak Vujić, Ph.D. Jana	WEB design 2



4. Senior lecturers	
a) Full-time employment	
Mikota, Ph.D. Miroslav	Art photography 1,2, Applied photography 1, 2, Principles of applied photography, Digital photography printing
Šolc-Pervan, Vilma	Physical education 1, 2, 3, 4
b) Extra-University associates	
Pusić, MSc. Zoran	Probability and statistics
5. Lecturers	
a) Full-time employment	
Budimir, MSc. Ivan	Mathematics 1, 2
Nemec, Ana, prof.	Foreign language for specific purposes 1, 2, 3, 4
6. Senior assistants	
a) Full-time employment	
Kulčar, Ph.D. Rahela	Photographic processes, Qualitative research methods of colour reproduction
Laić, Ph.D. Branka	Manual production of boxes, Packaging 1, 2, Bookbinding 1
Majnarić, Ph.D. Igor	Major printing techniques, Minor printing techniques, Digital print
Skala, Ph.D. Tibor	Multimedia communications 1, Optoelectronics systems 1, 2
7. Assistants	
a) Full-time employment	
Bak, Ivana	Technical editing and run management, Packaging printing, Major printing techniques
Bates, Irena	Minor printing techniques, Offset printing management, Printing and design
Bernašek, Aleksandra	Principles of computers and programming
Bota, Josip	Product design: case study, Graphic design media 2, Realization of general solutions 2
Bratić, MSc. Diana	Organization of printing production, Marketing 1, 2, Media communications
Cigula, Tomislav	Printing plates 1, 2, Standardization of printing plates, CTP technology, Photosensitive copying layers, Surface phenomena on printing plates
Dolić, Jurica	Motion graphics
Dragčević, Krešimir	Printing plates 1, 2, Standardization of printing plates
Itrić, Katarina	Physics 1, 2
Jakovljević, Maja	Environmental science and design
Jamnicki, Sonja	Paper, Printing inks
Jurečić, MSc. Denis	Graphic products design, Packaging and technology 1, 2, Packaging 1
Jurković-Benić, MSc. Vanda	Visual arts practice 1, 2, 3, 4
Kovačević, Dorotea	Graphic design 1, 2, 3, 4, Realization of general solutions 1
Kučić, Dajana	Chemistry 1
Matijević, Mile	Printing process 1, Multimedia systems, Optimization of printing system, Major printing techniques, Printing and design
Pasanec Preprotić, Suzana	Bookbinding 1, 2, Hand binding
Petric-Maretić, Katja	Physics 1, 2



Rudolf, Maja	Principles of computers and programming, Typeface, Typography, Computer graphics, Digital basis of printing standards
Stanić Loknar, MSc. Nikolina	Typography, Typeface, Computer graphics, Documents and securities graphics
b) Extra-University associates	
Bilušić, Iva	WEB design 1, Graphic media design 1, 2
Dilberović, Ivan	Product design: case study
Levačić, Goran	Multimedia communications 1
Pavlović, Ivana	Art photography 1,2, Applied photography 1,2, Principles of applied photography, Digital photography printing
Poljak, Ervin	Multimedia communications 2, Broadband network applications
Petrač, Stjepan	Informatics 1, 2
8. Expert assistants	
a) Full-time employment	
Jokić, Tigran	Engineering graphics, Technical presentable systems, Technical mechanics, Mechanical simulations in computer animations
9. Research assistants	
Donevski, Davor	Quality control, Quality control and assurance in graphic production
Golubović, Kristijan	Major printing techniques, Minor printing techniques
Koren, Tajana	Graphic programming languages, Documents and securities graphics, Typography, Typeface, Computer typography, Computer graphics, Digital basis of printing standards
Mustić, Daria	Visual communications, Communicology of graphic design, Media communication
Poljičak, Ante	Reproduction photography 1, 2
Tomašegović, Tamara	Printing plates 2, CtP technology, Surface phenomena on printing plates



#### IV. DEPARTMENTS

DEPARTMENT OF PACKAGING, BOOKBINDING AND DESIGNING Head of the department: Ph.D. Darko Babić, full professor
DEPARTMENT OF SOCIAL SCIENCES Head of the department: prof. Vilma Šolc Pervan, senior lecturer
DEPARTMENT OF ECONOMY Head of the department: MSc. Diana Bratić
DEPARTMENT OF APPLIED PHYSICS Head of the department: Ph.D. Vesna Džimbeg-Malčić, assistant professor
DEPARTMENT OF PHOTOGRAPHIC PROCESSES Head of the department: Ph.D. Nina Knešaurek, associate professor
DEPARTMENT OF GRAPHIC MACHINES Head of the department: Ph.D. Dubravko Banić, assistant professor
DEPARTMENT OF ENGINEERING GRAPHICS AND MECHANICS Head of the department: Ph.D. Sanja Bjelovučić Kopilović, associate professor
DEPARTMENT OF APPLIED CHEMISTRY Head of the department: Ph.D. Mirela Rožić, associate professor
DEPARTMENT OF COMMUNICATION SCIENCE Head of the department: Ph.D. Mario Plenković, full professor
DEPARTMENT OF ART HISTORY AND GRAPHIC DESIGN Head of the department: Ph.D. Maja Brozović, associate professor
DEPARTMENT OF MATHEMATICS Head of the department: MSc. Ivan Budimir
DEPARTMENT OF MATERIALS IN GRAPHIC TECHNOLOGY Head of the department: Ph.D. Vesna Kropar Vančina, full professor
DEPARTMENT OF MULTIMEDIA AND INFORMATION SYSTEMS Head of the department: Ph.D. Antun Koren, associate professor
DEPARTMENT OF APPLIED AND ART PHOTOGRAPHY Head of the department: Ph.D. Miroslav Mikota, senior lecturer
DEPARTMENT OF REPRODUCTION PHOTOGRAPHY Head of the department: Ph.D. Darko Agić, associate professor
DEPARTMENT OF PRINTING Head of the department: Ph.D. Igor Zjakić, assistant professor
DEPARTMENT OF TYPEFACES AND COMPUTERS Head of the department: Ph.D. Vilko Žiljak, full professor
DEPARTMENT OF PRINTING PLATES Head of the department: Ph.D. Miroslav Gojo, full professor
DEPARTMENT OF ENVIRONMENTAL PROTECTION Head of the department: Ph.D. Zdenka Bolanča, full professor
LIBRARY Head: MSc. Elizabeta Rybak-Budić





## V. STUDIES

Type and name of study	Duration	Location
UNDERGRADUATE STUDY COURSE OF GRAPHIC TECHNOLOGY	3 years	Zagreb
	Course: technical and technological	
	Course: Graphic product design	
GRADUATE STUDY COURSE OF GRAPHIC TECHNOLOGY	2 years	Zagreb
	Course: technical and technological	
Module: Graphic technology		
Module: Packaging		
Module: Multimedia		
Module: Publishing		
	Course: Graphic product design	

## VI. EDUCATIONAL PLAN

UNDERGRADUATE STUDY COURSE OF GRAPHIC TECHNOLOGY

180 ECTS

Academic title: Baccalaureus engineer of graphic technology  
(univ. bacc. ing. techn. graph.)

Course: Technical - technological

Academic year: 1

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
<b>COMPULSORY COURSES</b>									
Budimir, I.	Mathematics 1,	3	3	0	7	0	0	0	0
Modrić, D.	Physics 1	2	1	1	5	0	0	0	0
Barbarić-Mikočević, Ž.	Chemistry 1	2	1	1	5	0	0	0	0
Bjelovučić Kopilović, S.	Engineering graphics	2	0	1	4	0	0	0	0
Koren, A.	Informatics 1	1	0	1	3	0	0	0	0
Budimir, I.	Mathematics 2	0	0	0	0	3	3	0	7
Džimbeg Malčić, V.	Physics 2	0	0	0	0	2	1	1	5
Rožić, M.	Chemistry 2	0	0	0	0	2	0	1	4
Knešaurek, N.	Photographic processes	0	0	0	0	2	0	1	4
Bjelovučić Kopilović, S.	Technical presentable systems	0	0	0	0	2	0	1	4
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
<b>OPTIONAL COURSES</b>									
Mahović Poljaček, S.	History of visual communications 1	2	1	0	3	0	0	0	0
Babić, D.	Introduction into graphic technology	2	0	0	3	0	0	0	0
Bjelovučić Kopilović, S.	Technical mechanics	2	1	0	4	0	0	0	0
Nemec, A.	Foreign language for specific purposes 1	1	1	0	3	0	0	0	0



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Nemec, A.	Foreign language for specific purposes 2	0	0	0	0	1	1	0	3
Mahović Poljaček, S.	History of visual communications 2	0	0	0	0	1	1	0	2
Koren, A.	Informatics 2	0	0	0	0	1	0	1	3
Mahović Poljaček, S.	Design theory	0	0	0	0	1	0	0	2
Žiljak, V.; Pap, K.	Digital multimedia 1	0	0	0	0	2	0	2	5

Academic year: 2

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
<b>COMPULSORY COURSES</b>									
Džimbeg-Malčić, V.	Applied physics	2	1	0	4	0	0	0	0
Rožić, M.	Applied chemistry	2	1	0	4	0	0	0	0
Pusić, Z.	Probability and statistics	2	1	0	4	0	0	0	0
Žiljak, V.; Pap, K.	Principles of computers and programming	1	1	1	3	0	0	0	0
Banić, D.	Printing machines 1	2	1	0	4	0	0	0	0
Gojo M.; Mahović Poljaček, S.	Printing plates 1	2	0	2	5	0	0	0	0
Agić, D.; Mandić, L.	Reproduction photography 1	2	0	1	4	0	0	0	0
Banić, D.	Printing machines 2	0	0	0	0	2	1	0	4
Lovreček, M.	Printing plates 2	0	0	0	0	2	0	1	4
Žiljak, V.	Typography	0	0	0	0	2	1	1	5
Kropar-Vančina, V.	Paper	0	0	0	0	2	0	1	4
Mrvac, N.	Printing process 1	0	0	0	0	2	0	2	5
Agić, D.	Reproduction photography 2	0	0	0	0	2	0	1	4
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
<b>OPTIONAL COURSES</b>									
Skala, K.	Multimedia communications	2	0	2	5	0	0	0	0
Popović, G.	Communicology	2	1	0	4	0	0	0	0
Nemec, A.	Foreign language for specific purposes 3	1	1	0	3	0	0	0	0
Nemec, A.	Foreign language for specific purposes 4	0	0	0	0	1	1	0	3
Popović, G.	Visual communications	0	0	0	0	2	1	0	4
Pibernik, J.	Graphic media design	0	0	0	0	2	1	0	4
Skala, K.	Optoelectronic systems 1	0	0	0	0	2	0	2	5



Academic year: 3

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Juri, B.	Organisation of printing production	2	1	0	4	0	0	0	0
Babić, D.	Packaging 1	2	0	1	4	0	0	0	0
Bolanča, S.	Major printing techniques	2	0	2	5	0	0	0	0
Bolanča, Z.	Industry and environment	2	1	0	4	0	0	0	0
Kropar-Vančina, V.	Printing inks	2	0	1	4	0	0	0	0
Milčić, D.	Quality control	0	0	0	0	2	1	0	4
Bolanča, S.	Minor printing techniques	0	0	0	0	2	0	2	5
Juri, B.	Marketing 1	0	0	0	0	2	1	0	4
Babić, D.	Bookbinding 1	0	0	0	0	2	0	2	5
	Professional practice and final project	0	0	0	0	0	12	0	6
OPTIONAL COURSES									
Pap, K.	Graphic programming languages	2	0	1	4	0	0	0	0
Babić, D.	Hand binding	1	0	2	4	0	0	0	0
Banić, D.	Automata theory and maintenance of printing machines	2	1	0	4	0	0	0	0
Pibernik, J.	Sociology of design	2	0	0	3	0	0	0	0
Kropar-Vančina, V.	Polymer materials	0	0	0	0	2	0	0	3
Knešaurek, N.	Qualitative research methods of colour reproduction	0	0	0	0	2	0	1	4
Žiljak, V.	Typeface	0	0	0	0	2	0	1	4
Lozo, B.	Application and investigation of printed materials	0	0	0	0	2	0	1	4
Zjakić, I.	Offset printing management	0	0	0	0	2	0	2	5
Babić, D.	Manual production of boxes	0	0	0	0	1	0	2	3
Lovreček, M.	Standardization of printing plates	0	0	0	0	2	0	1	4
Pap, K.	Graphic programming languages	2	0	1	4	0	0	0	0

UNDERGRADUATE STUDY COURSE OF GRAPHIC TECHNOLOGY

180 ECTS

Academic title: Baccalaureus engineer of graphic technology  
(univ. bacc. ing. techn. graph.)

Course: Graphic product design

Academic year: 1

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Budimir, I.	Mathematics 1	3	3	0	7	0	0	0	0
Modrić, D.	Physics 1	2	1	1	5	0	0	0	0
Barbarić-Mikočević, Ž.	Chemistry 1	2	1	1	5	0	0	0	0
Bjelovučić Kopilović, S.	Engineering graphics	2	0	1	4	0	0	0	0



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Mahović Poljaček, S.	History of visual communications 1	2	1	0	3	0	0	0	0
Jozić, J.	Visual arts practice 1	1	0	2	3	0	0	0	0
Koren, A.	Informatics 1	1	0	1	3	0	0	0	0
Budimir, I.	Mathematics 2	0	0	0	0	3	3	0	7
Džimbeg Malčić, V.	Physics 2	0	0	0	0	2	1	1	5
Rožić, M.	Chemistry 2	0	0	0	0	2	0	1	4
Mahović Poljaček, S.	History of visual communications 2	0	0	0	0	1	1	0	2
Knešaurek, N.	Photographic processes	0	0	0	0	2	0	1	4
Mahović Poljaček S.	Design theory	0	0	0	0	1	0	0	2
Brozović, M.	Visual arts practice 2	0	0	0	0	1	0	2	3
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0
OPTIONAL COURSES									
Babić, D.	Introduction into graphic technology	2	0	0	3	0	0	0	0
Bjelovučić Kopilović, S.	Technical mechanics	2	1	0	4	0	0	0	0
Nemec, A.	Foreign language for specific purposes 1	1	1	0	3	0	0	0	0
Koren, A.	Informatics 2	0	0	0	0	1	0	1	3
Bjelovučić Kopilović, S.	Technical presentable systems	0	0	0	0	2	0	1	4
Nemec, A.	Foreign language for specific purposes 2	0	0	0	0	1	1	0	3
Žiljak, V; Pap, K.	Digital multimedia 1	0	0	0	0	2	0	2	5

Academic year: 2

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Jozić, J.	Visual arts practice 3	1	0	3	4	0	0	0	0
Jozić, J.	Original graphics 1	1	0	2	3	0	0	0	0
Popović, G.	Communicology	2	1	0	4	0	0	0	0
Banić, D.	Printing machines 1	2	1	0	4	0	0	0	0
Gojo M.; Mahović Poljaček, S.	Printing plates 1	2	0	2	5	0	0	0	0
Agić, D.; Mandić, L.	Reproduction photography 1	2	0	1	4	0	0	0	0
Brozović, M.	Visual arts practice 4	0	0	0	0	1	0	3	4
Jozić, J.	Original graphics 2	0	0	0	0	1	0	2	3
Popović, G.	Visual communications	0	0	0	0	2	1	0	4
Žiljak, V.	Typography	0	0	0	0	2	1	1	5
Kropar-Vančina, V.	Paper	0	0	0	0	2	0	1	4
Mrvac, N.	Printing process 1	0	0	0	0	2	0	2	5
Šolc-Pervan, V.	Physical education	0	0	2	0	0	0	2	0



Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
OPTIONAL COURSES									
Žiljak, V.; Pap, K.	Principles of computers and programming	1	1	1	3	0	0	0	0
Pusić, Z.	Probability and statistics	2	1	0	4	0	0	0	0
Skala, K.	Multimedia communications 1	2	0	2	5	0	0	0	0
Nemec, A.	Foreign language for specific purposes 3	1	1	0	3	0	0	0	0
Nemec, A.	Foreign language for specific purposes 4	0	0	0	0	1	1	0	3
Banić, D.	Printing machines 2	0	0	0	0	2	1	0	4
Pibernik, J.	Graphic media design 1	0	0	0	0	2	1	0	4
Skala, K.	Optoelectronic systems 1	0	0	0	0	2	0	2	5

Academic year: 3

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
COMPULSORY COURSES									
Jozić, J.	Original graphics 3	1	0	2	3	0	0	0	0
Brozović, M.	Graphic design 1	1	0	3	4	0	0	0	0
Babić, D.	Packaging 1	2	0	1	4	0	0	0	0
Bolanča, S.	Major printing techniques	2	0	2	5	0	0	0	0
Bolanča, Z.	Environmental science and design	2	1	0	4	0	0	0	0
Pibernik, J.	Sociology of design	2	0	0	3	0	0	0	0
Jozić, J.	Original graphics 4	0	0	0	0	1	0	2	3
Brozović, M.	Graphic design 2	0	0	0	0	1	0	3	4
Mrvac, N.	Printing and design	0	0	0	0	2	0	1	4
Mikota, M.	Applied photography	0	0	0	0	2	0	1	4
	Professional practice and final project	0	0	0	0	0	12	0	6
OPTIONAL COURSES									
Pap, K.	Graphic programming languages	2	0	1	4	0	0	0	0
Juri, B.	Organization of printing production	2	1	0	4	0	0	0	0
Kropar-Vančina, V.	Printing inks	2	0	1	4	0	0	0	0
Banić, D.	Automata theory and maintenance of printing machines	2	1	0	4	0	0	0	0
Milčić, D.	Quality control	0	0	0	0	2	1	0	4
Bolanča, S.	Minor printing techniques	0	0	0	0	2	0	2	5
Juri, B.	Marketing 1	0	0	0	0	2	1	0	4
Babić, D.	Bookbinding 1	0	0	0	0	2	0	2	5
Knešaurek, N.	Qualitative research methods of colour reproduction	0	0	0	0	2	0	1	4
Žiljak, V.	Typeface	0	0	0	0	2	0	1	4
Kropar-Vančina, V.	Polymer materials	0	0	0	0	2	0	0	3
Lozo, B.	Application and investigation of printed materials	0	0	0	0	2	0	1	4



Academic year: 1

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Babić, D.	Packaging 2*	2	0	2	6	0	0	0	0
Bolanča, S.	Packaging printing *	2	0	1	5	0	0	0	0
Skala, K.	Multimedia communications 2**	2	0	2	6	0	0	0	0
Modrić, D.	Holography **	2	1	0	5	0	0	0	0
Pibernik, J.	WEB design 1**	2	0	2	6	0	0	0	0
Mikota, M.	Principles of applied photography ***	2	0	1	5	0	0	0	0
Zjakić, I.	Technical editing and run management ***	2	0	2	6	0	0	0	0
Brozović, M.	Realizations of general solutions 1***##	2	0	1	5	0	0	0	0
Brozović, M.	Graphic design 3##	1	0	3	5	0	0	0	0
Mikota, M.	Applied photography 2##	2	0	2	6	0	0	0	0
Juri, B.	Marketing 2	2	1	0	5	0	0	0	0
Žiljak, V.	Computer typography	2	0	2	6	0	0	0	0
Agić, D.	Reproduction of the image information	2	1	1	6	0	0	0	0
Agić, D.; Strgar Kurečić	Application of digital photography in reproduction media	2	0	1	4	0	0	0	0
Kropar Vančina, V.	Printing materials in conventional and digital printing processes	2	0	0	4	0	0	0	0
Babić, D.	Bookbinding 2	2	0	2	6	0	0	0	0
Bolanča, S.	Digital print	2	0	2	6	0	0	0	0
Milčić, D.	Selected chapters of quality management	2	2	0	6	0	0	0	0
Popović, G.	Communicology of graphic design	2	0	2	6	0	0	0	0
Milčić, D.	Packaging technology *	0	0	0	0	2	1	0	5
Babić, D.	Packaging and technology 1*	0	0	0	0	2	0	2	6
Bjelovučić Kopilović, S.	Mechanical simulations in computer animations **	0	0	0	0	1	0	2	4
Žiljak, V; Pap, K.	Digital multimedia 2**	0	0	0	0	2	0	2	6
Skala, K.	Optoelectronic systems 2**	0	0	0	0	2	0	2	6
Žiljak Vujić, J.	WEB design 2**	0	0	0	0	2	0	2	6
Pibernik, J.	Graphic media design 2***	0	0	0	0	2	0	2	6
Brozović, M.	Realizations of general solutions 2*** ##	0	0	0	0	2	0	1	5
Mikota, M.	Art photography 1##	0	0	0	0	2	0	2	6
Bolanča Mirković, I.	Design and environment ##	0	0	0	0	2	1	0	5
Brozović, M.	Graphic design 4##	0	0	0	0	1	0	3	5
Bolanča, Z.	Environment management system	0	0	0	0	2	1	0	5
Zjakić, I.	Business and security printing	0	0	0	0	2	2	0	6

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Gojo, M.	Surface phenomena on printing plates	0	0	0	0	2	1	0	5
Lovreček, M.	CtP technology	0	0	0	0	2	1	1	6
Žiljak, V.	Computer graphics	0	0	0	0	1	0	2	4
Gojo, M.	Photosensitive copying layers	0	0	0	0	2	1	0	5
Agić, D., Mandić, L.	Colour in digital environment	0	0	0	0	1	1	0	3
Pap, K.	Workflow automation	0	0	0	0	2	0	1	5
Kropar Vančina, V.	Paper restoration and preservation	0	0	0	0	2	0	0	4
Babić, D.	Graphic products design	0	0	0	0	2	0	2	6
Banić, D.	Re-engineering in the printing production	0	0	0	0	2	2	0	6
Mikota, M.	Digital photography printing	0	0	0	0	2	0	1	5
Džimbeg Malčić, V.	Optical measuring methods of printing surfaces	0	0	0	0	2	0	1	5
Popović, G.	Media communication	0	0	0	0	2	0	2	6

Academic year: 2

Lecturer	Course	Winter semester			ECTS	Summer semester			ECTS
		L	S	P		L	S	P	
Bolanča, Z.	Packaging and environment *	2	1	0	5	0	0	0	0
Babić, D.	Packaging and technology 2*	2	0	2	6	0	0	0	0
Mrvac, N.	Multimedia systems **	2	0	2	6	0	0	0	0
Skala, K.	Broadband network applications **	2	0	2	6	0	0	0	0
Milčić, D.	Quality control and assurance in graphic production ***	2	0	1	5	0	0	0	0
Lozo, B.	History of printing ***	2	1	0	5	0	0	0	0
Pibernik, J.	Motion graphics ##	2	0	2	6	0	0	0	0
Pibernik, J.	Product design: case study ##	1	0	3	5	0	0	0	0
Mikota, M.	Art photography 2##	2	0	2	6	0	0	0	0
Juri, B.	Marketing communications	2	1	0	5	0	0	0	0
Popović, G.	Business communicology	2	2	0	6	0	0	0	0
Žiljak, V.	Documents and securities graphics	2	0	1	5	0	0	0	0
Pap, K.	Digital bases of printing standards	1	0	2	4	0	0	0	0
Džimbeg Malčić, V.	Introduction into the theory of experimental work	2	1	0	5	0	0	0	0
Koren, A.	Writing of scientific and professional papers	1	1	0	3	0	0	0	0
Mrvac, N.	Optimization of printing system	2	0	2	6	0	0	0	0
Bolanča, Z.	Packaging and environment *	2	1	0	5	0	0	0	0

Legend:

For course: Technical - technological

The module Graphic technology doesn't have compulsory courses

\* compulsory courses for module Packaging; other courses in semester are optional

\*\* compulsory courses for module Multimedia; other courses in semester are optional

\*\*\* compulsory courses for module Publishing; other courses in semester are optional

For course: Graphic product design

## compulsory courses for Graphic product design; other courses in semester are optional



**Table 2.3.** Structure of enrolled students and interest for study programmes in the last three years

Undergraduate studies in graphic technology, track: Technical and Technological	Full-time students				Part-time students				Gymnasium		Vocational high school	
	Applied	First choice	Second choice	Enrolled in the first year of study	Enrollment quota	Applied	Enrolled	Enrollment quota	Number	Average grade	Number	Average grade
2008/09	113	-	-	108	-	-	-	-	32	4,17	76	3,93
2009/10	100	-	-	109	-	-	-	-	51	4,14	58	4,33
2010/11	347	52	49	74	-	-	-	-	16	3,58	58	3,46

Undergraduate studies in graphic technology, track: Graphic products design	Full-time students				Part-time students				Gymnasium		Vocational high school	
	Applied	First choice	Second choice	Enrolled in the first year of study	Enrollment quota	Applied	Enrolled	Enrollment quota	Number	Average grade	Number	Average grade
2008/09	95	-	-	50	-	-	-	-	16	4,44	34	4,25
2009/10	153	-	-	47	-	-	-	-	14	4,04	33	4,33
2010/11	185*	72	21	50	-	-	-	-	24	3,98	26	3,84

\* 91 candidates applied for the additional test of knowledge and special skills



Enrolment in the first year of graduate and postgraduate study programmes in the last three academic years

Graduate studies in graphic technology	Full-time student			Part-time students			Number of students transferring from			Average grade
	Applied	Enrolled	Enrolment quota	Applied	Enrolled	Enrolment quota	Other components of the University of Zagreb	other university / college in the Republic of Croatia	other university / colleges outside the Republic of Croatia	
2008/09	56	56	100 + 5	-	-	-	-	9	2	4,40
2009/10	102+14	114	100 + 5 + 40a	-	-	-	2	25	2	4,21
2010/11	96	94	100 + 5	-	-	-	2	34	1	4,12

\* According to Senate decision dated January 19, 2010. FGA (Faculty of Graphic Arts) is granted the approval to increase the enrollment quota for the summer semester of AY 2009./2010. by 40 students

Postgraduate doctoral studies in Graphics engineering and graphic products designing	Full-time student			Part-time students			Number of students transferring from			Average grade
	Applied	Enrolled	Enrolment quota	Applied	Enrolled	Enrolment quota	Other components of the University of Zagreb	other universities outside the Republic of Croatia		
2008/09	2	2	15	6	6	15	-	-	-	3,9
2009/10	1	1	15	13	13	15	2	1	1	4,0
2010/11	7	7	15	10	10	15	5	-	-	3,9



**Table 2.3.2.1. Information on exams for all courses at undergraduate and graduate studies for AY 2009/10**

Course	Total number of exam applications	Total number of exam applicants						Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students	g=c+d+e+f					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g	
Undergraduate studies												
Packaging 1	118	104	7	0	0	111	104	1,06	4,13	88,14%	93,69%	
Automata theory and maintenance of printing machines	128	109	5	3	0	117	112	1,09	4,36	87,50%	95,73%	
Digital multimedia 1	162	116	14	6	0	136	128	1,19	3,66	79,01%	94,12%	
Digital print	43	25	6	2	0	33	32	1,30	3,34	74,42%	96,97%	
Graphic media design 1	84	59	11	1	0	71	68	1,18	4,12	80,95%	95,77%	
Product design: case study	23	21	1	0	0	22	22	1,05	3,91	95,65%	100,00%	
English for specific purposes 1	140	32	18	12	9	71	62	1,97	3,28	44,29%	87,32%	
English for specific purposes 2	73	16	17	5	2	40	34	1,83	3,41	46,58%	85,00%	
English for specific purposes 3	40	15	6	3	1	25	23	1,60	3,57	57,50%	92,00%	
English for specific purposes 4	26	7	4	1	2	14	16	1,86	3,00	61,54%	114,29%	
Physics 1	269	135	23	12	13	183	114	1,47	2,42	42,38%	62,30%	
Physics 2	232	65	45	15	8	133	93	1,74	2,23	40,09%	69,92%	
Applied Physics	174	66	32	8	5	111	90	1,57	2,29	51,72%	81,08%	
Photographic processes	213	102	36	13	0	151	135	1,41	3,37	63,38%	89,40%	
Major printing techniques	231	73	30	18	11	132	118	1,75	3,31	51,08%	89,39%	
Graphic design 1	48	48	0	0	0	48	48	1,00	4,40	100,00%	100,00%	
Graphic design 2	46	42	2	0	0	44	44	1,05	4,32	95,65%	100,00%	
Printing machines 1	146	114	5	6	1	126	123	1,16	4,11	84,25%	97,62%	
Printing machines 2	160	102	20	6	0	128	119	1,25	4,04	74,38%	92,97%	
Documents and securities graphics	12	8	2	0	0	10	10	1,20	5,00	83,33%	100,00%	
Industry and environment	186	39	22	21	10	92	64	2,02	3,15	34,41%	69,57%	
Informatics 1	158	152	3	0	0	155	152	1,02	3,69	96,20%	98,06%	
Informatics 2	71	63	4	0	0	67	63	1,06	4,32	88,73%	94,03%	



Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=l/b	l=h/g
Engineering graphics	216	111	21	9	9	150	143	1,44	3,43	66,20%	95,33%
Chemistry 1	312	72	37	18	28	155	144	2,01	2,93	46,15%	92,90%
Chemistry 2	224	80	29	22	5	136	96	1,65	3,37	42,86%	70,59%
Applied Chemistry	108	42	17	8	2	69	65	1,57	3,37	60,19%	94,20%
Bookbinding	37	14	10	1	0	25	23	1,48	3,65	62,16%	92,00%
Bookbinding 1	76	60	4	0	2	66	57	1,15	3,84	75,00%	86,36%
Communicology	125	51	15	8	5	79	68	1,58	3,92	54,40%	86,08%
Quality control	132	57	19	11	1	88	70	1,50	3,48	53,03%	79,55%
Qualitative research methods of colour reproduction	72	45	9	3	0	57	52	1,26	3,92	72,22%	91,23%
Visual arts practice 1	45	43	1	0	0	44	44	1,02	4,09	97,78%	100,00%
Visual arts practice 2	43	43	0	0	0	43	43	1,00	4,40	100,00%	100,00%
Visual arts practice 3	40	40	0	0	0	40	40	1,00	4,40	100,00%	100,00%
Visual arts practice 4	43	43	0	0	0	43	43	1,00	4,88	100,00%	100,00%
History of visual communications 1	159	75	37	2	1	115	110	1,38	3,00	69,18%	95,65%
History of visual communications 2	79	59	8	0	1	68	67	1,16	3,38	84,81%	98,53%
Minor printing techniques	95	58	14	3	0	75	74	1,27	3,70	77,89%	98,67%
Marketing 1	153	73	22	4	6	105	87	1,46	3,10	56,86%	82,86%
Mathematics 1	408	57	39	51	30	177	124	2,31	2,48	30,39%	70,06%
Mathematics 2	277	58	36	29	15	138	101	2,01	2,67	36,46%	73,19%
Multimedia communications 1	108	78	9	4	0	91	86	1,19	3,77	79,63%	94,51%
German for specific purposes 1	10	6	2	0	0	8	8	1,25	4,00	80,00%	100,00%
German for specific purposes 2	9	4	1	1	0	6	6	1,50	4,17	66,67%	100,00%
German for specific purposes 3	4	4	0	0	0	4	3	1,00	4,00	75,00%	75,00%
German for specific purposes 4	1	1	0	0	0	1	1	1,00	5,00	100,00%	100,00%
Quality management	6	6	0	0	0	6	6	1,00	5,00	100,00%	100,00%

Course	Total number of exam applications	Total number of exam applicants						Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students	g=c+d+e+f					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g	
Optoelectronic systems 1	58	26	10	4	0	40	37	1,45	2,84	63,79%	92,50%	
Organization of printing production	153	58	23	11	4	96	80	1,59	3,05	52,29%	83,33%	
Original graphics 1	42	42	0	0	0	42	42	1,00	3,33	100,00%	100,00%	
Original graphics 2	41	41	0	0	0	41	41	1,00	3,39	100,00%	100,00%	
Original graphics 3	43	41	1	0	0	42	42	1,02	3,83	97,67%	100,00%	
Original graphics 4	38	38	0	0	0	38	38	1,00	3,76	100,00%	100,00%	
Principles of microeconomy	14	7	2	1	0	10	9	1,40	4,11	64,29%	90,00%	
Principles of computers and programming	154	68	28	10	0	106	95	1,45	3,52	61,69%	89,62%	
Paper	138	107	14	1	0	122	120	1,13	4,64	86,96%	98,36%	
Polymer materials	46	42	2	0	0	44	44	1,05	4,89	95,65%	100,00%	
Application and investigation of printed materials	54	54	0	0	0	54	54	1,00	4,33	100,00%	100,00%	
Graphic products design	14	14	0	0	0	14	14	1,00	4,00	100,00%	100,00%	
Reproduction photography 1	257	134	25	15	7	181	156	1,42	2,83	60,70%	86,19%	
Reproduction photography 2	106	70	13	2	1	86	81	1,23	2,95	76,42%	94,19%	
Manual production of boxes	33	29	2	0	0	31	29	1,06	5,00	87,88%	93,55%	
Hand binding	94	68	10	2	0	80	74	1,18	4,70	78,72%	92,50%	
Sociology of design	70	30	17	2	0	49	49	1,43	4,47	70,00%	100,00%	
Technical mechanics	15	8	0	1	1	10	9	1,50	3,75	60,00%	90,00%	
Technical presentable systems	151	97	11	8	2	118	110	1,28	3,42	72,85%	93,22%	
Design theory	56	39	7	1	0	47	45	1,19	3,55	80,36%	95,74%	
Typography	191	122	24	7	0	153	139	1,25	3,70	72,77%	90,85%	
Printing process 1	153	130	10	1	0	141	138	1,09	3,67	90,20%	97,87%	
Printing and design	45	33	3	2	0	38	37	1,18	3,84	82,22%	97,37%	
Printing inks	134	110	12	0	0	122	119	1,10	4,79	88,81%	97,54%	
Typeface	9	3	1	0	1	5	6	1,80	4,40	66,67%	120,00%	

Course	Total number of exam applications	Total number of exam applicants						Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students	g=c+d+e+f					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=l/b	l=h/g	
Printing plates 1	269	66	40	25	12	143	120	1,88	3,32	44,61%	83,92%	
Printing plates 2	50	24	8	2	1	35	35	1,43	2,74	70,00%	100,00%	
Offset printing management	46	28	2	2	2	34	27	1,35	4,00	58,70%	79,41%	
Introduction into printing technology	112	79	15	1	0	95	92	1,18	3,79	82,14%	96,84%	
Visual communications	73	33	12	4	1	50	43	1,46	3,56	58,90%	86,00%	
Probability and statistics	169	27	31	20	5	83	57	2,04	2,53	33,73%	68,67%	
WEB design 1	117	76	19	1	0	96	95	1,22	4,56	81,20%	98,96%	
Total (undergraduate studies)	8510	4437	985	429	204	6055	5412	0,64	3,73	63,60%	89,38%	
<b>Diplomski studij</b>												
Packaging and environment	10	10	0	0	0	10	10	1,00	4,90	100,00%	100,00%	
Packaging 2	8	6	1	0	0	7	7	1,14	5,00	87,50%	100,00%	
Packaging and technology 1	10	10	0	0	0	10	10	1,00	4,60	100,00%	100,00%	
Packaging and technology 2	5	5	0	0	0	5	5	1,00	4,60	100,00%	100,00%	
Workflow automation	2	2	0	0	0	2	1	1,00	5,00	50,00%	50,00%	
Colour in digital environment	25	22	0	1	0	23	23	1,09	4,04	92,00%	100,00%	
CTP technology	5	5	0	0	0	5	5	1,00	3,40	100,00%	100,00%	
Digital databases of printing standards	3	3	0	0	0	3	3	1,00	5,00	100,00%	100,00%	
Digital multimedia 2	41	27	7	0	0	34	28	1,21	4,32	68,29%	82,35%	
Graphic media design 2	44	36	4	0	0	40	40	1,10	4,80	90,91%	100,00%	
Design and environment	90	41	14	7	0	62	49	1,45	3,81	54,44%	79,03%	
Graphic design 3	68	68	0	0	0	68	68	1,00	4,32	100,00%	100,00%	
Graphic design 4	81	57	9	2	0	68	66	1,19	4,61	81,48%	97,06%	
Printing materials in conventional and digital printing processes	72	56	8	0	0	64	64	1,13	5,00	88,89%	100,00%	
Graphic programming languages	34	10	5	2	2	19	15	1,79	3,90	44,12%	78,95%	



Course	Total number of exam applications	Total number of exam applicants						Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students	g=c+d+e+f					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=l/b	l=h/g	
Holography	16	16	0	0	0	16	16	1,00	4,00	100,00%	100,00%	
Multimedia systems	35	33	1	0	0	34	34	1,03	4,21	97,14%	100,00%	
Bookbinding 2	4	4	0	0	0	4	4	1,00	5,00	100,00%	100,00%	
Graphic design communicationology	44	31	5	1	0	37	36	1,19	4,19	81,82%	97,30%	
Quality control and assurance in graphic production	13	13	0	0	0	13	13	1,00	4,69	100,00%	100,00%	
Marketing 2	9	2	2	1	0	5	3	1,80	2,67	33,33%	60,00%	
Media communications	5	3	1	0	0	4	4	1,25	4,50	80,00%	100,00%	
Mechanical simulations in computer animations	17	17	0	0	0	17	17	1,00	4,41	100,00%	100,00%	
Measurement methods in printing	26	16	5	0	0	21	21	1,24	3,86	80,77%	100,00%	
Multimedia communications 2	30	28	1	0	0	29	29	1,03	4,21	96,67%	100,00%	
Optimization of printing system	15	15	0	0	0	15	15	1,00	4,47	100,00%	100,00%	
Optoelectronic systems 2	27	19	4	0	0	23	21	1,17	4,43	77,78%	91,30%	
Composing scientific and professional papers	9	9	0	0	0	9	9	1,00	3,89	100,00%	100,00%	
Principles of applied photography	28	21	2	1	0	24	24	1,17	4,75	85,71%	100,00%	
Packaging technology	10	10	0	0	0	10	10	1,00	4,90	100,00%	100,00%	
Motion graphics	40	35	1	1	0	37	37	1,08	4,57	92,50%	100,00%	
Business communicationology	21	17	2	0	0	19	19	1,11	4,79	90,48%	100,00%	
Business and security printing	30	28	1	0	0	29	27	1,03	3,74	90,00%	93,10%	
Application of digital photography in reproduction media	36	25	4	1	0	30	30	1,20	4,70	83,33%	100,00%	
Applied photography 1	42	36	3	0	0	39	38	1,08	4,42	90,48%	97,44%	
Applied photography 2	88	49	18	1	0	68	67	1,29	3,91	76,14%	98,53%	
Computer graphics	6	4	1	0	0	5	5	1,20	4,60	83,33%	100,00%	
Computer typography	4	4	0	0	0	4	4	1,00	4,00	100,00%	100,00%	
History of printing	37	35	1	0	0	36	36	1,03	4,86	97,30%	100,00%	



Course	Total number of exam applications	Total number of exam applicants				Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student	
		once	2 times	3 times	4 times						Total number of students
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Implementation of conceptual design 1	103	89	4	2	0	95	95	1,08	4,20	92,23%	100,00%
Implementation of conceptual design 2	99	80	5	3	0	88	87	1,13	4,51	87,88%	98,86%
Re-engineering in printing production	44	42	1	0	0	43	43	1,02	4,88	97,73%	100,00%
Reproduction of the image information	8	8	0	0	0	8	8	1,00	5,00	100,00%	100,00%
Paper restoration and preservation	54	51	0	1	0	52	51	1,04	5,00	94,44%	98,08%
Environment management system	3	3	0	0	0	3	3	1,00	5,00	100,00%	100,00%
Broadband network applications	13	13	0	0	0	13	13	1,00	4,92	100,00%	100,00%
Technical editing and run management	54	16	14	2	1	33	33	1,64	4,03	61,11%	100,00%
Digital photography printing	26	24	1	0	0	25	25	1,04	4,44	96,15%	100,00%
Packaging printing	32	15	4	3	0	22	22	1,45	3,95	68,75%	100,00%
Art photography 1	73	57	6	0	1	64	63	1,14	4,30	86,30%	98,44%
Art photography 2	26	19	2	1	0	22	22	1,18	4,73	84,62%	100,00%
Introduction into the theory of experimental work	8	8	0	0	0	8	8	1,00	4,38	100,00%	100,00%
WEB design 2	46	37	3	1	0	41	36	1,12	4,61	78,26%	87,80%
Environmental science and design	84	26	5	12	3	46	35	1,83	4,00	41,67%	76,09%
Total (graduate studies)	1763	1316	145	43	7	1511	1457	0,83	4,43	82,64%	96,43%
Total sum	10273	5753	1130	472	211	7566	6869	1,36	3,79	66,86%	90,79%



**Table 2.3.2.2. Information on exams for all courses at undergraduate and graduate studies for AY 2010/11**

Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Undergraduate studies											
Packaging 1	95	93	1	0	0	94	94	1,01	4,09	99%	100,00%
Automata theory and maintenance of printing machines	84	55	8	3	1	67	65	1,25	3,89	77%	97,01%
Digital multimedia 1	122	97	9	1	1	108	108	1,13	3,87	89%	100,00%
Digital print	31	25	3	0	0	28	28	1,11	4,00	90%	100,00%
Graphic media design 1	57	51	3	0	0	54	47	1,06	4,36	82%	87,04%
Product design: case study	73	61	6	0	0	67	67	1,09	3,51	92%	100,00%
English for specific purposes 1	135	19	18	20	5	62	48	2,18	3,10	36%	77,42%
English for specific purposes 2	26	7	6	1	1	15	12	1,73	3,42	46%	80,00%
English for specific purposes 3	17	7	5	0	0	12	12	1,42	3,67	71%	100,00%
English for specific purposes 4	10	6	2	0	0	8	6	1,25	3,83	60%	75,00%
Physics 1	359	55	54	36	22	167	124	2,15	2,14	35%	74,25%
Physics 2	264	68	37	18	17	140	108	1,89	2,25	41%	77,14%
Applied Physics	133	40	21	9	6	76	60	1,75	2,35	45%	78,95%
Photographic processes	225	60	48	11	9	128	103	1,76	3,25	46%	80,47%
Major printing techniques	225	98	29	15	6	148	134	1,52	3,22	60%	90,54%
Graphic design 1	36	34	1	0	0	35	35	1,03	4,60	97%	100,00%
Graphic design 2	36	34	1	0	0	35	35	1,03	4,17	97%	100,00%
Printing machines 1	156	95	15	9	1	120	111	1,30	3,95	71%	92,50%
Printing machines 2	123	69	13	8	1	91	81	1,35	3,72	66%	89,01%
Industry and environment	152	42	26	14	4	86	75	1,77	2,92	49%	87,21%
Informatics 1	179	85	26	10	3	124	114	1,44	2,95	64%	91,94%
Informatics 2	49	40	3	1	0	44	41	1,11	3,17	84%	93,18%
Engineering graphics	153	100	7	9	3	119	112	1,29	3,17	73%	94,12%



Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Chemistry 1	177	77	17	10	9	113	106	1,57	2,60	60%	93,81%
Chemistry 2	281	56	50	27	11	144	111	1,95	2,74	40%	77,08%
Applied Chemistry	162	50	16	16	8	90	77	1,80	3,00	48%	85,56%
Bookbinding	30	28	1	0	0	29	27	1,03	4,00	90%	93,10%
Bookbinding 1	86	77	3	1	0	81	75	1,06	3,88	87%	92,59%
Communicology	85	25	22	4	1	52	44	1,63	3,84	52%	84,62%
Quality control	159	58	27	13	2	100	89	1,59	2,97	56%	89,00%
Qualitative research methods of colour reproduction	54	29	11	1	0	41	39	1,32	3,92	72%	95,12%
Visual arts practice 1	52	52	0	0	0	52	52	1,00	4,54	100%	100,00%
Visual arts practice 2	50	50	0	0	0	50	50	1,00	4,64	100%	100,00%
Visual arts practice 3	36	36	0	0	0	36	36	1,00	4,75	100%	100,00%
Visual arts practice 4	36	34	1	0	0	35	34	1,03	4,24	94%	97,14%
History of visual communications 1	164	56	18	12	9	95	84	1,73	3,92	51%	88,42%
History of visual communications 2	76	52	9	2	0	63	60	1,21	4,28	79%	95,24%
Minor printing techniques	105	52	17	5	1	75	73	1,40	3,49	70%	97,33%
Marketing 1	99	36	12	9	3	60	43	1,65	2,95	43%	71,67%
Mathematics 1	286	58	52	24	13	147	113	1,95	2,38	40%	76,87%
Mathematics 2	298	92	49	20	12	173	130	1,72	2,52	44%	75,14%
Multimedia communications 1	99	85	2	2	1	90	87	1,10	3,84	88%	96,67%
German for specific purposes 1	3	3	0	0	0	3	2	1,00	5,00	67%	66,67%
German for specific purposes 2	3	1	1	0	0	2	1	1,50	5,00	33%	50,00%
German for specific purposes 3	1	1	0	0	0	1	1	1,00	4,00	100%	100,00%
German for specific purposes 4	0	0	0	0	0	0	0	0,00	0,00		
Optoelectronic systems 1	41	31	2	2	0	35	32	1,17	4,41	78%	91,43%
Organization of printing production	144	24	21	14	9	68	50	2,12	2,88	35%	73,53%
Original graphics 1	35	35	0	0	0	35	35	1,00	3,86	100%	100,00%

Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Original graphics 2	36	36	0	0	0	36	36	1,00	3,50	100%	100,00%
Original graphics 3	35	35	0	0	0	35	35	1,00	4,00	100%	100,00%
Original graphics 4	37	35	1	0	0	36	36	1,03	3,78	97%	100,00%
Principles of microeconomy	0	0	0	0	0	0	0	0,00	0,00		
Principles of computers and programming	157	87	19	8	2	116	103	1,35	3,41	66%	88,79%
Paper	121	90	8	5	0	103	100	1,17	4,24	83%	97,09%
Polymer materials	51	38	5	1	0	44	41	1,16	4,76	80%	93,18%
Application and investigation of printed materials	51	34	7	1	0	42	39	1,21	4,15	76%	92,86%
Graphic products design	3	3	0	0	0	3	3	1,00	4,00	100%	100,00%
Reproduction photography 1	288	118	32	18	13	181	154	1,59	2,67	53%	85,08%
Reproduction photography 2	122	66	10	12	0	88	79	1,39	2,59	65%	89,77%
Manual production of boxes	24	20	2	0	0	22	22	1,09	5,00	92%	100,00%
Hand binding	45	41	2	0	0	43	41	1,05	4,63	91%	95,35%
Sociology of design	71	50	6	3	0	59	59	1,20	4,51	83%	100,00%
Technical mechanics	4	4	0	0	0	4	2	1,00	2,00	50%	50,00%
Technical presentable systems	91	71	5	2	1	79	70	1,15	3,46	77%	88,61%
Design theory	71	42	10	3	0	55	46	1,29	4,37	65%	83,64%
Typography	186	123	16	9	1	149	144	1,25	3,47	77%	96,64%
Printing process 1	117	87	7	4	1	99	94	1,18	3,74	80%	94,95%
Printing and design	42	36	3	0	0	39	39	1,08	4,21	93%	100,00%
Printing inks	127	90	12	3	1	106	102	1,20	4,52	80%	96,23%
Typeface	0	0	0	0	0	0	0	0,00	0,00		
Printing plates 1	290	75	41	19	19	154	118	1,88	3,02	41%	76,62%
Printing plates 2	59	29	6	6	0	41	37	1,44	2,49	63%	90,24%
Offset printing management	75	28	8	5	4	45	39	1,67	4,41	52%	86,67%



Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Introduction into printing technology	69	59	5	0	0	64	62	1,08	3,34	90%	96,88%
Probability and statistics	200	46	24	22	10	102	61	1,96	2,43	31%	59,80%
WEB design 1	104	75	10	3	0	88	88	1,18	4,30	85%	100,00%
<b>Total (undergraduate)</b>	<b>7778</b>	<b>3757</b>	<b>912</b>	<b>451</b>	<b>211</b>	<b>5331</b>	<b>4721</b>	<b>1,46</b>	<b>3,51</b>	<b>61%</b>	<b>88,56%</b>
<b>Diplomski studij</b>											
Packaging and environment	6	4	1	0	0	5	5	1,20	5,00	83%	100,00%
Packaging 2	3	3	0	0	0	3	3	1,00	4,67	100%	100,00%
Packaging and technology 1	15	13	1	0	0	14	14	1,07	4,43	93%	100,00%
Packaging and technology 2	6	6	0	0	0	6	6	1,00	4,50	100%	100,00%
Workflow automation	10	10	0	0	0	10	10	1,00	4,50	100%	100,00%
Colour in digital environment	22	22	0	0	0	22	22	1,00	4,36	100%	100,00%
CTP technology	9	7	1	0	0	8	8	1,13	3,25	89%	100,00%
Digital databases of printing standards	5	5	0	0	0	5	5	1,00	4,40	100%	100,00%
Digital multimedia 2	38	34	2	0	0	36	36	1,06	4,28	95%	100,00%
Graphic media design 2	18	18	0	0	0	18	16	1,00	4,75	89%	88,89%
Design and environment	86	40	12	2	4	58	52	1,48	3,85	60%	89,66%
Graphic design 3	42	40	1	0	0	41	41	1,02	4,63	98%	100,00%
Graphic design 4	50	34	6	0	1	41	39	1,22	4,23	78%	95,12%
Printing materials in conventional and digital printing processes	78	75	0	1	0	76	74	1,03	4,91	95%	97,37%
Graphic programming languages	29	14	6	1	0	21	19	1,38	3,95	66%	90,48%
Documents and securities graphics	40	29	4	1	0	34	34	1,18	3,59	85%	100,00%
Holography	36	28	1	2	0	31	31	1,16	4,06	86%	100,00%
Multimedia systems	54	44	5	0	0	49	49	1,10	3,96	91%	100,00%



Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Bookbinding 2	3	3	0	0	0	3	3	1,00	4,67	100%	100,00%
Graphic design communicationology	24	20	2	0	0	22	22	1,09	4,50	92%	
Quality control and assurance in graphic production	26	26	0	0	0	26	26	1,00	4,19	100%	100,00%
Marketing 2	15	0	4	1	1	6	2	2,50	2,50	13%	33,33%
Media communications	0	0	0	0	0	0	0	0,00	0,00		
Mechanical simulations in computer animations	21	21	0	0	0	21	21	1,00	3,19	100%	100,00%
Measurement methods in printing	0	0	0	0	0	0	0	0,00	0,00		
Multimedia communications 2	57	38	6	1	1	46	46	1,24	4,00	81%	100,00%
Quality management	10	10	0	0	0	10	10	1,00	4,90	100%	100,00%
Optimization of printing system	28	26	1	0	0	27	27	1,04	3,78	96%	100,00%
Optoelectronic systems 2	32	28	2	0	0	30	30	1,07	4,00	94%	100,00%
Composing scientific and professional papers	80	35	19	1	1	56	54	1,43	2,74	68%	96,43%
Principles of applied photography	53	34	5	3	0	42	42	1,26	4,60	79%	100,00%
Packaging technology	14	12	1	0	0	13	13	1,08	4,38	93%	100,00%
Motion graphics	106	79	12	1	0	92	92	1,15	4,08	87%	100,00%
Business communicationology	58	40	9	0	0	49	49	1,18	4,10	84%	100,00%
Business and security printing	42	37	1	1	0	39	38	1,08	3,58	90%	97,44%
Application of digital photography in reproduction media	33	25	1	2	0	28	28	1,18	4,43	85%	100,00%
Applied photography 1	42	36	3	0	0	39	39	1,08	4,15	93%	100,00%
Applied photography 2	54	31	7	3	0	41	40	1,32	4,35	74%	97,56%
Computer graphics	0	0	0	0	0	0	0	0,00	0,00		
Computer typography	7	5	1	0	0	6	6	1,17	4,33	86%	100,00%
History of printing	104	69	7	7	0	83	82	1,25	4,37	79%	98,80%



Course	Total number of exam applications	Total number of exam applicants					Students who passed the exam	Average number of exam attempts	Average grade	Pass rate by exam	Pass rate by student
		once	2 times	3 times	4 times	Total number of students					
a	b	c	d	e	f	g=c+d+e+f	h	i=b/g	j	k=h/b	l=h/g
Implementation of conceptual design 1	88	68	7	2	0	77	76	1,14	4,26	86%	98,70%
Implementation of conceptual design 2	69	53	8	0	0	61	59	1,13	3,85	86%	96,72%
Re-engineering in printing production	28	24	2	0	0	26	26	1,08	4,50	93%	100,00%
Reproduction of the image information	9	9	0	0	0	9	9	1,00	4,56	100%	100,00%
Paper restoration and preservation	52	48	2	0	0	50	48	1,04	4,98	92%	96,00%
Environment management system	0	0	0	0	0	0	0	0,00	0,00		
Broadband network applications	41	15	7	4	0	26	26	1,58	4,27	63%	100,00%
Technical editing and run management	62	34	8	4	0	46	46	1,35	4,09	74%	100,00%
Digital photography printing	66	57	3	1	0	61	58	1,08	4,67	88%	95,08%
Packaging printing	41	23	6	2	0	31	31	1,32	4,16	76%	100,00%
Art photography 1	47	32	6	1	0	39	37	1,21	4,49	79%	94,87%
Art photography 2	81	54	12	1	0	67	64	1,21	4,13	79%	95,52%
Introduction into the theory of experimental work	12	10	1	0	0	11	11	1,09	4,91	92%	100,00%
Visual communications	82	29	15	5	2	51	44	1,61	3,91	54%	86,27%
WEB design 2	38	30	4	0	0	34	32	1,12	4,50	84%	94,12%
Environmental science and design	57	34	6	1	2	43	41	1,33	3,49	72%	95,35%
<b>Total (graduate)</b>	<b>2129</b>	<b>1521</b>	<b>208</b>	<b>48</b>	<b>12</b>	<b>1789</b>	<b>1742</b>	<b>1,19</b>	<b>3,80</b>	<b>82%</b>	<b>97,37%</b>
<b>Total</b>	<b>9907</b>	<b>5278</b>	<b>1120</b>	<b>499</b>	<b>223</b>	<b>7120</b>	<b>6463</b>	<b>1,39</b>	<b>3,65</b>	<b>65%</b>	<b>90,77%</b>



**Tablica 2.3-2.3.** Information on the success of students in individual courses with regard to secondary education

		2009						2010							
		Physics 1	Chemistry 1	Mathematics 1	Physics 2	Chemistry 2	Mathematics 1	Physics 2	Chemistry 2	Mathematics 1	Physics 1	Chemistry 1	Mathematics 1	Chemistry 2	Mathematics 1
High school	Enrolled	47	67	65	29	50	77	46	22	34	57	44	46	34	34
	Passed	61%	87%	84%	38%	65%		77%	39%	60%		81%	60%	60%	60%
	>59	16									20				
	Participation	21%									35%				
vocational school	Average ECTS	47									53				
	School average	4,16								3,87					
	Enrolled	55					77								
	Passed	19	40	28	13	15		44	19	23		44	49	23	31
Total	Percentage	35%	73%	51%	24%	27%		57%	25%	30%		64%	25%	30%	40%
	>59	3									10				
	Participation	5%									35%				
	Average ECTS	38									40				
Total	School average	4,33									3,45				
	Enrolled	132	132	132	132	132		134	134	134		134	134	134	134
	Passed	66	107	93	42	65		88	41	57		95	41	57	65
	Percentage	50%	81%	70%	32%	49%		66%	31%	43%		71%	31%	43%	49%
Total	>59	19									30				
	Participation	14%									22%				
	Average ECTS	43									46				
	School average	4,33									3,71				

**Tablica 2.3.7.1.** Table evidence of changes within initially adopted study programmes: undergraduate, graduate and integrated studies

Area Council	Technical Council of the University of Zagreb	
Name of higher education institution	FACULTY OF GRAPHIC ARTS	
Name of study programme	Undergraduate Study Course of Graphic Technology, Technical and Technology track	
Number of ECTS credits	Before changes: 263	After changes: 260
Types of study	1) <b>undergraduate</b> 2)graduate	3)integrated 4) professional
Size of changes	A) study programme is highly changed (more than 20 percent) B) study programme is not changed (less than 20 percent)	

What is changed	Before the change	After the change	Description
Division of obligatory two-semester courses on obligatory one-semester	Two-semester course Visual arts practice 1 and 2	Two one-semester courses Visual arts practice 1 Visual arts practice 2	Bologna regulations of studying demands one-semester courses
	Two-semester course Informatics 1 and 2	Two one-semester courses Informatics 1 Informatics 2	
	Two-semester course Physical education 1 and 2	Two one-semester courses Physical education 1 Physical education 2	
Division of facultative two-semester courses on facultative one-semester	Foreign language for specific purposes 1	English for specific purposes 1 and German for specific purposes 1	Students may choose English or German language
	Foreign language for specific purposes 2	English for specific purposes 2 and German for specific purposes 2	
	Foreign language for specific purposes 3	English for specific purposes 3 and German for specific purposes 3	
	Foreign language for specific purposes 4	English for specific purposes 4 and German for specific purposes 4	
Visual arts practice 1	Elective course	Not executed on this study track	This course is offered only to Design of graphic products track. The reason for that decision is judgment that students need more elective courses form professional practice.
Visual arts practice 2			
History of visual communications 1	mandatory I semester	Elective I semester	This course is mandatory only for Design of graphic products track. For Technical and Technology track more elective courses is needed.
History of visual communications 2	mandatory II semester	Elective II semester	
Design theory	mandatory II semester	Elective II semester	



What is changed	Before the change	After the change	Description
Informatics 2	mandatory II semester	Elective II semester	The load of ECTS credits for one semester is 30.
Photographic processes	mandatory III semester	Elective II semester	This course precedes to course Reproduction photography 2 which is mandatory on III semester
Sociology of design	Elective I semester	Elective V semester	The lecturer states that this course is more demanding
Graphic media design 1	Elective III semester	Elective IV semester	
Hand binding	Graduate study	Elective V semester	The lecturer states that this course is more appropriate for undergraduate study
Technical mechanics	Elective III semester	Elective I semester	The lecturer states that this course is more appropriate for undergraduate study
Paper	Obligatory n III semester	mandatory IV semester	The load of ECTS credits for one semester is 30.
Printing plates 1	Obligatory IV semester	mandatory III semester	
Printing plates 2	Elective VI semester	mandatory IV semester	
Reproduction photography 1	mandatory V semester	mandatory III semester	
Reproduction photography 2	Elective VI semester	mandatory IV semester	
Printing inks	mandatory IV semester	mandatory V semester	
Quality control	mandatory VI semester	mandatory V semester	
Polymer materials	mandatory V semester	Elective VI semester	





**Tablica 2.3.7.2.** Table evidence of changes within initially adopted study programmes: undergraduate, graduate and integrated studies

Area Council	Technical Council of the University of Zagreb	
Name of higher education institution	FACULTY OF GRAPHIC ARTS	
Name of study programme	Undergraduate Study Course of Graphic Technology, Design of Graphic products track	
Number of ECTS credits	Before change: 275	After change: 267
Types of study	1) undergraduate 2)graduate	3integrated 4) professional
Size of changes	A) study programme is highly changed (more than 20 percent) B) study programme is not changed (less than 20 percent)	

What is changed	Before the change	After the change	Description
Division of obligatory two-semester courses on obligatory one-semester	Two-semester course Visual arts practice 1 and 2	Two one-semester courses Visual arts practice 1 Visual arts practice 2	Bologna regulations of studying demands one-semester courses
	Two-semester course Informatics 1 and 2	Two one-semester courses Informatics 1 Informatics 2	
	Two-semester course Physical education 1 and 2	Two one-semester courses Physical education 1 Physical education 2	
Division of facultative two-semester courses on facultative one-semester	Foreign language for specific purposes 1	English for specific purposes 1 and German for specific purposes 1	Students may choose English or German language
	Foreign language for specific purposes 2	English for specific purposes 2 and German for specific purposes 2	
	Foreign language for specific purposes 3	English for specific purposes 3 and German for specific purposes 3	
	Foreign language for specific purposes 4	English for specific purposes 4 and German for specific purposes 4	
Informatics 2	mandatory II semester	elective II semester	The load of ECTS credits for one semester is 30.
Photographic processes	mandatory III semester	mandatory II semester	This course is prerequisite Photographic processes 3 course
Sociology of design	elective I semester	electiveV semester (AY 2009/10)	The lecturer states that this course is more demanding
Graphic media design 1	elective III semester	elective IV semester (AY 2008/09)	
Technical mechanics	elective III semester	elective I semester	This course should be on lower semester

What is changed	Before the change	After the change	Description
Technical presentable systems	mandatory II semester	elective II semester	For Technical and Technology track more elective courses is needed.
Paper	mandatory III semester	mandatory IV semester	The load of ECTS credits for one semester is 30.
Printing plates 1	mandatory IV semester	mandatory III semester	
Printing plates 2	elective VI semester	Not executed on this study track	Technical and Technology track course
Reproduction photography 1	elective V semester	mandatory III semester	This course is professional
Printing inks	mandatory IV semester	mandatory V semester	The load of ECTS credits for one semester is 30.
Quality control	mandatory VI semester	mandatory V semester	
Polymer materials	elective V semester	elective VI semester	
Organization of printing production	mandatory V semester	elective V semester	For Design of graphic products track more elective courses is needed.
Probability and statistics	mandatory III semester	elective III semester	
Standardization of printing plates	elective VI semester	Not executed on this study track	Technical and Technology track course



**Tablica 2.3.7.3.** Table evidence of changes within initially adopted study programmes: undergraduate, graduate and integrated studies

Area Council	Technical Council of the University of Zagreb	
Name of higher education institution	FACULTY OF GRAPHIC ARTS	
Name of study programme	Undergraduate Study Course of Graphic Technology, Technical and Technology track Design of graphic products track	
Number of ECTS credits	Before change: 288	After change: 317
Types of study	1) undergraduate 2) <b>graduate</b>	3) integrated 4) professional
Size of changes	A) study programme is highly changed (more than 20 percent) B) study programme is not changed (less than 20 percent)	

What is changed	Before the change	After the change	Description
Supplementation of study track with new course		Communicology of graphic design (1. semester)	For increase of quality of study track the number of elective courses is increased
		media communications 1* (2. semester)	
		Measurement methods in printing (3. semester)	
		Motion graphics (3. semester)	
Optimization of printing system	elective 2. semester	Elective 3. semester	The lecturer states that this course is more demanding
Change in hourly wages and ECTS bodova: - Art photography 1 i 2 - Applied photography 2	hourly wages 2+0+1 (5 ECTS)	hourly wages 2+0+2 (6 ECTS)	The lecturer states that this course is more demanding

**Table 2..4. Pass rate at a study programme**

Name of the study programme	Year of enrollment	Number of enrolled students	Number of students who gained up to 1/3 of possible ECTS credits	Number of students who gained 1/3 to 2/3 of possible ECTS credits	Number of students who gained more than 2/3 of possible ECTS credits	Number of graduates	Number of students who lost their right to study	Average grade
Undergraduate studies of graphic technology, track: technical and technological	2005./2006.	116	3	3	17	50	43	3,49
	2006./2007.	108	13	5	21	38	31	3,37
	2007./2008.	76	2	13	12	26	23	3,88
Undergraduate studies of graphic technology, track: graphic product design	2005./2006.	44			2	31	11	3,54
	2006./2007.	48	1	1	4	36	6	3,67
	2007./2008.	51	2	4	6	29	10	3,75
Part-time undergraduate studies in graphic technology, track: technical and technological	2005./2006.	27	13	5	4	1	4	3,70
	2006./2007.	61	29	22	4	4	2	3,78
	2007./2008.							
Part-time undergraduate studies of graphic technology, track: Graphic product design	2005./2006.	16	11	1	2	0	2	
	2006./2007.							
	2007./2008.							

**Table 2.5.** Assessing learning outcomes

(Specify structure in the manner of passing written exams at the undergraduate, graduate (including integrated undergraduate and graduate\*) as well as postgraduate specialist study programmes carried out by your institution (number of courses in relation to the total number, expressed in percentage). Comment in tables if necessary.)

Name of study programme	Only final exam			Only preliminary exam/homework	Preliminary exam/homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
	Written final exam	Oral final exam	Written and oral final exam						
Undergraduate studies of graphic technology (table 2.5.1 in the appendix )	5,56%	5,56%	9,72%	2,78%	9,72%	6,94%	22,22%	7,72%	11,11%
Graduate studies in graphic technology (table 2.5.2 in the appendix )	4,04%	4,04%	17,17%	5,05%	26,26%	10,10%	4,04%	16,16%	6,06%

Table 2.5.1 Undergraduate study programme

Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Physics	Physics 1					x					
Physics	Physics 2					x					
Physics	Applied Physics					x					
Reproduction photography	Reproduction photography 1										3 preliminary exams or final exam (written + oral)
Reproduction photography	Reproduction photography 2										3 preliminary exams or final exam (written + oral)
Chemistry	Chemistry 1					x					
Chemistry	Chemistry 2					x					
Chemistry	Applied Chemistry					x					
Communicology	Communicology							X			
Communicology	Visual communications				X						
History of visual communications	Graphic media design 1				x						
History of visual communications	Graphic design 1									x	
History of visual communications	Graphic design 2									x	
History of visual communications	Visual arts practice 1									x	
History of visual communications	Visual arts practice 2									x	



Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
History of visual communications	Visual arts practice 3								x		
History of visual communications	Visual arts practice 4								x		
History of visual communications	History of visual communications 1			x							
History of visual communications	History of visual communications 2			x							
History of visual communications	Original graphics 1								x		
History of visual communications	Original graphics 2								x		
History of visual communications	Original graphics 3								x		
History of visual communications	Original graphics 4								x		
History of visual communications	Sociology of design							x			
History of visual communications	Design theory			x							
Printing machines	Automata theory and maintenance of printing machines			x		x					
Printing machines	Printing machines 1			x							
Printing machines	Printing machines 2			x							
Printing machines	Quality control										x
Printing process	Major printing techniques										x



Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Printing process	Minor printing techniques					x					
Printing process	Printing process 1										x
Printing process	Printing and design										x
Printing process	Offset printing management					x					
Economy	Marketing 1							X			
Economy	Organization of printing production							X			
Economy	Principles of microeconomy			X							
Social sciences courses	English for specific purposes 1					x					
Social sciences courses	English for specific purposes 2					x					
Social sciences courses	English for specific purposes 3					x					
Social sciences courses	English for specific purposes 4					x					
Social sciences courses	German for specific purposes 1					x					
Social sciences courses	German for specific purposes 2					x					
Social sciences courses	German for specific purposes 3					x					
Social sciences courses	German for specific purposes 4					x					
Social sciences courses	Physical education 1										
Social sciences courses	Physical education 2										





Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Social sciences courses	Physical education 3										
Social sciences courses	Physical education 4										
Materials in graphics technology	Paper										
Materials in graphics technology	Polymer materials										
Materials in graphics technology	Application and investigation of printed materials	X*									Seminar paper + 2 preliminary exams + final exam
Materials in graphics technology	Printing inks										Seminar paper + 2 preliminary exams + final exam
Environment protection	Industry and environment										
Environment protection	Environmental science and design										
Photographic processes	Photographic processes			X							
Photographic processes	Qualitative research methods of colour reproduction			X							
Applied and art photography	Applied photography 1				X						
Multimedia and information systems	Informatics 1	x	x	x			x			x	
Multimedia and information systems	Informatics 2	x	x	x			x			x	
Multimedia and information systems	Multimedia communications 1	x	x	x			x			x	



Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Multimedia and information systems	Optoelectronic systems 1	x	x	x	x		x		x		
Packaging, bookbinding and design	Packaging 1						x				
Packaging, bookbinding and design	Bookbinding 1						x				
Packaging, bookbinding and design	Manual production of boxes						x			x	
Packaging, bookbinding and design	Hand binding						x			x	
Packaging, bookbinding and design	Introduction into printing technology						x				
Printing plates	Standardization of printing plates			X							
Printing plates	Printing plates 1			X			X				
Printing plates	Printing plates 2			X							
Engineering graphics and mechanics	Engineering graphics										
Engineering graphics and mechanics	Technical mechanics										
Engineering graphics and mechanics	Technical presentable systems										



Table 2.5.2 Graduate study programme

Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/homework	Preliminary exam/homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Physics	Optical measuring methods of printing surfaces							x			
Physics	Holography							x			
Physics	Introduction into the theory of experimental work							x			
Reproduction photography	Colour in digital environment										preliminary exam + seminar + final exam
Reproduction photography	Application of digital photography in reproduction media										preliminary exam + seminar + final exam
Reproduction photography	Reproduction of the image information										seminar + final exam
Communicology	Graphic design communications							X		X	
Communicology	Media communications										
Communicology	Business communicology				X						
History of visual communications	Graphic media design 2							x			
History of visual communications	Graphic design 3									x	
History of visual communications	Graphic design 4									x	
History of visual communications	Product design: case study									x	
History of visual communications	Motion graphics										x



Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
History of visual communications	Implementation of conceptual design 1				x						
History of visual communications	Implementation of conceptual design 2				x						
History of visual communications	WEB design 1				x						
Printing machines	Quality management							X			
Printing machines	Packaging technology							X			
Printing machines	Quality control and assurance in graphic production							X			
Printing machines	Re-engineering in printing production					x					
Printing process	Digital print								x		
Printing process	Business and security printing								x		
Printing process	Technical editing and run management										
Printing process	Packaging printing										
Printing process	Measurement methods in printing										
Printing process	Multimedia systems										x
Printing process	Optimization of printing system										x
Economy	Marketing 2									X	
Economy	Marketing communications									X	
Materials in graphics technology	Printing materials in conventional and digital printing processes										
Materials in graphics technology	Paper restoration and preservation										
Materials in graphics technology	History of printing										X*



Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Environment protection	Design and environment										Seminar paper + 2 preliminary exams + final exam
Environment protection	Packaging and environment										Seminar paper + 2 preliminary exams + final exam
Environment protection	Environment management system										Seminar paper + 2 preliminary exams + final exam
Applied and art photography	Principles of applied photography				X						
Applied and art photography	Applied photography 2				X						
Applied and art photography	Digital photography printing							X			
Applied and art photography	Art photography 1				X						
Applied and art photography	Art photography 2				X						
Multimedia and information systems	Broadband network applications	x	x	x	x		x			x	
Multimedia and information systems	Multimedia communications 2	x	x	x	x		x			x	
Multimedia and information systems	Composing scientific and professional papers	x	x	x				x			
Multimedia and information systems	Optoelectronic systems 2	x	x	x	x					x	



Department	Course	Only final exam			Practical work and final exam	Only preliminary exam/ homework	Preliminary exam/ homework and final exam	Seminar paper	Seminar paper and final exam	Practical work	Other forms
		Written final exam	Oral final exam	Written and oral final exam							
Packaging, bookbinding and design	Packaging 2						x				
Packaging, bookbinding and design	Bookbinding 2										
Packaging, bookbinding and design	Graphic products design										
Packaging, bookbinding and design	Packaging and technology 1										
Packaging, bookbinding and design	Packaging and technology 2										
Printing plates	CTP technology								X		
Printing plates	Photosensitive copying layers in graphic technology								X		
Printing plates	Surface phenomena on printing plates								X		
Engineering graphics and mechanics	Mechanical simulations in computer animations										X





**Table 2.6.** Specify the number of research papers in scientific journals published by doctoral candidates as part of their dissertation.

Title of doctoral study/ studies	Number of defended doctoral dissertations in the last 5 years	Number of published papers required for dissertation defence	Number of papers of doctoral candidates published in foreign scientific journals which are relevant for appointment into scientific grade	Number of papers of doctoral candidates pu- blished in Croatian scientific journals which are relevant for appointment into scientific grade
Graphics engineering according to accredita- tion issued February 01, 2000.	19	One scientific paper published in the A category journals in- dexed in the database Science Citation Index (SCI) or Current Contents (CC).	14	6
Graphic engineering and graphic products design, according to accreditation issued October 10, 2007.	2	One scientific paper published in the A category journals in- dexed in the database Science Citation Index (SCI) or Current Contents (CC).	7	12

**Table 2.7.** Specify the number of artistic works publicly presented by doctoral candidates as part of their doctoral artistic creation.

Name of the doc- toral programme (orientation)	Number of defended doctoral dissertations in the last 5 years	Number of publicly presented works required for dissertation defence	Number of artistic works of internati- onal importance relevant for appoin- tment into artistic-teaching grade	Number of artistic works of national importance relevant for appointment into artistic-teaching grade
-	-	-	-	-

**Table 2.8.** Web pages

Name of study programme	Number of courses with a specific web page	For courses which have a specific web page, it includes the following elements (in each column, specify the number of web sites which include this element)					
		Objectives and contents of the course, list of literature	Announcements of written and oral exam terms and office hours	Results of preliminary exams and written exams	Exercises with keys from previous exam terms	Additional teaching material (texts of the lectures, PowerPoint presentations, drawings, pictures, videos, etc.)	Possibility of interactive communication between teachers and students
Undergraduate	56	51	44	44	19	35	23
Graduate	80	62	62	63	31	64	40
Total	136	113	106	107	50	99	63





## 3. Students



### **3.1 OPINION ON THE QUALITY AND STRUCTURE OF STUDENTS WHO HAVE APPLIED AND ENROLLED (NUMERICAL DATA IN TABLE 2.3) IN UNDERGRADUATE, AND GRADUATE STUDY PROGRAMMES. AN ASSESSMENT OF HOMOGENEITY AND SUFFICIENCY OF THEIR PRIOR LEARNING.**

There is a certain lack of homogeneity among students enrolled in undergraduate studies due to differences between high schools they graduated from. Our analysis has been carried out for students enrolled based on the results achieved in the appointment procedure performed at the Faculty (generation 2009/10) and students enrolled based on the results of their state high school graduation exam (generation 2010/11). Analysis has been performed of the enrolled students' success achieved during the first year of studies in relation to high schools they graduated from, i.e. high school or vocational high school. The success is represented by the overall number of ECTS credits achieved and successful mastering of courses (physics, chemistry, mathematics) taken into consideration in the appointment procedure or being compulsory (mathematics) or facultative (physics or chemistry) components of their high school graduation exam. Results of the analysis over the past two academic years demonstrate the following:

- a smaller percentage of students enrolled in the first year graduated from high schools (58% in the AY 2009/10 vs. 42,5% 2010/11), i.e.
- a larger percentage of students enrolled in the first year of studies completed their course duties, gaining more than 59 ECTS credits (14% in the AY 2009/10 including 12% of high school students vs. 2% of students from vocational high schools and 22% in the AY 2010/11 with 15% of high school students vs. 7% of students from vocational high schools)

Enrollment in graduate studies at the Faculty of Graphic Arts requires taking an entrance exam for all candidates, while candidates at the Graphic product design track need to submit their work portfolios. Evaluation criteria for enrollment, used to create the final ranking list, are as follows: number of points gained based on their success at undergraduate studies, success during their undergraduate studies and number of points gained within the appointment procedure.

Over the past three academic years, statistical data show an increase in the number of candidates applying for admission to graduate studies at the Faculty of Graphic Arts which have previously completed professional or university undergraduate studies at other colleges or universities within the Republic of Croatia. A larger number of these candidates completed professional undergraduate studies (e.g. College in Varaždin, Technical College in Zagreb), while a smaller number completed university undergraduate studies.

### **3.2. PASS RATE (NUMERICAL DATA IN TABLE 2.4) AT THE STUDY PROGRAMME WITH A VIEW OF THE ENROLMENT QUOTA, STUDENT MOTIVATION AND ORGANISATION OF TEACHING**

The first generation of students enrolled after the implementation of the Bologna process (2005/06) had a somewhat larger number of enrolled students in comparison to the next two generations (2006/07 and 2007/08). This was due to the approval to enroll students initially enrolled according to the old teaching plan and curriculum (undergraduate studies) in the previous academic year (2004/2005), who did not satisfy the requirements for continuation of studies according to the enrolled programme. The percentage of students in these generations having completed undergraduate studies i.e. successfully defended their final thesis by September 2011 is approximately 50% and did not change significantly in relation to the years they enrolled studies. Pass rate, approximately 50% is not satisfactory. Enrollment quota did not constitute a problem, since the decrease in the number of students enrolled in the AY 2007/08 does not affect the pass rate. Teaching was organized under ap-



appropriate conditions considering the number of students per lecture group (2 groups of 80 students), number of seminar groups (2-3 groups of 50-80 students), number of groups for practical laboratory courses (6 to 12 students) and the number of groups for computing (1-2 students per computer – depending on the course). Due to limited space, teaching was carried out throughout the day, from 8 AM to 7 PM. Organisation of teaching attempted to reduce the gaps between students' commitments as defined by schedule.

Part of student population was not motivated for studies and, after gaining student status, they neglected their student obligations, e.g. did not attend seminars and/or practical laboratory courses, thus losing the right to take an exam for these courses within that academic year. Some of these continued their studies after re-enrollment in a course. Others quit studies, switched to study programmes at other faculties, got employed etc., while some of them did not satisfy academic requirements (2nd fail before the examination committee), thus losing the right to study at the Faculty.

It is noticeable that, since the AY 2005/06, the number of students having lost the right to study kept decreasing with each AY. This is attributed to students' better understanding of the new way of studying after the implementation of the Bologna process, achieved by investing efforts to better inform students.

### **3.3 PROMOTING THE FACULTY AND INFORMING FUTURE STUDENTS ON THE FACULTY AND STUDY PROGRAMMES (QUALIFICATIONS, COMPETENCES, OPPORTUNITIES FOR FURTHER EDUCATION AND EMPLOYMENT).**

Potential students at the Faculty of Graphic Arts are informed on our higher education institution primarily using the Faculty website. These provide all relevant information regarding the application for study programmes, plan and programme of studies, rules of studying etc. Also, information about enrollment for the first year of undergraduate studies can be accessed by potential students using the become-a-student application, which has been used since 2010 to perform application for study programmes of all colleges and universities within the Republic of Croatia. Faculty website contains separate information related to particular levels of study (undergraduate, graduate, postgraduate studies) and contains rules of particular Departments regarding teaching and taking course exams at these Departments. Direct links on Faculty web pages also make it easier for potential students to access other information related to rules of studying, students' rights and obligations, students' standard etc.

Faculty is also introduced to potential students using numerous freshmen brochures as well as the Fair, organized at University level for all A-level school leavers and providing various information, such as programmes of the studies, achievements in particular areas, Faculty equipment and facilities, teaching plans for the studies, places to gain creative employment, new working conditions provided by entrepreneurs and companies, accommodation during studies, student life etc.

Additionally, the Faculty of Graphic Arts introduces itself to potential students at the Open Door Day, when one can access all the important data related to studies and graphic profession and also inspect the facilities of our higher education institution.



### **3.4 ASSESSMENT OF STUDENTS' LEARNING OUTCOMES (TABLE 2.5). MEASURES TAKEN UP TO ASSURE FAIRNESS AND OBJECTIVITY DURING EXAMS.**

Faculty uses assessment based on continuous monitoring of students. The monitoring model has been developed at department levels and published on web pages. Cumulative assessment of preliminary exams and other forms of testing is advised and usually implemented. Assessing learning outcomes for most courses within both study programmes is carried out solely by taking a final exam.

At undergraduate studies, aside from testing methods mentioned above, most courses at the Graphic product design track feature verification of learning outcomes by assessment of practical work with/without the final exam, while the Technical and technological track uses assessment of seminary work and final exams.

At graduate studies, apart from taking a written and/or oral exams for most courses within the Graphic product design track, verification of learning outcomes is carried out by assessment of practical and seminary work, while the Technical and technological track uses assessment of preliminary exams/assignments and a final exam.

Teaching implementation plan is adopted for each academic year not less than three months before the teaching starts. It defines following segments for each course: ECTS credits, weekly student workload, holder of the course and lecturers in charge of all forms of teaching. For the academic year to come, we plan to additionally include the manner of taking exams for each course.

Measures to ensure impartiality and objectivity at exams include publishing the results and organizing exams before the examination committee.

### **3.5 A PROBLEM RELATED TO STUDENTS' ACCOMMODATION AND FEEDING; ORGANISATION OF EXTRACURRICULAR ACTIVITIES FOR STUDENTS. A COMMENT ON THE STATUS OF STUDENT STANDARD (ACCORDING TO DATA IN TABLE 3.1) AND ASSESSMENT OF DEGREE OF USE. SATISFACTION WITH THE EXISTING SITUATION AND PROPOSALS FOR POSSIBLE SOLUTIONS.**

A problem of limited student response to calls for completing student questionnaires within the ISVU system has been identified and we are trying to remedy this by additional motivation of students. Vice-dean for Academic Affairs organizes regular meetings with students, informing them of measures taken to resolve their problems.

Give your opinion on the problem of students' accommodation and nutrition. Specify and comment on the extra-curricular activities that you organize for students, if applicable (various courses, sport, recreation...). Comment on the student standard offered at your higher education institution (according to data in table 3.1.) and assess the degree of use. If you are not satisfied with the existing situation, identify the reasons and propose possible solutions.

There is no canteen at the faculty, but the vicinity of Campus can be considered an advantage. One needs to mention that students do have to use public transport to reach Campus due to distance. Extracurricular activities are not organized at the Faculty due to limited space and we are trying to solve this problem by cooperation with another faculty to agree on sharing the space.



### **3.6 SPECIAL MEASURES TAKEN BY THE FACULTY TO MOTIVATE STUDENTS TO WORK HARDER AND TO STUDY (REWARDS, RECOGNITIONS, ETC.) AND A COMMENT ON THE EFFICIENCY OF SUCH MEASURES.**

We are motivating student associations in order to start a student magazine. We regularly reward the best students for success in each academic year, as well as students who excel in volunteering aimed towards faculty promotion. We support all of their activities, which also inspired them to start an engineering competition. Increased student engagement can be noticed over the past years, encouraged by the support that the administration provides to students.

### **3.7 FORMS OF SUPPORTIVE MEASURES PROVIDED TO STUDENTS (MENTORSHIPS, CAREER COUNSELLING, STUDY AID, AID FOR STUDENTS WITH SPECIAL NEEDS AND FOR INTERNATIONAL STUDENTS, LEGAL AND FINANCIAL SUPPORT, ETC.).**

Faculty organized a mentoring system to provide counselling support during studies. We try to improve the system each year in order to maximize efficiency. Debates are organized in order to inform students on mobility and the Office for International Cooperation provides all kinds of related assistance and information.

The faculty has two coordinators for students with special needs: Assoc. Prof. Ivana Bolanča Mirković, D. Sc and Branka Lajić, D.Sc.

### **3.8 DOCUMENTS REGULATING PROTECTION OF STUDENT RIGHTS (APPEAL PROCEDURES, STUDENT OMBUDSMAN, ETC.).**

Faculty website provides students with access to legal documents of the Faculty and the University, regulating their rights and obligations. (Statute of the University of Zagreb, Statute of the Faculty of Graphic Arts, Regulations on Studying at Undergraduate and Graduate Studies, Regulations on Postgraduate Doctoral Studies, The Faculty of Graphic Arts Student Union's Statute, Ordinance on students disciplinary responsibility, Recommendation for the definition of full-time student rights, Rules for the Development of a Graduate Essay, Regulations on Professional Practice and Graduate Essay, Regulations on Graduate Exam, various decisions, protocols and instructions regulating the rights and obligations of students, forms needed to start certain procedures, such as: Application form on the intention to defend thesis, request forms etc.)

The procedure of processing student applications, according to instruction issued November 9, 2010, starts at the moment the application is submitted to the students' office.

The submitted applications are processed by the Committee for students' applications on weekly basis, reaching decisions that the students are free to collect at the students' office the next working day.

Committee for students' applications processes only regularly submitted applications submitted according to publicly proclaimed instructions. In the event that the Committee members are unable to convene, the applications are processed on the following working day, except during enrollment in winter/summer academic year semesters, when student applications are processed on daily basis.



For applications of lesser importance, the Committee reaches a decision consisting of a filed remark, while applications of greater importance result in administrative decision in accordance with the General Administrative Procedure Act. Some decisions are reached by the Faculty Council, such as: Decision on the transition of students from other Universities, whereas the Decision on the withdrawal from the Faculty is reached by the Faculty official.

Should any student require protection of his rights, she/he is free to address the Student Council of the Faculty, functioning as the body in charge of protecting student interests, participating in the work and decision making processes within the bodies of the Faculty of Graphic Arts and representing students within the system of higher education. The Student Council of the Faculty of Graphic Arts is in charge of appointing a student ombudsman, who is authorized to receive students' complaints related to their rights and consider them with competent bodies of the Faculty, advise students on the manner of exercising their rights, participate in disciplinary actions against students in order to protect their rights and carry out other tasks relevant for exercising students rights.

### 3.9 SATISFACTION WITH THE EXISTING STATUS AND PROPOSALS FOR POSSIBLE IMPROVEMENTS.

Lack of space for students and the canteen and lack of financial resources for students' rewards are the reasons we are not satisfied with current situation. The problem of space could be solved in future by relocating to Campus, while funds for rewards could be secured by cooperation with companies. One of the tasks ahead of us is the establishment of the alumni association and its development.

**Table 3.1.** Student standard  
(Specify the data on the following elements of students' standard in your institution)

	Area(m2)	Number of seats or active places
Studying space	43	14
Student restaurant (with student ID use)	-	
Other food facilities	Secondary school canteen	
Class material bookshop	-	-----
Copy shop	-	-----
Possibilities for student accommodation		
Sport facilities		
Space for student organisation and cultural activities		
Recreation facilities		

**Table 3.2.** Employability of graduates



Name of study programme	Number of graduates in last 3 years	Number of the unemployed according to the statistics of the Croatian Employment Service( September 30, 2011 )
Graduate studies in graphic technology track: Technical and Technological	20	9
Graduate studies in graphic technology track: Graphic Product Design	20	7
Undergraduate studies in graphic technology track: Technical and Technological	211	109
Undergraduate studies in graphic technology track: Graphic Product Design	87	9

**Table 3.3.** Number of the unemployed by counties, according to the statistics of the Croatian Employment Service on September 30, 2011.

	Graduate		Undergraduate	
	design	technical and technological	design	technical and technological
Zagreb county		1		11
Krapina-Zagorje county		1		
Sisak-Moslavina county		1		5
Karlovac county				1
Varaždin county				6
Koprivnica-Križevci county		1		1
Bjelovar-Bilogora county				2
Primorje-Gorani county				3
Virovitica-Podravina county				2
Zadar county				5
Osijek county				3
Šibenik-Knin county			1	2
Vukovar-Srijem county				2
Split-Dalmatia county		1		9
Istria county				4
Dubrovnik-Neretva county	1			
Međimurje county	1			
City of Zagreb	5	3	8	53
Brod-Posavina county		1		
<b>Total sum</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>109</b>



## 4. Teachers





#### **4.1 STRUCTURE OF TEACHERS AND ASSOCIATES PRESENTED IN TABLE 4.1. POSITIVE AND NEGATIVE ASPECTS IN THE RATIO OF FULL-TIME EMPLOYEES AT THE FACULTY TO EXTERNAL ASSOCIATES. ANALYSIS OF ISSUES IN PERSONNEL POLICY.**

The structure of teachers and associates is mostly satisfying. In the last three academic years engaging of associates in teaching has been significantly reduced. Thus, e.g.:

- in the academic year 2010/11 twelve associates were engaged for 2880 standard number of teaching hours, and
- in the academic year 2009/10 nine associates were engaged for 4454 standard number of teaching hours.

In the current academic year 2011/12 the implementing teaching plan in the winter semester has engaged seven associates for 910 standard number of teaching hours.

The reduction has been accomplished by employing new workers as full-time employees, by reorganization of teachers in the teaching process, by successful completion of doctoral studies of a larger number of students, i. e., assistants (which changed the teaching workload from 150 standard number of hours to 225), by increasing the number of students in teaching groups wherever possible.

The tendency is to divide the workload of full-time employees at the Faculty in accordance with competences, interests and research areas.

One of lingering problems, which is related to teachers' workload, is a continuing monitoring of students' work which requires more time than there is in the prescribed standard of hours. This includes the preparation and grading of preliminary exams, seminar works, mentorship for final and graduation theses and other activities.

#### **4.2 RATIO TEACHER/STUDENT AND ITS TREND IN THE PAST FIVE YEARS.**

The Faculty currently has sixty four staff members who participate in various forms of teaching: the academic ranks for research and teaching have twenty eight teachers, the teaching field has four employees, there are twenty four assistants and seven junior research assistants.

For a simpler presentation of teacher/student ratio see tables 4.1.1, showing the structure of teachers, and 4.1.2, showing the number of enrolled students for the period 2007/08 to current 2011/12 AY. The structure of teachers is presented in accordance with AY Lecture time-table.

The table 4.1.2 shows the trend of increase in staff with research and teaching ranks and assistants whereas the number of staff in teaching ranks remains constant.



**Table 4.1.1.** The structure of teachers by the academic years

The structure of teachers	Academic year				
	2007/08	2008/09	2009/10	2010/11	2011/12
Full professor	6	6	8	7	9
Associate professor	11	10	9	9	11
Assistant professor	8	10	11	12	8
Staff with research and teaching position	25	26	28	28	28
Senior lecturer	4	4	3	2	2
Lecturer	0	0	0	2	2
Staff with teaching position	4	4	3	4	4
Senior assistant	8	5	5	4	8
Teaching assistant	18	22	23	20	16
Junior researcher				6	7
Staff Associate	2	2	1	1	1
Assistants	28	29	29	31	32
All employees	57	59	60	63	64
Part-time teachers	4	12	17	12	7
All teachers (staff and associates)	61	71	77	75	71

**Table 4.1.2.** The number of enrolled students and the teacher/student ratio by academic years

	Akademska godina				
	2007/08	2008/09	2009/10	2010/11	2011/12
Students	1036	1012	1098	1056	1071
Ratio:					
staff with research and teaching position / students	1:41	1:39	1:39	1:38	1:38
staff with research and teaching position / students	1:36	1:34	1:35	1:33	1:33
staff with research and teaching position, teaching position and assistants / students	1:18	1:17	1:18	1:17	1:17

#### **4.3 COMMENT ON THE TEACHING WORKLOAD OF FULL-TIME AND PART-TIME TEACHERS (ACCORDING TO THE DATA IN TABLE 4.3.).**

The Faculty tends to divide the teachers' workload as evenly as possible. However, a lack of teachers can be seen in certain areas.

The Table 4.1.1 shows that the number of associates engaged in teaching has changed in the last 5 academic years. During that period, in the AY 2009/10 there was the largest number (17) of associates. The current AY 2011/12 saw a significant decrease in their number (7).

In the last AY 2010/11 most of the associates were engaged in the execution of practices: nine assistants with 2085 standard number of hours performed. The need for external associates is seen at most at three chairs: Department for Fine Arts and Graphic Design (930 standard number of hours), Department for Applied and Art Photography (720 standard number of hours) and Department of Multimedia and Information Systems (210 standard number of hours). Engagement of external associates in lectures totalled 870 standard number of hours on following chairs: Department of Multimedia and Information Systems, Department for Communicology, Department for Fine Arts and Graphic Design and Department for Economics. The need for engagement of an external associate in lectures at the Department for Communicology showed up because of the full-time employee's sabbatical. The problem of engagement of an external associate at the Department of Multimedia and Information Systems is being solved by employing a new worker (which is enabled by an employee's retirement and reorganization of teaching work positions within the Faculty).

Total standard number of hours of teachers and associates in the AY 2020/11 is shown in the table 4.3.1. The ratio of Faculty's teachers in the total of teaching is 86%. Despite of that, the standard number of hours of lectures held is higher than the standard number of hours prescribed by the Collective Agreement.

The Faculty tries to respect the standards of teaching workload from the Collective Agreement.

It is important to highlight that the Bologna Process increased the number of study years (undergraduate studies last three years and the graduate two years) compared to the old undergraduate study programme which lasted four study years.

#### **4.4 FORMAL PROCEDURES FOR THE MONITORING OF TEACHERS' EXTERNAL ENGAGEMENT**

Scientific, teaching and professional activity of the staff outside the Faculty and University and monetary and other interests that arise from that activity must not be in conflict of interests with the Faculty and the University which is prescribed by Employment Contract.

Extracurricular activity of the Faculty's staff at other colleges outside the University, which must not exceed 30% of the employee's regular teaching activity, is realized by the agreement of the University and the Faculty, in accordance with the University's general act.

The contract of the employee with legal persons outside of the Faculty in case of its negative influence on the Faculty's work or in case of work for institutions that are the Faculty's competition can be forbidden, restricted or conditioned by the Dean.



#### **4.5 SIZE OF STUDENT GROUPS FOR CLASSES, SEMINARS, EXERCISES AND OTHER FORMS OF TEACHING, AND ASSESSMENT OF TEACHING EFFICIENCY IN SUCH GROUPS. STUDENT OPINIONS EXPRESSED ON THAT ISSUE IN SURVEYS.**

Size of student groups for lectures, seminars and exercises and other forms of teaching are organized according to spatial and personnel capacities of the Faculty. The standards of the Bologna study programmes are trying to be applied as much as possible. The number of students in groups of individual forms of teaching depends primarily upon the number of students enrolled for particular subjects.

Till the academic year 2008/09 lectures in the subjects of undergraduate studies were held in groups that contained at most eighty students. With the beginning of graduate studies lack of spatial capacities came to the fore. Because of that lectures are being held for groups containing up to hundred and fifty students. This situation is visible in the execution of lectures of mandatory subjects in the first year of the undergraduate study (Physics, Chemistry, Mathematics.) It has been noted that each year the number of students who enrol the afore mentioned subjects which presents an additional workload in the organization of teaching.

Seminars are being held in groups containing up to fifty students maximum. Regarding the fact that the practical laboratory courses, i.e., laboratories have at most chairs small spatial capacities, practicing groups contain ten to twelve students. Most groups for education in computer classrooms are determined regarding the size of the classrooms (three classrooms are equipped with ten computers and one has sixteen of them). The system of work is one computer for one student. Smaller student groups at exercises in computer classrooms and laboratories enable better work with students.

Because of more efficient usage of spatial and technical resources (e.g., usage of computer classroom equipped with Mac computers) steps are being undertaken for improving the holding of exercises according to the principle one computer for one student.

Large groups of students do not ensure interactive work at lectures.

Student questionnaires did not show commentaries regarding the size of the student groups of all forms of teaching.

#### **4.6 INDICATORS OF FULL-TIME TEACHERS' AND EXTERNAL ASSOCIATES' COMPETENCES IN THE TEACHING PROCESS. COMPARABILITY OF THESE INDICATORS IN CROATIAN AND INTERNATIONAL CONTEXT. STUDENT OPINIONS EXPRESSED IN SURVEYS AND EFFECTS OF THOSE OPINIONS.**

Published scientific and professional papers are one of the proofs of their competence. Also, participation of teachers in the project work, be it professional be it scientific, improves their competences. The Faculty Administration supports every form of teachers' professional development which contributes to improvement of their competences (e.g. directing assistants to professional improvement, Chemnitz, Germany). Students' commentary from the students' questionnaires regarding the teachers' competences are in general satisfying.

#### **4.7 FORMS OF PROFESSIONAL SUPPORT TO TEACHERS AND EXTERNAL ASSOCIATES IN THE FIELD OF TRAINING AND IMPROVING TEACHING COMPETENCES. FORMS OF TEACHERS AND EXTERNAL ASSOCIATES' PROFESSIONAL TRAINING AT OTHER CROATIAN AND**



#### **FOREIGN HEIS AND AN ASSESSMENT OF THE SCOPE AND ACHIEVEMENTS OF THIS PROCESS. COMPARISON WITH OTHER HEIS.**

Special workshops intended for development of teaching skills which cannot be acquired along with other experience in direct practice are periodically organized. Workshops deal with the problems of encouraging active learning and critical thought in students, the work with large groups of students and improvement of communication skills and presentation techniques of teachers. Teachers are also encouraged to improve their pedagogical skills outside the Faculty, e.g.: Active learning and critical opinion in organization Forum for Freedom in Education.

Each year a certain number of teachers spends some times abroad at various universities in order to improve their teaching and language competences. Besides that, each year young teachers and associates attend seminars organized by Srce regarding the making of e-materials and adaptation of teaching to e-learning method.

#### **4.8 SPECIAL MEASURES TAKEN BY THE FACULTY OF GRAPHIC ARTS TO MOTIVATE TEACHERS TO WORK HARDER AND TO LEARN (REWARDS, RECOGNITIONS, ETC.) AND A COMMENT ON THE EFFICIENCY OF THESE MEASURES.**

In the introductory part of Faculty Council's sessions, members of the Faculty Council are informed about accomplishments, awards, acknowledgements and citations which the staff achieved/begotten/realised/won outside the Faculty. For the mentioned achievements they are to be congratulated and the information on that achievements is published on the website of the Faculty

Since 2008, at the Faculty Administration suggestion, the Faculty of Graphic Arts systematically hands out scientists awards for publication of papers and handbooks.

- The staff is stimulated with the increase in income for:
- extraordinary work which demanded bigger effort because of intensity and deadlines;
- work of a wider range outside regular working hours for which they have not been paid and other forms of compensation;
- work of high responsibility;
- improvement of business processes or contribution to business improvement;
- participation in the Faculty propaganda and increase in the Faculty's reputation

University by-laws/regulation on student and employee awards is in the process of making.

#### **4.9 DESCRIPTION AND ASSESSMENT OF THE QUALITY OF TEACHING MATERIAL PREPARED BY TEACHERS; COVERAGE OF THE CURRICULUM WITH PROFESSIONAL LITERATURE.**

Teaching materials prepared by teachers are mostly supplementary teaching materials available at the web sites and with the e-Learning system. Professional literature covers the curriculum in the form of printed publications in smaller amounts, and in larger amount as electronic publications which are mostly new, their content being therefore more adequate for technical subjects.



We think that teachers should engage themselves more with preparation of textbooks because the coverage of curriculum by the professional literature made by teachers is very small. A textbook approval procedure as a university teaching material for subjects taught at the Department of Physics in Graphics Technology is under way.

#### 4.10 SATISFACTION WITH THE EXISTING STATUS AND PROPOSALS FOR POSSIBLE IMPROVEMENTS.

Regarding the standards required with the introduction of Bologna study programmes, we think that teachers and associates have not been equally divided by departments and teaching fields. The structure of teachers and associates is mostly satisfying, but it is necessary to point out that the average age of full professors and associate professors is high (on average 61, i.e. 51 years).

The Faculty engages external associates in teaching for whose work it does not get adequate resources and is forced to cover teaching expenses with their own means. The aforementioned expenses being extraordinarily high, during years the Faculty Administration has been forced to cut down the mentioned expenses. The cut downs were made by reorganizing of the way of teaching (e.g., number of students in exercise groups has been increased). We think that the system of financing external associates is something we should work upon.

The internal problem of the Faculty is that not all of the teachers and associates accepted changes and demands arisen from the introduction of the Bologna study programme, or they have difficulties in accepting them. The demands are related to work quality, monitoring methods, quality improvement and networking and connecting on the international level. Betterment in this segment is noticed in mobile possibilities of the teachers, i.e., professional visits to foreign universities.

There are not enough Faculty's textbooks from the field of graphic technology. One of the measures taken by the Faculty Administration which could bring about an improvement was a financial incentive for textbook publication.

The teaching process requires constant monitoring and effort investment of all of teachers and associates involved in the teaching process for the betterment of the same in corporation with students and labour market.

**Table 4.2.** Staff structure

Staff	Full-time employees		Cumulative employment		Full-time teachers who are part-time employed in other institutions	Part-time teachers	
	Number	Average age	Number	Average age		Number	Average age
Redoviti profesori	9	61	-	-	3	1	59
Izvanredni profesori	12	51	-	-	8	1	65
Docenti	8	42	-	-	2	2	43
Nastavna zvanja	4	43	-	-	2	2	58

Staff	Full-time employees		Cumulative employment		Full-time teachers who are part-time employed in other institutions	Part-time teachers	
	Number	Average age	Number	Average age	Number	Number	Average age
Asistenti (i viši asistenti)	24	34	-	-	-	10	29
Suradnik u nastavi	1	41	-	-	-	-	-
Stručni suradnici KNJIŽNIČAR	1	59	-	-	-	-	-
Znanstveni novaci	7	29	-	-	-	-	-
Tehničko osoblje	-	-	-	-	-	1	53
Administrativno osoblje	12	44	-	-	-	-	-
Pomoćno osoblje	5	48	-	-	-	-	-

(Data taken with the state on 30th of September, 2011)

**Table 4.3.** Workload in 2020/11 of teachers and associates (in standard number of hours).

Name of study programme	Lectures		Seminars and auditory exercises		Mentorship*		Other forms of teaching	
	Full-time teachers	Part-time teachers	Full-time teachers	Part-time teachers	Full-time teachers	Part-time teachers	Full-time teachers	Part-time teachers
Department of Mathematics								
Undergraduate studies	240		450					
Graduate studies								
Department of Physics in Graphics Technology								
Undergraduate studies	180		180				390	
Graduate studies	120		45					
Department of Chemistry in Graphics Technology								
Undergraduate studies	180		113				405	
Graduate studies								
Department of Humanities and Social Sciences								
Undergraduate studies	240		180				480	
Graduate studies								
Department of Environmental Protection								
Undergraduate studies	120		45					
Graduate studies	120		45					

Department of Engineering Graphics and Mechanics								
Undergraduate studies	180		23				330	
Graduate studies	30						60	
Department of Typesetting and Computers								
Undergraduate studies	210		135				765	
Graduate studies	330						225	60
Department for Photographic Processes								
Undergraduate studies	120						270	
Graduate studies								
Department for Reproduction Photography								
Undergraduate studies	180						450	
Graduate studies	180		23				75	
Department for Printing Forms								
Undergraduate studies	180						600	
Graduate studies	60		23				15	
Department of Multimedia and Information Systems								
Undergraduate studies	60	120					540	
Graduate studies	30	180	23					210
Department of Printing Technology								
Undergraduate studies	300						1185	
Graduate studies	360		45				540	
Department for Packaging, Bookbinding and Design								
Undergraduate studies	240						750	
Graduate studies	240						120	
Department for Materials in Graphic Technology								
Undergraduate studies	240						420	
Graduate studies	240		68					
Department for Economics								
Undergraduate studies		120	45					
Graduate studies		60	23					
Department for Graphic Machines								
Undergraduate studies	240		158					
Graduate studies	240		113				45	
Department for Fine Arts and Graphic Design								
Undergraduate studies	300	120	90				780	450
Graduate studies	360	30					660	480





Department for Communicology								
Undergraduate studies		120	23				45	
Graduate studies		120	45				60	
Department for Applied and Art Photography								
Undergraduate studies	60							60
Graduate studies	300						105	660

\*only relevant for artistic field.

**Table 4.2.1.** Total standard number of hours of teachers and external associates in AY 2010/11

	Teaching hours held in AY 2010/11					
	Lectures	Seminars	Exercises	Total	According the collective agreement	Ratio in teaching
Full-time teachers	5880	1891	9315	17086	15825	86%
Part-time teachers	870	0	1920	2790		14%
Total	6750	1891	11235	19876		100%



**Table 4.4.** List of teachers in 2010/11

Teacher	Grade	Academic degree	HEI which issued qualification	Scientific field	Date of last selection into grade	Cumulative employment percentage	Workload at core institution (hours)
Agić Darko	Associate prof.	Ph.D	University of Zagreb Faculty of Informatics	Information and communication sciences * choices in graphics technology	19. October 2006	100%	300
Babić Darko	Full prof.	Ph.D	University of Zagreb Faculty of Mechanical Engineering and Naval Architecture	Mechanical engineering * choices in graphics technology	15. January 2008	100%	300
Banić Dubravko	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	16. November 2009	100%	300
Barbarić-Mikočević Željka	Associate prof. vice-dean	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	14. March 2011	100%	150
Bjelovučić Kopilović Sanja	Associate prof.	Ph.D	University of Zagreb Faculty of Mechanical Engineering and Naval Architecture	Mechanical engineering	22. December 2003	100%	300
Bates Irena	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	2. November 2006	100%	150
Bilušić Iva	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	19. April 2011	100%	150
Bolanča Mirković Ivana	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	10. March 2008	100%	300
Bolanča Stanislav	Full prof.	Ph.D	University of Zagreb Faculty of Chemical Engineering and Technology	Chemical engineering * choices in graphics technology	18. November 2003	100%	300
Bolanča Zdenka	Full prof.	Ph.D	University of Zagreb Faculty of Science	Chemistry * choices in graphics technology	21. March 2006	100%	300
Bota Josip	Teaching assistant	BA of mechanical engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	15. February 2011	100%	150
Bratić Diana	Teaching assistant	MA	University of Zagreb Faculty of Economics	Economics	12. January 2009	100%	150
Brozović Maja	Associate prof.	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	15. March 2010	100%	300
Budimir Ivan	Lecturer	MA	University of Zagreb Faculty of Science	Mathematics	29. June 2010	100%	450
Cigula Tomislav	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	2. October 2006	100%	150

Teacher	Grade	Academic degree	HEI which issued qualification	Scientific field	Date of last selection into grade	Cumulative employment percentage	Workload at core institution (hours)
Dolić Jurica	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. February 2008	100%	150
Donevski Davor	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	19. April 2011	100%	225
Dragčević Krešimir	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	18. April 2011	100%	225
Džimbeg-Malčić Vesna	Associate prof.	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	18. April 2011	100%	300
Gojo Miroslav	Full prof.	Ph.D	University in Ljubljana Faculty of Natural Sciences and Engineering	Chemistry * choices in graphics technology	13. September 2011	100%	300
Golubović Kristijan	Junior research assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	4. December 2006	100%	150
Itrić Katarina	Teaching assistant	Prof.	University of Zagreb Faculty of Science	Physics	23. March 2010	100%	150
Jakovljević Maja	Junior research assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	9. June 2011	100%	150
Jamnicky Sonja	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	16. May 2011.	100%	225
Jokić Tigran	Staff Associate	BA of engineering	University of Zagreb Faculty of Mechanical Engineering and Naval Architecture	Mechanical engineering	1. November 2002	100%	600
Jurečić Denis	Teaching assistant	MA	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. November 2006	100%	150
Jurković Vanda	Teaching assistant	MA	University in Ljubljana Academy of Fine Arts and Design	Fine Arts	1. January 2004.	100%	150
Knešaurek Nina	Associate prof.	Ph.D	University of Zagreb Faculty of Chemical Engineering and Technology	Chemical engineering * choices in graphics technology	18. October 2010	100%	300
Koren Antun	Full prof.	Ph.D	University of Zagreb Faculty of Informatics	Information and communication sciences	15. March 2011	100%	300



Teacher	Grade	Academic degree	HEI which issued qualification	Scientific field	Date of last selection into grade	Cumulative employment percentage	Workload at core institution (hours)
Koren Tajana	Junior research assistant-senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	15. March 2010	100%	225
Kovačević Dorotea	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. February 2011	100%	150
Kropar-Vančina Vesna	Full prof.	Ph.D	University of Zagreb Faculty of Chemical Engineering and Technology	Chemical engineering * choices in graphics technology	15. January 2008	100%	300
Kulčar Rahela	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. October 2010	100%	225
Lajić Branka	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. November 2009	100%	225
Lovreček Mladen	Associate prof.	Ph.D	University in Ljubljana Faculty of Natural Sciences and Engineering	Chemical engineering * choices in graphics technology	18. October 2010	100%	300
Lozo Branka	Associate prof.	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	14. February 2011	100%	300
Mahović Poljaček Sanja	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	12. January 2009	100%	300
Majnarić Igor	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	19. July 2010	100%	225
Mandić Lidija	Assistant professor	Ph.D	University of Zagreb Faculty of Electrical Engineering and Computing	Electrotechnics * choices in graphics technology	12. January 2009	100%	300
Matijević Mile	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	2. June 2008	100%	150
Mikota Miroslav	Senior lect.	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	8. September 2008	100%	450
Milčić Diana	Full prof.	Ph.D	University of Zagreb Faculty of Mechanical Engineering and Naval Architecture	Mechanical engineering * choices in graphics technology	9. June 2009	100%	60
Modrić Damir	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	6. September 2010	100%	300



Teacher	Grade	Academic degree	HEI which issued qualification	Scientific field	Date of last selection into grade	Cumulative employment percentage	Workload at core institution (hours)
Mustić Daria	Junior research assistant	Grad. journalist	University of Zagreb Faculty of Transport and Traffic Sciences	Politology	1. December 2006	100%	150
Mrvac Nikola	Associate prof.	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	12. November 2007	100%	300
Nemec Ana	Lecturer	Prof.	University of Zagreb Faculty of Humanities and Social Sciences	Philology	7. April 2010	100%	450
Pap Klaudio	Associate prof.	Ph.D	University of Zagreb Faculty of Electrical Engineering and Computing	Computing * choices in graphics technology	12. April 2010	100%	300
Pasanec Preprotić Suzana	Teaching assistant	BA of engineering	University of Zagreb Faculty of Graphic Arts	Graphic Technology	3. March 2008	100%	150
Petric-Maretić Katja	Teaching assistant	BA of engineering	University of Zagreb Faculty of Science	Physics	1. August 2009	100%	150
Pibernik Jesenka	Associate prof. vice-dean	Ph.D	University of Zagreb Faculty of Architecture	Architecture and urban planning * choices in graphics technology	14. March 2011	100%	150
Plazonić Ivana	Teaching assistant	Prof.	University of Zagreb Faculty of Science	Chemistry	15. February 2007	100%	150
Plenković Mario	Full prof.	Ph.D	University of Zagreb	Information and communication sciences	10. November 1998	100%	300
Poljičak Ante	Junior research assistant-senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	30. June 2011	100%	225
Prša Marija	Teaching assistant	BA of engineering	University of Zagreb Faculty of Science	Mathematics	1. September 2011	100%	150
Rožić Mirela	Associate prof.	Ph.D	University of Zagreb Faculty of Chemical Engineering and Technology	Chemistry * choices in graphics technology	14. June 2010	100%	300
Rudolf Maja	Teaching assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. June 2007	100%	150
Skala Tibor	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. March 2010	100%	225



Teacher	Grade	Academic degree	HEI which issued qualification	Scientific field	Date of last selection into grade	Cumulative employment percentage	Workload at core institution (hours)
Stanić Loknar Nikolina	Senior assistant	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	18. April 2011	100%	225
Strgar Kurečić Maja	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	6. September 2010	100%	300
Šolc Pervan Vilma	Senior lecturer	Prof.	University of Zagreb Faculty of Kinesiology	Kinesiology	1. June 2006	100%	450
Tomašegović Tamara	Junior research assistant	M.Sc. tech. graph.	University of Zagreb Faculty of Graphic Arts	Graphic Technology	1. December 2010	100%	150
Zjakić Igor	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	14. March 2011	100%	300
Žiljak Stanimirović Ivana	Assistant professor	Ph.D	University of Zagreb Faculty of Graphic Arts	Graphic Technology	16. November 2009	100%	300
Žiljak Vilko	Full prof.	Ph.D	University of Zagreb Faculty of Electrical Engineering and Computing	Computing + choices in graphics Technology	16. November 2004	100%	300
Žitinski Elias Paula Yadranka	Junior research assistant	M.Sc. techn. graph.	University of Zagreb Faculty of Graphic Arts	Graphic Technology	11. July 2011	100%	150

**Table 4.4.** Dynamics of teachers' employment in the last 5 years

Year	Number of newly employed teachers	Number of outgoing teachers
2006	6	2
2007	4	4
2008	4	1
2009	2	3
2010	7	4
2011	6	4

**Table 4.5.** Teaching materials used in previous academic year

Name of study programme	Number of textbooks written in Croatian	Number of foreign textbooks translated into Croatian	Number of research papers related to teaching	Number of manuals	Number of instructional material related to artistic field	Number of courses for which there are reviewed manuals on the institution's web site	Number of courses for which there is a web page with supplementary teaching materials	Number of e-courses
Undergraduate studies	29	15	26	15	-	-	25	13
Graduate studies	17	10	13	13	-	1	19	11

\* The data include following departments: Department of Physics, Department of Chemistry, Department for Photographic Processes, Department for Applied Photography, Department for Printing Forms, Department for Fine Arts and Graphic Design, Department for Economics, Department for Graphic Materials, Department for Packaging, Bookbinding and Design, Department for Graphic Machines, Department for Communicology, Department for Reproduction Photography

\* The data for following departments are missing: Department of Printing Technology, , Department of Multimedia, , Department of Engineering Graphics and Mechanics, Department of Typesetting, Department of Environmental Protection, Department of Humanities and Social Sciences, Department of Mathematics.





## 5. Scientific and professional activity





### 5.1 STRATEGIC RESEARCH PROGRAMME FOR THE PERIOD OF AT LEAST FIVE YEARS IN SCIENTIFIC AREA IN WHICH THE FACULTY OF GRAPHIC ARTS PERFORMS ITS ACTIVITIES FROM THE REGISTER OF SCIENTIFIC INSTITUTIONS.

According to the development strategy of the Faculty of Graphic Arts, the vision encompasses:

- conducting scientific research in the area of graphic technology, as well as other areas covered by the scientists of the Faculty of Graphic Arts due to interdisciplinarity, carried out within the framework of international and domestic research projects and resulting in application of gained knowledge both in teaching process and in business.
- encouraging, organizing and carrying out projects, as well as transfer of knowledge to economy.

### 5.2 10 OUTSTANDING INTERNATIONAL SCIENTIFIC JOURNALS IN WHICH THE TEACHERS OF THE FACULTY OF GRAPHIC ARTS PUBLISH THEIR WORKS. A COMMENT ON RELEVANT IMPACT FACTORS. THE PROMINENT CULTURAL INSTITUTIONS, MUSEUMS AND GALLERIES WHERE YOUR TEACHERS PRESENT THEIR WORKS TO PUBLIC.

Ten most prominent international journals that the teachers from the Faculty of Graphic Arts were published in were:

- Journal of imaging science and technology (6 papers, if=0.391)
- Applied Surface Science (3 papers, if=1.616)
- Cellulose chemistry and technology (3 papers, if=0.32)
- Journal of hazardous materials (2 papers, if=4.144)
- Journal of Colloid and Interface Science (1 paper, if=3.019)
- Dyes and pigments (1 paper, if=2.855)
- Journal of solid state electrochemistry (1 paper, if=1.821)
- Journal of bioscience and bioengineering (1 paper, if=1.749)
- Acta chimica Slovenica (1 paper, if=0.909)
- Infrared Physics and Technology (1 paper, if=0.9)

Number of world journals in the domain of graphics technology referred in tertiary publications is relatively small compared to some more propulsive scientific fields. This is why scientists are oriented towards related journals or choose areas close to their area of research. It is for this reason that the works are sometimes published in journals with lower impact factor, but more in line with the area of researcher's interest. On top of this, journal impact factors vary, so that works published in the same journal within the timespan of several years may have significantly different impact factor, as is the case with The Journal for Imaging Science and Technology, whose impact factor dropped from almost 0.7 to 0.391 over the last year, as well as the Tekstil journal, that had the impact factor of 0.117 in 2010 and dropped to 0.50. The highest impact factor journal that published as many as two works by prof. Rožić, Dr.Sc, is the Journal of hazardous materials, with impact factor of 4.144. It is followed by the Journal of Colloid and Interface Science with the impact factor of 3.019 that published one work by prof. Rožić, Dr. Sc. It is important to note that our colleague does her work in the area of chemistry that is covered by a large number of magazines with high impact factors. The Dyes and Pigments journal has an impact factor of 2.855; Dr. Sc. Kulčar published one work in it. *Journal of solid state electrochem-*



istry has an impact factor of 2.234; it published an article by a group of authors from the Department for printing forms in collaboration with a colleague from the Ruđer Bošković Institute.

Distinguished artistic achievements by employees at the Faculty of Graphic Arts include:

Academic sculptor Vanda Jurković, MA; individual exhibitions:

- Gallery Hrvatsko Slovo, Zagreb, 2008: Relief structures Ritam (Rhythm);
- Gallery Sunce, Zagreb, 2008: Reliefs;
- The Kristofor Stanković Gallery of the Zagreb City Council , 2009: Coloured reliefs;
- Europski dom , Zagreb, 2010: Wavy relief;
- Group exhibitions:
- Competitive exhibition II. International biennale of sculpture and painting Mediteran 2010, HAZU Milesi Palace, Split;
- Competitive exhibition Biennale of Mosaics, Rijeka, 2011.

Assistant professor Maja Strgar Kurečić, Dr.Sc., participated in juried group photography exhibitions:

- Female photographers, Cro Art Photo Club, Gajeva 25, Zagreb, 2007;
- Colour in non-colour, Gallery Badrov, Trg žrtava fašizma 1, Zagreb, 2008;
- Total sale, Gallery Badrov, Trg žrtava fašizma 1, Zagreb, 2008;
- AKTUALNO 2+60, Juried biennale exhibition of the ULUPUH photography section, Mimara Museum - Zagreb, Gallery Batana - Rovinj, People's Museum – Labin, 2010;
- 33. Zagreb Salon - international photo exhibition, Mimara Museum, Zagreb, 2010.

Miroslav Mikota, Dr.Sc., participated in photographic exhibitions:

- Photographic exhibition at the presentation of the Senj printing press, Gallery Kula Lipica, Senj, 2011.
- Winter HDR, Gallery U Prolazu, Zagreb, 2011.
- Beginnings of print in Croatia, Town Library Senj, 2010.
- The Baromić Breviary, Town Library, Senj, 2009 (motifs selected by academic Anica Nazor)
- 500.Years of Book Printing in Senj (motifs selected by academic Anica Nazor), Marjan Exhibition Area, Split, 2008
- Portraits of literary authors - an exhibition marking the centennial of the City library, Gallery Kupola, Zagreb, 2007/2008
- Seasons, Town Gallery, Biograd, 2007
- Šimun Kožičić of Zadar and his glagolitic printing house (motifs selected by academic Anica Nazor), Zadar, 2007
- Zagreb parks, Starčevićev Dom Zagreb, Zagreb, 2006 /2007



**5.3 10 SCIENTIFIC ARTICLES THAT ARE THE MOST IMPORTANT FOR YOUR INSTITUTION AND PROVIDE EXPLANATION (FOR EACH SCIENTIFIC FIELD YOUR INSTITUTION IS INVOLVED IN) IN THE PAST 5 YEARS. A COMMENT ON THE NUMBER OF REFERENCES TO WORKS MADE IN LINE WITH THE INTERNATIONAL DATABASES (WOS, SCOPUS). A COMPARISON OF THE SCOPE OF CROATIAN SCIENTIFIC ACHIEVEMENTS WITH SIMILAR CROATIAN AND FOREIGN HEIS.**

The most significant works by employees of the Faculty of Graphic Arts are, by research areas:

1. In the field of printing forms:

S. Mahović Poljaček, D. Risović, T. Cigula, M. Gojo, *Application of electrochemical impedance spectroscopy in characterization of structural changes of printing plates*, Journal of solid state electrochemistry, (2011), (on line).

2. In the field of reproduction photography:

A. Poljičak, L. Mandić, D. Agić, Discrete Fourier transform-based watermarking method with an optimal implementation radius, Journal of electronic imaging, 20 (2011) , 3; 033008-1-033008-8.

3. In the field of printing:

I. Zjakić, Đ. Parac-Osterman, I. Bates, *New approach to metamerism measurement on halftone color images*, Measurement. 44 (2011) , 8; 1441-1447.

4. In the field of graphic materials:

S. Jamnicki, M. A. Pèlach Serra, B. Lozo, M. Stanić, L. Barušić, Cellulose chemistry and technology, 44 (2010), 10; 481-488.

5. In the field of colorimetry:

R. Kulčar, M. Friškovec, N. Hauptman, A. Vesel, M. Klanjšek Gunde, *Colorimetric properties of reversible thermochromic printing inks*, Dyes and pigments, 86 (2010) , 3; 271-277.

6. In the field of phototypesetting:

V. Žiljak, K. Pap, I. Žiljak, *Infrared hidden CMYK graphics*, // Imaging science journal, 58 (2010), 1; 20-27.

7. In the field of environment protection:

Ž. Barbarić-Mikočević, V. Džimbeg-Malčić, T. Muck, *Digital duplicator prints recycling possibilities*, Appita journal, 63 (2010) , 1; 45-52.

8. In the field of communicology:

M. Plenković, T. Tomažić, V. Kučič, *Holistic strategy of public action and visual digitalization in convergent environment*, Observatorio, 4 (2010) , 2; 197-210.

9. In the field of chemistry in graphics technology:

M. Rožić, Đ. Ivanec Šipušić, L. Sekovanić, S. Miljanić, L. Ćurković, J. Hrenović, *Sorption phenomena of modification of clinoptilolite tuffs by surfactant cations*, Journal of Colloid and Interface Science, 331 (2009) , 1; 295-301.



10. In the field of graphic design:

M. Brozović, J. Pibernik, D. Banić, *Quality of Color Lightness Reproductions. Journal of Imaging Science and Technology*. 52 (2008) , 6; 060507-1-060507-8

The overall citation rate of scientific articles by employees at the Faculty of Graphic Arts according to WoS is 130 over the past 5 years; 15 of these are self quotes. The cited works refer to indexed records in WoS published by 16 employees. The most cited works are by Mirela Rožić, 136 citations, Miroslav Gojo, 37 citations, Željka Barbarić – Mikočević, 33 citations and Sanja Mahović – Poljaček, 26 citations. Six authors had between 2 and 9 citations and works by the remaining six authors were cited once each.

At the University of Ljubljana, Department of informatics and graphic technology, 23 employees published 67 original scientific articles in journals over the past five years, including 43 CC works that were cited 67 times. Citations refer to articles by 11 employees; most cited articles are by Aleš Hladnik, 36 citations, followed by articles by Tadeja Muck and Helena Gabrijelčič, 11 citations each.

The average citation rate of the scientific article by employees at the Faculty of Graphic Arts is 8.125 per work, while the average citation rate of the scientific article by employees at the Department of informatics and graphic technology, University of Ljubljana, is 6.09. Scientific productivity of cited works relates to the average of 2 cited scientific articles per cited employee at the Faculty of Graphic Arts, as compared to the average of 1.56 cited scientific articles per cited employee at the Department of information and graphics, University of Ljubljana, which indicates higher scientific productivity of the employees at the Faculty of Graphic Arts compared to the most similar foreign scientific institution.

#### **5.4 CRITERIA FOR SCIENTIFIC PRODUCTIVITY WHICH MUST BE MET BY MENTORS OF DOCTORAL DISSERTATIONS IN DOCTORAL STUDIES, AND THEIR COMPARISON WITH CRITERIA OF SIMILAR HEIS IN CROATIA AND ABROAD.**

Doctoral dissertation mentor at the Faculty of Graphic Arts needs to, apart from basic requirements, fulfil the scientific criteria consisting of having no less than one work published over the past five years in top category journals from the technical domain and relevant for the topic of doctoral dissertation. On top of this, one mentor cannot simultaneously have more than two Ph.D. students. The scientific productivity of mentors is most often significantly higher than required, as the Ph.D. student is, among other things, required to publish at least one work in A category journals, no less than two works in B category journals, works from international scientific events and other; as a rule, these works are published by doctorand and mentor together.

At the Faculty of Textile Technology, University of Zagreb, a mentor and / or co-mentor at postgraduate doctoral studies need to be elected into an academic teaching rank within the corresponding field and area. A mentor and / or co-mentor need to be heads or members of a scientific project.

A mentor needs to be an active researcher in the scientific field and area related to the doctoral dissertation topic.

Should a mentor that is not permanently employed at the Faculty of Textile Technology be chosen at postgraduate doctoral and specialist studies (from Croatia or abroad), a co-mentor is chosen among



the staff of the Faculty of Textile Technology in the research & teaching or arts & teaching rank fulfilling previously listed requirements.

Professors are the only ones allowed to act as mentors of doctoral dissertations at TU Dresden. The professors are expected to demonstrate scientific productivity through research projects, conducted research and publication of findings. There is no predefined number of publications as a requirement for mentorship, but each of the funds financing research projects defines the number of publications per project, thus also qualifying the leader / mentor.

At the University of Ljubljana, a mentor needs to be appointed to a teaching and scientific grade, as well as possess pronounced research experience accompanied by bibliography from the dissertation topic area. Mentors are required to have collected 100 SICRIS points in the area of core research / no less than 40 points for applicative research over the past five years.

A mentor can also be a researcher from a different institution if she/he participates in the curriculum of the doctoral study/studies in question and if the primary institution has an agreement with this institution regulating this type of collaboration.

A single mentor can simultaneously lead no more than five Ph.D. students.

#### **5.5 THE FACULTY OF GRAPHIC ARTS POLICY FOR SCIENTIFIC DEVELOPMENT OF YOUNG SCIENTISTS.**

The development of junior scientists at the Faculty of Graphic Arts is approached in several ways. First of all, special attention is given to choosing candidates within the top 10 % of students during studies. When junior scientists are employed as junior researchers at research projects, they are included in scientific work under the leadership of Project Head and / or mentor. When junior scientists are employed as assistants at the departments, they are included in scientific work within the project that the department head and / or mentor is participating in. Regardless of the way in which a junior scientist is employed at the Faculty of Graphic Arts, he is required to enroll Postgraduate doctoral studies, which are free of charge if completed within the defined time span, even if they are enrolled at another institution of higher education.

On top of this, particular care is being paid that the additional obligations of junior scientists, such as their teaching engagement, assistance in writing graduation theses and such, do not result in more workload than defined by standard, thus allowing necessary working hours for their scientific paper.

Junior scientists are also encouraged to cooperate with other institutions in the country and abroad. As a rule, all institutions that the senior scientists work with are also available to junior scientists. Shorter and longer visits abroad are most often financed by stipends (MSES and other), bilateral projects and international exchange (Erasmus, Basileus and such).

#### **5.6 NUMBER OF SCIENTIFIC WORKS RESULTED FROM INTERNATIONAL COOPERATION OF TEACHERS AND ASSOCIATES, IN WHICH FOREIGN SCIENTISTS AND ARTISTS APPEARED AS CO-AUTHORS. COMPARISON OF THESE RESULTS WITH THE PRACTICE OF OTHER SIMILAR HE INSTITUTIONS.**

Of the total of 63 scientific works at the Faculty of Graphic Arts published in journals, 17 were done in collaboration with foreign scientists.



Over the past five years at the University of Ljubljana, Department of informatics and graphic technology, 6 among 23 scientists published research papers in journals co-authored with foreign researchers and foreign researchers were co-authors of 16 of the total of 43 CC works published at institution level during this period.

#### **5.7 OPINIONS OF DOCTORAL CANDIDATES ABOUT AVAILABILITY OF THE MENTORS OF DOCTORAL DISSERTATIONS, I.E. TIME ALLOCATED FOR THEIR INTRODUCTION INTO METHODS OF SCIENTIFIC RESEARCH.**

Based on an anonymous survey carried out among doctoral candidates at the Faculty of Graphic Arts, including 17 examinees, it turns out that the Ph.D. students are very satisfied by the accessibility of their mentors (94 %) and there was one single comment indicating that the number of Ph.D. students per mentor should be restricted, which has been implemented in the meanwhile, i.e. limited to no more than two simultaneous doctorand mentorships.

The majority of doctoral candidates (75 %) were satisfied by the time their mentors dedicated to introducing them to scientific methods and monitoring their scientific work.

#### **5.8 CONTENT AND CHARACTER OF 10 (TEN) MOST SIGNIFICANT RESEARCH PROJECTS OF THE FACULTY OF GRAPHIC ARTS WHICH HAVE BEEN ACTIVE DURING THE PAST 5 (FIVE) YEARS (NUMERICAL DATA IN TABLE 5.2). OPINION ON THE QUALITY OF WORK AND RESULTS.**

Starting from 2007, seven MSES projects at the Faculty of Graphic Arts were grouped into two scientific research programmes, one of them appended to a scientific research programme at a different faculty, and another two independent programmes are active since 2008.

The scientific program Study of materials and graphic reproduction process in relation to sustainable development, led by professor Zdenka Bolanča, Dr.Sc., includes four projects:

1. Zdenka Bolanča: New formulations of materials, print characteristics and environmental factors
2. Stanislav Bolanča: Study of technological factors of graphic design for systematic quality improvement
3. Diana Milčić: Standardization of environmentally acceptable processes in graphic communications
4. Nikola Mrvac: Evaluation of the quantitative and qualitative criteria of graphic reproduction process

Their combined effects focus on problems caused by insufficient knowledge of mechanisms in printing processes depending on printing substrates and inks characteristics, which would ensure absolutely exact reproduction of all graphical information. The scientific approach to rating the ecological appropriacy of technological printing parameters, based on defining, quantifying and evaluating the influence of certain printing technique on the environment proves beyond doubt that there is a need to conduct studies of influence in the domain of raw materials, graphic materials, printing processes and product disposal methods. The main purpose of research is to complement the knowledge in the wide gamut of conditions and defining characteristics of information transfer in the service of overall visual experience and quality of prints as determined by mutual interrelations of technical and technological factors on one side and graphic design, business processes, ecology and factors related to graphical product perception on the other side. Research goals include graphical product life cycle, taking into consideration the ecological aspect of all phases of graphic reproduction.





### Individual projects include research as follows:

Ten researchers are included in the New formulations of the materials, print characteristics and environmental factors project, led by professor Zdenko Bolanča, Dr.Sc. Research carried out so far within the project indicated the influences of certain segments of both conventional and digital printing techniques on the quality of the environment. The main goal of the research is expanding the knowledge of a wider gamut of conditions and defining the characteristics of information transfer in the service of overall visual experience and print quality, including graphical product life cycle and ecological aspects. Following aspects are considered: ecological aspect of resources, graphic materials, printing processes (conventional offset print, some digital printing techniques based on electrophotography and Ink Jet), print characteristics and, finally, used product disposal. Further variables included in the system are caused by exposing the prints to controlled environmental conditions in order to clarify the interaction mechanisms of degradation factors and surface conditions. Part of results come from utilizing artificial neural networks in offset print while using model colours based on structured resins, which are ecologically more acceptable. Apart from this, some of the results are related to print degradation processes and exposing printing substrates to environmental influences. The next group of results is related to researching the laws of deinking flotation process.

### Project results so far are:

- Chapters in book (14)
- Original scientific papers and review papers in CC publications (2)
- Scientific works in other journals (5)
- Works being currently published (6)
- Internationally reviewed scientific works in conference proceedings (38)
- Other reviewed works in conference proceedings (7)
- Works in conference proceedings with no reviews (1)
- Summaries in conference proceedings (8)
- Dissertations (3)
- Graduation theses (60)

Project Study of technological factors of graphic design for systematic quality improvement, led by Stanislava Bolanča includes six researchers and one junior researcher. The project deals with already traditional digital printing techniques and continuous monitoring of the new, emerging ones. Digital graphic production is accompanied by problems regarding quality, partly caused by lack of familiarity with change mechanisms in printing processes, dependent on characteristics of printing substrates, dyes and electric processes. Introduction of certain controlled changes in mass structure, particularly the upper layer of printing substrates, as well as the process of preparation and printing, aims to establish directions for development of listed factors in the process of providing better reproduction quality. By adjusting technological preparation and printing processes one aims for optimal reproduction as determined using objective measuring instruments and visual assessment by average viewers. By studying certain parameters of digital printing techniques and intervening into technological processes one expects to define theoretical settings regarding the direction of development, with additional attention paid to ecological aspects.



#### Project results so far are:

- Chapters in book (12)
- Textbooks and learning material (1)
- Original scientific papers and review papers in CC publications (3)
- Scientific works in other journals (10)
- Other works in other journals (1)
- Works being currently published (1)
- Internationally reviewed scientific works in conference proceedings (24)
- Other reviewed works in conference proceedings (8)
- Works in conference proceedings with no reviews (1)
- Summaries in conference proceedings (7)
- Dissertations (4)
- Masters degree theses (2)
- Graduation theses (67)

The Standardization of environmentally acceptable processes in graphic communications project, led by professor Diana Milčić, Dr.Sc, includes 7 researchers and deals with development of graphic communications and techniques in graphic reproduction, as well as graphic machines and materials. The main goal of the research is defining construction parameters for graphic machines influencing the quality of final product and possibilities of determining interdependent parameters, as well as possibilities for standardization of interdependence of determined parameters. The general goal of the research is to determine the explicit laws related to individual machine elements - life cycle of graphic machine, primarily offset, observing from the viewpoint of tribology and reliability regarding print quality on select printing substrates under controlled printing conditions for a conventional offset machine. The quality of printing rotation can be indirectly determined through quality of prints it is capable of producing. While cut sheet printing has long been standardized in offset, offset rotation printing is still in need of a unified standard. The project studies the degree of correlation between various approaches to rotation printing standardization, different quality of prints on different rotations under given specific conditions and connecting this quality monitoring system with rotation construction and rotation quality, as well as its' lifespan. At the same time, they are attempting to formulate algorithms with reasonable, predictable responses to be used for a wide gamut of problems and real models that would be permanently tested in real environment.

#### Project results so far are:

- Editorial books (1)
- Chapters in book (5)
- Original scientific papers and review papers in CC publications (5)
- Scientific works in other journals (7)
- Internationally reviewed scientific works in conference proceedings (34)
- Other reviewed works in conference proceedings (2)
- Summaries in conference proceedings (6)





- Unpublished conference participations (1)
- Dissertations (2)
- Graduation theses (49)
- Other types of works (2)

Project The Evaluation of the quantitative and qualitative criteria of graphic reproduction process, led by professor Nikola Mrvac Dr.Sc., includes 11 researchers dealing with differences between media used in graphic reproduction, limited by different gamuts. This leads to the conclusion that, if a multicolour original is used, in certain cases it is not possible to obtain absolutely exact reproduction of all graphical information. General project goals are to enable gaining knowledge in the scientific field of graphic technology related to graphic reproduction processes determined by interdependence of technical and technological parameters on one side and graphic design, business processes, sustainable development, ecology and parameters related to the intensity of graphical products perception on the other side. In keeping with the above, the research will include and clarify a sequence of interactions occurring in various types of graphic reproductions related to gamut conversion and mapping techniques, psychophysical visual effects, printing techniques, graphic design, graphical product quality perception etc. Part of the research concentrates on technical and technological parameters related to graphic reproduction processes, the second part deals with graphic products design while the third part deals with the intensity of graphical product quality perception and the fourth part focuses on business processes, sustainable development and ecological acceptability of processes and material.

**Project results so far are:**

- Chapters in book (12)
- Textbooks and learning material (2)
- Original scientific papers and review papers in CC publications (2)
- Scientific works in other journals (10)
- Other works in other journals (6)
- Works being currently published (2)
- Published invited lectures at conferences (1)
- Internationally reviewed scientific works in conference proceedings (35)
- Other reviewed works in conference proceedings (13)
- Works in conference proceedings with no reviews (3)
- Summaries in conference proceedings (3)
- Unpublished conference participations (1)
- Dissertations (3)
- Masters degree theses (2)
- Graduation theses (117)



The scientific programme Digital systems in printing, led by professor Vilko Žiljak, Dr.Sc, includes the following three projects:

1. Vilko Žiljak: Documents and securities graphics
2. Klaudio Pap: Improvement of workflow in the process of graphic reproduction
3. Darko Agić: Digitalization of museum's painting heritage

Joint research in the Digital systems in printing programme is related to digital systems, automatization, workflows and software tools in printing. This prompted the formation of databases, information systems for graphic processes management and attempts to contribute to standardization of production within the activities of an International consortium for integration of prepress systems, print, graphic post-processing systems and automatization of graphic processes. The project is divided among associates according to specific narrower fields of interest within the research subject: digital printing, post-processing, packaging, production management, liaising with publishing, paper and dyes technology and border areas of graphic products protection. Planned innovations by topics: New dyes in the ultraviolet and infrared spectrum and integration with process inks; Criteria for objectivization of faithfulness of reproduction to original; Creation of raster elements for digital printing technologies; Development of software tools for simulation of graphics preparation; Software tools for simulation of test prints; Normative base for workflows and machinery in printing production; Establishment of remote tracking in graphic production; Development of software tools for partial and full simulation of graphic production; Digital virtual printing house, Protection of information in publishing and printing systems.

Project Documents and securities graphics, led by professor Vilko Žiljak, includes 10 researchers and one junior researcher. The project deals with graphics for securities and documents as a borderline area in printing from which a number of new applications are transferred to conventional and digital reproduction technology and graphic original production. Each document and security bond should use a new solution regarding implementation, colours, protection, post-processing tasks and design. The procedures for original production, producing final product and the project of possible forgery attempts are separated. The same security bond is printed in several different print types, a dozen different dyes, using new formula paper and design, post-processing using electronic markers for optical and radio frequency identification, alternating colours and colours from the invisible ultraviolet and infrared spectrum. Pictures and drawings are developed digitally. The engraving techniques have been abandoned. Reproduction through new rasters by shape of raster cells and by angle, as well as generating stochastic parameter layout microstructure in graphic have been introduced. The results of this project are important for the development of borderline graphics technology area to be implemented in Croatian documents and security bonds.

#### Project results so far are:

- Authored books (2)
- Chapters in book (1)
- Original scientific papers and review papers in CC publications (2)
- Scientific works in other journals (6)
- Other works in other journals (1)
- Works being currently published (1)
- Internationally reviewed scientific works in conference proceedings (50)



- Other reviewed works in conference proceedings (6)
- Works in conference proceedings with no reviews (6)
- Summaries in conference proceedings (21)
- Unpublished conference participations (2)
- Dissertations (3)
- Masters degree theses (1)
- Graduation theses (6)
- Patents (3)

The Improvement of workflow in the process of graphic reproduction project, led by Klaudio Pap, includes 5 researchers and a junior researcher, dealing with redesign of workflows and established ways of performing operations within the process of graphic reproduction, as there is a need to increase the precision in describing all operations in all phases from the publisher, printing house, external associates in one or multiple phases of production as well as the client ordering the graphical product. The project enhances productivity by modifying workflows. It defines the influence of new technologies and markets upon this process and suggests ways of introducing new technologies into present environment and using them to enhance existing operations and workflows by introducing integrations and automatizations in complex graphic reproduction systems at all levels. Defining valid standards in the form of various normatives is a precondition for any attempt to automatize production. The dictionary for describing normatives in printing production is large and often very colourful. It is necessary to complete the transition from analogue to digital work orders, but this transition results in a dramatic increase of demand for new skills, organization and connecting at all levels.

**Project results so far are:**

- Authored books (3)
- Chapters in book (6)
- Original scientific papers and review papers in CC publications (3)
- Scientific works in other journals (10)
- Other works in other journals (1)
- Works being currently published (1)
- Internationally reviewed scientific works in conference proceedings (34)
- Summaries in conference proceedings (10)
- Unpublished conference participations (2)
- Dissertations (1)
- Graduation theses (2)
- Patents (3)

Results of research carried out within projects by professor Žiljak, Dr. Sc. and professor Pap, Dr.Sc. resulted in numerous domestic and international awards, some of which are listed here:



(2) Gold medal and special award for best Croatian participant at the 33rd Croatian salon of innovations INOVA33, Čakovec, 2008.

(1) Gold medal at the 12th International salon of industrial property "ARHIMED", Moscow, 2009

(2) Gold medal at the 37th International salon of innovations, technologies and new products and Grand prix of the city of Geneva, Geneva, Switzerland 2009.

(2) Special award for creative innovation by the Taiwan Invention Association and Silver medal at the 2009 Taipei International Invention Show & Technomart, Taipei, Taiwan, 2009

(2) Double gold and silver medal at the 9th International British innovation fair, London, 2009.

(1) IFIA award for best innovative invention, Genius Europe International Invention Fair, Budapest, 2009

(1) Special award for best innovation, The First Inventors and Researches in L.R. Iran, ARCA 2009

(1) Gold medal, Croatian Innovations Association, 34th Croatian innovation salons Inova 34, Zagreb 2009

(1) Annual award „Nikola Tesla“ for best Croatian innovator, Croatian Innovators Association, Zagreb, Inova 34, 2009

(2) Kuala Lumpur, MTE - Malaysia Technology EXPO, The best invention, gold medal, Malaysian association of research scientists, 2010

(2) Gold medal & "GRAND PRIX - 1st Runner-Up" with monetary award, INPEX 2010, Invention & New Product Exposition, Pittsburgh, PA, USA.

(2) Best Croatian innovation and Gold medal for "ZRGB DIGITAL SYSTEM", Croatian Innovations Association, 35th Croatian salon of innovations INOVA 2010, 6th exhibition Be an example 2010, Osijek 2010

(2) Diamond award and Gold medal for "DUAL DETECTION ZRGB APPARATUS", The 10th British Invention Show & Awards, British Innovation & Technology Show, 13-16 October 2010, London, UK

(1) Kuala Lumpur, MTE - Malaysia Technology EXPO, Gold medal, Malaysian association of research scientists, 2011

(1) Medal of the Intellectual Property Agency of the Republic of Moldova at "ARHIMED-2011", AGEPI INFOINVENT, Moscow, 2011

(2) Gold medals in categories "Specialized Technology" and "Safety & Security / Industrial" for "Dual detection ZRGB Apparatus", INPEX 2011, Invention & New Product Exposition, Pittsburgh, PA, USA.

(1) Award for Best European innovation for "Dual detection ZRGB Apparatus", INPEX 2011, Invention & New Product Exposition, Pittsburgh, PA, USA.

(4) Gold medal, two Grand Awards for the ingenious invention and one special award, Korea Cyber International Genius Inventor Fair 2011, Seoul, Korea, 2011

We should additionally stress that Vilko Žiljak, Dr.Sc, Klaudio Pap Dr.Sc. and Ivana Ž. Stanimirović Dr.Sc. were awarded the State science award in the field of technical sciences for the year 2010.



Digitalization of museum's painting heritage project, led by professor Darko Agić, Dr.Sc, includes 5 researchers and a junior scientific assistant dealing with museum painting collections as an important part of cultural heritage. As an important visual resource, they should be accessible to academic and wider community. However, a demand for openness and accessibility of these collections conflicts with the need to restrict the usage of original paintings for their protection and preservation. This project aims for systematic approach to digitalization of museum painting collections, while the purpose of research is to design the digitalization model that that would enable the production of quality digital copies of the originals while causing minimum damage to the original. Due to the fact that, out of all the digitally recorded image quality parameters, the one causing most debates is faithful colour reproduction, this was chosen as the main area of research by choosing appropriate characterization targets. The area of colour reference targets is not sufficiently explored and there are currently no accepted standards and procedures for quality art painting colour reproduction. The research defines and produces the colour reference target for precise characterization of digital photographic systems for recording art paintings, as well as for the efficient assessment of colour reproduction in digitally recorded images. Furthermore, special attention will be paid to determining optimal lighting conditions for the digitalization process, taking into consideration specific requirements for sensitive and valuable originals.

**Project results so far are:**

- Authored books (1)
- Chapters in book (10)
- Original scientific papers and review papers in CC publications (9)
- Scientific works in other journals (19)
- Other works in other journals (4)
- Works being currently published (2)
- Plenary presentations (1)
- Internationally reviewed scientific works in conference proceedings (44)
- Other reviewed works in conference proceedings (1)
- Works in conference proceedings with no reviews (3)
- Summaries in conference proceedings (13)
- Unpublished conference participations (1)
- Dissertations (4)
- Graduation theses (24)
- Other types of works (4)

The development of methods for printing plates' surface measurement project, led by professor Miroslav Gojo, Dr.Sc., is one of four projects within the programme for development of scientific measurement led by professor Mladen Franc, Dr.Sc., of the Faculty of Mechanical Engineering and Naval Architecture and is the only project from the Faculty of Graphic Arts to be included in the programme. The development of methods for printing plates' surface measurement project includes four researchers and two junior researchers dealing with digitalization and integration of phases in preparatory graphic production. New devices enabling direct printing to printing forms, as well as new types of printing forms, shorten the work process. The fact is that the inscription on printing form surface



carries the entire information for a graphical product, which calls for a detailed analytic approach to determining its' level of quality. New measuring instruments and measurement methods are used for controlling the inscription on printing forms, expanding the possibilities for application and integration of digital technologies into printing systems. Assessments of stability of printing forms are carried out by applying scientific measurement methods, with particular attention to digital printing forms. Detailed analyses of these surfaces, quantification of measurement methods for surface microstructures of printing forms and their clarification represents a new approach to predicting stability of printing forms in the reproduction process.

**Project results so far are:**

- Editorial books (1)
- Chapters in book (8)
- Original scientific papers and review papers in CC publications (7)
- Works accepted for publishing in CC journals (1)
- Scientific works in other journals (13)
- Other works in other journals (3)
- Works being currently published (1)
- Plenary presentations (1)
- Internationally reviewed scientific works in conference proceedings (37)
- Other reviewed works in conference proceedings (4)
- Works in conference proceedings with no reviews (4)
- Summaries in conference proceedings (12)
- Dissertations (2)
- Masters degree theses (1)
- Graduation theses (30)
- Other types of works (6)

The Innovative graphic materials project, led by professor Branka Lozo, Dr.Sc., remains active since March 2008, including seven researchers and a junior researcher and dealing with applied research of innovative graphic materials made possible by discoveries in the area of „smart“ materials for printing with added value. The development of new graphic materials with special effects is also supported by the development programmes of the European scientific community, faced with migration of mass printing outside its' borders. Practical application of the “smart” materials research is in creating graphic products within the domain of functional innovations, designer print and 3D prints. By keeping track of the „smart“ materials being used separately, combined with other “smart” materials or combined with conventional printing materials in the so-called hybrid graphic products, research is being carried out in the field of specific graphic products for keeping records in transport and storage of food and pharmaceuticals.

**Project results so far are:**

- Editorial books (3)
- Chapters in book (1)



- Textbooks and learning material (2)
- Original scientific papers and review papers in CC publications (9)
- Scientific works in other journals (6)
- Other works in other journals (1)
- Works being currently published (3)
- Internationally reviewed scientific works in conference proceedings (17)
- Other reviewed works in conference proceedings (1)
- Summaries in conference proceedings (5)
- Unpublished conference participations (6)
- Dissertations (4)
- Graduation theses (24)
- Other types of works (3)

The Croatian media communication in convergent environment project, led by professor Mario Plenković, Dr. Sc, also started in March 2008 and is the only project at the Faculty of Graphic Arts active in the domain of social sciences. The project includes eight researchers and a junior researcher, covering the new historic period in Croatian media communications that is more and more determined by information and communication processes, as well as powerful development of contemporary ICT technology. Future democratization of Croatian society and development of Croatian media communications is viewed by researchers in the context of scientific and technological development of digitalization, researching social and communicological aspects of media digitalization and their influence upon the development of Croatian media communications in the European convergent environment. The purposefulness of the proposed research is in carrying out diachronic and synchronic analysis of the development of media digitalization in Croatia in order to determine and explore the problems of communicological and social future of media digitalization in the convergent areas of Croatia and Europe within the process of Croatian EU accession. Project research views Croatian media communication as a communicological process of adjusting ICT technologies in order to build a new model of “civic participative production media communications” affirming media pluralism and Croatian membership in the EU.

**Project results so far are:**

- Editorial books (7)
- Chapters in book (13)
- Textbooks and learning material (3)
- Scientific works in other journals (14)
- Other works in other journals (37)
- Congress announcement (summaries) in other journals (10)
- Works being currently published (1)
- Plenary presentations (8)
- Published invited lectures at conferences (3)





- Internationally reviewed scientific works in conference proceedings (22)
- Summaries in conference proceedings (19)
- Unpublished conference participations (8)
- Dissertations (5)
- Masters degree theses (4)
- Graduation theses (25)
- Other types of works (35)

Scientific activities of employees at the Faculty of Graphic Arts demonstrated through research projects' results are satisfactory. This is supported by reports of the University of Zagreb for the year 2009, according to which The Faculty of Graphic Arts held 5th place and 6th place in 2010 out of 12 faculties in the technical domain according to the number of research papers per employed researcher. It is also important to note that all projects were graded as very good after three years, and their funding was prolonged until the end of 2011. This does not cancel the attitude or the need for further development in order to achieve even better results in future.

#### **5.9 OUR OWN JOURNAL AND ITS CHARACTER (SCIENTIFIC/PROFESSIONAL, EDITORSHIP, LANGUAGE, SELECTION PROCEDURE, IMPACT FACTOR, ETC.)**

The Faculty of Graphic Arts publishes the scientific journal Acta Graphica Journal for Printing Science and Graphic Communications, ISSN 0353-4707. The journal is indexed in the international multi-disciplinary bibliographic databases of B category with efforts being invested and moves planned in order to advance this status. The journal is published in English four times a year, printed and in the electronic format.

The journal provides latest information on the scientific and technological achievements, dealing with integration of science, technology, industrial application and graphic communications and publishing works by scientists in the area of graphic technology and graphic communications, thus opening the possibility for connecting and application of European projects. Also, it plays a vital role in following trends in development of higher education and lifelong education.

The editorial board consists of 14 scientists from 6 countries: Croatia, Great Britain, Bulgaria, USA, Serbia and India.

Prior to being submitted for the review procedure, the received works are reviewed by the journal editorial board in order to decide on the appropriateness of content for publication in the journal. Works are then sent for review by two experts on the topic covered by the paper, attempting to have a foreign expert as head reviewer. The reviews are performed by experts on voluntary basis. According to data in table 5.5., one can notice a relatively small number of works from the Faculty of Graphic Arts. This is due to certain organization problems facing the journal and a period during which several issues were published as double issues. We hope to increase the number of works by employees at the Faculty of Graphic Arts.





**5.10 CONTRIBUTION OF RESEARCH TO OVERALL ACTIVITIES OF THE INSTITUTION, OR TO TEACHING, AND INTELLECTUAL AND TECHNOLOGICAL CONTRIBUTION TO SOCIETY. CONTENT AND CHARACTER OF PROFESSIONAL PROJECTS OF THE FACULTY OF GRAPHIC ARTS WHICH HAVE BEEN ACTIVE DURING THE PAST FIVE YEARS (NUMERICAL DATA IN TABLE 5.2). OPINION ON THE QUALITY OF WORK AND RESULTS.**

Researches being carried out within research projects are a great contribution to the overall institution activity, as they mobilize the entire intellectual potential of institution employees, also including young researchers in planned research, thus opening new work positions for junior researchers and enabling their recruitment among the most talented students, particularly in cases when their assessment is carried out as they work on their graduation theses. Publication of research papers contributes equally to the affirmation of institution and authors and participating in work at renowned international congresses enables forging new contacts for knowledge exchange, development and planning of various forms of future scientific collaboration and working visits.

Research being carried out as part of research projects greatly contributes to being up-to-date and improving teaching quality, since the researchers transfer the discoveries and knowledge gained through research work into their teaching communication with students, which can also be noticed in the choice of subjects offered for final and graduation theses. Students are very positive and thankful regarding the presentations of latest scientific achievements and express positive attitudes towards this in their university questionnaires.

In the end, the research being carried out within research projects results in the intellectual and technological contribution to society, manifested in several ways: directly by applying scientific findings in the area of graphic technology and indirectly, by increasing the level of education of students, who gain employment in the production sector upon completing studies.

Within the past five years, the Faculty of Graphic Arts had a two-year professional technological project Software tools for programmed learning of graphic technology, led by professor Klaudio Pap, dealing with implementation of database in graphical industry and linked to: normatives for printing machines and processes, normatives for post processing machines and processes, establishing normatives for graphics preparation, calculation and precalculation, electronic tender, electronic work order and communication between people and machines. As part of this project, software tools were developed for programmed learning and using printing technologies. The technology built enables the inclusion of the entire graphic production in Croatia into efficient learning in printing. The integrated knowledge and the database on printing processes and normatives are available using web technology. This results in the pronounced twofold effects regarding the development of software tools and the applicative bypass to users of graphic technology, i.e. small and medium enterprises.

The scientific activities of employees at the Faculty of Graphic Arts so far bear multiple results and are spread to numerous segments of graphic technology, while their results exert a positive effect upon the development of society in general. Professional activities and the quality of practical cooperation with industrial enterprises is satisfactory, but its' scope should be expanded and the collaboration should be intensified.



### 5.11 THE IMPACT OF RESULTS ACHIEVED BY PROFESSIONAL AND DEVELOPMENTAL PROJECTS AND SERVICES ON THE DEVELOPMENT OF CROATIAN ECONOMY, SERVICES SECTOR AND STATE ADMINISTRATION.

Professional technological project Software tools for programmed learning of graphic technology, led by professor Klaudio Pap, provided results that had a significant influence upon increasing the level and the efficiency of internal work processes, as well as planning these processes within small and medium enterprises that implemented it. The project results also indirectly contributed to the increase in the level of employee education, i.e. their lifelong learning, necessary for efficient application of mentioned software tools in graphical production, that were developed for programmed learning and using printing technology. The technology built enables the inclusion of the entire graphical production in Croatia into efficient learning in printing processes, and the integrated knowledge and related database is available using web technology. Furthermore, the production normatives in graphic technology database and the XML standardization dictionary have been created, and the entire system received the code name "WebPoskok".

Practically speaking, a software XML tool for n-dimensional normative establishing in graphics preparation and post-processing and software tools for classification of graphic products have been developed. The database of workflows in graphic production and the software tool for selection of specific workflow according to number of pages has been built, as well as the software module for connecting phases within the workflow model (workflow modelling). A software graphics preparation calculator module has been created, as well as software print calculator module, software graphics post-processing calculator module, software module for automatic tender generator from calculated workflow by variable and fixed profit standards, software module for dynamic work order generation from digital workflow and SVG software module for production planning. This enabled the introduction of databases in researching printing technologies and creating digital normatives in graphic production. Test installations implemented thus far in Vjesnik, Zrinjski and Kozjanski press constitute basis for further expansion of implementation.

Apart from this, some departments at the Faculty of Graphic Arts cooperate with economic entities, providing services consisting of various tests of printing materials and products and helping solve technological problems occurring almost daily in graphic production. When it comes to cooperation with colleagues from production, we usually search for the cause of the problem on top of solving the problem at hand. In that context the Department for Packaging, Bookbinding and Designing and the Department for Materials in graphics Technology should be set as an example.

Department of Packaging, Bookbinding and Design systematically investigates materials and packaging in a long-time cooperation with its industrial partners which include Kraš, Istragrafika, Pan, Grafokartom, Jaškapak, Ambalažni servis, Karlovačka tiskara Lana, et al.

By order, Department for Materials in Graphic Technology investigates materials, mostly paper printing bases, but also printing paints and varnishes and prints for buyers from production department, mostly small and medium enterprises among which are Hydrographic Institute, Agency for Commercial Activity, Official Gazette, Hartmann, et al. According to estimation and agreement, laboratory material testings are conducted which usually look for the cause of the problem that has arisen.

The mentioned examples represent the correct way to use knowledge, but also laboratory capabilities for systematic solving of production situations which interfere with the regular flow of graphic production. Also, a consciousness is being developed about the need for teamwork in such situations in which the Faculty of Graphic Arts generally offers laboratory testing in finding the cause and the industrial partner presents the real production problem. Secondary benefit of this kind of cooperation



is shown in building cooperative relations which can make communication easier in various situations, e.g. directing students to attend student practice, participating in the organization of professional lectures and similar things, carrying out of practical parts of final and graduation thesis, etc.

#### **5.12 SETTING UP OF THE POLICY FOR MONITORING THE SCOPE AND QUALITY OF WORK AT THE FACULTY OF GRAPHIC ARTS AND ITS ELEMENTS AND METHODS FOR AN EFFICIENT IMPLEMENTATION.**

The basic measure taken back in the AY 2006/07 as an initiative for increased publishing in A category magazines was the decision of the Faculty Council of the Faculty of Graphic Arts on the increase of conditions which scientists need to satisfy when appointed into scientific grade in relation to minimal conditions according to the Rule Book on Requirements for Appointment into Scientific Grade of the National Science Council (Official Gazette 84/05), which are checked by the mother committee for the field of technical sciences - field of chemical engineering, mining, oil and geological engineering, metallurgy, textile technology and graphic technology. That decision made it mandatory for a research associate who is to be appointed into scientific grade to publish A category works worth 1 point (each of three authors of the work gets one point; in case of greater number of authors, the author's share is decreased to 0.75 or 0.5 or less). For appointment into scientific grade of senior research associate it is necessary to publish works which are worth 3 points (minimally 2 points), while for the appointment into scientific grade of research advisor it is necessary to publish A category works worth 5 points (3 points are minimum). Equally, criteria for B and C publications have been increased as have criteria for international scientific congresses.

As a result of those measures, a higher activity of employees at the Faculty of Graphic Arts has been observed in terms of research papers (those are primarily works in indexed scientific journals) and a decrease of works presented at congresses which indicates a significant quality move.

#### **5.13 THE POLICY OF ENCOURAGEMENT AND AWARDS FOR PUBLISHING IN HIGHLY RANKED SCIENTIFIC JOURNALS (OR REPUTABLE PUBLISHING HOUSES IN CASE OF BOOKS), THE SYSTEM OF SUPPORT FOR PUBLISHING IN JOURNALS WITH AS HIGH IMPACT FACTOR AS POSSIBLE.**

Since 2008, at the Faculty Administration suggestion, the Faculty of Graphic Arts systematically hands out scientists awards for publication of papers and handbooks. Concretely, a reward for a work published in an A category journal is 1,500 kn, and a reward for a reviewed university textbook is 3,000 kn. Scientists cannot be motivated for scientific publishing exclusively with mentioned awards, but these awards presents pleasure and a public acknowledgement of the worth of the scientific work by their own institution and its leaders.

Regarding the fact that the impact factors of the journals where scientists of the Faculty of Graphic Arts publish are mostly below 1 (except in certain cases afore mentioned), like in most technical faculties, during the issuing of the mentioned awards, for the times being, publishing in journals with higher impact factors is not specified nor encouraged.



**5.14 THE ENSURING OF ETHICAL RESEARCH AND IMPLEMENTATION OF EUROPEAN AND INTERNATIONAL STANDARDS IN EMPLOYING BEST AVAILABLE RESEARCHERS (FOR EXAMPLE, THE EUROPEAN CHARTER FOR RESEARCHERS).**

When employing scientific workers at the Faculty of Graphic Arts, employed are candidates who were among 10% of the best students regarding their grades (or among 10 best students if there were less than 100 of them in that AY). Duration of the studies and additional qualities of a candidate, i.e., awards (Rector’s Award as the best example of students’ quality), or a research work published during the studies are also taken into consideration when employing scientific workers. Candidates must be fluent in English.

Regarding the job vacancy announcement, the announcement is announced in two languages, Croatian and English, and published in printed media, but also on the web pages of the Faculty of Graphic Arts and on the web pages of central EURAXESS site (ec.europa.eu/euraxess).

**5.15 SATISFACTION WITH THE EXISTING STATUS AND PROPOSALS FOR POSSIBLE IMPROVEMENTS.**

The existing state on the Faculty of Graphic Arts in the area of scientific work is relatively satisfying. By that we mean primarily the number of active national scientific research projects (ten) in regard to the number of employees. Scientific activities in these projects yielded relatively good results, meaning the number of published scientific works, number of completed doctoral dissertations, etc. However, some segments of the scientific activity could use additional engagement, meaning first and foremost the investment of larger effort in participation and/or leading of international research projects. It is also necessary to intensify contacts with industrial partners and involve them in the preparation of the new curriculum which is under way. Above that, laboratory accreditation and adequate employee training should be worked upon. As one of the reasons for not having these activities developed by now we consider the lack of institutional competition to the Faculty of Graphic Arts in Croatia.

**Table 5.1. Mentors**

(Mentors for scientific field)

Name of the doctoral programme (orientation)	Number of mentors who led doctoral dissertations in the last 5 years	Number of mentors’ published papers in Croatian scientific journals in the last 5 years *	Number of mentors’ published papers in foreign scientific journals in the last 5 years *
Graphic engineering and graphic products design	13	19	22

(Mentors for artistic field)

Name of the doctoral programme (orientation)	Number of mentors who led doctoral dissertations in the last 5 years	Number of mentors’ artistic works publicly presented at the relevant Croatian exhibitions or other artistic events in the last 5 years*	Number of mentors’ artistic works publicly presented at the relevant international exhibitions or other artistic events in the last 5 years*

\*Only reviewed works in the highest category according to the national classification, or papers in journals listed in international databases WoS and Scopus...



**Table 5.2. Funds for research projects**

Starting year	Project (name)	Duration of project (months)	State budget (MSES)	State budget – other sources (please specify)	Local budgets	EU funds	Economy – private sector	Economy – state-owned firms	Other (please specify)	TOTAL
2007	Innovative graphic materials (128-0000000-3288)	36 + 10	134.167						108.000*	242.167
2007	Croatian media communication in convergent environment (128-0000000-3620)	36 + 10	75.000							75.000
2007	The development of methods for printing plates' surface measurement 128-1201785-2228	60	290.000							290.000
2007	Digitalization of museum's painting heritage 128-1281957-1958	60	390.000							390.000
2007	Standardization of environmentally acceptable processes in graphic communications 128-1281955-1951	60	435.000							435.000
2007	New formulations of the materials, print characteristics and environmental factors (128-1281955-1953)	60	505.000							505.000
2007	Evaluation of the quantitative and qualitative criteria of graphic reproduction process (128-1281955-1960)	60	270.000							270.000

Table. 5.3. Funds for professional projects

TOTAL	383.800	383.800
Other (please specify)		
Economy – state-owned firms		
Economy – private sector		
International funds		
Local budgets		
State budget (MSES and other institutions)	265.000 + 79.200 + 39.600	383.800
Duration of project (months)	20	
Project (name)	Project 1:	Total
Starting year	2008	



**Table 5.4.** List of scientific and developmental projects

List of all active scientific, and developmental projects allocated by MSES, including names of project coordinators
<ul style="list-style-type: none"> <li>• Documents and securities graphics, 2007 – 2010 (Vilko Žiljak)</li> <li>• Standardization of environmentally acceptable processes in graphic communications, 2007 – 2010 (Diana Milčić)</li> <li>• New formulations of the materials, print characteristics and environmental factors, 2007-2010 (Zdenka Bolanča)</li> <li>• Digitalization of museum’s painting heritage, 2007-2010 (Darko Agić)</li> <li>• Improvement of workflow in the process of graphic reproduction, 2007-2010 (Klaudio Pap)</li> <li>• Development of methods for printing plates’ surface measurement, 2007-2010 (Miroslav Gojo)</li> <li>• Study of technological factors of graphic design for systematic quality improvement, 2007-2010 (Stanislav Bolanča)</li> <li>• Evaluation of the quantitative and qualitative criteria of graphic reproduction process. 2007-2010 (Nikola Mrvac)</li> <li>• Innovative graphic materials, 2008-2011 (Branka Lozo)</li> <li>• Croatian media communication in convergent environment, 2008-2011 (Mario Plenković)</li> </ul>
List of active scientific and developmental projects from other national sources (UKF, NSF, other state institutions or Croatian industry), including names of project coordinators
List of all scientific and developmental projects financed by international sources, including names of project coordinators
<ul style="list-style-type: none"> <li>• Impact of renewable materials in packaging for sustainability - development of renewable fibre and bio-based materials for new packaging applications, 2010 - 2014 (Branka Lozo)</li> <li>• New graphic applications with chromogenic printing inks , 2010 - 2011(Branka Lozo)</li> <li>• Electrochemical study and corrosion resistance of aluminium and aluminium oxide and its application on the offset printing forms, 2010 - 2011 (Miroslav Gojo)</li> <li>• Mechanisms of deinking, new formulations of graphic materials and wastewaters, 2007 - 2008 (Zdenka Bolanča)</li> <li>• Intercultural aspects in (incoming) tourism of new EU members and their education curricula implementation, 2008 - 2010 (Mario Plenković)</li> <li>• Society and Technology-Media and Communication, 2005 - 2008 (Mario Plenković)</li> <li>• The Limits of Paper Recycling, 2005 - 2009 (Branka Lozo)</li> <li>• Improvements in the understanding and use of de-inking technology, 2004 - 2008 (Branka Lozo)</li> </ul>



**Table 5.5.** Bibliography (in the last 5 years)

Publication category	Total number of papers	Number of teachers' papers	Number of papers jointly written by two or more teachers	Number of papers as results of cooperation with other HE institutions
Scientific papers in journals included in CC, WoS (SCI-expanded, SSCI and A&HCI) and Scopus	63	2	17	44
Papers in journals included in other databases (recognised for appointment into scientific grades)	37	2	14	21
Authorship of books published abroad				
Authorship of Croatian books	3	0	0	3
Papers in Croatian journals with foreign review	44	1	19	21
Reviewed papers in foreign and international scientific conference proceedings*	220	7	111	102
Papers in Croatian journals with Croatian review	1		1	
Professional papers	36	9	13	14
Chapters in reviewed books	52	4	34	14
Reviewed papers in Croatian scientific conference proceedings*	1			1
Editorship of foreign books*	1	1		
Editorship of Croatian books*	16	12	1	3
Number of papers in own journals	4	1	2	1



**Table 5.6.** Research productivity of the organisational units of HE institution

Publication category	Total number of papers	Ratio for each organisational unit: number of papers/number of teachers																		
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T
Scientific papers in journals included in CC, WoS (SCI-expanded, SSCI and A&HCI) and Scopus	62		2	4	3	2	1	2	5	2	3	5	2	4	3	1	3	6	2	1
Papers in journals included in other databases (recognized for appointment into scientific grades)	39		1	4				10	1	1	2	6	3		3	2	4	1	2	
Authorship of books published abroad															1					
Authorship of Croatian books	3							3							0.3					
Papers in Croatian journals with foreign review	42		1	2				5			5	3	6		1	2	3	3	6	2
Reviewed papers in foreign and international scientific conference proceedings	220		5	7		12		34	9	20	23	6	27	5	12	4	24	12	8	12
Papers in Croatian journals with Croatian review	1		1.25	2.3		12.0		6.8	4.5	6.7	4.6	3.0	4.5	1.25	4.0	8.0	2.0	4.0	4.0	12.0
Professional papers	36		1	1				2	1		3	1	13	1	1			1	9	3
Chapters in reviewed books	52			0.3		6		6	0.5		0.6	0.5	2.17	0.25	0.3			0.17	4.5	3.0
						6.0		1.2		1.0	0.8	3.0	1.5	0.3	0.3		0.7	0.17	5.0	2.0





Publication category	Total number of papers	Ratio for each organisational unit: number of papers/number of teachers																				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T		
Reviewed papers in Croatian scientific conference proceedings*	1									1					1							
Editorship of foreign books*	1													1								
Editorship of Croatian books*	16					3		1		1				0.25	3		1			5	2	
Number of papers in own journals	4					3.0		0.2		0.2					1.0		0.3		2.5	2.0		
				1				1							1		1					
				0.3				0.2							0.3		0.3					

\*do not include publications that are not subjected to selection and review process.

ORGANIZATION UNITS:

- A - Department of Mathematics
- B - Department of Physics in Graphics Technology
- C - Department of Chemistry in Graphics Technology
- D - Department of Chemistry in Graphics Technology
- E - Department of Environmental Protection
- F - Department of Engineering Graphics and Mechanics
- G - Department of Typesetting and Computers
- H - Department for Photographic Processes
- I - Department for Reproduction Photography
- J - Department for Printing Forms
- K - Department of Multimedia and Information Systems
- L - Department of Printing Technology
- M - Department for Packaging, Bookbinding and Design
- N - Department for Materials in Graphic Technology
- O - Department for Economics
- P - Department for Graphic Machines
- R - Department for Fine Arts and Graphic Design
- S - Department for Communicology
- T - Department for Applied and Art Photography



## 6. Mobility and international cooperation



**6.1 SUPPORT PROVIDED TO INTERNAL STUDENT MOBILITY (POSSIBILITY FOR THE ENROLMENT OF STUDENTS WHO HAVE COMPLETED OTHER SIMILAR STUDY PROGRAMMES). GOALS OF THE INTERNATIONAL COOPERATION. FORMS OF COOPERATION, ASSESSMENT OF THE SCOPE AND SUCCESS OF THE EXISTING INTERNATIONAL COOPERATION.**

The Faculty Council has defined the transfer criteria for students who have completed other related study programmes but wish to enrol in graduate studies at the Faculty of Graphic Arts. The established requirements for the transfer, i.e. the defined exams in differential subjects that students need to pass are publicly available at the Faculty website [www.grf.unizg.hr/hr/upisi/diplomski](http://www.grf.unizg.hr/hr/upisi/diplomski).

The Committee for Doctoral Studies has also shaped the enrolment requirements for doctoral studies for students who have completed other university undergraduate/graduate studies, provided that such studies were approved by the Faculty Council.

**6.2 OBJECTIVES OF THE INSTITUTION'S INTERNATIONAL COOPERATION. THE FORMS OF COOPERATION AND ASSESSMENT OF THE SCOPE AND SUCCESS OF THE EXISTING INTERNATIONAL COOPERATION.**

The target activity of the international cooperation of the Faculty of Graphic Arts, University of Zagreb is oriented towards the development of international relations with partner institutions in the world, to encourage the mobility of students, of university professors and of non-teaching staff, and to encourage participation in the international programmes and projects from the area of higher education. The Vision of the Faculty is to achieve recognisability and competitiveness of the Faculty at the national and international level through the raising of research and teaching activity quality. At the Faculty there is the Office for International Cooperation, which deals with the promotion of international relations and offers support to teachers and students. The Faculty has entered into bilateral agreements and into Erasmus agreements with faculties/institutes throughout the world: Kemijski inštitut Ljubljana, Fakulteta za Kemijo in Kemijsko tehnologijo Maribor, Institut Techniki; Uniwersytet Rzeszowski, Centre for Interdisciplinary and Multidisciplinary Research and Studies of the University of Maribor, Akademia Pedagogiczna, Naravoslovno tehniška fakulteta, Univerza v Ljubljani, Faculty of Journalism and Mass Communication, Sofia University, Kenniscentrum Papier en Karton, ARNHEM, UNIVERZITET U TRAVNIKU, Fakultet tehničkih nauka, Univerzitet u Novom Sadu, Arteveldehogeschool (Arteveldehogeschool B GENT39), University of Chemical Technology and Metallurgy, Vysoké učení technické v Brn, HELLENIC OPEN UNIVERSITY, ÓBUDA UNIVERSITY, Hochschule der Medien Stuttgart (HdM), Slovenska technicka univerzita v Bratislave, Univerzidad Complutense de Madrid.

Already for fifteen years the Faculty organizes the international conference “Blaž Baromić”, where the scientists and experts exchange their ideas. The Faculty is a publisher of Acta Graphica - Journal for Printing and Graphic Communication, which is also published in English four times a year. The Journal is referenced in the following databases: Hrčak, INSPEC, DOAJ and EBSCO.

The COST Training School „New Technologies for treatments in the end-of-use of packaging materials“ was held at the Faculty of Graphic Arts in the framework of COST FP 1003 „Impact of renewable materials in packaging for sustainability – Development of renewable fibre and bio-based materials for new packaging applications“. The COST Training School was primarily intended for doctoral candidates and junior researchers; the attendees were from six European countries and from three faculties of the University of Zagreb, including also the assistants and senior assistants from the Faculty



of Graphic Arts. The invited lecturers at the conference were eminent scientists from Belgium, Italy, Netherlands, and Slovenia.

Initiatives were taken to enter into several new agreements, to be signed sometimes in the next academic year, and the already existing agreements were extended.

On the basis of signed agreements, the exchange of students, scientists and collaborators was defined. Similarly, the other aspects of cooperation were also defined, such as: scientific and teaching cooperation; publication of scientific papers and presentation of papers at international conferences; proposals of new European and regional research projects; cooperation at and organization of scientific conferences; publication of joint scientific editions; and setting up of a regional communication network.

The administrative staff from the Faculty Office for International Cooperation also takes part in the international exchange.

In the final semester of their graduate studies, students have an opportunity to go for a professional practice within the framework of the Erasmus Programme, and they show an increasingly greater interest in such practice.

On the basis of all facts mentioned above we believe that the international cooperation is satisfactory, and that there are possibilities for its further development.

### **6.3 INTERNATIONAL ASSOCIATIONS OF SIMILAR INSTITUTIONS OF WHICH THE FACULTY OF GRAPHIC ARTS IS A MEMBER, AND A WAY IN WHICH IT ACTIVELY CONTRIBUTES TO COMMON GOALS.**

The Faculty of Graphic Arts, University of Zagreb realizes its cooperation with the following international associations: TAPPI (a leading association in the printing industry and the publisher of the TAPPI JOURNAL), IARIGAI, (International Association of Research Organisations for the Printing, Information and Communication Industries), TAGA, Technical Association of the Graphic Arts, Fogra, Forschungsgesellschaft Druck e.V., Fogra Graphic Technology Research Association, GATF, Graphic Arts Technical Foundation / GAIN, PIRA, Printing Industry Research Association, IS&T Journal of Imaging Science, EDEN, The European Distance and E-Learning Network, EADTU, European Association of Distance Teaching, Design Society. In cooperation with EDEN (European Distance E+ducation Network) and HKD (Croatian Communicological Association) the second work meeting was held and a framework plan for a further cooperation was established. Participation in the work meeting under EADTU (European Association of Distance Teaching Universities), where the further exchange of scientific and professional information was agreed upon, and the guidelines for the future scientific collaboration were established.

We were included in the Balkan Print Forum, an association in which the East-European businessmen and higher education institutions cooperate. In the mentioned association we actively participate in the creation of an international network of similar higher education institutions in the region, and the result of this participation was the holding of the international InPEQ conference. Our journal has become a media partner for the Balkan Print Forum. Within the framework of this cooperation, one-month scholarships for junior researchers were agreed upon for their training in Chemnitz-Print Promotion, as well as a free access for students to e-learning contents.



Cooperation with the following institutions: *Naravoslovnotehniška fakulteta*, Ljubljana University-Slovenia; *Faculty of Technical Sciences*, Novi Sad - Serbia; and Technical Faculty, University in Travnik, B & H; the cooperation takes place through the organization of a student competition called the “engineering competition”. In June 2011, it was arranged that students from the Obuda University, Hungary also take part in the student competition to be organized in May 2012.

We are a member of the international organization of educational institutions for graphic technology called “The International Circular of Graphic Education and Research”, where the ideas related to the education and research in the graphic technology area are being exchanged.

#### **6.4 FORMS OF INCLUSION IN EU LIFELONG LEARNING PROGRAMME.**

The staff and students of the Faculty of Graphic Arts take part in the Lifelong Learning Programme and have used, within the mentioned period of three years ago, the sector sub-programme Erasmus (higher education), as well as the complementary programme, Transversal Programme, (cooperation and innovations in the area of lifelong learning within the European Union; learning of foreign languages; development of innovative information and communications technologies; dissemination and use of programme results). Putem natječaja objavljenog od strane Sveučilišta u Zagrebu iskorišten je maksimalni broj prijava za Studijske posjete, jedna godišnje, putem Erasmus natječaja za studijski boravak petero studenata boravilo je na inozemnim institucijama, putem Erasmus natječaja za stručne prakse dvoje je studenata boravilo na inozemnim institucijama i jedan je nastavnik koristio Erasmus natječaj za nastavno i nenastavno osoblje. The Lifelong Learning Programme users are satisfied with the achieved results; with education that follows the professional development trends, and with the acquired skills necessary for their career development; it also develops tolerance and multiculturalism and, at the same time, prepares the participants for their successful participation in the European labour market. In accordance with the Lifelong Learning Programme the Faculty of Graphic Arts has negotiated 15 Erasmus bilateral agreements related to the period until the academic year 2013/2014, and which akkiw for the use of sub-programmes.

#### **6.5 ANALYSIS OF APPLICATION OF THE INTERNATIONAL EXPERIENCE GAINED BY TEACHERS AND ASSOCIATES DURING THEIR VISITS (FOR ONE YEAR OR LONGER) TO EMINENT UNIVERSITIES OR INSTITUTES WORLDWIDE.**

Within the period of five past years, not one teacher or associate stayed at eminent universities or institutes of the world for a period longer than a year. We believe that this is a disadvantage, as the gains from such stays are multiple both for the institution and for the teacher himself/herself.

#### **6.6 ASSESSMENT OF COOPERATION IN THE EXCHANGE OF TEACHERS AND ASSOCIATES WITH OTHER FOREIGN HEIs. OPINIONS AND COMMENTS OF STUDENTS ABOUT THE VISITING TEACHERS.**

Cooperation in the exchange of teachers and associates with other higher education institutions is mainly based on individual visits lasting up to one week. On the basis of the realized exchanges of visiting teachers and students, the students of the Ljubljana Faculty of Graphic Arts have presented themselves; the lectures were held related to courses of Doctoral Studies at the Faculty of Graphic Arts, University of Zagreb; presentations of new technologies were organized with the aim to increase the quality of work; lectures were held for students of Graduate Studies, and the organization of



student practices was offered to students; a number of arrangements and consultations were made on the possible cooperation with students of graduate studies and associates; visits of outstanding researchers and consultants with many-year experience in the area of graphic technology were realized; the guests and foreign members of the Committee for Doctoral Thesis Evaluation and Defence took part in doctoral theses defences. Students and teachers of the Faculty of Graphic Arts, University of Zagreb, who have participated in the lectures, have expressed their very positive opinion.

During the past several years, a mobility of our teachers was realized at the partner Universities, within the framework of Basileus project. The mentioned cooperation resulted in a bilateral agreement on the further forms of cooperation. Also, within the framework of the project, one visiting professor held classes and students showed an extraordinary interest for them. A number of doctoral students stayed at partner institutions, where they did researches related to new technologies and materials, and where they gained positive experiences. Students who were in the undergraduate and graduate studies through the Basileus Programme are satisfied with the method of teaching and the experience gained at our Faculty.

#### **6.7 SUPPORT PROVIDED TO HOLDING OF COURSES IN ENGLISH OR IN SOME OTHER FOREIGN LANGUAGE WITH THE AIM TO ATTRACT STUDENTS FROM ABROAD.**

The Faculty of Graphic Arts, University of Zagreb realizes an active contribution to the increase in the number of foreign students and an international recognisability through the offering of courses performed in foreign languages. In order to increase the number of courses in foreign languages, the University of Zagreb stimulates the teaching staff by one-off payments of financial means for the approved courses in the amount of HRK 10,000.00; once a year, the University sends an Invitation to teachers to submit applications for the teaching of a single-semester course at undergraduate/graduate studies in a foreign language. Last year, four teachers applied to hold classes in English language. The University has approved the introduction of two subjects to be taught in English.

At the moment, 5 (five) courses are offered in English; this number tends to increase as an interest in such courses has been shown by in-coming students at the Faculty of Graphic Arts, University of Zagreb.

#### **6.8 ANALYSIS OF THE INTERNATIONAL COOPERATION OF STUDENTS FROM THE FACULTY OF GRAPHIC ARTS, ESPECIALLY FROM THE PROFESSIONAL POINT OF VIEW AND WITH THE VIEW OF JOINING ASSOCIATIONS TO PROMOTE STUDENT RIGHTS.**

During the analyzed period, 3 (three) student visits abroad, that lasted up to three months, were realized, as well as 7 (seven) study visits, that lasted up to 6 (six) months, and 1 (one) professional group visit to the Faculty of Technical Sciences, Graphic Engineering and Design in Novi Sad, Serbia, the result of which was participation in the student symposium PGP Convention, in the GRID '08, as well as an agreement on the further cooperation and future student exchange between the two Faculties. A greater number of individual study visits, lasting at least 3 (three) months up to 6 (six) months, are realized through the Erasmus Programme, and an increase in the mobility is also expected pursuant to the number of Erasmus agreements entered into. With the aim to increase the mobility and to promote student rights, the Faculty of Graphic Arts, University of Zagreb organizes Forums together with the Office for International Cooperation of the University of Zagreb; in these Forums students can obtain all necessary information related to scholarships and possibilities to go abroad within the framework of a student exchange programme, and they can also receive an encouragement by the administration of the Faculty of Graphic Arts; and also, the Office for International Cooperation is





ready to help them in regard to all questions and lacks of clarity; this Office makes intensive efforts to provide for students places for the exchange in accordance with the signed bilateral agreements.

The Student Council of the Faculty of Graphic Arts, University of Zagreb organize, already for 2 years, the “Engineering Competition for Graphic Professionals- ING 2011” for students from technical faculties of Slovenia (Naravoslovno Tehniška Fakulteta, Ljubljana), Serbia (Faculty of Technical Sciences, University of Novi Sad), Bosnia and Herzegovina (Faculty of Graphic Arts, Kiseljak), and Croatia (Faculty of Graphic Arts, University of Zagreb).

Within the framework of the COST FP 1003 Project “Impact of Renewable Materials in Packaging for Sustainability - Development of Renewable Fibre and Bio-based Materials for New Packaging Applications” the Training School New Technologies for Treatments in the End-Use of Packaging Materials was organized. In cooperation with the University in Ljubljana, the Zero Non-Stop Student seminar has been organized, where the students from both universities presented their works.

#### **6.9 STUDENT MOBILITY; OPPORTUNITY FOR STUDENTS TO SPEND ONE PART OF THEIR STUDIES ABROAD; FORMS OF INSTITUTIONAL SUPPORT.**

Students of the Faculty of Graphic Arts, University of Zagreb are encouraged to spend a part of their education during their studies at some foreign university, where they would gain new experiences, meet students from a different environment, improve their knowledge of foreign languages and become richer by many experiences which would help them in their future professional work.

The Faculty of Graphic Arts, University of Zagreb provides for them an opportunity for this through bilateral agreements entered into with partner universities, within the framework of some international agreements or EU programmes, which allow for the student exchange for a certain period of time, from several months up to two semesters. Students were informed via media, web site of the Faculty of Graphic Arts, University of Zagreb, notice board, promotional materials on competitions so that they could prepare themselves and apply on time. Forums of the Faculty staff and students who were abroad through the exchange programmes are also organized by the Faculty Office for International Cooperation, and by the University of Zagreb - Office for International Cooperation; in these forums all information related to the competition are brought forward and experiences are shared; and students and staff can contact for all additional questions the staff of the Office for International Cooperation of the Faculty of Graphic Arts, who are willing to help them by their advice and suggestions. During their visit to a foreign university students are exempted from payment of tuition fees and have the same rights and obligations as the students of universities at which they are staying.

Each of the exchange programmes also ensures certain funds for student stipends to cover a part of their expenses during their studies abroad. The funds, depending on a programme, are provided by the University in Zagreb, Agency for Mobility and European Union Programmes, Ministry of Science, Education and Sports, or other partners in a project.

Comments on the mobility of departing students are archived in the Office for International Cooperation; by analysis of the data a conclusion was made that students were very satisfied with their time spent abroad, with the quality of their visit, in an academic, cultural or private sense; and, as a step required for an improvement, they specify that a solution for the lack of funds has to be found.

In order to strengthen the mobility, the Faculty of Graphic Arts, University of Zagreb will award an additional one-off financial support in accordance with the Competition, that students will be able to apply for.





## 6.10 VISITS OF FOREIGN STUDENTS TO THE FACULTY OF GRAPHIC ARTS (DURATION AND CONTENT, TABLE 6.2)

The Student Council of the Faculty of Graphic Arts, University of Zagreb organize, already for 2 years, the “Engineering Competition for Graphic Professionals- ING 2011” for students from technical faculties of Slovenia (Naravoslovno Tehniška Fakulteta, Ljubljana), Serbia (Faculty of Technical Sciences, University of Novi Sad), Bosnia and Herzegovina (Faculty of Graphic Arts, Kiseljak), and Croatia (Faculty of Graphic Arts, University of Zagreb). A creative calligraphy workshop was organized, as well as a visiting lecture by Dejan Dragosavac Ruta on design and independent culture, and they were made familiar with the cultural heritage of Zagreb.

Within the framework of the COST FP 1003 project *Impact of Renewable Materials in Packaging for Sustainability - Development of Renewable Fibre and Bio-based Materials for New Packaging Applications* the Training School New Technologies for Treatments in the End-Use of Packaging Materials was organized and held in September 2011, at the Faculty of Graphic Arts for 24 doctoral candidates and junior researchers from 6 (six) European countries and with 4 (four) visiting lecturers from 4 (four) European countries. In an anonymous survey, all participants have rated the conference favourably or very favourably in terms of its usefulness for their scientific familiarization with each other.

The Zero Non-Stop Student seminar was organized in cooperation with the University in Ljubljana, where the students from both universities presented their works.

Within the framework of Erasmus Mundus, 2 (two) students from Macedonia attended the undergraduate studies (the 5th and the 6th semester), and 2 (two) students from Novi Sad attended the graduate studies (the 1st and the 2nd semester). Students from Slovenia, Germany and Hungary applied for undergraduate and graduate studies in the academic year 2011/12, within the framework of the Erasmus programme.

The incoming mobility is satisfactory at the moment, since Croatia became an equal member of the LLP programme only recently.

According to the interest shown by the incoming students within the framework of Erasmus programme who have planned to come for one semester only but decided to extend their studies to two semesters, and according to the planned doctoral study programme in English, we expect that there will be an increase in the incoming mobility next year.

Students of the Faculty of Graphic Arts, in cooperation with associations, offer to all incoming students their help to get along well at the Faculty, to find an accommodation, to become familiar with the infrastructure of the City of Zagreb, and in their integration with the local students; and we also have very satisfactory comments on this.

## 6.11 SATISFACTION WITH THE EXISTING STATUS AND PROPOSALS FOR POSSIBLE IMPROVEMENTS.

The Faculty of Graphic Arts, University of Zagreb strengthens the international cooperation in accordance both with its model of education and the educational and research programme structured in accordance with the Bologna process. The aim is to allow for the administrative staff and for students the exchange with as large number of institutions as possible. In order to improve the quality of student mobility and that of the teaching and administrative staff, as well as to increase that mobility,



the Faculty of Graphic Arts informs the students, and the teaching and administrative staff on the possibilities for exchange through meetings, round tables, student organizations, flyers, posters and its web site. The Faculty of Graphic Arts, University of Zagreb also tries to award the additional scholarships to students, teaching and administrative staff; thus, as of this academic year, the funds were provided for that purpose and will be awarded through a Competition, in accordance with transparent selection criteria and to target groups. The Faculty of Graphic Arts, University of Zagreb functions in accordance with strategic documents and tries to provide as many opportunities as possible for making contacts, for becoming familiar with languages and cultures, for learning languages, and for becoming more open for international experiences. The feedback on the time spent in partner institutions is very satisfactory, therefore it is expected that an increase in mobility will also be reflected in the next results of the Competition for Erasmus, and especially after the Forum in November 2011, when the incoming students, who are studying at the moment at the Faculty of Graphic Arts and the departing students and teachers, presented their experience related to mobility.

Having in mind that Croatia became an equal member of the LLP programme only recently, we are satisfied with the mobility of students and teachers.

**Table 6.1.** Teacher mobility in the last 3 years

	Number of international visits of this institution's teachers and associates			Number of visits by foreign teachers to this institution		
	1-3 months	3-6 months	6+ months	1-3 months	3-6 months	6+ months
Scientific	3	-	-	3	-	-
Artistic	-	-	-	-	-	-
Teaching	-	-	-	-	-	-
Professional	-	-	-	-	-	-

**Table 6.2.** Student mobility in the last 3 years

	Number of students in international exchange		
	1-3 months	3-6 months	6+ months
Own students	3	8	-
Foreign students	-	-	4

**Table 6.3.** Non-teaching staff mobility in the last 3 years

Number of professional visits of non-teaching staff to a foreign HE institution		
1-3 months	3-6 months	6+ months
-	-	-



## 7. Resources: administrative and support services, space, equipment and finances



**7.1 ANALYSIS OF THE NUMBER OF ADMINISTRATIVE, TECHNICAL AND SUPPORTING STAFF IN RELATION TO THE NUMBER OF TEACHERS AND ASSOCIATES, THE NUMBER OF STUDENTS, TEACHING SPACE, TECHNICAL AND OTHER MAINTENANCE EQUIPMENT AND THE FACULTY'S FINANCIAL CAPACITIES.**

In view of the changes which have occurred by the introduction of the Bologna model of studies and by an increase in the number of reports and administrative activities requested by the MSES, University and Institutions which are monitoring the work of public institutions - the number of administrative staff at the Faculty is markedly small. It is necessary to emphasize that the number of administrative and technical staff was not satisfactory even before the mentioned changes have occurred, causing an increase in the demands imposed on them (for example, all tasks related to students - enrolments in all years of studies; registration for, cancellation of and records on exams; the tasks related to final and graduate works; issuing of certificates, etc. are performed by three employees only!) Besides this, the administrative, technical and auxiliary staffs are not employed in the Departments of the Faculty, as they are at other faculties. The administrative tasks in other organizational units are performed by immediate performers. For example, one administrative secretary performs the tasks for the Dean, three Vice-Deans, for the Secretary of the Faculty, and for all organizational units.

Studies in graphic technology are markedly dependant on the support by modern information technologies requiring a technical support, maintenance and upgrading. The mentioned tasks are performed by only one full-time employee, and by one employee on short-time work.

At the time of writing this report a procedure was conducted for the employment of one employee who would perform the tasks related to the maintenance of premises and technical equipment, as well as those of a janitor. After the departure of an employee from Maintenance and Cleaning Services the work positions were reorganized, and instead for a cleaning lady a vacancy was advertised for a janitor. For many years the Faculty has paid for a janitor from its own capital.

A plan is to increase the number of staff in the administration by modifications to the Regulations on Internal Organization and Work Positions Systematization of the Faculty (which was additionally explained in chapter 7 b).

Total number of teachers, associates, administrative, technical and auxiliary staff, and students as of October 2011.

Tenured Full Professor	9
Associate professor	12
Assistant professor	8
Senior Lecturer / Lecturer	4
Senior Assistant / Assistant	24
Junior researcher	7
Staff Associate II	1
Administrative staff	14
Technical staff	0
Auxiliary staff (cleaning ladies)	5



The structure of staff is specified In the Table above. In view of the number of students and structure of staff the following ratios are resulting:

- (teachers, associates)/(administrative, technical and auxiliary staff)  
= 65 / 19 = 3,4
- students/(teachers, associates)  
= 1071 / 65= 16,5
- students/(administrative, technical, auxiliary staff)  
=1071 /19= 56,4

## 7.2 QUALIFICATION STRUCTURE OF NON-TEACHING STAFF AND POSSIBILITIES FOR THEIR PROFESSIONAL DEVELOPMENT.

The qualification structure of non-teaching staff was improved by the recruitment of new employees during the past three years.

- Head of Student Office with university qualifications instead of a many year's employee with secondary school qualifications
- An Associate in Student Office with university qualifications instead of the previous employee just with secondary school qualifications;
- two cleaning ladies with secondary school qualifications, instead of previous ones who had just a lower educational background;
- One employee works now in the Information System Services (with yet another employee with university qualifications working on short-time) one more employee with university qualifications is needed;
- The Office for International Cooperation was organized and one employee with university qualifications works in it.

The Administration insists on the employment of staff with university qualifications having in mind the demanding administrative tasks which are emerging in an ever increasingly greater measure. We believe that we are now lacking a professional IT support for teachers in their performing the tasks related to their teaching and research work.

At the moment, modifications are being made to the Faculty's Regulations on the Internal Organization and Work Positions Systematization, in order to make provisions for the possibility to increase the number of non-teaching staff (in addition to the Head of Library, one more employee is introduced on the work position of a highly qualified Librarian; the plan is to employ one person in the Maintenance and Cleaning Services on a work position of a janitor, and one person as a security officer/switch-board operator. The plan is to replace some of the existing work positions with other work positions that require a higher level of educational background (by rule, university qualifications instead of secondary school qualifications).

The Administration encourages the professional development of non-teaching staff. During the past three years, the following employees attended different types of a professional development training:

- The Secretary of the Faculty has passed the bar examination;
- Head of Students Office has passed the tenure examination;



- The Head of Library regularly attends seminars organized by the Centre for Continuous Professional Development of Librarians at the National and University Library in Zagreb, as well as the professional conferences organized by the Croatian Library Association;
- The Head of Financial and Accounting Services regularly attends seminars from the domain of her service;
- The Advisor in the Information Systems Services has completed the CISCO CCNA training courses;
- The Advisor for International Cooperation Affairs has enrolled in postgraduate, doctoral studies;
- The IT Officer has achieved the ECDL Expert Diploma;
- The deliverer has achieved secondary school qualifications; she has also passed the state examination for the work in the records room.
- Head of Dean's Office has attended courses for the employees in the records room and will take examination for the work in the records room.

The administrative staff develop professionally through the courses organized by the University of Zagreb, Croatian State Archives, Ministry of Science, Education and Sports, Ministry of Finance, TEB, and others.

The Faculty, at the request of its staff, supports the studying of foreign languages (especially of English) and the attending of courses in informatics, and defrays the costs of such courses.

Provisions on the motivation for professional development have been incorporated into the Work Regulations.

### **7.3 SITUATION OF AND SATISFACTION WITH THE EXISTING TEACHING SPACE (CLASSROOMS AND LABORATORIES/PRACTICUM), WITH REGARDS TO THE EXISTING NUMBER OF STUDENTS, ENROLMENT QUOTAS AND OPTIMAL NUMBER OF STUDENTS. COMPARISON OF OUR OWN SPACE CAPABILITIES WITH THOSE OF OTHER SIMILAR HE INSTITUTIONS.**

The building of the Faculty of Graphic Arts, where all its activities are performed, was constructed in 1955, and the Faculty shares it with the Secondary School of Graphic Arts. The total area of the useful space is 3,000 square metres.

The existing space is used optimally. From the Table 7.2 it can be seen that the occupation of lecture halls is over 51 hours a week per hall. The occupation of the practicum and laboratory depends on a semester and is, on average, 22 hours a week per room. For better schedule occupancy, the conference hall is used for a part of lectures. Number of students in lecture groups is maximally 150, and an average number of students in the parcticum rooms and laboratories is around 10.

The mentioned spatial conditions are not satisfactory; in view of the number of the enrolled students, a greater number of smaller lecture halls is required if the teaching is to be performed in accordance with recommendations on the performance of teaching according to the Bologna Process. Then the classes could be organized for smaller and more flexible groups, whereby the quality of teaching would probably improve.

For the requirements of the physical education the Faculty rents the premises and pays for them from its own capital, making thus possible for students to engage in sports activities. There is no room for a



student restaurant; however, the campus Borongaj is in the close vicinity to the Faculty, where some catering facilities can be found.

There is no free room for students, which they could use for their extra-curricular activities. In their free time, between their classes, the students have no opportunity to use the computer classrooms, as these classrooms are overloaded.

#### **7.4 THE CONDITION AND FUNCTIONALITY OF COMPUTER EQUIPMENT USED IN TEACHING; POSSIBILITY FOR STUDENTS TO USE THIS EQUIPMENT OUTSIDE CLASSES AS WELL.**

The Faculty procures the necessary computer equipment solely by its own means. The equipment is being renewed periodically, and in that process the type of the hardware support must be taken into account, as it must be compatible with the demanding software used in the graphics profession. The equipment is maintained in its good condition by a very fine maintenance.

In the exercises that require a computer work, an individual work is made possible for students, as well as the software required for the realization of their tasks. It is possible to use the computer equipment outside the classroom in the premises of the library; in the computer classroom on the 6th floor, and also, upon an agreement with teachers, in the Departments, when a research, graduation or other work or project is in question.

#### **7.5 INTERNAL PROCUREMENT POLICY AND USING OF COMPUTER EQUIPMENT.**

The internal procurement policy and the policy related to the manner of the computer equipment use are developed on the basis of requests submitted by organizational units, or on the basis of an invitation, or on the basis of the Faculty Council's Decision.

The submitted requests are processed by the Committee appointed by the Faculty, usually presided by the Vice-Dean for Finance

The computer equipment is obtained through a public procurement process.

#### **7.6 TEACHERS' OFFICES, THEIR NUMBER (DATA FROM TABLE 7.6) AND THEIR FUNCTIONALITY; ASSESSMENT OF SUITABILITY OF THESE OFFICES FOR TEACHING AND SCIENTIFIC ACTIVITIES.**

It can be said that the number of teachers' offices is satisfactory at the moment. Most of these offices (more than 90%) are used by only one teacher. The teachers' offices area is 9.82 square metres on average. The teachers' offices are equipped with necessary computer equipment. During the past several years the adaptation of the teachers' offices has been carried out by the replacement of the old office furniture (purchased thirty years ago); by renovation of floors; by painting walls; by installation of air-condition facilities, etc; the rooms are mainly being modernized in order to provide for the staff better functional and more aesthetic conditions for work. In addition to this, the old, worn out wooden window frames on the whole building were replaced with new PVC window frames, which has also contributed to an improvement of the teachers' work environment.





#### **7.7 SIZE AND EQUIPMENT OF SPACE USED ONLY FOR RESEARCH OR ARTISTIC WORK AND ASSESSMENT OF THE LEVEL OF SPACE USE.**

The laboratories (Table 7.7) are available for all interested staff, doctoral candidates, graduating students, and all persons outside the institution who participate in a research work related to graphic activities. According to priority lists (mainly according to the time when a request for work was made) a decision is made as to who will and how much use the equipment; and a laboratory journal is also kept.

In the laboratory within the Department for Printing Forms, with an area of 20m<sup>2</sup> (two rooms), the following facilities are accommodated: GretagMacbeth and CPlate II, VipFLEX, durometers Zwick Shore A and Shore D, photometer SPER SCIENTIFIC Ltd. Light meter 840020, pH meter (WTW pH 340/ SET-1), instrument for measuring electrical conductivity (WTW LF 330/SET), ultrasonic tub, goniometer (Dataphysics OCA 30), microscope Carl Zeiss, microscope Olympus BX 51, potentiostat (AMETEK VersaSTAT 3). The facilities mentioned above have used/occupied the space of the laboratory to a maximum.

The Laboratory for reproduction photography is in the process of construction at the moment; its area will be 21 m<sup>2</sup>, and the plan is to use it for measurements and visual investigations.

The area of the Laboratory for ecology and environmental protection is 25 square metres. The Laboratory makes possible modern investigations in the area of ecology.

Due to the lack of space, other laboratories are also used for holding classes and for research works.

#### **7.8 SPACE OF THE FACULTY'S LIBRARY; WORKING HOURS WHEN THE LIBRARY IS OPEN FOR STUDENTS, TEACHERS AND ASSOCIATES, AS WELL AS FOR OTHER USERS. OPINION ON THE NUMBER OF BOOKS AND JOURNALS (CROATIAN AND FOREIGN) IN THE LIBRARY, AND ON THE AMOUNT OF FUNDS SPENT EACH YEAR FOR THE PURCHASE OF NEW BOOKS AND JOURNALS.**

The Library of the Faculty of Graphic Arts, University of Zagreb is a higher educational library providing, with its collections and services, the IT and communications support to all scientific and teaching activities of its parent institution.

The Library is located at the first floor of the Faculty building, just besides the premises of the Students Office, which makes the access to it easy for students and other users. It occupies the area of about 100 m<sup>2</sup>, and consists of a library (about 50 m<sup>2</sup>), reading room for students (about 43 m<sup>2</sup>) and a lobby, where sporadic exhibitions of photographs and other works made by students, by the Faculty staff and by the external authors are organized.

The Library's working hours are from 9:00 AM to 14:00 PM on working days, and of the reading room from 9:00 AM to 18:00 PM. Only one employee works in the Library with a title of a Senior Librarian.

Besides a very small separate storage room, almost the entire collection of books is accommodated in the library, so that a problem of the lacking space for new publications is present already now.





The reading room for students has 14 working places, out of which 4 are equipped with computers connected to the Internet. There is no printer in the library, nor a possibility for users to make photocopies or to do a scanning.

Presently, there are about 7,000 books and about 160 titles of journals in the library.

A collection of old books and journals related to the area of printing is especially looked after. The oldest book owned by the library comes from 1857; the library also has a great number of foreign journals from the beginning of the 20th century. The collection of all issued numbers of the domestic journal called "Graphics Review for Teaching and Promoting the Graphical Work" has also a great value.

In addition to standard referential literature, the largest part of the book collection is made of scientific and professional publications from the area of graphic technology, graphic communications and design. Besides this, there is also literature for examinations in mathematics, physics, chemistry, fine arts, marketing, ecology, and other subjects, required for the teaching. Efforts are made to modernize the collection of books and journals by continuous procurement of professional and scientific literature.

The collections of graduation theses and dissertations are also kept in the library: the doctoral and magisterial theses, final theses (since 2002) and graduation theses (since 2008), which may be used in the reading room.

In the academic year 2009/2010, at the proposal made by the Faculty staff, 170 books were purchased, out of which 73 were foreign and 97 were domestic books. The total value of purchased books was about HRK 36,000.00. The Faculty has purchased all the literature mentioned above by its own means.

Every year, subscriptions are renewed to domestic and foreign professional and scientific journals from the area of graphic technology and related areas. In the academic year 2009/2010 subscriptions to 12 foreign and 15 domestic journals were renewed, and the price of these subscriptions was HRK 19,000.00.

The Faculty has purchased all the literature mentioned above by its own means.

#### **7.9 THE RATE OF OUR LIBRARY'S IT LEVEL. COMPOSITION OF COMPUTER DATABASE OF BOOKS AND JOURNALS AVAILABLE FOR TEACHERS, ASSOCIATES, AND STUDENTS; FREQUENCY OF ITS USE. COMPARISON WITH SIMILAR HE INSTITUTIONS.**

Through the Centre for Online Databases the access was made possible to a great number of the world databases and collections of e-journals, such as: Ovid, Current Contents, Web of Science, Scopus, Eb-sco, etc. In the library, the users can always get help in their database searching and in their trying to find the relevant sources of information.

All documents were computer-processed and can be browsed via online catalogues within the Library web pages at the address <http://knjiznica.grf.unizg.hr/>. Until 2010, the software package MetelWin has been used for the processing of documents. At the moment, the implementation of the integrated library system Aleph is being carried out.

As an open higher education library, the library of the Faculty of Graphic Arts is intended primarily for its staff and students; however, it is also open for all external users who need the literature or any kind of information from the area of graphic technology and graphic communications.



## **7.10 ADEQUACY OF OFFICE SPACE FOR THE WORK OF PROFESSIONAL SERVICES.**

The administrative and professional services of the Faculty have mainly a satisfactory office space, and are - by their size, equipment, climate conditions and accommodation within the Faculty building - adequate for the needs of students and staff.

The Students' Office, Office for International Cooperation and the Library are located at the 1st floor, while the Financial and Accounting Office, Secretariat, Office of the IT Officer and the Dean's Office are at the 2nd floor.

Other services are located: The Information Technology Services at the 5th floor; Supplies Department at the ground floor; and Maintenance and Cleaning Services at the mezzanine, between the 1st and the 2nd floor.

A lack of space for the processing of registry office documents became evident. Similarly, the space of the Students' Office is also inadequate and insufficient. It is no longer possible to find any space within the Faculty building that could be reorganized or adapted for the mentioned purposes.

The Records Room, with listed and organized files, is located at the groundfloor, with an entrance from the practicum of the Department for Press; and it is satisfactory by the capacity of shelves for the accommodation of files and by its equipment with a fire-fighting device.

## **7.11 RATIO OF BUDGET (TEACHING, SCIENTIFIC, AND ARTISTIC) RECEIPTS TO MARKET RECEIPTS OF THE FACULTY; LEVEL OF THE FACULTY'S AUTONOMY AND FLEXIBILITY WITH REGARDS TO ITS FINANCIAL OPERATIONS.**

In 2009, total receipts were HRK 22 million, and in 2010, HRK 19.2 million. Budget receipts for 2009 were HRK 18.1 million, which amounts to 82% of total receipts; and in 2010, budget receipts were HRK 14.3 million, which amounts to 74.4% of total receipts.

The largest share of receipts obtained by special regulations were obtained from tuition participations which come to:

- 74.43 % of total receipts in 2009, and
- 69.45 % of total receipts in 2010.

These receipts tend to decline. Because of the model used for charging the tuition participation, which takes into account a student's performance in the current academic year and which stimulates the excellence in studies, the number of students who are paying for their studies decreases.

The Faculty of Graphic Arts has a high level of autonomy in its financial operations. The sole obligation of the Faculty is to make payments into the University Development Fund, depending on the type of receipts and in the percentage determined by the Regulations on the University Funding.

By the agreement made between the University and the Ministry of Science, Education, and Sports on a free student education during the first year of undergraduate and graduate studies, the receipts from the participation in tuition fees, which were not compensated, have been reduced.



### 7.12 STRUCTURE OF MARKET RECEIPTS SOURCES (COLLECTION OF TUITION FEES FROM STUDENTS, RESEARCH PROJECTS, SERVICES, OTHER ACTIVITIES)

In Table 7.2. are specified numerous sources of own receipts; however, it should be emphasized that the majority of receipts are directly related to expenses. For example, receipts from professional projects are related to expenses for equipment, and materials necessary for investigations. Similarly, other receipts are of the same character (enrolments: matriculation book costs, costs of photos made; additional tests of knowledge and skills for the enrolment in undergraduate and graduate studies, study track - design: preparation of materials, conducting of the very procedure, fees,...)

From Table 7 I, where own receipts are presented for two calendar years, it is obvious that the largest own receipts are from the participation in tuition fees. In 2009, the participation in tuition fees was approximately 75%, and in 2010- 70%. The data suggest the tendency of decline in the receipts from participations in tuition fees (which is also confirmed by the receipts for 2011). Receipts from tuition fees for doctoral studies were approximately 8% in 2009, and 13 % in 2010.

The Faculty realizes only about 15 % of receipts by other market activities, such as professional projects and other professional work.

**Table 7.a.** Sources of own receipts

Year:	2009.	2010.
TOTAL	3,896.036 kn	2,915,640 kn
3. Interest receipts	2,11%	0,27%
4. Receipts from own activity	14,05%	17,77%
4.2 Doctoral tuition fees	7,91%	12,71%
4.4 Professional projects	2,86%	3,14%
4.6 Other (press)	2,79%	1,85%
5. Receipts by special regulations	83,85%	81,97%
5.1 Tuition fees	74,43%	69,45%
5.2 Selection procedure	1,8%	2,10%
5.3 Enrolment fees	4,6%	6,53%
5.5 Diplomas, matriculation books	3,01%	3,46%

### 7.13 MANAGEMENT OF RECEIPTS FROM MARKET SERVICES WITH A PURPOSE TO IMPROVE THE QUALITY OF ACTIVITIES (OVERHEADS).

We use all receipts allowed to us by the current financial situation for the procurement of new informatics and research equipment and, in addition to this, to finance for the staff some form of professional development.



**7.14 STRUCTURE OF SPENDING THE MARKET RECEIPTS AND AN ESTIMATE TO WHICH EXTENT CAN THE DOWNSIZING OR LACKING OF THESE MEANS AFFECT THE FUNCTIONALITY OF THE FACULTY AND THE REALIZATION OF ITS CORE ACTIVITY.**

In 2009, material costs of the Faculty were about HRK three million and in 2010 they were HRK 2.6 million. Budget receipts for the covering of operating costs were HRK 1.2 million in 2009, and HRK 2.6 million in 2010. A part of material costs is directly related to market activities; however, about HRK 1.5 million of material costs related to the programme of the core activity, primarily to teaching, are nevertheless covered by own receipts.

If the tendency of decline in budget receipts and in the receipts from the participation in tuition fees continues, the Faculty will not have means neither for its core activity (holding of classes), nor for other development activities.

**7.15 PRIORITY IN THE CASE OF AN INCREASE IN BUDGETARY FUNDING OF THE FACULTY OF GRAPHIC ARTS.**

In the case if the budgetary financial means of the Faculty increase, a priority in the solving of the existing problems would be given to the procurement of scientific equipment in laboratories which is used daily in the teaching but also in the scientific work. A part of such equipment would be used for projects in cooperation with the economy which would allow for an inflow of resources and faster depreciation of the equipment. A part of these funds would be used for the professional development of staff where necessary as well.

**7.16 SATISFACTION WITH THE EXISTING STATUS AND PROPOSALS FOR POSSIBLE IMPROVEMENTS.**

All facts mentioned above suggest that the current situation is not satisfactory. The situation may be improved in two ways: by increasing the receipts or by reducing the expenses. The expenses of the Faculty for overhead and maintenance costs are high, primarily because of the age of the building in which the Faculty operates. Over the years, these expenses are becoming higher and higher. No further reduction of expenses is possible in any item because the budgetary means have always been insufficient. In the past two years there were reductions in budgetary means, and maintenance costs have been increasing.

It is possible to increase the receipts only through an intensive cooperation with the economy, but such cooperation has not been developed at the Faculty.

Similarly, the spatial capacities are not adequate. An increase in the space, where the classes would be held, would allow for a better quality of work. A space for extracurricular student activities is lacking, and the Students' Office is also short of space.

(Computer) equipment for students is not adequate to allow for them an opportunity for practical and research work within the Faculty.



**Table 7.1.** HEI buildings  
(Specify the existing buildings, buildings under construction and planned construction)

Building ID	Building location	Year of construction	Year of annexed building or reconstruction	Total space for HE activities in m2	Total space for research activities in m2
University of Zagreb Faculty of Graphic Arts	Getaldićeva 2 10000 Zagreb	1959	2009	3240	385

**Table 7.2.** Classrooms

Building ID	Classroom number or designation	Space (in m2)	Number of seats for students	Number of hours of weekly use	Equipment rating*(1 - 5)
University of Zagreb Faculty of Graphic Arts	A	152,4	156	56	5
	B	66	64	47	4
	C	66	64	51	4
	Conference room	98,28	44	16	5

\*Classroom equipment comprises the quality of furniture, technical and other equipment.

**Table 7.3.** Laboratories/practicums used for teaching

Building ID	Internal designation of rooms of the laboratory/practicum	Area (m2)	Number of workplaces for students	Number of hours of weekly use	Equipment rating (1–5)
University of Zagreb Faculty of Graphic Arts	Computer practicum 1	36	10	21	4
	Printing practicum 3	56	10	36	4
	Post-processing practicum	27	15	14	3
	Laboratory for finishing processes 1	24	8	0	4
	Laboratory for finishing processes 2	16	5	12	3
	Computer practicum 2	34	12	28	3
	Computer practicum 3	26	11	31	3
	Chemistry practicum	42	12	16	4
	Reprophotography practicum 1	13,8		10	4
	Reprophotography practicum 2	20	10	30	3
	Computer practicum 5	46	10	30	5
	Practicum for printing forms	24	10	34	2
	Laboratory for printing forms 2	20	4	34	3
	Physics practicum	50	12	14	3
	Printing practicum 1	12	10	4	3
	Printing practicum 2	24	10	14	3
	Practicum for materials in graphic technology	24	10	20	3
	Practicum for photographic processes	24	10	16	4
	Original graphics practicum	55	14	21	3
	Computer practicum 4	79	16	59	4
Art practicum	129	25	14	5	

**Table 7.4.** Workplaces

Building ID	Name of workplace	Number of students working in a workplace	Hours of teaching (per week) held in a workplace
-	-	-	-

**Table 7.5.** Equipment of computer classrooms  
(Specify the data on computers in computer laboratories/practicums used in teaching)

Number of new computers (up to 3 years)	Number of computers older than 3 years	Functionality rating (1–5)	Maintenance rating (1–5)	Rating of possibility for use outside of classroom (1-5)
22	37	3	4	3

**Table 7.6.** Teachers' offices

Building ID	Number of teachers' offices	Average space in m2	Equipment rating (1 – 5)	Average area in m2 per full-time teacher/associate
University of Zagreb Faculty of Graphic Arts	46	9,68	4	6,8

**Table 7.7.** Space used only for research activity

Building ID	Internal room or laboratory designation	Space (in m2)	Number of hours of weekly use	Equipment rating (1 – 5)
University of Zagreb Faculty of Graphic Arts	Laboratory for reprography	21	40	4
	Laboratory for printing forms 1	20	40	5
	Laboratory for ecology and environmental protection	25	20	5

**Table 7.8.** Space used only for professional activity

Building ID	Internal room or laboratory/workshop designation	Space (in m2)	Number of hours of weekly use	Equipment rating (1 – 5)
-	-	-	-	-

**Table 7.9.** Capital equipment

(Specify the data on the institution's available capital equipment with purchase value exceeding 200,000 HRK)

Name of the instrument (equipment)	Purchase value	Age (years)
Spectrophotometer ISO	254.629,00	2006.
Goniometre - a device for measuring contact angles	212.741,83	2007.
Roland UV-LEC printer&cutter	207.195,00	2009.
IR microscope	259.700,00	2010.
Aye Tracker TOBI x60	249.850,00	2011.
Ploter Cutter M 800	312.900,00	2011.

**Table 7.10.** Library equipment

Total area (m2)	Number of employees	Number of seats	Number of students using library	Is there an electronic database of your books and journals
95	1	16	1.300	yes

Number of books titles	Number of textbooks*	Rating of books and textbooks as up to date (1-5)	Number of foreign journals	Number of Croatian journals	Rating of functionality and catalogue of books and journals	Equipment rating (1-5)**	Assess the quality and availability of electronic content (1-5) ***
6000	900	3/4	90	70	4	3	4

\* Number of textbooks comprises all textbooks, regardless of the number of copies.

\*\* Possibility of using a copy machine for teachers and students, provision of copies from other libraries, catalogues of teachers' papers etc.

\*\*\* Electronic content comprises electronic editions of books, journals, databases, but also library's own and other libraries' catalogues.

**Table 7.11.** Financial evaluation

		N-2 calendar year	N-1 calendar year
INCOME			
1.	STATE BUDGET INCOME	18.128.024	16.334.756
1.1.	Employees' salaries	12.881.808	12.838.596
1.2.	Business expenses (field classes included)	1.285.784	2.140.074
1.3.	Part-time teachers	220.142	118.010
1.4.	Croatian research projects	551.667	692.240
1.5.	International research projects	34.999	57.544
1.6.	International cooperation	45.957	29.435
1.7.	Organisation of scientific meetings		
1.8.	Acquisition of journals		
1.9.	Overhead		
1.10.	Construction and investment maintenance	2.516.960	275.316
1.11.	Equipment	386.458	
1.12.	Other types of income (please specify)	204.249	183.541
	VAT return	179.249	144.697
	Student programmes	25.000	35.744
	Ministry of Finance - indemnity		3.100
2.	OTHER PUBLIC BUDGET INCOME		
2.1.	Income and grants from local government entities (towns, counties, etc.)		
2.2.	Income and grants from other subjects (for example National Science Foundation)		
2.3.	Other types of income (please specify)		





		N-2 calendar year	N-1 calendar year
3.	INTEREST INCOME	81.979	7.697
4.	OWN ACTIVITY INCOME	547.269	518.039
4.1.	Tuition fees - postgraduate specialist		
4.2.	Tuition fees - postgraduate doctoral	308.140	370.526
4.3.	Research projects	11.350	
4.4.	Professional projects	111.264	91.318
4.5.	Rent income	2.060	2.500
4.6.	Other types of income (please specify)	114.455	53.695
	Appointment to a position	6.000	6.000
	Printing service	108.455	47.659
5.	SPECIAL REGULATION INCOME	3.266.788	2.389.904
5.1.	Tuition fees – undergraduate, graduate, professional	2.899.792	2.024.887
5.2.	Additional test of special knowledge, skills and abilities (if carried out parallel to state matura exams)	69.810	61.044
5.3.	Enrolment fees	178.910	190.320
5.4.	Publishing activity	1.210	260
5.5.	Fees for student applications, certificates, diplomas, matriculation books, etc.	117.066	100.625
5.6.	Other types of income (please specify)		12.768
	Sale of copyright		10.000
	The stipulated fine		2.768
6.	OTHER INCOME NOT MENTIONED ABOVE (please specify)		
A	TOTAL BUSINESS INCOME	22.024.060	19.250.396
<b>EXPENSES</b>			
1.	EMPLOYEE EXPENSES	14.407.817	14.475.990
1.1.	Employees' salaries	13.726.817	13.585.846
1.2.	Part-time teachers	443.416	492.474
1.3.	Other types of expenses (please specify)	237.584	
2.	MATERIAL AND ENERGY EXPENSES	781.691	923.539
2.1.	Office supplies and other material expenses	319.461	298.795
2.2.	Laboratory material		3.445
2.3.	Energy	316.562	416.328
2.4.	Material and parts for overhead	119.459	169.252
2.5.	Small inventory	26.209	35.719
2.6.	Other types of expenses (please specify)		



		N-2 calendar year	N-1 calendar year
3.	SERVICE EXPENSES	1.335.620	957.370
3.1.	Telephone, mailing, transport	81.331	72.589
3.2.	Overhead services	156.581	104.844
3.3.	Promotion and information dissemination	31.794	43.383
3.4.	Utility services	271.146	250.450
3.5.	Lease, rent	14.625	28.624
3.6.	Intellectual and personal services (part-time contracts, fees)	648.274	362.182
3.7.	IT services	366	2.500
3.8.	Other types of expenses (please specify)	131.503	35.019
3.8.1.	Graphic services	55.494	35.019
3.8.2.	Bookkeeping services	10.959	
3.8.3.	Project of structural cabling of the local computer and telephone network	65.050	
	University Development Fund (payment for 2008-2010)		57.779
4.	NON-FINANCIAL ASSETS EXPENSES	3.949.589	3.340.344
4.1.	Business facilities	1.589.389	
4.2.	Computer equipment	129.704	295.978
4.3.	Laboratory equipment	14.849	618.364
4.4.	Office equipment	667.081	44.780
4.5.	Communication equipment	4.708	8.945
4.6.	Other equipment	1.061.628	6.862
4.7.	Literature	56.213	51.864
4.8.	Plant, machinery and other equipment investments	419.117	2.229.880
4.9.	Additional investments in building facilities		
4.10.	Other types of expenses (please specify), software	6.900	83.571
5.	EMPLOYEE REIMBURSEMENT	1.023.244	957.083
5.1.	Business trips	514.210	490.436
5.2.	Professional training	175.728	117.851
5.3.	Other types of expenses (please specify), including cost of transport	333.306	348.796
6.	OTHER BUSINESS EXPENSES NOT MENTIONED ABOVE	249.065	230.483
6.1.	Insurance premiums	24.920	30.720
6.2.	Representation	35.923	28.842
6.3.	Membership fees	48.807	30.548
6.4.	Banking and financial transactions services	15.950	18.745
6.5.	Interest	598	63
6.6.	Other financial expenses	122.867	121.565
B	TOTAL BUSINESS EXPENSES	21.747.026	20.884.809
C	Balance brought forward from previous year	3.128.909	3.405.913
	TOTAL BALANCE 31 Dec (A-B+C)	3.405.913	1.771.500

\*Classroom equipment comprises the quality of furniture, technical and other equipment.





## 8. Conclusion



As a part of the University of Zagreb, the Faculty of Graphic Arts has built its recognisability on half a century long tradition of education of graphic technology and graphic design. The Faculty, defined by its mission as the leading institution in the region, has a multidisciplinary approach to the development of teaching process and curricula for a lifetime education of employees in the area of graphic technology and graphic design. The continuity of work and community service by undergraduate and graduate studies and then postgraduate doctoral studies are illustrated by the information about first graphic engineers who graduated in 1961 year. From 1984 till today over 1300 engineers of graphic technology have graduated from the Faculty of Graphic Arts. Engineers who graduated in graphic technology are active workers in hundreds of printing houses, design companies and graphic companies throughout Croatia. This report and strategic goals show consciousness about key factors of success for every teaching activity and continuing monitoring of their realization through the work of different committees.

Obliging the highest ethical norms, the temporary Faculty Administration nourishes a culture of excellence both in teaching and in scientific work. A rather large scientific engagement, publishing of papers and work on numerous domestic and foreign scientific projects are a quantitative indicator of such activities. The importance of quality managing and quality assurance in the whole research and teaching process is acknowledged - from the moment of becoming a student when enrolling in the Faculty till the moment of defence of the degree thesis and the ceremony, so the quality criteria are improved in accordance with the guidelines defined by the Faculty and the University of Zagreb. By increase in criteria for quality of the state high school graduation (higher level of mathematics) and by work on promoting the Faculty among high school students we want to increase the knowledge level of general subjects in the first year of studies so as to secure quality superstructure.

Throughout the years the Faculty of Graphic Arts performs a transfer of knowledge and the research results from the graphic technology area and graphic communications to private and public sectors in cooperation with other higher education institutions from the region. Joint projects with shares from economy and public sector are successfully conducted in accordance with the newest scientific knowledge, following achievements from the area of technological development. In accordance with knowledge on economy development needs and through the international cooperation with similar institutions a methodology has been established for development of new study programmes based on defined learning results and on the e-learning strategy. It is possible to find the confirmation of success of such work in awards and patents from the area of design, creativity and innovation allotted to students and employees of the Faculty of Graphic Arts.

By increased activity in the field of international cooperation and student and employee-exchange we ensure constant improvement, especially of younger employees. When employing new workers, constant care is being taken to ensure the criteria of their excellence. Current spatial development is limited by the existing building. In accordance with the new needs, rationalization of space usage is constantly conducted along with necessary adaptations. Considerable financial amounts are invested in getting new scientific research equipment and machines so as to keep up with new knowledges and areas of development.

