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ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC

H Q A

HELLENIC QUALITY ASSURANCE  
AND ACCREDITATION AGENCY

## Accreditation Report for the Undergraduate Study Programme of:

Mathematics

Institution: University of Ioannina

Date: 15<sup>th</sup> February 2020

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Επιχειρησιακό Πρόγραμμα  
Ανάπτυξη Ανθρώπινου Δυναμικού,  
Εκπαίδευση και Διά Βίου Μάθηση  
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης



Report of the Panel appointed by the HQA to undertake the review of the Undergraduate Study Programme of **Mathematics** of the **University of Ioannina** for the purposes of granting accreditation

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## **PART A: BACKGROUND AND CONTEXT OF THE REVIEW**

### **I. The Accreditation Panel**

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme of **Mathematics** of the **University of Ioannina** comprised the following four (4) members, drawn from the HQA Register, in accordance with the Law 4009/2011:

- 1. Prof. Alekos Vidras (Chair)**  
University of Cyprus, Nicosia, Cyprus
  
- 2. Prof. Basilis Gidas**  
Brown University, Providence, Rhode Island, USA
  
- 3. Prof. Christos Xenophontos**  
University of Cyprus, Nicosia, Cyprus
  
- 4. PD Lucas Amiras**  
University of Education Weingarten, Weingarten, Germany

## II. Review Procedure and Documentation

The Accreditation Panel (henceforth: AP) visited the University on the 10<sup>th</sup>-12<sup>th</sup> of February 2020 and conducted an accreditation evaluation of the undergraduate programme **Mathematics** of the **University of Ioannina** (henceforth: programme). From February 12<sup>th</sup>- 14<sup>th</sup> the AP prepared the report. Before the AP arrived in Ioannina, the Panel members received from HQA the following documentation and supporting material:

1. Guidelines for accreditation, created by HQA
2. The mapping grid, created by HQA
3. A tabulation (prepared by HQA) of the scores of the department against the quality indexes for the years 2015 – 2018
4. The accreditation proposal prepared by the department
5. A set of annexes to the accreditation proposal, including the study guide, course descriptions, etc.; student evaluation scores were obtained from the department's website
6. Statistics regarding the department and the specific programme of studies
7. The Quality Assurance policy of the specific programme of studies
8. A set of documents presenting quality indicators both for the department and the programme
9. The report of the 2011 external evaluation conducted by HQA for the programme
10. The results of the internal evaluation of the programme

The AP also had access to links from the University and departmental website. In addition, during the on-site visit, the department Head provided additional materials (hardcopy and electronic versions of power-point presentations prepared and presented by the department, selected undergraduate exams, problem sets and their solutions).

On Monday, February 10<sup>th</sup>, the Panel attended a teleconference briefing from the ADIP director, during which the procedures and rationale for the accreditation were outlined and explained.

The AP then met by the Rector of the University Prof. T. Albanis, the Vice Rector/President of MODIP Prof. S. Nikolopoulos, the Head of the Department of Mathematics, Prof. Konstantinos Zografos. During the meeting the Rector gave a brief overview of the university. Subsequently we met with the Vice Rector, the Head of the department and the members of OMEA. The Head of the Department introduced the members of OMEA and gave a (power-point) presentation, focusing on (1) the history and structure of the department, (2) teaching, (3) research, and (4) outreach activities and other matters related to the programme. Discussion followed with emphasis on the revised programme of studies that the department has implemented in the last few years as a result of the previous departmental external evaluation of 2011.

On Tuesday February 11, the Panel visited the department facilities at the university campus. The programme included meetings with:

1. the administration unit of the department
2. the teaching staff
3. students

4. graduates
5. employers and social partners

and concluded with a tour of the facilities (classrooms and lecture halls, computer labs, student reading room) and a final meeting with OMEA members.

During the Tuesday meeting the Panel had the chance to request additional clarifications regarding any pending issues.

On Wednesday February 12 the AP met again OMEA members, MODIP and Vice Rector. On-site visit took place during the university examinations period and for this reason AP did not have the opportunity to observe any teaching or to interact with students during breaks or informal meetings. The schedule of the site visit was nicely designed and gave to the AP a complete picture of the department. The direct contact with the teaching staff was stimulating and productive.

The commitment of all staff members to their specific disciplines and to their students became particularly evident during the meetings, tours, and discussions. It became clear that despite of the extremely hard conditions under which they perform their duties the department continues to function effectively. In particular, the stringent regulations imposed by the laws that govern higher education in Greece, make the department's task extremely difficult.

### **III. Study Programme Profile**

The Department of Mathematics was one of the two founding departments established in 1966. Currently, it has 20 faculty members (1 lecturer, 8 assistant professors, 5 associate professors, and 6 full professors), 4 instruction staff (2 EDIP and 2 ETEP), and 5 administrative personnel. Two new position will be filled shortly and one more position is advertised.

Its current undergraduate programme offers 4 specializations. It also offers master and doctoral programmes. Since its establishment 5667 students graduated, 165 wrote a master and 73 a doctoral thesis. Its undergraduate programme spans into 8 semesters of studies and requires 240 ECTS. However, normally most of the students take longer to complete their degree.

The latest data of the HQA (years 2015 – 2018) indicate that the undergraduate programme admits around 220 – 250 students per year. This number is dictated by The Ministry of Education and AP feels that the number is substantially higher than the number of students the department with 20 faculty members can handle. The total current number of registered undergraduate students is approximately 2400 (800+ of which are registered for 4 years, 250+ for 5 years, and 1200+ for more than 6 years).

The department had one external evaluation in 2011. On the base of the recommendations made the department revised substantially many of its curriculum procedures in a positive way.

## PART B: COMPLIANCE WITH THE PRINCIPLES

### Principle 1: Academic Unit Policy for Quality Assurance

**INSTITUTIONS SHOULD APPLY A QUALITY ASSURANCE POLICY AS PART OF THEIR STRATEGIC MANAGEMENT. THIS POLICY SHOULD EXPAND AND BE AIMED (WITH THE COLLABORATION OF EXTERNAL STAKEHOLDERS) AT ALL INSTITUTION'S AREAS OF ACTIVITY, AND PARTICULARLY AT THE FULFILMENT OF QUALITY REQUIREMENTS OF UNDERGRADUATE PROGRAMMES. THIS POLICY SHOULD BE PUBLISHED AND IMPLEMENTED BY ALL STAKEHOLDERS.**

*The quality assurance policy of the academic unit is in line with the Institutional policy on quality, and is included in a published statement that is implemented by all stakeholders. It focuses on the achievement of special objectives related to the quality assurance of study programmes offered by the academic unit.*

*The quality policy statement of the academic unit includes its commitment to implement a quality policy that will promote the academic profile and orientation of the programme, its purpose and field of study; it will realize the programme's strategic goals and it will determine the means and ways for attaining them; it will implement the appropriate quality procedures, aiming at the programme's continuous improvement.*

*In particular, in order to carry out this policy, the academic unit commits itself to put into practice quality procedures that will demonstrate:*

- a) the suitability of the structure and organization of the curriculum;*
- b) the pursuit of learning outcomes and qualifications in accordance with the European and the National Qualifications Framework for Higher Education;*
- c) the promotion of the quality and effectiveness of teaching;*
- d) the appropriateness of the qualifications of the teaching staff;*
- e) the enhancement of the quality and quantity of the research output among faculty members of the academic unit;*
- f) ways for linking teaching and research;*
- g) the level of demand for qualifications acquired by graduates, in the labour market;*
- h) the quality of support services such as the administrative services, the Library, and the student welfare office;*
- i) the conduct of an annual review and an internal audit of the quality assurance system of the undergraduate programme(s) offered, as well as the collaboration of the Internal Evaluation Group (IEG) with the Institution's Quality Assurance Unit (QAU);*

#### Study Programme compliance

The University has established an appropriate Quality Assurance policy clearly defining review processes and Key Performance Indicators (KPIs). The department is in line with the institutional policy. The MODIP monitors and enforces the Quality Assurance. The department's general assembly maintains overall responsibility for reviewing its entire study programme and ensures its consistency to the institutional Quality Assurance standards.

The department has a positive attitude towards quality assurance evaluation, and feedback is taken seriously by the faculty. Some of the specific actions taken by the department include: the



structural revision of the programme, the re-organization of the curriculum, the procedures for hiring new faculty following international trends in accordance with the recommendations in the evaluation report of 2011.

The revised curriculum provides up to date mathematical knowledge, emphasizes modern scientific trends and is consistent with present day established international standards.

The research activities of the faculty are of high quality, as testified by external funding. Judging from the quality of the new hiring, AP believes that this trend will not only continue but also expand.

Input from the students suggests linking of teaching and research is desired. The faculty is making a serious effort to improve this through various mechanisms, including research projects in advanced classes or on an individual basis. The possibility of establishing an honor thesis on an optional basis is suggested by the AP.

The QA policy is in place and the MODIP within the university structure oversees its proper and regular implementation. The AP is impressed with the way student feedback is seriously utilized. We recommend that the student teaching evaluations be made mandatory. The AP commends the department for publicizing the overall scores for teaching evaluations.

### **Panel judgement**

<b>Principle 1: Institution Policy for Quality Assurance</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### **Panel Recommendations**

1. Continue to have all relevant policy documents pertaining to the department, readily available and accessible.
2. AP strongly recommends the introduction of a mandatory student evaluation. This has been proven to have positive effects for the quality of teaching as well as to the student participation.

## Principle 2: Design and Approval of Programmes

INSTITUTIONS SHOULD DEVELOP THEIR UNDERGRADUATE PROGRAMMES FOLLOWING A DEFINED WRITTEN PROCESS WHICH WILL INVOLVE THE PARTICIPANTS, INFORMATION SOURCES AND THE APPROVAL COMMITTEES FOR THE PROGRAMME. THE OBJECTIVES, THE EXPECTED LEARNING OUTCOMES, THE INTENDED PROFESSIONAL QUALIFICATIONS AND THE WAYS TO ACHIEVE THEM ARE SET OUT IN THE PROGRAMME DESIGN. THE ABOVE DETAILS AS WELL AS INFORMATION ON THE PROGRAMME'S STRUCTURE ARE PUBLISHED IN THE STUDENT GUIDE.

*Academic units develop their programmes following a well-defined procedure. The academic profile and orientation of the programme, the objectives, the subject areas, the structure and organisation, the expected learning outcomes and the intended professional qualifications according to the National Qualifications Framework for Higher Education are described at this stage. The approval or revision process for programmes includes a check of compliance with the basic requirements described in the Standards, on behalf of the Institution's Quality Assurance Unit (QAU).*

*Furthermore, the programme design should take into consideration the following:*

- the Institutional strategy*
- the active participation of students*
- the experience of external stakeholders from the labour market*
- the smooth progression of students throughout the stages of the programme*
- the anticipated student workload according to the European Credit Transfer and Accumulation System*
- the option to provide work experience to the students*
- the linking of teaching and research*
- the relevant regulatory framework and the official procedure for the approval of the programme by the Institution.*

### Study Programme compliance

The programme is designed by a departmental committee and is considered and approved by the general assembly. The AP believes that the overall structure aligns well with similar programmes in Greece and overseas. The student guide is complete, concise, appropriate and well thought of. In designing the programme, the department takes into account input from the stakeholders, external experts, graduates and students. The entire process, including programme revisions, is overseen by the MODIP.

### Panel judgement

Principle 2: Design and Approval of Programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

### **Panel Recommendations**

The AP recommends that the department should encourage the formation of an Alumni Society. Such a society could be very important in providing suggestions in the design of the educational process and assisting the graduates in their future endeavors.

### Principle 3: Student- centred Learning, Teaching and Assessment

**INSTITUTIONS SHOULD ENSURE THAT THE UNDERGRADUATE PROGRAMMES ARE DELIVERED IN A WAY THAT ENCOURAGES STUDENTS TO TAKE AN ACTIVE ROLE IN CREATING THE LEARNING PROCESS. THE ASSESSMENT METHODS SHOULD REFLECT THIS APPROACH.**

*Student-centred learning and teaching plays an important role in stimulating students' motivation, self-reflection and engagement in the learning process. The above entail continuous consideration of the programme's delivery and the assessment of the related outcomes.*

*The student-centred learning and teaching process*

- *respects and attends to the diversity of students and their needs, enabling flexible learning paths;*
- *considers and uses different modes of delivery, where appropriate;*
- *flexibly uses a variety of pedagogical methods;*
- *regularly evaluates and adjusts the modes of delivery and pedagogical methods aiming at improvement;*
- *regularly evaluates the quality and effectiveness of teaching, as documented especially through student surveys;*
- *reinforces the student's sense of autonomy, while ensuring adequate guidance and support from the teaching staff;*
- *promotes mutual respect in the student - teacher relationship;*
- *applies appropriate procedures for dealing with students' complaints.*

*In addition :*

- *the academic staff are familiar with the existing examination system and methods and are supported in developing their own skills in this field;*
- *the assessment criteria and methods are published in advance;*
- *the assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary is linked to advice on the learning process;*
- *student assessment is conducted by more than one examiner, where possible;*
- *the regulations for assessment take into account mitigating circumstances;*
- *assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures;*
- *a formal procedure for student appeals is in place.*

#### **Study Programme compliance**

The department currently has four academic advisors who consult incoming students and offer help on any issues they might have. The department has clear assessment criteria, and these are communicated to the students at the beginning of each course, through the syllabus. The AP notices that student satisfaction surveys are regularly conducted and taken into consideration by the department. Possible student complaints or other appeals are handled by a well-articulated procedure.

Traditional teaching methods (chalk and blackboard) are utilized in the compulsory courses which have large audiences, during the first semesters of study. Later on, in more advanced,

specialty and elective courses, many professors use, in addition to traditional (chalk and blackboard) approach to teaching, modern methods such as computers, videos, and other information transfer technology means. They also employ (especially in elective courses) teaching procedures based on student participation via, for example, student lecturing. Moreover, in the majority of selective courses as well in some other courses, teaching faculty employ evaluation procedures complementary to those of written exams; e.g. student presentations, homework, and even small projects. Nevertheless, students strongly indicated that novel information technology methods should be more broadly utilized. AP concurs with the students and strongly suggests that: (i) novel pedagogical methods for teaching based on modern information technology be employed in all the courses, (ii) the evaluation procedures complementary to written exams, are strengthened and expanded.

### Panel judgement

<b>Principle 3: Student- centred Learning, Teaching and Assessment</b>	
Fully compliant	
Substantially compliant	<b>X</b>
Partially compliant	
Non-compliant	

### Panel Recommendations

1. The AP believes that there should be a systematic interaction between graduate and undergraduate students. For example: graduate students could be used as teaching assistants in undergraduate courses, grading homework assignments, offering recitations, or be used as tutors in a drop-in-for-help office. This is an international practice. The department is only minimally successful in this direction mainly because of legal constraints imposed by the Ministry of education. Nevertheless, the AP encourages the department to seek an arrangement with the university whereby graduate students are employed, within the legal parameters, by the University for tasks as the ones above.
2. Advanced undergraduate students should have the option to attend graduate courses and earn credits for these courses; this will allow them to develop advanced skills. Unfortunately, currently this is not legally possible due to national legal constraints imposed by the Ministry of Education. AP remarks that these regulations are contrary to international trends and put highly motivated undergraduate students in a disadvantageous position when seeking international scholarships to continue their professional development.
3. The students strongly indicated that they should have the option to take courses from other departments, which are not in the current list allowed by the mathematics department (namely the departments of Philosophy, Psychology, Physics, and Economics)- Moreover, these courses should count towards their degree requirements, replacing certain mathematics elective or other courses. Of course, the students should choose such course upon consultation with, and approval by, the department’s undergraduate advisors. In addition, the number of ECTS allowed for such substitutions should be decided by the Department. The AP agrees with the students and strongly recommends that all present official/bureaucratic obstacles be removed.

4. The AP strongly recommends that the students should have the option to do an independent study and/or an honors thesis, for which they get credit. The students strongly indicated that they want to have that option. The AP is impressed by the students they met, and felt that all the students were highly qualified to write an attractive honor thesis. Though in many departments within Greece and internationally, undergraduate thesis is mandatory, the AP recommends that the department makes the writing of an undergraduate thesis optional, and perhaps make it mandatory in the future. By an “independent study” option, we mean a study which is not associated with any particular course, but it is a study (with ECTS) between an individual student (or a small group of students) and a professor.
5. In many advanced courses instructors incorporate projects (which include a write-up and a presentation) in addition to exams. This has excellent benefits in independence, problem solving ability and presentation skills. The AP encourages this tradition and suggests that it is stream-lined in most advanced selective courses.
6. In courses involving computations it is recommended to use Python as a tool as it is free, open source and constantly improving. Our suggestion is not meant to exclude other packages (such as Matlab) which might be preferred by some students.
7. AP feels that it is very important that syllabi are explicit in all courses, as it relates to Goals and Objectives. For example, the proper way to state Goals and Objectives is: “Upon successful completion of the course, the student should be able to ...”, listing specific skills and not just a generic content-like explanation. For many courses this is currently done in fairly satisfactory way, but the AP suggest that syllabi should be very informative and explicit for all the courses.

The AP realizes that some of the above recommendations would be difficult to implement due to the small number of faculty, the large number of students and above all, the lack of funding and legal restrictions that are beyond the control of the department. However, the AP feels that despite these difficulties, a conscious effort should be made in this direction. The above principles are internationally accepted practices and have a definite positive impact in the educational process.

## Principle 4: Student Admission, Progression, Recognition and Certification

**INSTITUTIONS SHOULD DEVELOP AND APPLY PUBLISHED REGULATIONS COVERING ALL ASPECTS AND PHASES OF STUDIES (ADMISSION, PROGRESSION, RECOGNITION AND CERTIFICATION).**

*Institutions and academic units need to put in place both processes and tools to collect, manage and act on information regarding student progression.*

*Procedures concerning the award and recognition of higher education degrees, the duration of studies, rules ensuring students progression, terms and conditions for student mobility should be based on the institutional study regulations. Appropriate recognition procedures rely on institutional practice for recognition of credits among various European academic departments and Institutions, in line with the principles of the Lisbon Recognition Convention.*

*Graduation represents the culmination of the students' study period. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed (Diploma Supplement).*

### Study Programme compliance

The department has four academic advisors offering advice and support to all students. The Study Guide includes instructions on several processes and services and is made available through the department's home page. An orientation week when students arrive in the campus, would be extremely helpful; in addition a well-designed First Year Student Guide to be posted online in the university website.

Student progression is monitored through meetings with the four academic advisors. The university has installed a special mechanism to continuously remind the students which courses they may register, on the basis of their performance in the compulsory courses.

Student mobility is encouraged via the ERASMUS project as well as the concept of Practical Training. The students usually take advantage of these opportunities in the 3<sup>rd</sup> or 4<sup>th</sup> year of studies. The ERASMUS option has been under-utilized. The Practical Training has been quite popular and successful according to information provided to AP by employers participating in the training.

ECTS is applied across the curriculum. The department has made serious efforts which take into account student and faculty feedback, as well as the recommendations of the last external evaluation. The workload of the courses is adjusted to the ECTS. At present, the Diploma supplement is provided upon request.

After discussions with students and external partners, it was evident that the department produces graduates of very high standard, who are ready to join the work environment. The Practical Training programme is deemed very valuable and a preferred choice by many students. This experience is highly important for opening their horizon and future employment perspectives.

## Panel judgement

<b>Principle 4: Student Admission, Progression, Recognition and Certification</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

## Panel Recommendations

1. The AP recommends that the university creates an orientation week upon student arrival in the campus or at least a well-designed First Year Student Guide providing practical information such as familiarity with facilities, housing and transportation.
2. The AP suggests that faculty encourages the students to take advantage of the ERASMUS mobility programme despite the expenses involved.



## Principle 5: Teaching Staff

**INSTITUTIONS SHOULD ASSURE THEMSELVES OF THE QUALIFICATIONS AND COMPETENCE OF THE TEACHING STAFF. THEY SHOULD APPLY FAIR AND TRANSPARENT PROCESSES FOR THE RECRUITMENT AND DEVELOPMENT OF THE TEACHING STAFF.**

*The Institutions and their academic units have a major responsibility as to the standard of their teaching staff providing them with a supportive environment that promotes the advancement of their scientific work. In particular, the academic unit should:*

- *set up and follow clear, transparent and fair processes for the recruitment of properly qualified staff and offer them conditions of employment that recognize the importance of teaching and research;*
- *offer opportunities and promote the professional development of the teaching staff;*
- *encourage scholarly activity to strengthen the link between education and research;*
- *encourage innovation in teaching methods and the use of new technologies;*
- *promote the increase of the volume and quality of the research output within the academic unit;*
- *follow quality assurance processes for all staff members (with respect to attendance requirements, performance, self-assessment, training etc.);*
- *develop policies to attract highly qualified academic staff.*

### Study Programme compliance

The department has high quality faculty members and special teaching staff (EDIP) – committed to their duties. The department aims to attract and hire highly qualified researchers. They apply similar high standards in the promotion of the faculty. Hiring and promotion in the last few years demonstrate that the department aims at excellence. Furthermore, in addition to research, commitment to teaching weights considerably. Both hiring and promotion follow the criteria mandated by Greek law.

The AP was informed that the current annual budget of the department is 20.000 Euros and will be reduced to 16.000 within the year! Obviously, this is a very limited budget for the size of the department. Under such a limited budget the department cannot sustain its high academic standards.

The student/faculty ratio is very high. As a consequence, the teaching load of the faculty is heavy. This is also amplified by the fact that the graduate students are not allowed to tutor or assist in courses. AP was impressed that despite the heavy teaching load the faculty has high research output. This cannot be sustained without increasing of financial resources and new faculty hiring.

Linking teaching with research is an important mechanism to motivate students. Currently, the department has established some mechanisms towards that goal. For example, updating advance course material reflecting current scientific trends and achievements, bi-annual workshops for Ph.D. candidates and Post-docs. AP suggest the establishment of a weekly or bi-weekly “undergraduate seminar” where the speakers could be graduate students, undergraduate students working on some research project with a professor, or faculty members from the mathematics or other departments.

Presently the department has 4 distinct divisions representing main research areas in mathematical sciences. Since its last external review (2011), the department has done very good job in attracting strong young mathematicians/scientists, resulting in the strengthening of existing

areas as well as developing strength in new areas. A current trend in mathematics is the integration of different sub-areas. This is healthy both for research and teaching. AP observed healthy collaborative interactions among many faculty in the department. It strongly recommends that the cross-fertilization among the sub-areas be continued and strengthened, and the department formulates an overall coherent vision for the future. This approach will facilitate the participation of members of the department in funded research projects.

A minimum requirement for maintaining and strengthening the already very good quality of the department's members is that the university support the research and visibility of the young faculty. AP observed that the department, despite the small budget allocated to it by the administration, does everything it can to support young faculty for their participation in international conferences, and facilitate their domestic or international collaborations. But it is not enough. AP strongly urges the University to provide more support to the department in order to strengthen the support of its motivated faculty.

### Panel judgement

Principle 5: Teaching Staff	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

The AP recommends:

1. As we indicated above, the university should support young faculty in their research and visibility. In particular, it should support conference participation, visiting other institutions, research collaborations and preparation of research proposals.
2. The department should provide mentoring to its younger members. More precisely, the department should assign a "mentor" to each new hire (or young professor) to guide them in teaching, interactions with students, administrative issues, research possibilities with people across campus who have similar or overlapping scientific interests, and in general with the academic culture of the university. This type of mentoring is done in many institutions and it is effective. It helps integrate young faculty members into their new environment and it complements the current mentoring practices employed by the department via the chairman of department and the director of the division (τομέα).
3. The department should establish a procedure for documenting annual faculty progress in research and related activities, including research publications, teaching, distributing lecture notes/books to students in a course, departmental service, university service, professional service and conference participation. Much of this is currently documented by the department, but AP feels that it should be done in a more rigorous and systematic way. In particular, AP suggests that at the beginning of every academic year each faculty member submits an updated CV and a 2-3 pages "yearly activities" report containing the above items. This report is then discussed by the Department and the progress of the faculty member is officially recorded.

## Principle 6: Learning Resources and Student Support

**INSTITUTIONS SHOULD HAVE ADEQUATE FUNDING TO COVER TEACHING AND LEARNING NEEDS. THEY SHOULD –ON THE ONE HAND– PROVIDE SATISFACTORY INFRASTRUCTURE AND SERVICES FOR LEARNING AND STUDENT SUPPORT AND –ON THE OTHER HAND– FACILITATE DIRECT ACCESS TO THEM BY ESTABLISHING INTERNAL RULES TO THIS END (E.G. LECTURE ROOMS, LABORATORIES, LIBRARIES, NETWORKS, BOARDING, CAREER AND SOCIAL POLICY SERVICES ETC.).**

*Institutions and their academic units must have sufficient funding and means to support learning and academic activity in general, so that they can offer to students the best possible level of studies. The above means could include facilities such as libraries, study rooms, educational and scientific equipment, information and communications services, support or counselling services.*

*When allocating the available resources, the needs of all students must be taken into consideration (e.g. whether they are full-time or part-time students, employed or international students, students with disabilities) and the shift towards student-centred learning and the adoption of flexible modes of learning and teaching. Support activities and facilities may be organized in various ways, depending on the institutional context. However, the internal quality assurance ensures that all resources are appropriate, adequate, and accessible, and that students are informed about the services available to them.*

*In delivering support services the role of support and administrative staff is crucial and therefore they need to be qualified and have opportunities to develop their competences.*

### Study Programme compliance

The department is situated in its own building, containing an amphitheater (about 300 seats) for large audience courses, 6 classrooms (their capacity ranges between 80 and 120 seats), 4 seminar rooms, a conference room, a departmental library, a study room (about 40 seats), a common room for staff and offices for visitors. In order to support research and study activities of students and staff, there are 3 well-equipped laboratories (computer labs) with the necessary equipment and software for courses requiring the use of technology. The available software covers at the moment all educational needs and the department is in the process of expanding this range even further. The facilities are spacious and leave sufficient room for further development in the future. During our on-site visit, we observed that the classrooms do not have permanent projectors (DLPs) installed, but we were told that the department is planning on installing these in some classrooms shortly. Currently, portable DLPs are used.

A wide range of support services is available to students, including dormitories, counseling services, sport facilities etc. There is mechanism in place to support students with special needs. During our discussions with students, an issue was raised about the cost of public transportation. The AP was informed that recent developments include a free-of-charge bus service to the university from downtown.

During our site visit we found that the administrative support is very competent but quite small in numbers. In fact, we were told that due to the economic crisis of the last few years, the number of

administrative personnel was reduced by half. This is an area of concern for the university, as it plans to expand in the near future.

### Panel judgement

<b>Principle 6: Learning Resources and Student Support</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

1. The AP feels that the number of support staff needs to be increased.
2. The building infrastructure, even though fully functional, requires maintenance and modernization. For example, the buildings require painting. Sliding blackboards could be introduced to facilitate lecturing. In some cases, an interactive blackboard could also be of use.
3. The computing facilities are about 8 years old, adequate in number, but should be upgraded and partially expanded in the near future.
4. The department has enough space to introduce a mathematics lab where undergraduate students can obtain consultation regarding their classwork and work in groups.

## Principle 7: Information Management

**INSTITUTIONS BEAR FULL RESPONSIBILITY FOR COLLECTING, ANALYSING AND USING INFORMATION, AIMED AT THE EFFICIENT MANAGEMENT OF UNDERGRADUATE PROGRAMMES OF STUDY AND RELATED ACTIVITIES, IN AN INTEGRATED, EFFECTIVE AND EASILY ACCESSIBLE WAY.**

*Institutions are expected to establish and operate an information system for the management and monitoring of data concerning students, teaching staff, course structure and organisation, teaching and provision of services to students as well as to the academic community.*

*Reliable data is essential for accurate information and for decision making, as well as for identifying areas of smooth operation and areas for improvement. Effective procedures for collecting and analysing information on study programmes and other activities feed data into the internal system of quality assurance.*

*The information gathered depends, to some extent, on the type and mission of the Institution. The following are of interest:*

- *key performance indicators*
- *student population profile*
- *student progression, success and drop-out rates*
- *student satisfaction with their programme(s)*
- *availability of learning resources and student support*
- *career paths of graduates*

*A number of methods may be used for collecting information. It is important that students and staff are involved in providing and analysing information and planning follow-up activities.*

### Study Programme compliance

The University and the Department are in progress of expanding their current information management system. The MODIP of the University of Ioannina is responsible for overseeing the continuous improvement of its academic provision and research outputs, as well as the efficient operation of its academic services. This is done in accordance with international practices and the guidelines stipulated by ADIP.

The completion rate of student surveys, though low, is taken seriously by the department. In fact, the results already had an impact in the quality of teaching and supporting material. A summary of student evaluations of teaching is available from the department's webpage and the main conclusions are represented by readable, informative graphs.

### Panel judgement

Principle 7: Information Management	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

## **Panel Recommendations**

One way to increase student response rates for teaching evaluations is to make them mandatory as follows: the students cannot see their grades until they participate in the surveys. Participation does not mean that they are obliged to answer all questions, but rather to at least enter the process. They could have the option to leave all questions blank. Data have demonstrated that such practice increases the participation rate significantly (often from 40% to 90%).

## Principle 8: Public Information

**INSTITUTIONS SHOULD PUBLISH INFORMATION ABOUT THEIR TEACHING AND ACADEMIC ACTIVITIES WHICH IS CLEAR, ACCURATE, OBJECTIVE, UP-TO-DATE AND READILY ACCESSIBLE.**

*Information on Institution's activities is useful for prospective and current students, graduates, other stakeholders and the public.*

*Therefore, institutions and their academic units provide information about their activities, including the programmes they offer, the intended learning outcomes, the qualifications awarded, the teaching, learning and assessment procedures used, the pass rates and the learning opportunities available to their students, as well as graduate employment information.*

### Study Programme compliance

The department's website contains information about its facilities, staff, undergraduate and graduate programmes and guides, announcements, events, policy of quality assurance, and internal assessment reports. This information is provided by various links in webpages, as well as in the form of PDF documents. The website is available in Greek and English. The website is user friendly. Many instructors have course webpages that include useful information about the course.

### Panel judgement

Principle 8: Public Information	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

The department should continue to maintain a high level of information accessibility.

## Principle 9: On-going Monitoring and Periodic Internal Review of Programmes

**INSTITUTIONS SHOULD HAVE IN PLACE AN INTERNAL QUALITY ASSURANCE SYSTEM FOR THE AUDIT AND ANNUAL INTERNAL REVIEW OF THEIR PROGRAMMES, SO AS TO ACHIEVE THE OBJECTIVES SET FOR THEM, THROUGH MONITORING AND AMENDMENTS, WITH A VIEW TO CONTINUOUS IMPROVEMENT. ANY ACTIONS TAKEN IN THE ABOVE CONTEXT SHOULD BE COMMUNICATED TO ALL PARTIES CONCERNED.**

*Regular monitoring, review and revision of study programmes aim to maintain the level of educational provision and to create a supportive and effective learning environment for students.*

*The above comprise the evaluation of:*

- the content of the programme in the light of the latest research in the given discipline, thus ensuring that the programme is up to date;*
- the changing needs of society;*
- the students' workload, progression and completion;*
- the effectiveness of the procedures for the assessment of students;*
- the students' expectations, needs and satisfaction in relation to the programme;*
- the learning environment, support services and their fitness for purpose for the programme*

*Programmes are reviewed and revised regularly involving students and other stakeholders. The information collected is analysed and the program is adapted to ensure that it is up-to-date. Revised programme specifications are published.*

### Study Programme compliance

The department is monitoring its functioning on a regular basis. The undergraduate programme has been updated, in accordance to the recommendations of the external evaluation review in 2011. The revised programme is in line with internationally established norms for mathematics education. The learning resources and support services are regularly monitored. In addition, the department takes appropriate action for their improvement, whenever the need arises. The MODIP oversees the overall process.

### Panel judgement

<b>Principle 9: On-going Monitoring and Periodic Internal Review of Programmes</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

The AP urges the department to continue with these sound practices.



## Principle 10: Regular External Evaluation of Undergraduate Programmes

**PROGRAMMES SHOULD REGULARLY UNDERGO EVALUATION BY COMMITTEES OF EXTERNAL EXPERTS SET BY HQA, AIMING AT ACCREDITATION. THE TERM OF VALIDITY OF THE ACCREDITATION IS DETERMINED BY HQA.**

*HQA is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HQA grants accreditation of programmes, with a specific term of validity, following to which revision is required. The accreditation of the quality of the programmes acts as a means of verification of the compliance of the programme with the template's requirements, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees.*

*Both academic units and institutions participate in the regular external quality assurance process, while respecting the requirements of the legislative framework in which they operate.*

*The quality assurance, in this case the accreditation, is an on-going process that does not end with the external feedback, or report or its follow-up process within the Institution. Therefore, Institutions and their academic units ensure that the progress made since the last external quality assurance activity is taken into consideration when preparing for the next one.*

### Study Programme compliance

AP's assessment is that the Department of Mathematics provides high quality mathematical education to its students. It has a rigorous quality assurance policy. Both faculty and staff are committed to excellence and support the students both academically and personally. Students and recent graduates were highly excited, and strongly indicated that their mathematical studies were sound and thorough to be competitive in academia and industry.

The faculty, lab personnel and administrative staff appreciated the significance of the external review process. AP was particularly impressed that the Department's social partners (industrial partners and former students) strongly and actively participated in the external review.

### Panel judgement

Principle 10: Regular External Evaluation of Undergraduate Programmes	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

The Department has a solid monitoring mechanism. By all indications the department made good use of the last external evaluation findings (2011). The faculty unanimously expressed their

appreciation of inputs from external friends and evaluators. The AP members concur with the department's willingness to incorporate the results of the evaluation processes.

## **PART C: CONCLUSIONS**

### **I. Features of Good Practice**

The AP feels that the following points are well addressed by the department:

- Quantifying the results of student teaching evaluations
- Student feedback and comments are taken seriously into account
- The study guide is well designed, informative and useful
- Incorporating the input of the social partners in the design of their academic programme
- The curriculum is well designed in terms of compulsory and elective courses
- The assignment of four undergraduate faculty advisors
- The department's faculty is highly dedicated

### **II. Areas of Weakness**

The following points, in the view of the AP, need improvement. But, the sources for many of the shortcomings are due the lack of funding and to the rigid framework that governs Greek institutions.

- The lack of framework that would allow graduate and advanced undergraduate students to tutor lower level undergraduate students
- The lack of an option that would allow undergraduate students to attend graduate courses
- The lack of an option that would allow undergraduate students to attend courses in other departments replacing part of their mathematics courses
- The lack of an option for an undergraduate student to write an honors thesis or have an independent study
- Incorporating projects, in addition to exams, in advanced courses; projects which include a write-up and a presentation
- Uniformization of syllabi from the point of view of Goals and Objectives
- Incorporation of novel technology in teaching, in addition to traditional methods
- Faculty's teaching load is relatively high
- Limited integration between teaching and research

### **III. Recommendations for Follow-up Actions**

Our recommendations for follow-up-actions are summarized in the following suggestions:

- Establishing the option of a honors thesis
- Establishing an Alumni Society
- Incorporation of novel technology in teaching
- Initiating an orientation week and designing a short First-Year Student Guide
- Addressing the financial support and mentoring of young faculty
- Documentation of annual faculty research and related activities

- Increase the number of secretarial staff and supporting personnel
- Make teaching evaluations mandatory for students

#### **IV. Summary & Overall Assessment**

The Principles where full compliance has been achieved are: 1, 2, 4, 5, 6, 7, 8, 9, 10

The Principles where substantial compliance has been achieved are: 3

The Principles where partial compliance has been achieved are: None

The Principles where failure of compliance was identified are: None

<b>Overall Judgement</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

**The members of the Accreditation Panel for the Undergraduate Programme  
Mathematics of the University of Ioannina**

Name and Surname

Signature

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- **Prof. Basilis Gidas**, Brown University, Providence,  
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- **Dr Lucas Amiras**, University of Education Weingarten,  
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