



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
HELLENIC REPUBLIC



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Accreditation Report for the Undergraduate Study Programme of:

Physics

Institution: University of Ioannina

Date: 3 October 2020

Report of the Panel appointed by the HAHE to undertake the review of the
Undergraduate Study Programme of **Physics** 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 External Evaluation & Accreditation Panel

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme of **Physics** of the **University of Ioannina** comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

- 1. Prof. Dr. Anthimos Georgiadis (Chair)**
Leuphana University of Lüneburg, Germany
- 2. Prof. Emeritus Harry Mavromatis**
American University of Beirut, Maryland, USA
- 3. Prof. Sokrates Pantelides**
Vanderbilt University, Tennessee, USA
- 4. Prof. Emeritus Emmanuel Paschos**
Technische Universität Dortmund, Germany
- 5. Prof. Alexios Polychronakos**
The City College of New York, USA

II. Review Procedure and Documentation

The Panel received documentation from the Hellenic Authority for Higher Education (HAHE) and the Department of Physics of the University of Ioannina (UoI) in September 2020. In addition to, administrative documents from HAHE (invitations, etc.) the following materials were received in electronic form:

From HAHE: Accreditation Guide, Guidelines, Mapping Grid, Accreditation Template and Standards of Quality Assurance. Furthermore, because of COVID-19 related restrictions, instructions and links for the ZOOM platform in order to organize remote meetings.

From UoI: Accreditation Proposal, Quality Policy, Study Guide, Regulations, Courses Summaries, Targets, Student Questionnaires, University internal evaluation unit (MODIP) Minutes, Quality Data, and five further Appendices. UoI also provided a schedule with ZOOM links for the planned common meetings. The material provided was comprehensive and in accord with the standards set by HAHE. The Chair of the Panel made early contact in advance of the visit with all Panel members and distributed specific tasks in preparation for the visit. The Panel members confirmed that they were comfortable with these task allocations and happy to proceed.

The Panel met on Monday 28th September 2020 remotely for a briefing by the General Director of HAHE Dr. C. Besta. Additional issues concerning the accreditation and questions were clarified at this stage in preparation for the accreditation of the undergraduate Physics program of UoI.

Afterwards the Panel had a private meeting for preparation of next day's work.

At 15:00 Athens time the Panel met with the University Vice-Rector, president of MODIP, Prof. Stavros Nikolopoulos and the Head of the Department of Physics at UoI, Prof. Panagiotis Kokkas, in teleconference, for an introduction to the University, the Department and the undergraduate program of physics. This was followed by a meeting of the Panel with the departmental internal evaluation committee (OMEA) and MODIP to discuss the quality processes adopted by these bodies. The meeting ended at 18:00.

After a break of one hour, the Panel met in a further teleconference at 7 pm with teaching staff members (ten persons) to discuss issues related to their working experience at the University. This was followed by a tele-meeting with ten physics undergraduate students to discuss their study experiences. Afterwards, the Panel had a private meeting for debriefing that finished at 21:15.

Next day, Wednesday, 30 September 2020 at 15:00, the Panel had a teleconference meeting with teaching (six persons), technical laboratory (one person) and administrative (two persons) staff members in order to evaluate the infrastructure and experience the study environment based on an on-line tour and a video provided by the department. The meeting finished at 16:00. Afterwards, a tele-meeting was held with program graduates (ten persons) working in research-related establishments and in industry to discuss their experience with studying at UoI and their career path.

At 17:00, the Panel held a teleconference with employers and social partners (ten persons) in order to ascertain how they see the physics graduates of UoI and their relations with the Department.

After a one hour-break and a debriefing session, the Panel met at 19:30 with OMEA and MODIP representatives to ask additional questions. The Panel requested and received additional information about the Department's approach on midterm examinations, an example of examinations, an example of continuous assessment and a summary of last evaluation's results. Afterwards, at 20:00, the Panel met with the Vice-Rector, the Head of the department and MODIP and provided them preliminary feedback on key findings.

There were no significant deviations from the program supplied by the HAHE and the Department.

The Panel met on Thursday, Friday and Saturday 1-3 Oct 2020 to prepare its report, which was submitted to HAHE on Saturday 3rd Oct 2020.

Throughout the interaction of the Panel with HAHE, although all meetings are held as teleconferences because of the COVID-19 restrictions, The Panel received all necessary support and was treated with courtesy.

The Panel wishes to thank the Vice-Rector of UoI, the Head of the Department of Physics, the OMEA and MODIP teams and all staff, students and external partners of the Department who participated in the meetings for their cooperation, courtesy, openness and willingness to engage in the accreditation process and to provide the Panel with all the information and clarifications it sought.

III. Study Programme Profile

The Department of Physics was founded in 1970, concurrently with the establishment of the School of Physics-Mathematics and the commencement of the operations of the University of Ioannina as a higher education Institution. The Department is currently housed in buildings Φ2 and Φ3, located in the western side of the University campus, which is about 4 km away from downtown Ioannina.

The Department's personnel consist of 43 teaching and research faculty members, 7 laboratory teaching staff members, 6 technical staff members, and 5 administrative staff members. The Department hosts around 1700 undergraduate students, 90 graduate students and 45 PhD students.

The undergraduate Studies Programme has a duration of 4 years and leads to a Physics Diploma (Πτυχίο). The programme contains 30 core courses covering the basics of the field, as well as 60 elective courses covering a plethora of specialized topics. The Department also offers the possibility of postgraduate studies, covering a wide range of areas, by providing 5 postgraduate programmes leading to a MSc or a PhD degree.

The Department of Physics consists of four Sections:

- Section of Astro-geophysics
- Section of Theoretical Physics
- Section of Atomic, Molecular, Nuclear and High Energy Physics
- Section of Solid-State Physics and Physics of Materials and Surfaces

and eleven laboratories:

- Laboratory of Astronomy
- Laboratory of Meteorology and Climatology
- A' Laboratory of Theoretical Physics
- B' Laboratory of Theoretical Physics
- Laboratory of High Energy Physics and Applications
- Atomic and Molecular Physics Laboratory (ATOMOL)
- Nuclear Physics Laboratory
- Laboratory of Mössbauer Spectroscopy and Materials Physics
- Laboratory of Surface Physics and Solids Interfaces
- Laboratory of Electronic Telecommunications and Applications
- Laboratory of Condensed Matter Physics and Materials Sciences

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 realise 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 Department of Physics has an established quality assurance policy which is in line with the University's policy on quality and its assurance and it follows the standards of HAHE. The MODID of the University and the OMEA of the Department worked out the Department's internal quality assurance procedures. The internal quality assurance system (IQAS) of the university as whole is accredited since 2018. The quality policy statements of the Department presented in

its home page under the heading “Πολιτική Ποιότητας του Τμήματος Φυσικής” contains three topics: Πολιτική Ποιότητας (PDF), Στοχοθεσία Τμήματος (PDF), Αξιολογήσεις (only in Greek language). The Department provides in its home page an annual review and an internal audit of the quality assurance system of the undergraduate programme offered. The Department’s quality assurance policy follows the standards of the European Association for Quality Assurance in Higher Education (ENQA 2009). The monitoring of their courses is ensured through internal quality procedural steps on an annual basis.

The Department has posted its annual internal evaluation reports for the years 2015 – 2017 in its home page (Εκθέσεις) but not for the year 2018 and 2019. However, their implementation of the required modifications identified by their internal quality assurance process takes many years or it is still pending. The procedure is organized by OMEA with distributing and collecting students’ questionnaires, which are filled in electronically. In turn, this information is communicated to the Department board through the committee for the study programme and then to MODIP and the university general assembly.

The Department uses the institutional IT system available for its personnel, students and public to communicate the quality assurance policy. However, the immediate internal evaluation results are not presented in the home page and the involved students are not personally informed of the student evaluation outcomes and the results are not discussed with them.

Panel Judgement

Principle 1: Institution Policy for Quality Assurance	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Panel recommends that the Department should publish immediately the internal evaluation results for each semester and also for 2018 and 2019.
- The Panel recommends that the department should accelerate the implementation of the results from the internal evaluation.
- The Panel recommends that the Department should communicate and discuss the evaluation results with the involved staff and students.
- The Panel recommends that the Department should publish all quality assurance information also in the English part of the home page.

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 study program of Department of Physics of UoI is mainly research-oriented and aims to provide high-quality education. The Department also caters to a large fraction of students interested in teacher training and teacher career.

The Department of Physics offers an undergraduate degree in Physics, which requires 240 European Credit Transfer and Accumulation System (ECTS) credits. The Physics Diploma (Πτυχίο) is expected to be obtained in 8 semesters (4 years) and complies with Greek and EU standards. This degree requires a minimum of 40 lecture courses, 28 of them mandatory. The Department offered 90 courses according to the data for 2018 (OPESP). The department reported a reduction of 90 down to 60 during the accreditation procedure. A final undergraduate thesis (Πτυχιακή) is not mandatory. The degree curriculum is well described in the program of study.

The Panel found that the undergraduate curriculum is excessively extensive. In the year 2018 only 4 persons graduated in N-years ($N = 4$), which is considered by the Panel extremely low. The majority of students graduates after $N+2$ years. Furthermore, the average final grade of the students is 6,3 and nobody reached "excellent 9 or 10". In addition, offering 32 optional courses from which students select 12 is excessive.

Physics students have the option of participating in curriculum revisions via their representatives in the departmental and University committees. However, students, graduates, and other stakeholders' participation in curriculum development is not established.

The Department of Physics has dedicated faculty advisors that provide student support. Entering students are informed about their advisor during an orientation meeting and via email.

Students participate in the Erasmus program. The degree curriculum offers experiential learning activities only via the curriculum laboratory courses. Although some undergraduate students are coauthors in scientific publications, undergraduate research is limited, and the Department did not demonstrate that it promotes this effort.

Panel Judgement

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

Panel Recommendations

- The Panel recommends that the Department should substantially reduce the existing course load and restructure accordingly the current curriculum.
- The Panel recommends that the Department should redesign the program in order to enhance on time graduation.
- The Panel recommends that the Department should take into account the difference of study paths among teacher, research, and industry-oriented students in redesigning the program.
- The Panel recommends that the Department should conduct regular meetings with student representatives, graduates and other stakeholders to discuss curriculum changes and improvements.

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 offers a substantial set of core courses during the first two years of study, which are then complemented by an extensive selection of optional courses that students can take during the remaining two years, including the option of a diploma thesis. The descriptions of the learning objectives of courses are very extensive and clear. Thus, the students have great flexibility in constructing a personalized study program that reflects their interests, their abilities, and orientation during employment. One of the options is specialization in the teaching of physics at secondary schools. First-year students are given a substantial orientation to facilitate their transition to a university-level experience and to explain the student-centered

teaching and learning procedures. Academic advisors are provided for individual consultation throughout the course of study. Large classes for the courses have been split to enable better teacher-student interactions. The Department offers an exemplary number of laboratory courses, including on modern physics. The availability of modern information technology is highly satisfactory. Engagement of upper-class students in research projects that include publications in refereed journals is promoted. Similarly, an effort is made to enable students to participate in “placements” (internships) with companies or foreign universities for enrichment and preparation for the job market.

The teaching personnel provided strong indications to the committee that they explore a variety of teaching methodologies to engage the students in the learning process. Student surveys are done to assess the effectiveness of the methodologies. Some progress has been made in assigning homework and various other activities that students can engage in during the course of each semester, making it possible to provide continuous evaluation and guidance to individual students. The department, following a strong recommendation by the 2010 evaluation committee, formally instituted mid-term exams, which are mandatory for first-year students, but optional for upper-class students, but the committee was not presented with a progress report on that effort and to what extent mid-term grading or homework grading is included in the final grade for the course. The majority of course descriptions that were given still list the final exams as the sole criterion of passing or failing the course, which works against the objective of providing sufficient motivation to all students to attend class regularly and deliver on mid-terms, homework, and other in-class activities, which should be the key component of the learning process.

Though the teaching personnel takes seriously the assessment of their efforts to promote learning and student participation in the learning process, the ultimate criterion of success is the percent of students that get a passing grade in each course at the end of the semester that the course is taught. The Panel notes that the typical rate is significantly smaller than 50%. The percentage of registered students who receive a passing grade in the course at the end of the semester is even smaller. These numbers are unacceptably low. It is abundantly evident that the root cause of the problem is the fact that the vast majority of registered students lack sufficient incentive to engage in the educational process, driven solely by a passing grade at the final exam.

Panel Judgement

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

Panel Recommendations

- The Panel recommends that the Department develop a strategy and a plan to incentivize students to participate in classroom activities continuously and to evaluate ongoing performance in a way that leads to an accumulated final grade for the course. Remedial procedures for failing students should be designed and implemented.
- The Panel recommends that the Department should develop a metric for a progress assessment each semester.
- The Panel recommends that the Department establish a systematic and regular progress assessment of its students
- The Panel recommends that the Department perform regularly an analysis of the causes for the low course attendance and graduation rate.

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 a one-day orientation event for the incoming students. The Department has a program in place to collect information on the overall progress of the students during the semester and the four-year cycle. A special department committee, comprising the teachers of first-year courses and plus the administrative council monitors progress of first-year students and takes measures to rectify problems that arise. Three to four first year students are assigned to one professor who acts as their advisor.

The department pays attention to the mobility of students. Upperclassmen are eligible for an Erasmus+ scholarship to spend a semester at a university of another European country with full credit towards graduation or internships at other institutions and industry. The department manages a process for the application, selections, and arrangements for these programs. In addition, the department runs a program to facilitate upper-class undergraduates to do an internship in Greek industrial companies that relate to physics. The Panel assesses that these programs are run successfully but with a low number of participating students. Upperclassmen can also engage in research, which can lead to a diploma thesis and/or publications in refereed journals.

Panel Judgement

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

Panel Recommendations

- Expansion of the first-year orientation into a continuous process of promoting a community culture of the educational process as an ongoing partnership between teacher and students and integration of the students into university community.
- Supplement certification should be automatic, not by application.
- Development of a recognition protocol that rewards sustained progress, as measured by the accumulated final grade for all courses taken each semester and a “laude” system for graduation to incentivize students to aim higher than merely a passing grade.
- The Department should consider adopting a mandatory thesis with a research component.

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's teaching staff consists of their faculty, who are all actively engaged in teaching, and occasionally of graduate students who assist in laboratory courses. A faculty member is present at all times even if a graduate student is involved and bears the instructional responsibility.

The recruitment and appointment of teaching staff (faculty) happens according to, and in full compliance with, the relevant laws and regulations. Available positions are advertised in the official online platform ΑΠΕΛΛΑ. Proper weight is given to both the teaching needs and the research aspirations of the Department, and relevant discussion during the General Assembly of the Department decides on the research focus of the position. The longer-term, strategic plan for the cognitive and research topics of expansion of the Department, however, is a bit vague, consisting mainly of a list prioritizing the areas that need new faculty.

The professional development (promotion and tenure) of teaching staff adheres to similarly rigid procedural guidelines. The Department is handling the process and its necessary strains and stresses well, and its faculty appears to be cohesive and collegiate. Teaching staff expressed satisfaction with the timely, fair and transparent handling of their professional development steps.

Appropriate mobility and opportunities for professional development of the teaching staff are available through grants for research and teaching development, as well as through special programs like Erasmus+. According to the Department's report, all faculty participated in some relevant development activity during the last 5 years, with 9 members making longer-term visits

to other institutions. External faculty also visit the Department to deliver seminars or for short-term visits.

The Department's average teaching load of 8 contact hours per week, plus some 12 additional hours for supervision and preparation, is on the high side but is mandated by workload regulations. There were no complaints on this issue from the staff, who claim to be coping well with their teaching tasks.

The Department has established links between undergraduate teaching and research, according to the faculty's own report and reports from the alumni. This is formalized by the possibility for the students to complete a Senior Thesis (Πτυχιακή) that involves research work supervised by a faculty member.

The technological resources available to teaching faculty and students are adequate and of high quality. The Panel did not become aware of any innovations in teaching methods, which seem to largely follow the traditional approach of lectures and/or laboratory work with occasional homework assignments.

A number of the teaching staff is involved in research, including international collaborations, and there is a healthy output of research work in the form of peer-reviewed papers in internationally recognized journals and presentations in conferences and workshops. Most major journals are represented in the list of publications presented by the Department.

There is a consistent and rigorous process of assessment of the teaching performance of the staff in the form of teaching evaluations submitted anonymously by the students. A large fraction of the students who attend lectures submit these evaluations, but the relatively large number of students who stop attending lectures is completely missed. The Department takes the results of these evaluations seriously and, on occasion, appropriate action is taken to remedy egregiously inadequate performance. However, the Department did not present any awards or prizes for excellence in teaching or research.

Gender balance among faculty in the Department is a serious issue. According to the Department's website, the present faculty includes one female member in a faculty of 43. This is a pitiful percentage by any standards.

Panel Judgement

Principle 5: Teaching Staff	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Panel recommends that a Strategic Plan of Expansion concerning recruitment and development of staff (occasionally called the Five-Year Plan) be instituted as a regular task of the Department.
- The Panel recommends that the Department put in place a consistent and objective documentation of the teaching staff's actual teaching load, verifying that such load remain within appropriate limits and that no long-term imbalances among teaching staff develop.
- The Panel recommends that appropriate mechanisms for systematically addressing persistent inadequate teaching performance be put into place. Correspondingly, the Panel recommends that awards for Teaching Excellence and for Student Service be instituted and awarded to faculty with exceptional performance.
- Finally, the Panel stresses that equitable representation of genders within the Department should be given active consideration. The Panel recommends the creation and advertisement of positions specifically targeted to women candidates. In addition, the Department should make an effort to attract qualified female candidates by ensuring working conditions, and a general environment, that is welcoming and accommodating to gender diversity.

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 organised 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 material resources available to support students and their education are adequate. Fixed educational resources, in particular, such as classrooms and desks, teaching laboratories, libraries, study rooms and IT equipment, range from very good to exceptional. Student facilities (dormitories and student restaurant) also appear to be of very high quality. The student body is rather homogeneous and does not include part-time students, working students and international students that would require special resources, but specific means and accommodations are available for students with disabilities.

Financial resources devoted to student services are adequate and equitably distributed and used. Students in the Department enjoy the standard benefits of public higher education in Greece, namely completely free tuition, free board and free or low-cost room. Small sums are also available for students who assist in the educational process.

An academic mentor is assigned to all students upon their entry in the Department, but students seem to maintain limited contact and interaction with their mentor. The Department has available Mental and Psychological Counseling services and Professional Orientation services, offered by the University, but it did not become clear what fraction of students make use of these resources.

Resources allocated to enabling student-centered learning and flexible modes of teaching are available, but the discussion during the Panel's visit made it clear that utilization of such

resources is more of an aspiration than an actively implemented and developed plan. No graders are assigned to large courses and relatively few recitation sections (φροντιστήρια) are offered, both of which would help keep students continuously engaged. The structure of teaching and student evaluation prevalent in the Department is restricted, and essentially dictated, by the need to accommodate the large number of students who fail to pass the course during their regular enrollment and rely on repeatedly taking the final exam until they obtain a “passing” grade. The Panel feels that the Department’s faculty has the means and capacity to improve this entrenched practice and achieve the required changes.

Trained technicians, assisting teaching labs, are in short supply. This shortage is currently mitigated by employing about 15 graduate students per semester to help with the labs, and the Department considers this to be a satisfactory method of, at least temporarily, coping with the situation.

The support and administrative staff are adequate in number and abilities and they appear to be genuinely concerned with the students’ welfare, sympathetic to students’ needs, and offering compassionate and efficient help.

Panel Judgement

Principle 6: Learning Resources and Student Support	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Panel recommends that the role of the academic mentor be strengthened making meetings between students and mentor mandatory and regular.
- The Panel recommends that adequate numbers of graders and other teaching assistants, themselves graduate students, be used in courses.
- The Panel urges the Department to allocate financial and human resources in establishing and promoting student-centered teaching methods and flexible models of learning.

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 has in place a specific infrastructure for collecting and managing data. It is based on an up-to-date set of information systems where the methodologies of data collection as well as periodic surveys are clearly reported in the documentation provided. The system takes into account the requirements of the MODIP and allows to depict the department's frame of performances and specific outcomes to be utilized for the internal quality assurance processes.

Data collection is efficient and comprehensive, surveying numbers and status of students at their different levels (undergraduates, graduates, postgraduates), activities and numbers of faculty members and administrative staff, teaching and learning activities, research and innovation (including publications), infrastructures, and funding. Unfortunately, the surveys for the years 2018 and 2019 appear incomplete. In addition, the department web sites does not provide information for placements and career opportunities.

The collection of data from the students were previously done with paper questionnaires in classrooms, with a higher student participation. Recently, the Information System collected data electronically. The electronic formats of questionnaires (especially regarding teaching evaluations by students) have been gathering acceptance.

In addition to MODIP's own system, there is electronic system of the department, and the system of the Financial Services, among others. The data gathered allow to establish quantitative indicators to be managed by the Quality Assurance Unit (MODIP). These data are potentially very useful as they provide the basis for policy decisions in curriculum and other improvements.

Panel Judgement

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

Panel Recommendations

- The Panel recommends that the Department make available the surveys for the years 2018 and 2019.
- The Panel recommends that the Department should include in its online resources information on senior thesis topics, promoting internships and career opportunities.

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 and MODIP are using the web in order to disseminate the available information to the faculties, department, students, administrative services and to the public when appropriate. The web-side of the department, is updated and enriched on a daily basis in order to supply the full information about the department's activities and invites comments from inside and outside the University.

Faculty members maintain, on an individual basis, contacts with a number of graduates and with the community (e.g., Αρσάκεια, Atomic Energy Commission and private companies). However, a closer monitoring of alumni's career path and their transition into the working force is lacking.

Special efforts are also taken for popularizing physics concepts and results to the general public. To this end, the department organizes open seminars, training programs for secondary education teachers, and has also created a Demonstration Lab with physics experiments for visits by students from local schools.

Panel Judgement

Principle 8: Public Information	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The Panel recommends that the Department maintain closer communication with graduates/alumni and establish an "Alumni Association".
- The Panel recommends that the Demonstration Lab should continue to be supported and visits from general public be encouraged.

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 programme is adapted to ensure that it is up-to-date. Revised programme specifications are published.

Study Programme Compliance

The Institution's internal university wide, seven-member monitoring committee MODIP (ΜΟΔΙΠ), is chaired by the Vice Rector and has a four-year tenure. This committee is actively monitoring the evaluation processes of the undergraduate program of the Physics Department and is concerned with upgrading the quality of all aspects of its program.

The Department foresightedly introduced student evaluations 17 years ago, before this became standard practice. MODIP is functioning properly. The Department uses their comments in order to fathom how the effectiveness and attractiveness of its course offerings can be enhanced.

Department reports, as they appear in the department's web site, are incomplete. They concentrate on traditional academic concerns. However, they do not appear to also intensively focus on whether the Department's program is evolving, in order to additionally take into account society's changing needs.

Panel Judgement

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

Panel Recommendations

- The Panel recommends that the Department update its reports and issue them at least on an annual basis
- The Panel recommends that the Department further expand the area of investigation and evaluation to innovative ways in which it can additionally serve the changing needs of the society around it

Principle 10: Regular External Evaluation of Undergraduate Programmes

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

HAHE is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HAHE 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

The previous external evaluation of the Department's program occurred in 2010. The Panel feels that ten years between evaluations is a long interval in academia during the rapidly changing times we are living in. At the end of its report, the 2010 four-member Panel arrived at four main conclusions and five final recommendations. Additionally, many other recommendations are interspersed throughout this report. The Department has attempted to address many of that Panel's concerns. In its February 2020 "ΠΡΟΤΑΣΗ ΑΚΑΔΗΜΑΪΚΗΣ ΠΙΣΤΟΠΟΙΗΣΗΣ ΠΡΟΓΡΑΜΜΑΤΟΣ ΠΡΟΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ" (only in Greek), the Department explains how it has responded to many of these recommendations. Some have been implemented. For others temporary solutions have been adopted, while others have not been satisfactorily addressed, e.g. significant reduction of courses and continuous assessment of student progress.

Panel Judgement

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

Panel Recommendations

- The Panel recommends that the Department initiate reviews of departmental accreditations at least every four years.
- The Panel recommends that the Department attend to the 2010 Panel's recommendations that it has not satisfactorily addressed to date.

PART C: CONCLUSIONS

I. Features of Good Practice

- The Department of Physics has an established quality assurance policy which is in line with the University's policy on quality and its assurance and it follows the standards of HAHE, accredited since 2018.
- The information system of the internal evaluation procedures (MODIP and OMEA) functions appropriately.
- The department focuses on high level research and is internationally visible.
- The department has adequate infrastructure and resources that have helped to create a constructive learning and research atmosphere.
- The Department's faculty appears to be cohesive and collegial.

II. Areas of Weakness

- The curriculum is too extensive covering a plethora of specialized topics.
- The fraction of students who get a passing grade at the end of each semester is too small and students take much longer than 4 years to complete their studies.
- The department only had one external evaluation carried out in 2010.
- External stakeholders, students and graduates are not systematically included in the continuous improvement of the study program.
- The department or the university does not have an alumni system.
- The Department does not have systematic recognition and awards for excellent student performance and for excellence in teaching.

III. Recommendations for Follow-up Actions

- The Panel recommends that the Department should substantially reduce the existing course load and accordingly restructure the current curriculum in order to enhance on-time graduation, enable smoother progress of studies, and take into account the difference of study paths among teacher, research, and industry oriented students.
- The Panel recommends that the Department should continue the internal and external quality assurance in an appropriate level at shorter intervals.
- The Panel recommends that the Department should recognize and award excellent achievements of students, teachers and other employees.
- The Panel recommends that the Department should establish an Alumni system and a dedicated communication platform with external stakeholders.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **7, 8**

The Principles where substantial compliance has been achieved are: **1, 2, 3, 4, 5, 6, 9, 10**

The Principles where partial compliance has been achieved are: **None**

The Principles where failure of compliance was identified are: **None**

Overall Judgement	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

The members of the External Evaluation & Accreditation Panel

Name and Surname

Signature

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7. Prof. Emeritus Harry Mavromatis

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