

DEPARTMENT OF INDUSTRIAL MANAGEMENT AND TECHNOLOGY
SCHOOL OF MARITIME AND INDUSTRY
UNIVERSITY OF PIRAEUS

**EVALUATION OF UNDERGRADUATE STUDY
PROGRAM AND STUDIES**

EXECUTIVE SUMMARY
2015-2017

REPORT BY THE INTERNAL ASSESSMENT TEAM
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Introduction

The Department of Industrial Management and Technology, as an academic unit, is designing the undergraduate study program based on a process involving the Curriculum Committee, the Assembly of the Department and the student representatives. The program also takes into account similar programs of Universities abroad, as well as the views and suggestions of scientific and professional bodies (including graduates) with which the Department is in constant *ad hoc* communication. The last curriculum reform was in 2015 (Senate decision 27/7/2015).

The Department of Industrial Management and Technology participates in periodic external quality assurance, taking into account the requirements of the legislative framework under which they operate.

The Department of Industrial Management and Technology was evaluated in June 2012 by a four-member Committee of Experts, established in accordance with Law 3374/2005. Thereafter, the Department evaluates the performance of its undergraduate study program annually.

This report presents the results of an extensive and in-depth analysis of the study program and studies for the period 2015-2017, based on questionnaires referring to the evaluation of the program from the students and data on students' progress and performance.

Students' evaluation of the undergraduate study program

The evaluation of the academic year 2015-16 was conducted by the Secretariat of the Department with printed questionnaires in the December-January period for the winter semester and the May-June period for the spring semester. A total of 704 questionnaires were collected for the winter semester and 701 questionnaires for the spring semester.

The evaluation of the academic year 2016-17 was carried out by the Department Secretariat with printed questionnaires in the December-January period for the winter semester and the May-June period for the spring semester. A total of 763 questionnaires for the winter semester and 672 questionnaires for the spring semester were collected.

The preliminary processing of the questionnaires (scanning the questionnaires to an optical reader and tabulating the answers in excel) was carried out at the Information Technology Department of the University of Piraeus. In accordance with the policy of the University, the Information technology Department compiles a report that is sent to the Chair of each Department and includes the average value of the individual questionnaire classes and the overall grade of each course, the average value of the individual categories and the overall grade of each teacher, as well as the aggregate average of the individual categories and the overall rating of the Department. This data treatment method was not considered appropriate by the Department's Internal Assessment Team as it does not provide sufficient information on the quality indicators and cannot be used to monitor the quality indicators.

In view of the above, the raw data has been processed by the Department's Internal Assessment Team. Attendance data from the Secretariat of the Department were also used to interpret the results of the evaluation.

For the academic year 2015-16, 83.67% of courses was assessed while the following year the courses evaluated by the students reached 93.88%. The total student participation rate in the 2015-16 process increased by 5.66% as compared to the participation recorded for the 2014-15 process. Participation in the evaluation process during the 2016-17 increased by 8.38% in the winter semester and decreased by 4.1% in the spring semester, compared to the previous academic year.

According to the Secretariat of the Department, the evaluation process was satisfactory in both periods. In general, most of the difficulties in conducting the process (e.g., queries received from students about the meaning of the questions or the use of the numerical scale) only appear during the 1st year students as new entrants are not familiar with the process. In addition, the distribution and collection of printed questionnaires significantly affects the workload of the Secretariat of the Department during the evaluation periods.

In 85.1% of the courses in the 2015-16 period > 10% of enrolled students participated in the process. In cases where student participation was <10% of enrolled students (12.2% of courses), the data were excluded from the analysis. Conclusions on the individual participation rates cannot be derived as voluntary class attendance cannot establish a reliable ratio. The official data available at the Secretariat of the Department relate to three categories: the number of students enrolled in the course, the number of students taking the exams and the number of participants in the student assessment.

As shown by the percentages of students who took the exams, the category of enrolled students also includes students who were not active during the year, while the second category includes those who failed the previous academic year (who are likely to attend lectures) as well as students who, due to other obligations (work, internships, Erasmus students, etc.), passed the exams without having systematically attended the lectures. It seems that, on qualitative terms, participation in the evaluation process is related to the systematic attendance and the degree of engagement of the students to their studies.

However, the elective courses and laboratory courses, which maintain a logbook and record the number of students attending lectures and/or laboratories, show that for 92.3% of courses/laboratories the participation rate is > 70% of students that attend courses systematically.

In 95% of the courses in the 2016-17 period > 10% of enrolled students participated in the process. In cases where student participation was <10% of enrolled students (6.38% of courses), the data were excluded from the analysis. Data from the elective and laboratory courses indicates that for 86.66% of courses/laboratories the participation rate is > 70% of students that attend courses systematically.

It is noted that Project I (7th Semester) and II (8th Semester) and Industrial Training I (7th Semester) and II (8th Semester) were not included in the present analysis. A separate study was prepared for the Industrial Training program. Also, in cases where students evaluated laboratories, auxiliary staff, tutorials or extracurricular tasks (i.e., in courses where these activities were not applicable), the data were excluded from the analysis.

According to the results of the evaluation process that took place for the years 2015-16 and 2016-17, the following conclusions can be drawn.

Evaluation process: The evaluation process is considered satisfactory. It is noted that the use of printed questionnaires significantly affects the workload of the Secretariat of the Department during the evaluation periods, while significantly increasing the time of data processing. Electronic evaluation is expected to significantly improve data collection.

Statistical processing of the results is time-consuming and it is suggested that it is carried out by specialized administrative staff of the Department or the University. The undertaking of this work by the Quality Assurance Unit of the University is expected to significantly improve the University's ability to monitor the relevant quality indicators. In any case, the Department considers the process of evaluating the study program by the students to be very critical in monitoring all the activities of the Department, in deciding on modifications, in improving or modifying the curriculum, as well as in the strategic planning of the short/medium/long-term development of the Department.

Student participation in the evaluation process is considered satisfactory. The Department has effectively communicated to all its members the degree of importance it attaches to the process and the utilization of results in monitoring quality indicators and improving its functions and operations.

Teaching staff: The Department has fully reformed its undergraduate curriculum. In this context, the teaching methods were also modified in order to improve the educational process, to support students in their studies and to provide them with incentives to attend courses and engage in study. Encouraging students to participate actively and systematically in educational activities is part of the Department's culture.

This effort is also reflected in the results of the evaluation, where the organization of the teaching material, the stimulation of interest and the encouragement of students to participate in the educational process are considered very satisfactory. The high degree of students' accessibility to the teaching staff are also part of the Department's culture, where the "open door" policy for students is traditionally applied.

The issues that have arisen mainly concern the analysis of concepts during the lectures and the exploitation of eclass. In general, the teaching staff tries to incorporate multiple teaching methods (using examples, discussions, multimedia, etc.) and assessment methods (assignments, progress, presentations, exercises, etc.) into their lectures to facilitate learning process of students, especially in their first two years of study. Also, > 70% of the teaching staff makes extensive use of eclass tools to support students who do not regularly attend lectures. In any case, the results from the 2018-19 evaluation period are expected in order to draw more reliable conclusions.

Supporting staff: The results of the evaluation indicate the outstanding contribution of the Department's supporting staff to the educational process. Technical staff members have been working with the Department for many years and are very familiar with the functions of the Department. Candidate PhDs receive good guidance from the supervisory faculty members on the principles of teaching and communication with students. It is noted that their participation in the educational activities of the Department is a critical part of their duties.

Courses: The new undergraduate program of the Department receives a very positive response from the students, as evident from the results of the relevant questionnaire section. The clarity of the objectives of each course and its relevance to the course material is considered very satisfactory. Lecture notes are distributed to students in a timely manner, the

modular architecture of the program is acceptable, as well as the level of difficulty of the courses in relation to the year in which they are taught. In addition, as is apparent from students' answers, there is a high acceptance to integrating assignments into the courses and many course instructors, despite the significant increase in workload required to guide and correct essays, use the assignments to enhance student participation and improve the learning process.

The issues that have arisen are mainly related to (a) enhancing the support of first-year students in adapting to the higher education environment (more detailed lecture notes, better communication, use of multiple teaching methods) and (b) improving the library skills of the students. Difficulties that third year students may face will be re-evaluated after incorporating the results of the evaluation process for the 2018-19 period.

Laboratory: The results from the evaluation of the laboratory training are rendered as satisfactory. The Department's laboratories have updated their equipment to train students using present-day technology. The capacity of the laboratories is marginally adequate, forcing the development of rotational training programs. This practice does not critically affect undergraduate students who regularly attend courses, but does affect graduate students and doctoral candidates in labs. However, it is important to improve the training process and in-lab lecturing. These results should be re-evaluated after incorporating the results of the evaluation process for the 2018-19 period, while 1st-year students should be better supported in laboratory education as they have very little or no experience in the laboratory environment.

Studying: The results of the evaluation show that the percentages of students attending courses and studying systematically are marginally satisfactory. Weekly study hours are, at large, similar to the indicative self-study load from the course syllabi and are fully aligned with the assigned credits per course. In addition, lecturers should encourage students to study systematically, with better guidance on improving their students' skills by integrating multiple teaching methods and by enhancing their interest in different disciplines. In any case, these results will be re-evaluated after incorporating the results of the evaluation process for the 2018-19 period.

Evaluation of students' performance

According to students' data, the total number of students enrolled in the Department in the 2015-16 period was 1105, 65.6% of which were male and 34.4% female. 50.23% of the enrolled students were within a regular study duration, 6.7% in their 5th year of studies, 3.6% in their 6th year of studies and 39.45% were studying for > 6 years. Therefore, active students, defined as students not exceeding the 6th year of study ($n+2$), are 668 and constitute the 60.53% of the enrolled students. The percentage of foreign students was 4.6%, while the percentage of students who were not enrolled at all was very small (1.5%).

The total number of students enrolled in the Department in the 2016-17 period was 1124, keeping the male:female ratio constant. 49.73% of the enrolled students were within a regular study duration, 7.65% in their 5th year of studies, 3.56% in their 6th year of studies and 39.05% were studying for > 6 years. Therefore, active students, defined as students not exceeding the 6th year of study ($n+2$), are 685 and constitute the 60.94% of the enrolled students. The

percentage of foreign students was 4.3%, while the percentage of students who were not enrolled at all was very small (2%).

The number of new students admitted in the Department in both periods were 135. It is noted that the capacity in the Department was for 80 students annually. In addition to successful candidates, students are enrolled in the undergraduate course of the Department through admission tests, at a rate that is for both periods, does not exceed 3.5% of new entrants.

The candidates' preference of the Department's undergraduate curriculum presents high frequency in two values for both periods. At the 2015-16 period, 25.38% of the candidates declared the Department's undergraduate program in the 4th place of their preference list and 20.61% in the 8th place of the list. Overall, 81.5% of the candidates included the Department in the top 10 preference places. At the 2016-17 period, 23.42% of candidates declared the Department's undergraduate degree program in the 4th place of the preference list and 19.61% in the 7th place of the list. Overall, 88.5% of the candidates included the Department in the top 10 preference places. The average admission score in the Department is 14.2 and ranges from 13-15.

Results: In general, the last few years have seen the formation of a student body that has been attending classes very systematically. These data are also in line with the results of the students' evaluation with > 70% of respondents stating that they regularly attend lectures and education activities throughout their years of study.

High percentages of enrolled students that exceed the regular duration of studies are mainly those who are not committed to their studies, 55% due to occupational obligations, 15% due to financial difficulties and 5% due to different career orientation. The main reasons for extending study time by 1 or 2 years are improving grades (about 35%) and parallel work (about 40%).

About the performance of students in the courses attended for both evaluation periods, the year of study is an important factor. Taking into account the number of students in regular attendance, in the 1st year of study, 30% -40% of exam participants pass the exam (either on regular or the September exam period), with the smallest percentages occurring in the 1st semester courses. In the 2nd and 3rd years of studies, about 40% -50% of the students pass the exams, while in the 4th year about 50% -75% of the students pass the exams; the largest percentages are seen on elective courses.

In order to evaluate these data, the parameter of the student self-study, taken from the students' evaluation questionnaires, must also be taken into account. According to the evaluation data for both periods, only 34%-44% of 1st year students who participated in the evaluation process study systematically, while 19% -20% do not study at all or study a little. In the second year of study, the percentage of students studying systematically decreases by 6%, while the percentage of students studying at least slightly or not increases by 10%. In the 3rd year of study, 25% -40% of students study systematically, while about 25% of students admit that they study little to not at all. In the 4th year of study, 65% -75% of students study systematically, 50% of them very systematically, while 26% of students study little or not at all. These data are consistent with the performance of the students in the exams.

In addition, comparing the data provided by the respondents in the two evaluation periods for study hours with the expected self-study load, as defined in the course syllabi, the following results were obtained:

- In fourteen (14) courses of the curriculum, > 70% of students study according to the indicative time. These courses include 4th year courses as well as 1st and 2nd year courses.
- In six (6) courses of the third year of study, approximately 40% of students study 20% -26% more than the indicative time.
- In twenty (20) courses of the curriculum, approximately 37% of students study at 19% -41% less than the indicative time.

These data need to be re-examined by incorporating the data for the following academic years in order to draw credible conclusions.

Graduates and performance: The total number of graduates in 2015-16 was 74, 10.8% of which graduated within the regular time of study, 44.6% in 5 years of study, 12.16% in 6 years of study and 32, 43% in > 6 years of study. At the following academic year, the percentage of graduates increased by 17.56% (87 graduates); 17.24% graduated within the regular time of study, 49.4% in 5 years of study, 16.06% in 6 years of study and 17.24% in > 6 years of study. These figures have been improved compared to previous years, where the Department's reports for the period 2010-2015 show that approximately 5.7% graduated within the regular time of study, 25.8% in 5 years, 15.4% in 6 years, 7.6% at 7 years and 3.7% at 8 years, while 22.8% have not yet graduated. Generally, the average time of study at the Department is 4.5 years (cumulative data from 2005); 28-31% of graduates have a grade of > 7, while the average grade is 6.7.

Comparing these data with the reports of the Department for the period 2010-2015 shows that the percentage of students with a grade of 6-6.5 remains constant, while the percentage of students with a grade of 6.5-7.5 showed an increase (about 19%). The percentage of graduates with a grade of > 8.5 remains significantly low, mainly due to the efforts of active students to complete their undergraduate studies in a reasonable time and the effort of non-active students to complete their studies.

Comparing the performance of men and women students, no reliable conclusions can be reached. However, there is a clear tendency for female students to be more committed to their studies and to complete within a reasonable time and for male students to achieve higher performance.

These data need to be re-examined by incorporating the data for the following academic years in order to draw credible conclusions.

Suggestions: The Department's strategic goal is to support attendance and to provide incentives to increase student participation in the educational process. In this context, the Department aims at:

- Enhancing the anthropocentric approach to all academic functions.
- Expanding the responsibilities and activities of the Academic Advisor
- Incorporating multiple teaching and assessment methods in all courses to support the learning process of all students.
- Promoting the analytical, critical and creative thinking of students in all disciplines.
- Enhancing the active participation of students in the educational process.
- Employing modern methods, techniques and tools, with emphasis on open educational resources, to enhance teaching and facilitate access to knowledge.

- Enhancing the participation of undergraduate students in the research activities of the Department.
- Enhancing the recruitment of high potential students.
- Strengthening the communication policy of the Department in order to inform the candidates in a timely and sufficient manner about the prospects and opportunities offered by the curriculum.

Evaluation of students' mobility

During the 2015-16 academic year, eight (8) students from the Department participated in the ERASMUS program. These students were successfully tested in thirty-nine (39) courses of the Host Institutes, fifteen (15) of which were corresponding to the courses of the curriculum. During this period the Department welcomed four (4) students who were successfully tested in twenty-four (24) courses.

During the 2016-17 academic year, three (3) students from the Department participated in the ERASMUS program. These students were successfully tested in fifteen (15) courses of the Host Institutes, nine (9) of which were corresponding to the courses of the curriculum. During this period the Department welcomed six (6) students who were successfully tested in thirty-six (36) courses.

During the 2017-18 academic year, fourteen (14) students from the Department participated in the ERASMUS program. These students were successfully tested in sixty-one (61) courses of the Host Institutes, forty-eight (48) of which were corresponding to the courses of the curriculum. During this period the Department welcomed eight (8) students who were successfully tested in forty-seven (47) courses.

The Department wishes to expand its partnerships with other Universities under the ERASMUS Program. The limited number of courses offered in English is the major deterrent to this endeavor.

Actions planned for the enhancing students' mobility include updating the relevant webpage with a detailed description of the courses and providing selected courses and semesters in English. It will also, in cooperation with the University, design and implement annual evaluation procedures for the ERASMUS program.

Evaluation of Industrial Training

The program is addressed to the students of the 7th and 8th semesters of the Department but also to those students who have a pending course in the 7th or 8th semester. It is included in the elective courses as "Industrial Training I" (7th semester) and "Industrial Training II" (8th semester).

The maximum number of trainees is determined in accordance with the approved funds of the Program "Human Resource Development, Education and Lifelong Learning 2014-2020" co-financed by the European Union (European Social Fund - ESF) and national resources. Generally, if the maximum number of trainees is not completed in the 7th semester, then the excess number of trainees may be transferred to the 8th semester.

The program operates according to the "Rules of Industrial Training" of the Department. The program lasts two (2) months full time per trainee. The beginning of training can be any business day of the year provided that the following are preceded:

- A. Finalize the registration of the trainee's selection by the Secretariat of the Department by indicating his/her details (surname, name, registration number) in the list of final student selection results.
- B. Approval by the Research Center of the University of Piraeus.

The program contributes to the professional development and the acquisition of practical experience and skills by students, to the easier and more effective integration of the graduates of the Department into the country's productive system, as well as the creation of a two-way communication and information channel between the Department and the professional bodies. Acquiring such experience can help student pursue a fitting career. Finally, it helps integrate the new trends and needs of the labor market and the demand for specific graduates' specialties and skills in the curriculum offered by the Department.

During the academic years 2015-16 and 2016-17, 21 and 24 undergraduate students, respectively, expressed interest in participating as trainees in the program. Of these, 80% in both periods successfully completed their training according to the criteria of the Department and completed the special questionnaire. The students of the Department are mainly trained in companies in Attiki region, 60% in services and 40% in industrial sectors.

The main difficulties focus on issues related to the organization of program at the University and Ministry level. Specifically:

There is a delay in the beginning of the program due to the selection period for electives which is usually extended. As a result, the program (as an optional course of the Department) cannot start at the beginning of the semesters.

Further delays are due to restrictions imposed by the Ministry (posting temporary results of student selection list, compulsory waiting five working days to submit any objections, compulsory posting of final results list, approval of definitive results list by the Assembly of the Department and its subsequent approval by the Research Centre of the University).

Results from students' evaluation: The findings of the evaluation show that the Department's training program is positively valued by its students. To support this, in the evaluation form of the program submitted by students upon completion, on the question of "Overall the program met your expectations?", more than 87.5% of students answered "Fully" and only 4.5% answered "Partially".

The Department should support this program and design activities with a view to enlarging the number of the host organizations, putting emphasis on achieving greater involvement of the industrial sectors.

Results from hosts' evaluation: For > 90% of the participating students, hosts characterized their cooperation as "excellent". The ethics of the students was also rendered "excellent" for 88% of participant, whereas 97% were granted a high professional profile. The degree of adaptivity was for 74% of the participants "excellent" and for 17% "satisfactory", and efficiency also received high grades for > 80% of participants. The scientific training was somewhat adequate for 10% of participants, satisfactory for 26% and excellent for 64%.

