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HELLENIC REPUBLIC

H.Q.A.

HELLENIC QUALITY ASSURANCE AND
ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

HELLENIC NAVAL ACADEMY

January 2013

(Based on Version 2.0 of the HQA Template of 03.2010)



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External Evaluation Committee

The Committee responsible for the External Evaluation of the Hellenic Naval Academy consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. **Professor em. George Yadigaroglu** (President)
ETH-Zurich, Switzerland
2. **Dr. Fivos Andritsos**
European Commission, Joint Research Centre (JRC)
Institute for the Protection and Security of the Citizen
3. **Professor Fokion Egolfopoulos**
Department of Aerospace & Mechanical Engineering
Viterbi School of Engineering, University of Southern California, US
4. **Dr. Dimitris Konovessis**
Senior Lecturer, Department of Mechanical and Aerospace Engineering,
Nanyang Technological University, Singapore

N.B. The structure of the “Template” proposed for the External Evaluation Report mirrors the requirements of Law 3374/2005 and corresponds overall to the structure of the Internal Evaluation Report submitted by the Department.

The length of text in each box is free. Questions included in each box are not exclusive nor should they always be answered separately; they are meant to provide a general outline of matters that should be addressed by the Committee when formulating its comments.

Introduction

I. The External Evaluation Procedure

- **Dates and brief account of the site visit.**
- **Whom did the Committee meet?**
- **List of Reports, documents, other data examined by the Committee.**
- **Groups of teaching and administrative staff and students interviewed**
- **Facilities visited by the External Evaluation Committee.**

To prepare the Evaluation, the Hellenic Naval Academy (HNA) made available to the External Evaluation Committee (the *Committee*) its Internal Evaluation Reports (IER) for the academic years 2011-2012 and 2012-2013 and links to information placed on the web.

Following the usual briefing of the Committee that took place at HQA Headquarters on Wednesday, 11 December 2013, the members of the Committee met on Thursday morning at the HQA offices in Athens and, after a brief meeting to discuss procedures and some details, they were driven to HNA in Piraeus.

The Committee visited HNA on Thursday and Friday 12-13 December 2013 and drafted the present External Evaluation Report (EER), starting on Saturday 14 December, working independently at the premises of HNA. Final corrections to the Draft report that was submitted to HQA were made by email communications among the members of the Committee.

Upon arrival at HNA, the Committee was welcomed by the HNA military command and faculty members, in particular Rear Admiral I. Maistros HN, Superintendent of HNA and President of the Educational Council (*Εκπαιδευτικό Συμβούλιο, ΕΣ*); Commodore K. Karagheorghis HN, Deputy Commander of HNA; Professor M. Fafalios, Dean; and Professor N. Melanitis who was coordinating the external evaluation.

The Superintendent of HNA received briefly the Committee in the presence of Commodore Karagheorghis HN, Dean Fafalios and Professor Melanitis and briefed it on general matters. The Committee learned, in particular, that the military/naval education (*στρατιωτική εκπαίδευση*) aspects of the Curriculum were addressed by a tri-partite committee of the three military academies in Greece. Therefore, it is important to note here that in the present evaluation, the Committee focused on the academic, rather than military aspects of education at HNA.

Various meetings and visits took then place Thursday and Friday, as scheduled. These included:

- A meeting with the HNA *Evaluation Committee* that plays at HNA the role of both OMEA and MOΔΙΠ.
- A first encounter with the members of the Academic Council (*Ακαδημαϊκή Συνέλευση*).

At noon, the Superintendent of HNA invited the Committee to a lunch in his quarters that, in addition to the other persons who welcomed the Committee, was also attended by Commodore K. Konstantopoulos HN, Director of the military and naval training support office.

Several visits to laboratories followed Thursday afternoon and Friday morning; during these both *Academic* and *Naval Faculty* and support staff (*Ακαδημαϊκό Διδακτικό Προσωπικό* and *Στρατιωτικό Διδακτικό Προσωπικό*, ΣΔΠ και Εκπαιδευτές - Αξιωματικοί Εκπαιδευτές) gave short presentations related to their activities. At the end of the day the Committee met with the Assistant Professors and Lecturers (*Επικουροι καθηγητές και Λέκτορες*).

On Friday morning took place:

- A separate meeting with five of the 48 Naval Faculty members and instructors.
- A separate meeting with representatives of the administrative and technical staff (three members out of the total of 13) to discuss their particular concerns.
- A meeting of a representative sample of 20 naval cadets covering all years of studies ranks in class, nationalities and gender. Conversations with this body were open, very helpful and constructive. In addition, on Friday, the Committee members had lunch at the HNA refectory, where they were placed at the heads of tables and had the opportunity to further exchange views with cadets.

On Friday afternoon, at a final meeting with the Faculty and the Direction of HNA, the curriculum, teaching and research were discussed and the Committee provided to the HNA members their impressions from the two days and received their feedback and clarifications.

All the material presented during the meetings and the laboratory visits was made available to the Committee at their working place, as well as numerous course textbooks and notes and some publications. Additionally, the Committee was given in electronic form all the raw data from the student evaluations as well as the detailed descriptions of the courses.

The Committee visited the HNA teaching facilities and laboratories, the grounds, the refectory, the computer centre, the library, and the athletic facilities.

The visit took place in a highly professional but equally cordial and collegial atmosphere. The Committee members are unanimous in wishing to express in writing their gratitude and appreciation to all the Command, Faculty, and Staff of HNA for their excellent hospitality and help with all aspects of the evaluation and to HQA for the logistical support.

II. The Internal Evaluation Procedure

- **Appropriateness of sources and documentation used**
- **Quality and completeness of evidence reviewed and provided**
- **To what extent have the objectives of the internal evaluation process been met by the Department?**

Excellent Internal Evaluation Reports (IER) for the academic years 2011-2012 and 2012-2013 were presented to the Committee before the visit. The Committee learned that the HNA faculty, in 2009, had already started internal evaluation procedures by creating an ad-hoc internal working group. The IERs followed fully the format proposed by HQA and gave complete and detailed answers to all the questions in the HQA template. The procedure followed for the internal evaluation is presented in detail in the IERs.

The Committee is pleased to state that the objectives of the internal evaluation process were fully met.

III. General Remarks

HNA is a military educational institution that was made by the 2003 law equivalent to the other institutions of higher education in Greece. By its own nature, it retains, however, important characteristics of its former unique status of Naval Academy, for example, it offers (at least for the time being) only a four-year undergraduate program and conducts within its geographical borders only a limited amount of research. The student body, the naval *cadets*, are enlisted navy personnel and are subject to military rules and discipline, as well as to a dual regime of both intense academic and arduous military training. The Committee, of course, is well aware of the particular nature of HNA and its evaluation takes it into account. The general evaluation criteria set by HQA were accordingly applied to the *academic* education aspects of HNA, leaving the evaluation of its *naval* aspects to the Navy General Staff (*Γενικό Επιτελείο Ναυτικού*) that is its superintending instance.

By its military nature, HNA has the advantage of not exhibiting some of the commonplace negative characteristics that other educational institutions of higher learning suffer from in Greece: the student body is disciplined; there is no absenteeism and very long duration of studies as attendance of classes is compulsory and cadets are punished for not passing examinations and even given a non-honorary discharge from the Navy if there is a delay in their studies exceeding two years. The cadets are motivated as they have *chosen* HNA; elsewhere, with inferior national entrance-examination results, they could have been directed to a lower-choice institution where the subject does not motivate them. The academic year is not disrupted by any strikes or occupation of the premises and the campus is not suffering from physical degradations such as graffiti and vandalism, common elsewhere. The dual nature of education at HNA, military and academic and the strict military discipline on campus makes, however, the studies of the cadets more complex and difficult and has both positive and negative impacts on their academic performance.

The Committee was pleased to find very pleasant campus grounds with an interesting mix of historical and modern buildings and to meet well-motivated cadets and staff.

A. Curriculum

APPROACH

- **What are the goals and objectives of the Curriculum? What is the plan for achieving them?**
- **How were the objectives decided? Which factors were taken into account? Were they set against appropriate standards? Did the unit consult other stakeholders?**
- **Is the curriculum consistent with the objectives of the Curriculum and the requirements of the society?**
- **How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted?**
- **Has the unit set a procedure for the revision of the curriculum?**

The objective of the curriculum is twofold:

1. Provide the cadets with all the necessary basic and specialised knowledge required to form a modern naval officer
2. Inject and cultivate all the qualities, i.e., the moral values, discipline, leadership and initiative spirit necessary for the cadets to become efficient and effective naval officers.

These objectives are set by the Hellenic State and the Ministry of Defence, in particular the Hellenic Navy General Staff, which is the major stakeholder of HNA. Their implementation is

achieved through:

- an academic curriculum, and
- naval training.

Although the current evaluation focuses exclusively on the academic curriculum, it takes into account the constraints and necessities of the naval training as well as of other specificities related to the military nature of the establishment.

The academic curriculum is, in broad lines, consistent with the legislated and stated objectives and the requirements / expectations of the society.

The academic structure of HNA, in line with that of all Greek higher-education institutions, is based on sectors and laboratories, historically derived from the old structures built around chairs. Part of the curriculum, essentially the basic academic disciplines like mathematics, physics, applied mechanics, electric circuits, electronics etc., is implemented by the *academic* faculty (professors, associated professors, assistant professors and lecturers with the help of assistants), while the part of the curriculum related specifically to the naval-profession disciplines and skills is implemented by the *naval* faculty. The naval faculty comprises experienced naval officers, often with doctoral degrees and specialised academic and/or professional qualifications.

The curriculum is decided jointly by the academic and naval faculty of HNA. Feedback from the cadets is taken into consideration through the annual evaluation procedure and, in exceptional cases, through the normal naval hierarchical channels via the command chain (complaints, remarks etc.).

The procedures for the update / revision of the curriculum exist and are adequate. The details can be found in the IER.

IMPLEMENTATION

- **How effectively is the Department's goal implemented by the curriculum?**
- **How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?**
- **Is the structure of the curriculum rational and clearly articulated?**
- **Is the curriculum coherent and functional?**
- **Is the material for each course appropriate and the time offered sufficient?**
- **Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?**

The curriculum, together with the naval training, implements quite effectively the legislated and stated aims of HNA. Despite the constraints associated to the military nature of HNA and the restrictions due to the naval training needs, the curriculum seems to be articulated and in line with international standards. The curriculum is, in general, coherent and functional. Some minor inconsistencies that were noted to the Committee are being dealt with through the implemented feedback / revision procedures.

It must be noted that the on-board naval training is an integral part of the curriculum that provides to the cadets a valuable complement to their classroom and laboratory courses. It is implemented during special training trips or through cadet participation in regular navy missions.

The staffing and the recourses are, in general, appropriate and qualified.

There seems to be, however, room for improvement, specifically in what concerns the link of the teaching of basic courses such as physics, mathematics, applied mechanics, electric circuits, electronics, etc. to the perceived professional needs of the cadets.

RESULTS

- How well is the implementation achieving the Department's predefined goals and objectives?
- If not, why is it so? How is this problem dealt with?
- Does the Department understand why and how it achieved or failed to achieve these results?

While the general targets of the curriculum are clear (highly competent naval officers), the *logic and strategy* behind the curriculum were not presented in a systematic and detailed way to the Committee (partly due to lack of time), although all the information regarding courses etc. was available. The Committee feels that the specific aims of the curriculum in terms of courses and offerings are a moving target and a procedure should be established to address these in a strategic way, taking into consideration the naval defence needs in a technologically fast developing environment producing new types of threats that the future officers will encounter.

Based on the performance of its alumni in:

- their functions within the Navy and
- their professional / scientific careers in other institutions (i.e. specialisation courses, postgraduate studies etc.),

we can deduct that HNA's stated goals and objectives are fully met. The only significant problem that the department faces concerns the difficulties to institutionally perform research activities and the non-existence of a postgraduate curriculum. This also deprives the department research funds and, most importantly, visibility towards the academia and the research community.

IMPROVEMENT

- Does the Department know how the Curriculum should be improved?
- Which improvements does the Department plan to introduce?

The Department has conducted a thorough internal evaluation, backed by periodic assessments and constantly updated statistical data.

The main improvement that the Department plans to introduce is the setting-up and gradual implementation of a postgraduate curriculum, coupled with institutional means to perform in-house research activities. However, HNA needs to assess and define in a systematic way its core research / postgraduate application areas, so that it can best fulfil its stated aims, provide an effective added value, and gradually define its areas of technical excellence.

The Committee welcomes the introduction of diploma project in the HNA curriculum. It notes, however, that such a project only adds to a very heavy schedule (both in terms of number of disciplines and hours per week). The Committee believes that HNA should investigate the possibility to reduce the curriculum of the fourth year by at least one or two courses. Similarly, HNA should consider potential reductions of teaching hours in all future revisions of the curriculum shedding material that is not of primary significance so that the cadets can better focus on the important subjects.

HNA foresees two naval cadet specializations: Deck Officers (*Μάχμοι*) and Engineers (*Μηχανικοί*); the corresponding curricula in the first year are almost identical. Candidate cadets choose their specializations before entering HNA, already during the national higher-education entrance-examination procedure. It should be investigated though, whether it would be more appropriate to implement this specialization at the end of the first year; this would produce a common first-year curriculum with very minor adjustments. The Committee notes that, in the modern, highly technologically oriented navy, the distinction between Deck Officer and Engineer tends to be less distinguishable. A later specialization

may even allow more flexibility to the curriculum implementation. It would also give both the cadets and HNA more time to decide.

GRADUATE CURRICULUM

There is presently no graduate programme. *The setting up of an institutional research capacity and postgraduate courses within the department will further improve the department's efficiency and efficacy.* However, such research should be *targeted to specific core application areas* that are of priority for the Navy and are not already covered by other higher education establishments or research centres. HNA should be encouraged and also be given the means necessary to gradually build excellence in the selected application areas of interest to the stakeholders.

B. Teaching

APPROACH:

Does the Department have a defined pedagogic policy with regard to teaching approach and methodology?

- Teaching methods used
- Teaching staff/ student ratio
- Teacher/student collaboration
- Adequacy of means and resources
- Use of information technologies
- Examination system

HNA enjoys the advantage of having a clear mission defined by law, namely to produce highly educated and competent officers for the Hellenic Navy, with leadership and moral qualities. Consequently, *its pedagogic policy is defined in full accordance with its clearly defined mission*; there are dilemmas linked to no alternatives in directions of study and research areas to choose from as is the case in other institutions.

The present evaluation focuses on the academic rather than the naval teaching aspects. The teaching methods used and all the evaluation parameters listed in the template above are discussed in detail in the IER and the descriptions will not be repeated here; only particularities will be noted and the results of the Committee evaluation.

The teaching methods used include both cathedra courses and rather numerous laboratories. The cadets have the unique opportunity to get naval training during the navigation periods on board of navy ships. The athletic activities include seamanship aspects such as sailing.

As the number of cadets is rather low and a sufficient number of academic staff as well as a large number of naval staff share the teaching load, the staff/student ratio is very high. For the same reason, the Committee got the impression that there is good student/teacher collaboration, enhanced by the fact that the cadets reside on campus, study in common rooms, etc. The teaching means and resources seemed to be adequate regarding rooms, teaching materials and their availability on the HNA web site. There are printed textbooks or notes for the courses offered and the laboratories.

The examination system relies on both written and oral tests. Contrary to older practices in other educational institutions of higher education where the students can advance in their study years without having completed examinations in previous courses, the cadets miss the year and must repeat it, if all their examinations are not successfully completed within the academic year. As noted above, there is a six-year maximum duration of studies and military penalties for failures.

IMPLEMENTATION

- **Quality of teaching procedures**
- **Quality and adequacy of teaching materials and resources.**
- **Quality of course material. Is it brought up to date?**
- **Linking of research with teaching**
- **Mobility of academic staff and students**
- **Evaluation by the students of (a) the teaching and (b) the course content and study material/resources**

As noted in the introduction, HNA enjoys the privilege of not having teaching, examinations, etc. disrupted by external events such as strikes and occupations and excellent attendance of classes due to their compulsory nature.

The quality of teaching is measured by systematic course/instructor evaluations conducted on a continuous basis; the details of the procedure, which is judged as adequate by the Committee, can be found in the IER. The questionnaires are filled anonymously and on-line by the cadets and the data analysed and presented in electronic form. Some initial complaints by the cadets about not having sufficient time for evaluating all the courses were corrected: the Committee learned that the evaluation procedure lasts one week now.

The IER shows generally satisfactory course/instructor evaluation results, with a relatively small minority of courses/instructors falling in the lower grades (1 and 2). There is, however, a clear differentiation of the evaluations between the academic and the naval courses: in the naval subjects, the lower grades (1 and 2) are almost absent and the cadets indicated during our meeting a clear motivation for these courses, while some questioning of the purpose and extent of academic courses was observed.

The teaching materials used (text books and notes and laboratory guides) were given to the Committee for its perusal. Although, of course, no complete examination of this material could be conducted during the visit, they seem to be of uniformly high quality and state-of-the-art.

The Committee visited all laboratories used for teaching. Due to lack of financial resources, there is a spectrum of qualifications with great differences in age, state, diversity, etc. of the laboratory equipment. While some laboratories have been very recently refurbished and present a modern and well-kept aspect, some other laboratories have rather obsolete (but academically still usable) material that may be de-motivating for the cadets. HNA is encouraged to seek all possible means for upgrading its older laboratories and bringing them up to the state of the art to address the challenges that future military technologies will bring.

It must be noted that the on-board naval training is an integral part of the curriculum that provides to the cadets a valuable complement to their classroom and laboratory courses. It is implemented during special training trips or through cadet participation in regular navy missions. The naval training compensates / justifies the lack of modern equipment in some of the HNA laboratories. The Committee praises the effort of the Hellenic Navy to provide an adequate number of on-board training persons-days despite the high associated cost and the current financial situation of the country.

As there is *very little on-campus research* at HNA, the cadets are not exposed to research activities. This may change, however, in the future with the recent introduction of the Diploma project that requires some research and the potential initiation of a Graduate teaching programme that will also generate research on campus.

The mobility of the cadets during their studies is inexistent due to the rules of the Academy.

However, good opportunities are offered to them after their graduation. On the contrary, there is good mobility of cadets from foreign countries to HNA, as made evident by the presence of a number of cadets from a variety of countries; after an initial year of study of the Greek language, they are very well integrated and usually very successful in their studies.

RESULTS

- **Efficacy of teaching.**
- **Discrepancies in the success/failure percentage between courses and how they are justified.**
- **Differences between students in (a) the time to graduation, and (b) final degree grades.**
- **Whether the Department understands the reasons of such positive or negative results?**

As already noted above, the efficacy of teaching is enhanced by the lack of external disturbances and the forced compliance and discipline of the cadets. For the same reasons, the failure rates in courses are very low, as well as the overall failure rate of the cadets (discharge from the Navy). There is practically no dropping off of cadets from HNA after the first two years of study and the differences regarding time to graduation that plague the Greek educational system are non-existent. The reasons for these positive aspects are to be found in the military nature and discipline of HNA.

On the other side, the cadets complained of living under a regime of extreme and continuous pressure (long days including military training and all kinds of programmed activities) that leave relative little room for independent study that is sometimes conducted under adverse conditions (no space for studying during after hours, etc.). The HNA command commented that such pressure is part of military training, to ensure that the future officers are capable of acting under adverse conditions. Although the Committee agrees that pressure may be beneficial to the building of highly competent officers, it is also of the opinion that lack of sufficient study time is detrimental to in-depth learning of required material. *The Committee recommends that the question of cadet study conditions and available time be considered, together with the extent of the curriculum and the number of courses offered.*

The Committee applauds the introduction of a Diploma project (equivalent to one day of work per week) but questions the fact that this introduction was not accompanied by a corresponding reduction of the course load in the last semester of studies. The Committee was pleased to hear that companion report-writing instructions were given to the cadets.

IMPROVEMENT

- **Does the Department propose methods and ways for improvement?**
- **What initiatives does it take in this direction?**

HNA has a procedure outlined in the IER for continuously adjusting its curriculum. *The recent introduction of a Diploma project and the potential creation of a graduate programme are positive steps.*

The Committee noted with pleasure that there is a series of roughly biweekly seminars offered by external personalities taking place on campus.

C. Research

APPROACH

- **What is the Department's policy and main objective in research?**
- **Has the Department set internal standards for assessing research?**

HNA does not have specific aims or policy for research. Little research is conducted on campus, although HNA undertakes from time to time expert evaluations in matters where its faculty and laboratories have expertise and know-how or specialized facilities. Most research by HNA faculty is conducted via external collaborations and the research topics are not necessarily clearly relevant to the mission of HNA; not fully aligned with the primary mission of HNA (producing officers), its academic faculty *must* conduct publishable research to assure their academic promotion. Many factors contribute to the shortcomings in research:

1. The lack of postgraduate programmes that are a minimum prerequisite for promoting / framing research activities
2. The specific mission of HNA, which is to graduate naval officers rather to promote research as is the case of non-military universities
3. The limited or non-existing access of the academic faculty to research funds based on regulations of the Greek funding agencies
4. The limited time that the cadets have to participate in any research activity.

Consequently, there appear to be no internal standards for assessing research, other than the legislated standard procedures for evaluating the career advancement of the academic faculty.

The limited research that takes place in HNA varies considerably in terms of quality and volume among the HNA laboratories and academic faculty.

IMPLEMENTATION

- **How does the Department promote and support research?**
- **Quality and adequacy of research infrastructure and support.**
- **Scientific publications.**
- **Research projects.**
- **Research collaborations.**

For all the reasons presented above, the quality and adequacy of research infrastructure is rather limited compared to what is expected in a typical academic institution. There is a lack of administrative support for handling research grants, in case the faculty secures them. There is no financial support for travel to scientific conferences. Having said that, the Committee commends the efforts of the academic faculty to overcome these serious obstacles and create the foundation of the prerequisites needed to perform research, even if without any institutional support.

In IER there are statistics regarding the faculty's publications, archival or not. The Committee is not in a position to evaluate the scientific quality of the referenced publications other than use standard bibliometric methods, the most profound one being the number of publications in the peer-reviewed literature and the number of citations. Non-reviewed publications such as, for example, conference proceedings, are noted also as they provide some evidence of research activities. Regarding the bibliometric methods, the proper way to derive them, in most cases, is using the Web of Science or Scopus. On the other hand, using Google Scholar may be essential for some very special cases but, in most cases, it inflates the

record by accounting for publications that may not be as rigorously reviewed as those included in the Web of Science or Scopus that have very strict inclusion criteria. The Committee was told initially that Scopus was used to derive the bibliometric data, but members of the academic faculty indicated during the discussions that Google Scholar was used as well. Thus, the Committee is tentative regarding the numbers shown in pages 37 and 38 of IER. Nevertheless, based on the numbers provided, 7.2 peer-reviewed publications per academic faculty for a five-year period are considered as rather low compared to what is expected in a typical academic institution. (The Committee is questioning the fact that most of the conference papers are presented as “reviewed,” while only a small number of conferences have serious review procedures for the full papers and the papers are often accepted based on the information in an abstract.)

Again, for the reasons mentioned above, the research projects are limited. They are clearly of applied nature as would be expected by the nature and mission of HNA. It was noted that, in computationally oriented projects, commercial software is used to perform modelling studies. In research projects of experimental nature, it was noted that the research involves mostly observations rather than giving emphasis on the fundamental processes behind the observations. These comments do not constitute criticism but rather reinforce the fact that the research is of applied nature and tailored to the needs of the Hellenic Navy.

Extensive external collaborations are mentioned in the IER and were also noted during the extensive discussions with the academic faculty. These collaborations are essential, given the limited institutional support that the academic faculty has within HNA. The external collaborations mentioned include the Hellenic Air Force Academy, the European Space Agency, NATO committees/research centres, and leading academic institutions in Greece, UK, Italy, and USA.

The Committee was not presented any further details for most of these collaborations, especially the ones with institutions abroad. The collaborations with the Greek institutions were better defined. The Committee also noticed peculiar references to the National Technical University of Athens (NTUA), where research of relevance to the Hellenic Navy is or could be performed. More specifically, it was noted that faculty of NTUA is not much interested in formal collaborations with HNA faculty for reasons that could be open to various interpretations. The Committee felt that this is not necessarily an optimal approach as both NTUA and HNA and, most important, the Hellenic Navy, could have benefited greatly by formal or informal collaborations. In the US and UK for example, the navies and leading research universities have established, multi-year collaborations.

RESULTS

- **How successfully were the Department’s research objectives implemented?**
- **Scientific publications.**
- **Research projects.**
- **Research collaborations.**
- **Efficacy of research work. Applied results. Patents etc.**
- **Is the Department’s research acknowledged and visible outside the Department? Rewards and awards.**

There is no formal policy in HNA to promote and support research. However, the academic faculty is trying to promote and support research with various mechanisms:

- External collaborations with universities in Greece and abroad.
- Applications for research grants as principal investigators, which as mentioned earlier are difficult to secure in HNA.

- Participants in research grants as co-principal investigators with leading institutions being other Greek universities that have a notably higher probability of success in the existing research framework of funding in Greece.
- Development of research programmes of immediate relevance to the Hellenic Navy and the involvement, on a limited basis, of graduate students from other Greek universities.
- Development of test facilities that are used to benefit immediate needs of the fleet, e.g. material failure, which could serve also as research tools.
- Introduction of the requirement of diploma project for the fourth year of studies, which could spark research interest and initiatives.

It was not possible for the Committee to evaluate the efficacy of the research work, which, as was mentioned earlier, is of applied nature. However, based on the visits to the various laboratories, the impression was that some of the results obtained, for example in material failure, or weather-related predictions, should be of immediate relevance to the fleet and in general to the operations of the Hellenic Navy. No patents or patent fillings were reported to the Committee.

Based on the data included in the IER and the discussions with the academic faculty, it is concluded that *the external visibility of the HNA's research is limited compared to research performed in a typical non-military academic institution in Greece*. Again, this observation does not constitute a criticism but instead it is a result of the nature of the Academy and of the obstacles that the HNA academic faculty has to overcome in carrying out research.

IMPROVEMENT

- **Improvements in research proposed by the Department, if necessary.**
- **Initiatives in this direction undertaken by the Department.**

HNA should bring to the attention of Navy General Staff a number of propositions to promote research activities. The propositions should include:

- Establishment of post-graduate programmes that are essential for promoting research.
- Mechanisms that will allow the HNA academic faculty to have a realistic chance to secure research funds.
- Establishment of procedures for grants and contracts administration within HNA.
- Establishment of procedures that would allow visiting faculty from Greece or abroad to participate in research activities within HNA, as they can bring complementary experience as well as new ideas about research directions and related best practices.

Based on the existing educational system, the cadets have least interest in topics other than the ones related to the hands-on ship-related procedures. The Committee understands that this is necessary for naval officers but, at the same time, it recognizes that this is not sufficient in today's world. The benefits of promoting research within HNA are:

- The cadets will be able to understand better the science behind today's technology that evolves at an exponential pace. These advances are made frequently for military applications and an officer cannot always take full advantage of them by relying on manuals or just a formal training on the equipment.
- The horizons of the cadets will be expanded and they can make meaningful decisions in choosing institutions and disciplines to complete advanced degrees in the future.
- Research involves typically the solution of rather challenging problems and the cadets will be able to think deeper into problems and will learn the art of debugging complex systems. For technologically advanced systems this requires some knowledge of the

fundamentals.

- It will help the cadets in their decision making when leading the Navy 20-30 years down the road, when science will be even more dominant in military operations.
- It will allow for carrying out classified research of relevance to the Greek Navy.

The Committee commends again the academic faculty for realizing these issues and for seeking ways to resolve them. The Committee feels though that the academic faculty may be powerless in pursuing successfully this goal within the existing funding framework in Greece and the existing perception regarding the connection between military academies and fundamental research. Thus, it is essential that both the Navy General Staff and the Ministry of Defence take into account the importance of the modern education of the officers, beyond traditional practices and take decisive steps towards promoting in-house research activities. These activities do not need to be as broad as those in non-military universities and they could scale, in a way, with those adopted in the naval academies of selected European countries and the US. It is expected also that the Ministry of Defence and the Ministry of Education will find ways out of a complex legal and regulatory research micro-management framework that frequently results in adverse effects to university research efforts.

D. All Other Services

APPROACH

- **How does the Department view the various services provided to the members of the academic community (teaching staff, students).**
- **Does the Department have a policy to simplify administrative procedures? Are most procedures processed electronically?**
- **Does the Department have a policy to increase student presence on Campus?**

Most services needed for a smoothly running academic institution are available to a satisfactory degree. Services are offered by an academic and by a naval administration unit, including the following: cadets' academic and naval records; board and subsistence; library; classrooms; online electronic academic provisions (e-classes and an educational web platform); laboratories and equipment; command and faculty offices; gymnasium and sports facilities; medical unit, etc.

There exist well-established administrative procedures. All services are, to a large extent, electronic but not fully integrated. There are a number of issues limiting effective administration as an academic unit, namely the provision of adequate legal support, academic/research budgeting and control, and very limited (a necessarily very efficient but unique person) Information Technology (IT) staff.

IMPLEMENTATION & RESULTS

- **Organization and infrastructure of the Department's administration (e.g. secretariat of the Department).**
- **Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counselling, athletic- cultural activity etc.).**
- **Are administrative and other services adequate and functional?**
- **How does the Department view the particular results.**

Registration, records and transcripts of the cadets are, to a large extent, electronic. The goal

is to arrive at a completely electronic service. The procedures followed are considered effective and satisfactory.

Educational material is provided to the cadets both as printed, quality textbooks and hand-outs for laboratories, projects and exercises, as well as electronic educational resources (e-classes through HNA's web-site).

The Library, however, only holds a very limited collection of titles, in most cases older versions of internationally renowned textbooks. It is also noted that HNA was not allowed to participate to the common online subscriptions of the libraries of other Greek Universities to the main journals and periodicals, which certainly limits academic research for both faculty and cadets.

There is a diverse array of laboratories covering the necessary expertise and skills required by the cadets. Lack of funding for equipment upgrade and consumables is evident in most laboratories, which to some extent is compensated by the personal effort and dedication of the faculty.

Extensive gymnasium facilities are available (indoors swimming pool; indoors basketball/volleyball court, weightlifting and ergometric facilities; football ground and field and track; outdoors basketball/volleyball courts; boat yard). Most of these facilities are in need of maintenance and upgrade.

A medical first response and emergency unit is located within the Academy, including dental facilities for the cadets.

Classrooms and office spaces appear to be adequate. Cadets study and prepare for their classes in their classrooms only, which does not allow private study time. Wireless internet access is available on campus, except for the cadets boarding quarters.

IMPROVEMENTS

- **Has the Department identified ways and methods to improve the services provided?**
- **Initiatives undertaken in this direction.**

Upgrade and maintenance of certain laboratory equipment is required. Budget is centrally controlled by the Navy's General Staff; this often creates inefficiencies in proper and timely fund allocation. Examples include the very lengthy process for procurement of equipment, unavailability of funds to renew laboratory consumables, etc.

Legal support for interpreting legislation for various academic functions of the Academy is required, a most typical example being selection and promotion of academic staff. Such in-house legal support is deemed necessary because of the complexity and the frequent changes in the Greek legislation. The dual nature of HNA (academic and military), which reflects also to the legislation applied, is an additional reason of concern regarding the lack of appropriate in-house legal support.

HNA is lacking a proper amphitheatre to accommodate ceremonial functions, seminars, talks to the cadets, etc. The Committee thinks that this is necessary for educational reasons as well as for the stature and prestige of HNA.

Some notable gaps in general services, as mentioned above, must be corrected, especially in the IT support staff and the complete lack of in-house support on legal matters.

Collaboration with social, cultural and production organizations

Please, comment on quality, originality and significance of the Department's initiatives.

HNA forms an integral part of the social, cultural and sports activities of the city of Piraeus, as this is detailed in the IER. It also plays its certainly institutional role within the Armed Forces.

Academic staff of HNA has a long-standing co-operation with many domestic and foreign educational, research and professional organisations. As explained in the IER, there are no established processes and procedures for such collaborations and these are mostly based on personal contacts.

E. Strategic Planning, Perspectives for Improvement and Dealing with Potential Inhibiting Factors

- Potential inhibiting factors at State, Institutional and Departmental level, and proposals on ways to overcome them.
- Short-, medium- and long-term goals.
- Plan and actions for improvement by the Department/Academic Unit
- Long-term actions proposed by the Department.

HNA has well defined objectives and goals. The Hellenic Navy is its major stakeholder and end-user. The naval cadets are a well-disciplined student body. As detailed in other parts of this report, the HNA undergraduate program is well established; it is running efficiently for many decades achieving the intended scope of producing qualified naval officers. There are procedures in place, as detailed in the IER, to cater for the necessary adjustments and updates.

However, there is a number of institutional constraints to overcome, including a complex legal regime and the lack of the required financial infrastructure, the establishment in essence of the special account (*ειδικός λογαριασμός*) for research; these issues should be seen as an opportunity to be proactive.

A Special Committee for Strategic Academic Development (*Ειδική Επιτροπή Στρατηγικής Ακαδημαϊκής Ανάπτυξης*) was established, according to the IER, in June 2013. It should focus on developing short-, medium- and long-term goals for the establishment of postgraduate programmes and research in HNA.

In the opinion of the Committee, such a Special Committee, possibly framed by prominent experts and stakeholders external to the HNA, should elaborate a strategic plan to address the following items:

- The effects of the recent technological evolution to naval equipment and tactics and its implications to the training / education requirements of the future naval officers.
- The core application areas on which in-house HNA research should focus and how the intended development of postgraduate programmes will be articulated in house or in collaboration with other universities or research institutes in Greece and abroad.

In particular, the above mentioned special committee should include both internal and external members. Greek Navy, should be represented by senior navy officers with extensive naval operations experience and training in foreign graduate institutions; faculty members from relevant academic institutions and research centres from Greece and abroad as well as

stakeholders like merchant shipping etc. should also be included in order to bring expertise and create the maximum possible consensus.

F. Final Conclusions and recommendations of the EEC

- The development of the Department to this date and its present situation, including explicit comments on good practices and weaknesses identified through the External Evaluation process and recommendations for improvement
- The Department's readiness and capability to change/improve
- The Department's quality assurance.

The Committee focused on the academic, rather than military aspects of HNA.

Important topical findings and recommendations can be found in the preceding sections; these were highlighted in underlined italics. The most important conclusions and recommendations are summarized here for completeness and extended with additional general conclusions.

THE INTERNAL EVALUATION

The Committee praises the effort of the HNA towards implementing efficient evaluation and quality assurance procedures, which resulted in an excellent Internal Evaluation Report. The Committee is pleased to state that the objectives of the internal evaluation process were fully met.

GENERAL REMARKS AND RECOMMENDATIONS

As per the history, traditions, geographical position and role of Greece in the current geopolitical scene, the HNA, heart and soul of the Navy is, and should remain, one of the key institutions of the Hellenic armed forces. The Committee was pleased to find a well-organized educational institution with a motivated faculty, staff and, above all, cadets.

The Committee is of the opinion that HNA should be further motivated and facilitated to achieve, in addition to the high-quality cadet education and training, the high-quality research standards required in order to stand up to such a prestigious role. The introduction of an institutional research capacity and postgraduate courses are two concrete positive steps towards that direction. However, such research and postgraduate courses should be targeted to specific core-application areas. These core research areas, where HNA could become a reference, as well as the implementation means and methods of the in-house research and postgraduate courses, could become the object of a consultation among the HNA academic and navy faculty representatives and external stakeholders (navy, academia, research centres etc.)

CURRICULUM

The academic curriculum is, in broad lines, consistent with the legislated and stated objectives of HNA and the requirements and expectations of the society and its objectives are clear. The procedures for the update / revision of the curriculum exist and are adequate. The curriculum, together with the naval training, implements quite effectively the stated aims of HNA.

The Committee feels that the specific aims of the curriculum in terms of courses and offerings are a moving target and a procedure should be established to address these in a strategic way, taking into consideration the naval defence needs in a technologically fast

developing environment producing new requirements for the future naval officers.

The staffing and the material resources needed to implement the curriculum are, in general, sufficient, appropriate and qualified. Some of the laboratory equipment is aging and should be replaced when funds become available.

There are two naval cadet specializations: Deck Officers and Engineers. The Committee recommends investigating the possibility of a common first year with separation of the curricula in the second year (instead of making a choice before entrance to HNA).

GRADUATE STUDIES

The Committee encourages HNA to establish a graduate programme and in-house research. For this, HNA needs to assess in a systematic way its core research / postgraduate application areas to gradually define its areas of technical excellence. HNA should be given the necessary means for a graduate programme and to gradually build excellence in selected application areas.

TEACHING

HNA enjoys the privilege of not having its academic activities disrupted by external events such as strikes and occupations and excellent attendance of classes due to their compulsory nature. The limits to the time spent at the Academy are certainly a strong incentive to study.

The cadets indicated a motivation and preference for the naval courses, while questioning the purpose and extent of some academic courses. The HNA faculty is challenged to clearly make evident the links to practise and the necessity of the academic courses during the first years of study and to make these as relevant as possible to the future profession of the cadets, shedding possibly less-necessary material while reinforcing the more significant areas.

RESEARCH

Research at HNA is of an applied nature, tailored to the needs of the Hellenic Navy and rather limited, although HNA faculty do publish based on their personal external collaborations in other institutions. The Committee encourages HNA to establish, together with a graduate programme, *in house* research and to seek aggressively external institutional collaborations, research funding, etc.

OTHER SERVICES

Some of the infrastructure of HNA is aging and needs refurbishment. The Committee is fully aware of the sacrifices required in times of financial crisis for the maintenance of infrastructures and expensive operations, such as training on board of ships. It encourages, however, the faculty and the superintendent instances to consider seriously these issues.

STRATEGIC PLANNING

The Committee recommends the creation of a strategic planning committee, to address:

- The rapid technological evolution and its implications to military tactics and the curriculum and research needs.
- The intended development of new postgraduate programs and of in house research.

Recommendations for the composition of this Committee were made in Section E.