



Evaluation of the MCAST Pre-Warrant Qualification Course

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Approach to the Review Process

The Chamber of Engineers (CoE) requested an active participatory role in this independent review process as a major stakeholder of the engineering profession in Malta. The CoE welcomed the prompt decision by the Engineering Profession Board (EPB), taken January 2020, to accept the CoE's request whilst recognising the CoE as the representative body for engineers in Malta. The CoE's request for participation in this process is based on the following principles:

- i. The CoE has been following this issue in an active manner since its inception hence is driven to see a solution which ultimately favours the engineering profession and the safeguard of public health and safety.
- ii. The CoE highly values the engineering profession warrant as a license to practice and a guarantee that the person (warrant holder) can carry the responsibility of the professional service being practiced.
- iii. The CoE believes that the profession of engineering requires deep knowledge of physics and mathematics which can be attained through solid academic foundations and not through a predominantly vocational route.

In order to carry out an effective role as a key stakeholder, the CoE's administration needed to formulate an informed decision. For this informed decision to be formed, in January 2020 the CoE had cordially requested MCAST to supply the CoE with the course material scoped for this independent review on condition of strict confidence. MCAST turned down this request at that time. .

The CoE believes in principle that such a transparent process is intended to regularize the position of MCAST and its past and current engineering degree students. Hence, the CoE turned for support from the EPB in order to obtain this needed course material. The course material was only made available, following pressure, on 17-April-2020 which means that our organisation was left with very few days for review and evaluation, which compromised our ability to make more valuable contributions.

The CoE is a Voluntary Organisation (VO) therefore meaning that the executive council members work voluntarily and are free from any material or other conflicts of interest. Our mission statements are to safeguard and promote the engineering profession, promote CPD and networking within the engineering community and advocate the code of ethics. Therefore, the CoE is voluntarily coming forward to contribute to this process and voice concerns and recommendations from the engineering community which are based on consultation.

Key Outcomes from the ASIIN Consult Follow-Up Report (2017)

To ensure continuity in the review process of MCAST engineering degrees, the recommendations from the *ASIIN Consult Follow-Up Report (2017) Concerning Action Plan aiming at qualifying for the Malta Engineering Warrant* were reviewed and the CoE expects that these are individually addressed to ensure closure of the identified action items in the subject report. The CoE's commentary, per specific recommendation, is as follows:



(1) The expert panel supports MCAST’s proposal of a top-up engineering project for applicants who have graduated according to the current curricula of the Bachelor (hons) engineering degree programmes. However, it recommends combining this concept with a flexible educational qualification scheme that appropriately addresses the skills-and-competences demand identified in the previous evaluation in order to qualify the candidates for an engineering project at an adequate scientific level.

MCAST is proposing a number of study units in the pre-warrant qualification course which automatically qualify a candidate for the engineering warrant. There is not enough clarity between the “engineering project” element and the “flexible educational qualification scheme” element. Additionally the Chamber is concerned that the course as proposed does not address skills-and-competences demand previously identified such as the deep scientifically based engineering knowledge.

The CoE feels that the gaps identified in the ASIIN review of MCAST engineering degrees and the follow up report have not been addressed adequately. A more rigorous programme of mathematics and specific modules in various subject areas of mechanical and electrical engineering was expected. The Pre-Warrant Qualification Course provides room for improvement.

(2) Before its implementation, MCAST’s decision on a Warrant application procedure for past and current students should be subject to a quality assurance check taking into account the aforementioned recommendations.

The CoE positively notes that this recommendation is being followed. As a matter of fact the purpose of this review is in harmony with this recommendation. The expectations from this review is a meticulous critique of the proposed pre-warrant qualification course and, clear recommendations with respect to the ‘as needed’ state of this course, are required in order to ensure equivalency for eligibility to the engineering warrant.

Recommendations

The CoE views this initial attempt by MCAST to bridge the identified gaps through the Pre-Warrant Qualification Course as not meeting the expectations set forward from the ASIIN review of the undergraduate Bachelor of Engineering degrees in scope. However, the CoE recognises this as a first step and a robust review and improvement is required in order to obtain the desired quality standards. In order to achieve this desired level, the CoE is listing the following recommendations for the consideration of ASIIN as external quality assurance reviewers and MCAST as the proponents of the Pre-Warrant Qualifications course:

1. The course needs to clearly bridge the identified deficiencies in core theoretical and practical engineering competencies – specific subjects in mechanical and electrical engineering to bridge the specific gaps are potentially required.



2. There should be a clear distinction and understanding between the high-level engineering project recommended and the make-up modules to address the specific deficiencies.
3. The course assessment method is to clearly state which components will be assessed through written exam, oral exam and coursework.
4. The proposed course should convincingly address the recommendations from the previous quality assurance review in order to become more credible.
5. MCAST should be able to provide provisional problem titles for projects which potential students, from each respective engineering stream, would be able to choose from for the Pre-Warrant Qualification Course.
6. MCAST should be able to provide ASIIN with access to review more specific details such as proposed coursework material, proposed examination papers and qualifications of teaching staff and potential external examiners for each study unit being proposed to ensure these reflect the course content and methods of assessment.

Conclusions and Way Forward

As regards the path forward, the CoE takes direct reference from the ASIIN Consult's conclusions of the Follow-Up report and further underlines two key activities which it firmly believes in as an organisation driven with the protection, promotion and elevation of the engineering profession.

On **Quality Development through Quality Assurance** the CoE agrees that programmes should undergo an external quality management procedure prior to their implementation in order to avoid having to address questions and concerns in hindsight. This quality assurance exercise will be critical to ensure that the Pre-Warrant Qualification Course will be robust and appropriate to ensure that the concerned graduates bridge the gap towards eligibility for the engineering profession warrant. Quality assurance in engineering education should remain a top priority.

On **Assuring Quality through Cooperation** the CoE adds that communication is key and advocates in favour of good communication channels, and decision-making processes and alignment between stakeholders. The CoE has worked actively towards a healthy line of communication between the parties involved and prejudice and predispositions should be removed from the equation of this collaboration. Each party has a fundamental role to play. The CoE represents engineering professionals in Malta, who are either holders or eligible for the engineering profession warrant and hence has the mission to safeguard the level of the profession irrespective of the institutions or individuals concerned and without fear or favour. The very essence of the engineering profession is at stake if doubts arise about the adequacy of the engineering education of a major educational institution of Malta. The CoE would like such doubts to be diminished completely through the appropriate corrective measures to address the gaps.

The CoE looks forward towards a solution which ultimately benefits the safety and reliability of products and processes and public health and safety through an assured level of the engineering profession.