



Interim Summary Report on Evaluation Process of PWQC: MCAST Pre-Warrant Qualification Course

14th December 2020

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Foreward

The Chamber of Engineers (CoE) has been part of this review process from its inception and various position papers have been produced in order to express the Chamber's views on this matter, guided by a committee specifically appointed on this matter.

In general the CoE feels that through the recommendations of ASIIN consult, the Pre-Warrant Qualification Course (PWQC) has already come a long way from the original proposal from MCAST. More specifically, modules of an academic and foundational nature had been highlighted as a requirement by the aforementioned consultants. This is indeed the direction that the CoE commends. On the other hand, the engineering project remains an issue of concern to this organisation. We can see no clarity as to why MCAST does not accede to preserve quality standards by having a more solid project component to this PWQC. The number of credits being proposed is commensurate to a mini-project. This also means that eventual eligible individuals for the warrant might not have had the experience to carry out a full engineering project with the knowledge gained through the PWQC.

With this report the CoE is making clear those items which it is satisfied with and those which still have to be brought to the expectations of the profession. It is also clear that there is a need for a consensus between all parties in the review process before this PWQC can be formally approved. Without the confidence of all these parties, the local engineering community is foreseen to continue perceiving this remedial course as inferior.

Dr Ing. Daniel Micallef

President

14th December 2020



Background

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, which role was accepted in January 2020. 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 practised.
- 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.

The review process was initiated on 23rd April 2020 with ASIIN's online audit of the then proposed 30ECTS PWQC by MCAST intended to bridge the deficiencies identified in the preceding Engineering Degrees (Mix of MQF Level 5 and Level 6 study units) in the 2017 ASIIN Follow-Up Report¹. The CoE has provided constructive contributions during the course of the review process, starting from a set of initial requirements which the PWQC was expected to meet and then concurrently providing both ASIIN and MCAST with feedback with observations being raised through the course of the review process. Refer to the below list for the contributions made by the CoE to date of this report:

- ❖ Evaluation of the MCAST Pre-Warrant Qualification Course – 23rd April 2020
- ❖ Reaction to the ASIIN Evaluation Report: MCAST Pre-Warrant Qualification Course – 23rd July 2020
- ❖ Reaction to MCAST's response to ASIIN's recommendations: MCAST Pre-Warrant Qualification Course – 04th November 2020

This report is hereby summarizing what was satisfactorily achieved and what remains unsatisfactorily pending as regards the vision of the CoE for a PWQC which primarily provides the re-assurance to the community of the engineering profession that the gap which has been visible for the past number of years is being bridged with confidence, and hence the anomaly finally being solved. This document is structured in the following sections:

- A. Response to the conclusions of the ASIIN Evaluation Report (PWQC) as updated per version 26/11/2020.
- B. General Assessment of the original CoE requirements for the PWQC.
- C. Outstanding requirements to be fulfilled by the PWQC.

¹ Follow-up Report Concerning Action Plan aiming at qualifying for the Malta Engineering Warrant - Bachelor Degree Programmes (Honours) offered by Malta College of Arts, Science and Technology (MCAST), ASIIN, 2017



A. Response to the conclusions of the updated ASIIN Evaluation Report (PWQC)

The updated ASIIN Evaluation Report² highlights three remaining requirements which need to be fulfilled by MCAST a priori of the initiation of the PWQC. The CoE is airing its views on the updated sections in the report through the following comments:

1. The CoE satisfactorily notes that the course length is extended from a 6-month minimum to a 12-month minimum duration as proposed. The organisation also welcomes the clear requirement of ASIIN to have the engineering project excluded from the Recognition of Prior Learning (RPL) mechanism and iterates that the RPL needs to strictly follow the recommendation of the consultants.
2. The ASIIN consult present a requirement describing that the alignment of units and the engineering project need to be ensured and shown in an appropriate and plausible manner. On this requirement, while understanding that the project design and subject/s are still not at all clear in the eyes of the reviewers, the CoE feels that more specificity is required as to what is being requested and what measurable outcome is expected. This echoes the original recommendation from CoE to have provisional problem titles proposed and hence put into practice what PWQC students are expected to carry out.
3. The ASIIN consult request that the workload of the engineering project is closely monitored and to have a mechanism of adapting the related ECTS (European Credit Transfer System). On the engineering project, the CoE had made amply clear the expectation of denoting additional weight to the project (i.e. 20 ECTS) based on the premise that the engineering project needs to factually take the engineering process into account while going into all steps in a typical dissertation. As proposed, the course is alluding to a 'mini-project' which is not convincing to the CoE. The peers have suggested that the project may increase to 10 ECTS but left this up for an arbitrary decision. The CoE proposes a 20 ECTS project with a dissertation structure of research/literature review, methodology, results and analysis. Such a structure is also expected to directly and/or indirectly address the alignment issue while assessing the engineering aptitude.
4. Another element which was taken into account include the recommendation of the CoE to have independent and external examination board members. The ASIIN consult have requested to have the structure and modus operandi of the board panel delineated clearly.

² Evaluation Report Pre-Warrant Qualifications Course offered by Malta College of Arts, Science and Technology (MCAST), ASIIN, Version: 26/11/2020.



B. General Assessment of the original CoE requirements for the PWQC

There is value in understanding the progress of this review process and what it has achieved in terms of critically assessing the PWQC and consolidating the course. At the start of the review, the CoE had laid out its position³ with respect to the initial version of the course. The quoted *requirements* are individually assessed to determine the fulfillment.

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. This must be supplemented by a strong dose of engineering mathematics. An academic approach rather than a VET based learning should be pursued.*
 - The CoE acknowledges the improvements to the course programme through the replacement of study unit modules with core engineering subjects which are adopted from the new B.Eng. courses which are presumably of the expected academic standard (undergoing review by the same ASIIN).
 - This requirement is considered fulfilled.
2. *There should be a clear distinction and understanding between the high-level engineering project recommended and the make-up modules to address specific deficiencies. An engineering project should be a standalone component in the bridging studies in order to supplement the predominantly theoretical modules being proposed by the CoE.*
 - The CoE acknowledges that the engineering project is being highlighted a standalone component with the important role to determine the preparedness to obtain the engineering warrant.
 - The CoE is contending the weight proposed. 5-10ECTS is a small weighting for the engineering project we are envisaging. CoE remains faithful to its proposal of 20 ECTS and does not feel at ease in knowing that future warrant holders might not have gone through the rigor of a full thesis project at level 6.
3. *The course assessment method is to clearly state which components will be assessed through written exam, oral exam and coursework.*
 - The CoE acknowledges that ASIIN have scrutinized the course documentation in detail and have provided their recommendations.
 - There is some room for improvement when it comes for assessment descriptors to be made more prescriptive rather than subject to options as is the case with various modules.
4. *The proposed course should convincingly address all the recommendations from the previous quality assurance review in order to become more credible.*

³ Evaluation of the MCAST Pre-Warrant Qualification Course, Chamber of Engineers, 23rd April 2020



- This requirement is considered fulfilled. Refer to point 1 above.
5. *MCAST should be able to provide provisional problem titles for projects which potential students, from the respective engineering stream, would be able to choose from for the Pre-Warrant Qualification Course.*
- The CoE acknowledges that this requirement has been addressed through other aspects to the satisfaction of ASIIN.
 - The alignment of the project with respect to the study units remains an open item.
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.*
- The CoE acknowledges that ASIIN have scrutinized the course documentation in detail and have asked for further documentation when requested.
 - This requirement is made in light of the ASIIN Follow-Up Report¹ and are therefore highly applicable to the new B.Eng. Courses and not only PWQC.

C. Outstanding requirements to be fulfilled by the PWQC

In view of the above, the remaining requirements which are to be fulfilled in the CoE's view, are the following:

- The CoE re-iterates its proposal to have 20ECTS allocated to the Engineering Project. 25ECTS of study units and 20ECTS. The CoE gives high value to the engineering project as a unique opportunity to showcase engineering knowledge. The expectation that an individual approaching the engineering profession warrant should at least have carried out an engineering project commensurate with dissertation of a 240 ECTS Level 6 engineering degree. This is what the EPB (Engineering Profession Board) currently expects of candidates and the CoE feels that this requirement should be upheld. It is important to understand that this shortcoming in credits will set a precedent which could put the profession's quality assurance procedures at risk.
- The nominees for the external member of the board panel should not be proposed by MCAST in favour of independence and transparency. The CoE recommends that such board members should hold the required academic qualifications at PhD level.
- MCAST is requested to boost the PWQC up to 45 ECTS to project a more robust and intensive course meant to bridge the gap from engineering courses which were ultimately constituted of 120 ECTS at Level 5 and 120 ECTS Level 6.



Conclusion

The CoE wishes to make clear to ASIIN that the organisation does not have visibility of all the correspondence between MCAST and ASIIN, and is only privy of the documentation which is made available to CoE by EPB as administrator of this process and regulator of the profession. This point is required given ASIIN's observations noting that the CoE is not commenting on the 'latest updates' by MCAST. Therefore, the organisation is only commenting on its visibility.

The PWQC is not considered case closed but an agreement between stakeholders is imperative prior to commencement of the course. This exercise is meant to conclude a course which should bridge courses which did not subject themselves to the necessary checks and balances in the past and therefore shortcuts are not an option both to the CoE and rightly so to the engineering community.

As a voice for the profession in Malta, we are compelled to make clear that the student cohort in attendance of the PWQC are known to have accessed the engineering profession through an MCAST course which did not satisfy the requirements of the warrant and while not seeking to satisfy them at the time, still promised students with the engineering warrant. This knowledge has established a perception in the professional community that these future colleagues need to bridge the gap. These students of such course have absolutely no responsibility in this occurrence, but the responsibility lies with the institution offering these courses, MCAST. The impression we are getting is that MCAST is set in its ways in not accepting the CoE's and the engineering community's expectations and as such can never expect this organisation to simply comply. The CoE has the responsibility to make sure that a level playing field is attained and MCAST should firstly recognise the expectations of the community.

Therefore, the final decision on the PWQC should constitute a design which effectively addresses the above. The engineering profession in Malta does not afford any more sacrifices, and this solution and others moving forward, are expected to fully comply with the requirements of the engineering profession act.