Programme Review Report
Doctor of Philosophy Programme in Electrical and Computer Engineering

University of Macau
Faculty of Science and Technology
Department of Electrical and Computer Engineering

Cluster Programme Review of:
Master of Science Programme in Electrical and Computer Engineering
and
Doctor of Philosophy Programme in Electrical and Computer Engineering

Agência de Avaliação e Acreditação do Ensino Superior – A3ES
(Agency for Assessment and Accreditation of Higher Education)

December 2019
Abbreviations

A3ES: Agência de Avaliação e Acreditação do Ensino Superior
DECE: Department of Electrical and Computer Engineering
DCIS: Department of Computer and Information Science
ECE: Electrical and Computer Engineering
FDCT: Science and Technology Development Fund of Macau Government
FST: Faculty of Science and Technology
GPA: Grade Point Average
HEI: Higher Education Institution
IEEE: Institute of Electrical and Electronics Engineers
MSc: Master of Science (programme or degree)
PEO: Programme Educational Objectives
PhD: Doctor of Philosophy (programme or degree)
PO: Programme outcomes
QA: Quality Assurance
SED: Self-Evaluation Document
UM: University of Macau
## Basic Information of Programme

*Name of the Higher Education Institution:* University of Macau  

*Host Academic Unit:* Faculty of Science and Technology, Department of Electrical and Computer Engineering  

*Name of the Programme:* Doctor of Philosophy Programme in Electrical and Computer Engineering  

*Degree Level:* Doctor of Philosophy (PhD)  

*Major Mode of Delivery:* Full-time  

*Major Language of Instruction:* English  

*Commencing Year:* 1990  

*Maximum Enrolment:* 15 ~ 20
Executive Summary

This document refers to the review of the Doctor of Philosophy Programme in Electrical and Computer Engineering carried out by the Agência de Avaliação e Acreditação do Ensino Superior - A3ES (Agency for Assessment and Accreditation of Higher Education), in accordance with the Higher Education Quality Evaluation of Macao, as stipulated in Administrative Regulations No. 17/2018.

The assessment exercise was based on the self-evaluation document (SED) of the Computer Engineering and Master of Science Programme in Electrical and Computer Engineering, received by A3ES on the 30th September 2019.

The mission and objectives of the University of Macau (UM) are clearly defined in the SED, UM aspiring to be an internationally-recognized higher education institution committed to provide higher education (according to the UM Motto), to promote academic research and disseminating knowledge, to advance culture, science and technology and Macau’s growth, and to cultivate responsible citizens who possess sound moral judgement and the ability of independent thinking necessary to meet the needs of development of Macau and the region where it is located.

In what concerns admission requirements and selection process, it was concluded that Department of Electrical and Computer Engineering (DECE) follows established procedures and criteria.

The qualification of the academic staff is adequate with all faculty holding a PhD degree. The Panel commends the scientific productivity of DECE’s academic staff, as well as their capacity of gaining financing for research. The Panel also considers the DECE’s 21 labs and the 8 technical staff very beneficial for supporting the teaching activities of a practical/experimental nature.

The DECE has in place sound internal quality assurance mechanisms. The PhD programme is reviewed regularly, benefiting from inputs received from internal and external stakeholders, and there are procedures to assess the teaching performance and the appropriateness of the courses’ content. The Panel commends DECE’s efforts of regularly listening to stakeholders in order to improve the study plan. Likewise, it is commendable that many decisions and improvement actions are based on data collected from surveys (aimed at students and alumni) and from meetings with relevant external stakeholders. It should be mentioned that students play a significant role in the quality assurance system of DECE.

Yet, it is possible to improve some aspects. It is recommended that:

- DECE considers the possibility of defining more precisely the admission and prior learning requirements, clarifying the specific areas of the Master’s and Bachelor’s that allow access to the programme.
- DECE considers the possibility of defining or adopting a course description template including the following topics: “course objectives”, “intended learning outcomes”,
“syllabus”, “demonstration of the syllabus coherence with the course learning outcomes”, “teaching methodologies”, “assessment”, “demonstration of the coherence between the teaching methodologies and the learning outcomes”, and “recommended bibliography”.

Panel encourages the DECE to keep implementing improvement actions, such as reviewing and updating continuously the syllabi of the courses.