

A3ES

Agência de Avaliação
e Acreditação
do Ensino Superior

Programme Review Report

Master of Science 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)

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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)
PhD:	Doctor of Philosophy (programme or degree)
PEO:	Programme Educational Objectives
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: Master of Science Programme in Electrical
and Computer Engineering

Degree Level: Master of Science (MSc)

Major Mode of Delivery: Full-time

Major Language of Instruction: English

Commencing Year: 1990

Maximum Enrolment: Around 20

Executive Summary

This document refers to the review of the Master of Science 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 objectives of the Master of Science Programme in Electrical and Computer Engineering are clearly defined and the expected roles and functions of the graduates are well stated. It should be noted that most graduates work in areas related to electrical and information technology. Alumni and students value positively not only their overall education in Electrical and Computer Engineering (ECE) but also the acquisition of skills and abilities. Globally, the professional recognition of the educational objectives of the programme and the overall education in ECE is reasonably met.

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, namely the 2 State Key Labs relating to ECE research areas, such as "Analog and Mixed Signal VLSI" and "Internet of Thing for Smart City", 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 MSc 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 suggested prior learning requirements, clarifying the meaning of *"degree or equivalent in related fields of ECE"*;
- DECE considers a template for courses syllabi including a part after "Part 2: Course

Objectives” concerned with the description of the Experimental/Lab work in the course;

- DECE considers the possibility of defining or adopting a course description template including the following topics: “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 some improvement actions, such as reviewing and updating continuously the syllabi of optional courses, and, whenever possible, DECE should contemplate the development of research cooperation between department and ECE related companies in Great Bay Area, so that the thesis work is developed under it. In order to increase demand, as suggested in the SED it is also recommendable to implement briefings for local industries and graduates.