

EVALUATION AND ACCREDITATION DOCUMENTS

M.Sc. Electronic and Electrical Engineering

Africa Centre of Excellence for ICT-Driven
Knowledge Park (ACE OAK-Park)

Obafemi Awolowo University

Ife-Ife, Nigeria

June 2024

CONTENTS

Evaluation report	pages 1 to 12
Comments of the institution	page 13
Accreditation decision	following pages



International evaluation and accreditation

EVALUATION REPORT

M.Sc. Electronic and Electrical Engineering

Africa Centre of Excellence for ICT-Driven
Knowledge Park (ACE OAK-Park)

Obafemi Awolowo University

Ife-Ife, Nigeria

March 2024

The Obafemi Awolowo University has mandated the Hcéres to perform the evaluation of its Electronic and Electrical Engineering M.Sc. programme. The evaluation is based on the “External Evaluation Standards” of foreign study programmes, adopted by the Hcéres Board on 31st January 2022. These standards are available on the Hcéres website (hceres.fr).

On behalf of the experts committee¹ :

Olivier Boutin, President of the committee

In the name of Hcéres¹ :

Stéphane Le Boulter, Acting President

¹In accordance with articles R. 114-15 and R. 114-10 of the Research Code, evaluation reports are signed by the chair of the experts committee and countersigned by the President of Hcéres.

CONTENTS

I. STUDY PROGRAMME IDENTITY SHEET	2
II. PRESENTATION OF THE STUDY PROGRAMME.....	3
1 – Presentation of the study programme	3
2 – Presentation of the programme's self-evaluation approach	3
III. COMPOSITION OF THE EXPERTS PANEL	3
IV. VISIT DESCRIPTION	3
V. EVALUATION REPORT	5
1 – Training policy and characterisation	5
2 – Pedagogical organisation of the study programme.....	6
3 – Attractiveness, performance and relevance of the study programme	7
4 – Academic programme management and continuous improvement	7
VI. CONCLUSION.....	9
Strengths.....	9
Weaknesses	9
Recommendations	10
VII. COMMENTS OF THE INSTITUTION	11

I. STUDY PROGRAMME IDENTITY SHEET

- University: Obafemi Awolowo University, Ile-Ife, Nigeria
- Department concerned: Department of Electronic and Electrical Engineering
- Title of the programme: M.Sc. Electronic and Electrical Engineering
- Year of creation and context: 2018. This programme is part of the ACE Impact Project launched in 2014 by the World Bank and the French Development Agency (AFD) following the successful implementation of ACE I and II.
- Site where the programme is taught (town and campus): Main Campus, Obafemi Awolowo University, Ile-Ife, Osun State

PROGRAMME DIRECTOR

- Surname, first name: Ilori, Olusoji
- Profession and grade: Senior Lecturer
- Main subject taught: Technology and Fabrication of Semiconductor Devices, and Technology and Fabrication of Passive Electronics

METHODS AND RESULTS OF THE PREVIOUS ACCREDITATION(S)

- In 2022, the programme was evaluated by the National Universities Commission (NUC). The programme has received its full accreditation by the NUC for 5 years, from March 2022 to March 2027.
- No previous international accreditation. The Ph.D. programme in Electronic and Electrical Engineering is being evaluated by Hcéres in 2023.

HUMAN AND MATERIAL RESOURCES DEDICATED TO THE PROGRAMME

– Human resources

Academic staff	Professors	Assistant Professors	Lecturers	Readers	Total
	15	8	8	4	19
Technical staff	Senior Technologists	Assistant Chief Technologist	Technologists	Engineers	Total
	2	1	8	3	14
Administrative staff					Total
					8

- **Material resources:** computer labs and workstations, three seminar rooms, seven postgraduate classrooms, laboratories (microwave communication, semiconductor clean room, high voltage, electrical machines, control and instrumentation, artificial intelligence), workshops (mechanical, electrical, Printed Circuit Board (PCB) Assembly). Many analogue and numerical electronic training systems can be used by the students. The Obafemi Awolowo Library provides access to at least seven commercial databases, and the selection of open databases is diverse. The access to thesis (hard and softcopy), various scholar works and an antiplagiarism software are also provided by the library. A building dedicated to the Department of Electronic and Electrical Engineering is currently under construction.

STUDENT POPULATION: EVOLUTION OVER THE LAST 4 YEARS

		2019/2020	2020/2021*	2021/2022	2022/2023*
Enrolment	Male	15	-	1	1
	Female	1	-	0	0
	Total	16	-	1	1
	<i>including foreigners</i>	0	-	0	0
Graduates	Male	-	11	11	1
	Female	-	2	0	0
	Total	-	13	11	1
	<i>including foreigners</i>	-	0	0	-

II. PRESENTATION OF THE STUDY PROGRAMME

1 – PRESENTATION OF THE STUDY PROGRAMME

The ACE ICT OAK PARK is an Africa Centre of Excellence hosted by Obafemi Awolowo University, Nigeria, established as part of the ACE Project, a World Bank-supported project in 2014. The Centre was initiated with the aim of improving engineering education through the experimentation of new teaching methodologies, curriculum development, and the application of these findings to future engineering education, in order to enable engineers to address 21st century challenges in a creative and responsible manner. Therefore, its stated mission is to provide a world-class teaching and learning environment to promote innovation in technological skills and competencies for engineering education and practice.

The M.Sc. in Electronic and Electrical Engineering (M.Sc. EEE) is affiliated with the eponymous Department of the Faculty of Technology of Obafemi Awolowo University (OAU), which established in 1962 at Ile-Ife. The M.Sc. EEE is a multidisciplinary study programme based on four specialisations: Electrical Power Engineering, Communications Systems Engineering, Control and Instrumentation and Material Science and Devices Technology. The curriculum duration is two years. The first year is devoted to core and specialisation courses, and the second year to the research project. Students are immersed in research in one of the four laboratories associated with each specialisation. The main career opportunities are linked to national development needs, with employment in research, industry, or government organisations.

2 – PRESENTATION OF THE PROGRAMME'S SELF-EVALUATION APPROACH

The Faculty of Technology has a committee on quality assurance, which comprises one member from each of the departments. This member is the quality assurance officer of the Department and Chairman of the Departmental quality assurance committee, comprising three members. Based on the provided information, there were some initial gaps or inconsistencies in the self-evaluation report, particularly concerning research units, monitoring of attractiveness, and data regarding the number of M.Sc. students. However, these issues were partly addressed by providing additional documents upon request during the interview process, which were made available within the week.

III. COMPOSITION OF THE EXPERTS PANEL

- **Olivier BOUTIN**, Chair of the panel, Full professor, Aix-Marseille University, France
- **Ali DAOUADJI**, Full professor, INSA Lyon, France
- **Demba DIALLO**, Full professor, Paris-Saclay University, France
- **Maxime LEBRETON**, Ph.D. candidate, ENS-PSL Paris, France

Hcéres was represented by **Zakia MESTARI**, project manager, Europe and International Department.

IV. VISIT DESCRIPTION

- **Date of the visit:** the visit took place on Wednesday 6th December 2023.
- **Summary of the proceedings:** before the visit, the self-evaluation report and a few appendices were received by the experts. Two preparatory meetings between the Director of the Hcéres Europe and International Department, the project manager and the panel of experts were held in Paris (13th November) and online (29th November). The on-site visit took place over one day, according to a schedule agreed upon between the ACE ICT OAK PARK, NUC, and the panel. During the visit, the experts requested additional quantitative data documents.. They were available on 11th December.
- **Organisation of the visit:** for security reasons, the panel could not visit the Centre in Ife-Ife. The visit was organised in hybrid mode in Abuja. The Centre leaders, programme director, postgraduate coordinator, several staff members and students of the Obafemi Awolowo University, met the panel in Abuja.
- **Cooperation of study programme and institution to be accredited:** ACE ICT OAK PARK were

cooperative throughout the process. The questions asked during the visit were answered. The panel is satisfied with the conclusion, which is based on available and relevant information. The National Universities Commission's involvement was constructive throughout the process.

- **People met:** the experts' committee was able to meet with 26 people from different panels:

	Session	Audience
8:00 – 9:30	Presentation of the programme and discussion	Centre Leaders, programmes directors and their teams
9:30 – 10:30	Academic staff	Representative panel of academics from both programmes
10:45 – 11:45	Quality assurance	Quality assurance representatives
11:45 – 12:45	Alumni	Representative panel of alumni
14:00 – 15:00	Socio-economic partners and employers	Representative panel of socio-economic partners and employers
15:00 – 16:30	Students	Representative panel of students from both programmes
16:30 – 17:30	Closing session	Centre Leaders, programmes directors and their teams

V. EVALUATION REPORT

1 – TRAINING POLICY AND CHARACTERISATION

The analysis of this item is based on the given documents, but the actual functioning of the M.Sc. is not accessible, due to the absence of students along most years.

The M.Sc. EEE stands out among other similar EEE Departments in Nigeria thanks to its seniority and curriculum emphasis on semiconductors. The programme MSc in Electronic and Electrical Engineering has been integrated to the Africa Centre of Excellence for ICT-Driven Knowledge Park (ACE OAK-Park). Obafemi Awolowo University aims to be an African institution of excellence. The Department of Electronic and Electrical Engineering (EEE) depends on the Faculty of Technology of OAU, founded in 1970. Some students of this programme are affiliated with the Centre. This programme aligns with the University's objective to offer education that meets Nigeria's developmental needs. It is complementary to the M.Phil. in Electronics and Electrical Engineering (much more research-oriented than the M.Sc. EEE) and to the M.Sc. in Computer Science and Engineering of the same Faculty. A B.Sc. and a Ph.D. in Electronic and Electrical Engineering of the same Department are also linked to the M.Sc. programme. This programme is in line with the national priorities outlined in the Nigerian National Development Plan for infrastructure modernisation, industrialisation, and economic diversification. The M.Sc. is highly pluridisciplinary and allows four specialisations in Electrical Power Engineering, Communication Engineering, Control and Instrumentation, and Material Science and Devices Technology. Interdisciplinarity is mainly permitted through the second-year research project. However, sustainable development pertaining to Electronics and Electricity is not directly covered in any specific course. Instead, it is incorporated in other courses, such as the inclusion of renewable energies in the Electrical Power Engineering specialisation courses. It would be beneficial to introduce a core course addressing sustainable development issues for all offered paths.

Two international academic partnerships with Delft University of Technology (Netherlands) and the MIT (USA) were mentioned, and a single memorandum of understanding was signed with the University of York (UK) between 2017 and 2022. These partnerships are primarily focused on research activities. For instance, they encompass materials science and device technology programmes in collaboration with the MIT Microsystems Research Laboratory and the Department of Microelectronics of Delft University of Technology. Therefore, the international visibility of the Master's programme is not sufficient. The programme does not distinctly delineate its position in the international training landscape nor does it discuss current efforts to enhance incoming international mobility. Additionally, no international students have been enrolled in the programme since 2016. Nonetheless, non-English-speaking students would receive six months of free English training before commencing their courses.

The M.Sc. programme benefits from strong research connections, supported by four laboratories within the Department. Each laboratory aligns with one of the four M.Sc. specialisations previously described, with an average of five permanent members in each. Over the last five years, the Faculty of Technology has received 10 research grants representing over 1.5 million USD. The funders are mainly the Tertiary Education Trust Fund (TETFund), the Nigerian Communication Commission (NCC) and the World Bank. Following a first year comprising core and specialisation courses, the study programme incorporates a one-year thesis project that encourages robust student-research interaction. Additionally, students enjoy the advantages of graduate seminars (such as the bi-weekly Department postgraduate seminar), conference participation, and journal clubs. However, the programme does not provide specific training in research integrity and ethics.

Socio-economic partners have been engaged with the programme for a considerable duration. For instance, National Instruments has been a partner for more than 15 years. Advisory Boards with company leaders are organised twice a year to assess the programme's alignment with the socio-economic needs. The twenty-two industrial partners are helping to supply hardware (e.g., 42 FPGA boards from Intel or graphics and evaluation boards from Nvidia) to the Department. Socio-economic partners are already integrated into the students' training through their participation in the annual innovation week, organised by OAU. This event aims to equip students with entrepreneurship skills. In addition, professional bodies, such as COREN (Coordination Environment) and IEEE (Institute of Electrical and Electronics Engineers), provide access to research funding, student chapter events (which is a kind of specific work group taking place during conferences), and resources for professional development.

However, socio-economic partners have never been involved in students' supervision. Their participation would create strong interconnection between the industry and future engineers. Alumni have significantly contributed to the "AI Studio" for training in Artificial Intelligence and robotics. Yet, alumni integration into the programme is not yet adequate. An alumni network should be established to ensure that the curriculum remains relevant amidst the rapid evolution of technology. This network will foster stronger interaction with alumni and, by extension, the industry.

In conclusion, the M.Sc. in Electronic and Electrical Engineering offers a multidisciplinary curriculum focused on four specialised areas: Electrical Power Engineering, Communications Systems Engineering, Control and Instrumentation and Material Science and Devices Technology. It is complementary to the M.Sc. in Computer science of the same Faculty and the M.Phil. in Electronics and Electrical Engineering in the same Department. Local, national and international Advisory Boards contribute significantly to addressing socio-economic needs within the curriculum. Research links are fostered primarily through the research dissertations completed by students during their second year. Partnership agreements are established with various universities and socio-economic institutions. However, the agreements with foreign universities are largely inadequate, which hinders the robust development of the programme's international dimension. The agreement with MIT, yet enables teaching methods and courses to be improved and updated. In addition, the international collaborations remain limited to teaching staff mobility. Regarding outgoing student mobility, the lack of a Memorandum of Understanding (MoU) has hindered the encouragement of outgoing mobility. Furthermore, there have been no foreign students in the programme for the past four years, highlighting a significant weakness in the programme's international standing. As such, it is imperative to enhance the international positioning of the programme.

2 – PEDAGOGICAL ORGANISATION OF THE STUDY PROGRAMME

The analysis of this item is based on the given documents, but the actual functioning of the M.Sc. is not accessible, due to the absence of students along most years.

The curriculum and its content are designed to align with the objectives of the M.Sc. programme. In the first academic year, students are required to enrol in a minimum of four core courses (12 units), three specialisation courses (9 units) and the M.Sc. research courses (6 units). The programme develops a diverse set of analytical and specialised skills, including advanced communication and leadership abilities, as well as an in-depth understanding of electronic materials. The M.Sc. programme outlines knowledge objectives and outcomes for each course. In the second academic year, students engage in a thesis project that is closely connected to a research unit relevant to their specialisation. This customisable structure enables the programme to adapt to the diverse backgrounds of its students.

The M.Sc. programme diversifies its teaching practices to perform advanced theory, practical work, and research immersion. The Department of EEE encourages innovative teaching practices such as active learning or outcome-based assessment and team-based assignments, case studies, flipped classrooms and mini-projects. The M.Sc. programme also incorporates simulation tools and practical sessions in training laboratories, which aligns with its objectives. There is an e-learning platform, but few modules are taught by videoconference. Students have access to several software (e.g., MATLAB, LabVIEW, PSPICE, and AutoCAD). Several company visits are organised to offer students on-site experience at various industrial facilities, including power facilities, manufacturing plants, and telecom providers. Additionally, the students can engage in competition projects, which may be sponsored by industry partners, to address genuine engineering challenges using cutting-edge prototyping equipment. Although internships are not mandatory for all M.Sc. students, they are mandatory for the 25% of students affiliated with the Centre of excellence. The success of students is reinforced by the provision of counselling, tutoring, and guidance services.

However, while there are five partnerships with foreign universities listed, only one of them has resulted in a signed agreement. Despite having an international teaching staff and a commitment to establishing additional partnerships and expanding the M.Sc.'s international reach, the specific measures undertaken to encourage international exchanges are not easily discernible.

Socio-economic partners contribute to training courses and participate in conferences and seminars, influencing the pedagogical structure of the M.Sc. by joining improvement committees. A National Advisory Board, comprising business leaders, government officials, and academics, collaborates to tailor the curriculum to address national priorities and employment needs. Additionally, an International Advisory Board consisting of international experts and academics helps align departmental research with industry standards and latest developments. However, there is no mention of lifelong learning or apprenticeship programmes within the M.Sc. agenda.

In conclusion, the Master's programme is characterised by a well-structured, coherent, and clearly defined curriculum. It adheres to the expected and documented skills for each specialisation, is based on and emphasises advanced theoretical teaching, practical laboratory work, and the use of simulation tools and software typical of industry practices. The programme introduced students to research within their specialisation laboratories. Significantly, the programme adopts progressive teaching methodologies, such as project work and flipped classrooms, enhancing the learning experience. Students receive personalised guidance, which can instrumental in navigating any shifts in their academic paths. The involvement of socio-economic partners in guest lectures and seminars enriches the learning process. However, a suggestion is made here to make the

internship compulsory for all students, not just in the ACE programme. This would bridge the gap between the teaching methods and the expected skills and foster preparedness for the job-market.

The programme should systematically develop soft skills to facilitate students' outgoing mobility, equip them with additional skills relevant to job-market integration, and ensure proficiency in information and communication tools.

3 – ATTRACTIVENESS, PERFORMANCE AND RELEVANCE OF THE STUDY PROGRAMME

The analysis of this item is based on the given documents, but the actual functioning of the M.Sc. is not accessible, due to the absence of students along most years.

The M.Sc. programme monitors its attractiveness by utilising metrics such as the volume of applications and the quality of admissions. It is noteworthy that the size of student cohorts has substantially decreased since 2016. Specifically, there were 14 incoming students in 2016, 11 in 2017, nine in 2018, 16 in 2019, none for 2020 and only one for the subsequent academic years. It is evident that the programme must enhance its attractiveness to potential applicants.

Several indicators are used to monitor students' success. The satisfaction of students is assessed annually through an online survey, which consistently reports satisfaction with mentoring, academic resources, equipment, coursework, and communication with the Department. The low availability of grants is identified as a significant barrier to their success, as only 10% of students have been funded since 2017, and these grants have been exclusively provided by TETFund, with an average duration of one and a half years.

Various indicators are utilised to monitor the professional integration of programme graduates. Alumni surveys are conducted to ascertain their current positions, the relevance of the study programme to their current job, salary range and job satisfaction. Furthermore, a dedicated service conducts career tracking. Out of the 42 students who graduated between 2019 and 2022, 27 are employed in industry, research or national agencies.

In conclusion, the M.Sc. EEE measures its attractiveness by assessing indicators like applicants' numbers and admission quality. However, the programme needs a more effective promotional strategy to attract future applicants. The decline in numbers, a trend partly imputable to the Covid-19 pandemic and national industrial actions, has seen student intake plummet from 14 in 2016-2017 to just one in 2021 and 2022. These recruitment challenges hinder the Master programme's ability to prepare a capable workforce.

Several measures are implemented to boost student success, including personalised advising, tutoring and counselling. The programme also closely monitors the success rate, which could be elevated by providing financial assistance. Presently, only 10% of the students admitted between 2017 and 2021 received funding, a figure deemed insufficient. To gauge graduates' career integration, data is collected from multiple sources, such as dedicated career monitoring, alumni surveys, employer feedback, and professional networks reviews. This approach has enabled the programme to track the post-graduation trajectory of over 65% of its alumni.

4 – ACADEMIC PROGRAMME MANAGEMENT AND CONTINUOUS IMPROVEMENT

The analysis of this item is based on the given documents, but the actual functioning of the M.Sc. is not accessible, due to the absence of students along most years.

An identified team and a Postgraduate Programme Coordinator manage the M.Sc. EEE. The Head of the Department of EEE acts as the programme's chief executive and chairs a Department Board of Examiners, a committee established each year with the approval of the Senate of OAU. The teaching team comprises eight professors, eight assistant professors and seven lecturers representing the four specialisation areas. Furthermore, there are 12 international associate lecturers. Most of them are based in the UK or the USA. The teaching staff, including international ones, are well-integrated and have efficient links with the coordination team. Students have a positive rapport with both the teaching staff and the programme's management.

The teaching staff has a high-quality partnership with the MIT, resulting in significant benefits for both teaching practices and access to advanced equipment. For instance, seven faculty members were awarded the *TotalEnergies MIT-Empowering the Teachers (MIT-ETT)* Fellowship. As a result of the partnership, the teaching staff has the opportunity to spend a semester at MIT, enhancing their teaching practices. Practical sessions and sustainability in the study programme were noticeably improved thanks to this collaboration. Moreover, MIT is a major contributor, accounting for approximately 30% of all listed equipment in the Department. The generosity of Alumni donations has made it possible to establish an AI studio, complete with drones, computers, electronic prototyping tools, and a large screen. The study programme is facilitated by three seminar rooms, seven postgraduate classrooms and specialised practical laboratories, including a semiconductor clean room and a high-voltage laboratory. The programme is also supported by eight dedicated technical staff members.

Nevertheless, the equipment obsolescence poses a significant challenge, underscoring the need for increased financial support to address this issue.

Despite a detailed template provided by the OAU quality assurance and monitoring committee, the assessment of courses by students appears to be mainly informal. In addition to the national and international advisory boards, which are instrument in considering the socio-economic world, the M.Sc. programme also has a local advisory board that incorporates individuals external to the programme. It would be a great improvement to include students in this advisory board. The M.Sc. is evaluated every five years by the National Universities Commission (NUC). The University provides a quality assurance service, but the Department also has its own dedicated internal quality assurance committee. The Faculty Handbook includes accurate descriptions of recruitment procedures, knowledge assessment, and GPA calculation. However, there is insufficient information on the analysis and subsequent actions taken from these evaluations. OAU utilises the anti-plagiarism software Turnitin, and the Department has set up an ethics committee.

In conclusion, the curriculum is supported by sufficient human resources. A partnership agreement with the MIT (USA) has facilitated the modernisation of teaching methods and has made a significant contribution in terms of equipment. Nevertheless, equipment obsolescence remains a major concern that requires additional funding for renewal.

The postgraduate coordination staff is clearly identified, maintaining efficient coordination with the teaching staff. Quality policies are implemented at both the University and the Department level. The NUC periodically evaluates the M.Sc. programme, and though informal, students' assessments of teachings are regularly conducted. The programme also includes an improvement council and ethics committee at the Department level. Recruitment procedures, examination regulations, and the grading system are well-documented and thoroughly explained in the Faculty of Technology Handbook, ensuring transparency and clarity.

VI. CONCLUSION

The curriculum is multi-disciplinary and well-aligned with national employment needs. The programme offers four areas of specialisation in Electrical Power Engineering, Communications Systems Engineering, Control and Instrumentation, and Material Science and Devices Technology. Students gain access to a multitude of skills tailored to their chosen specialisations, including advanced theoretical courses, practical laboratory work, and research immersion. The programme benefits from a newly established 20-seat AI studio, which was generously funded by alumni. This addition to the curriculum aims to adapt to the expressed needs for AI and mechatronics courses identified by socio-economic partners. After completing the first year of core and specialisation courses, students engage in a comprehensive year-long research project, supported by four specialised laboratories—one for each area of concentration. However, it should be noted that internships are not mandatory and are only pursued by 25% of M.Sc. students. Local, national, and international advisory boards convene bi-annually, providing an opportunity for the Master's programme to continuously evaluate and improve itself. Presently, international collaborations are quite limited and lack formal memorandums of understanding or partnerships agreements, with the exception of the MIT partnership.

The number of students in cohorts have drastically decreased since 2016. Additionally, there has been no enrolment of international students since 2016. Furthermore, financial support for students is deemed largely insufficient. It is highly recommended that the programme develops a comprehensive strategy to enhance the attractiveness of the M.Sc. and subsequently increase the number of students enrolled. Every year, students are asked about their training conditions and the quality of teaching, although a more formal and structured consultation process may be beneficial. Greater involvement of alumni in curriculum development and promotion could significantly contribute to programmer improvements.

The study programme boasts a robust governance structure, fostering strong links between the teaching teams and the postgraduate coordination. The M.Sc. programme is well-supported by an adequate number of both teaching and non-teaching staff. It utilises various laboratories, yet some of the equipment is outdated. A portion of the teaching team consists of twelve international members, providing an opportunity to leverage partnerships with their respective universities to advance internationalisation efforts. Although limited, current partners demonstrate strong support for the curriculum by donating equipment. The programme receives funding from the Federal Government. Seven teaching staff members were granted the *TotalEnergies MIT-Empowering the Teachers* Fellowship, enabling financial support for equipment upgrades and pedagogical enhancements.

In a fast-changing field and a more competitive educational landscape, the M.Sc. EEE faces the challenge of keeping the gap between teaching practices and the latest developments in electronics and electrical engineering to a minimum. To accomplish this, the M.Sc. EEE has a range of reliable socio-economic, alumni, and academic partnerships at its disposal. Through the backing of all stakeholders and by increasing its attractiveness, the M.Sc. could extend its high-calibre training to Africa, aligning with the vision of the OAU. The M.Sc. EEE needs to increase the number of students in order to make the programme work.

STRENGTHS

- The programme's multidisciplinary curriculum equips students with a versatile skill set, allowing them to meet diverse needs both within the country and internationally
- The year-long research project is an invaluable aspect of the programme, providing students with hands-on experience and deeper understanding in their field of study
- The inclusion of socio-economic partners in national and international advisory boards of the Department ensures a connection with real-world needs, enriching the programme's relevance
- The partnership with the MIT enables the programme to incorporate modern and innovative pedagogical approaches
- The presence of an international teaching staff

WEAKNESSES

- The drastic decline in enrolment over recent years
- The lack of opportunities for growth and improvement by not actively monitoring and developing its attractiveness over the long term
- The lack of international memorandum of understanding, hindering both incoming and outgoing student mobility

- The optional industrial internships for some students
- The presence of obsolete laboratory equipment, which can interfere with students' abilities to keep up with the rapid advancements in technology, potentially creating a gap between the targeted academic level and the actual set they possess

RECOMMENDATIONS

- Increase opportunities for scholarships or research grants and leverage them to enhance the number of students, relying on formalised partnerships.
- Establish an information system tailored to future students and scrutinise applications to foster the long-term attractiveness of the M.Sc. programme.
- Utilise the international teaching team to create new Memorandums of Understanding (MoUs) and facilitate both students' incoming and outgoing mobility.
- Mandate internships for all the students, leveraging close relationships with socio-economic partners.
- With support from the Advisory Boards, prioritise updating equipment to keep pace with rapid technological advancements in electronics and electrical engineering.

VII. COMMENTS OF THE INSTITUTION



OBAFEMI AWOLOWO UNIVERSITY **ILE-IFE, NIGERIA**

Professor Adebayo S. Bamire

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Ref.No/VC.101/ACE/Vol.XII/012

6th May 2024

The President,
High Council for the Evaluation of Research and Higher Education,
2, Rue Albert Einstein,
75013 Paris,
France.

Re: Hcéres - Evaluation Report on M.Sc. Electronic and Electrical Engineering Programme

Thank you for your mail dated April 9, 2024 on the above subject matter.

On behalf of the Obafemi Awolowo University, I am pleased to inform you that our team went through the provisional report and all the information on the report is a true reflection of the programme.

There is no comment of a more strategic nature on the content and substance.

Please go ahead to submit the report for further processing and final approval.

Kind regards,



Prof. Adebayo Simeon Bamire
Vice-Chancellor



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[Hcéres](https://www.youtube.com/Hceres)

ACCREDITATION DECISION

M.Sc. Electronic and Electrical Engineering

Africa Centre of Excellence for ICT-Driven
Knowledge Park (ACE OAK-Park)

Obafemi Awolowo University

Ile-Ife, Nigeria

June 2024

SCOPE OF THE ACCREDITATION GRANTED BY HCÉRES

HCÉRES has based its evaluation process on a set of objectives that study programmes must pursue to ensure recognised quality within France and Europe. These objectives are divided up into four accreditation criteria.

The Accreditation Commission issues an opinion about the accreditation of the study programme after examining the file. The Hcéres President takes the decision based on the Commission's opinion and the final evaluation report of the programme. This accreditation decision, taken in plenary session, is the result of a collegial and reasoned process.

The decision issued by Hcéres regarding the accreditation of the study programme corresponds to the awarding of a label to the evaluated entity.

This decision is independent of the accreditations carried out by the French State and therefore does not entail recognition in France of the institution or the diplomas delivered by it.

Decision No. EI-2024-34 on the accreditation of the M.Sc. Electronic and Electrical Engineering, delivered by Obafemi Awolowo University, Ile-Ife, Nigeria

The President of the High Council for the Evaluation of Research and Higher Education,

Considering the Research Code, in particular Articles L. 114-3-1 to L. 114-3-6;

Considering the Board's deliberation of 29th September 2022 on the accreditation criteria for courses abroad (excluding doctoral/PhD programmes);

Considering the Decision No. 2023-9 of 16th March 2023 on the international accreditation procedure of the High Council for the Evaluation of Research and Higher Education;

Considering the agreement DEI_2023_CONV17 of 14th June 2023 for the evaluation/accreditation of fourteen training courses, delivered by six Centres of Excellence in Nigeria;

Considering the opinion issued by the Accreditation Commission on 18th June 2024;

Decides:

Article 1

Noting that the M.Sc. Electronic and Electrical Engineering delivered by Obafemi Awolowo University in Nigeria meets the four accreditation criteria, voted by the Board of the High Council on 29th September 2022, as follows:

ACCREDITATION CRITERION 1: TEACHING POLICY AND CHARACTERISATION

The M.Sc. in Electronic and Electrical Engineering offers a multidisciplinary curriculum focused on four specialised areas: Electrical Power Engineering, Communications Systems Engineering, Control and Instrumentation and Material Science and Devices Technology. It is complementary to the M.Sc. in Computer science of the same Faculty and the M.Phil. in Electronics and Electrical Engineering in the same Department. Local, national and international Advisory Boards contribute significantly to addressing socio-economic needs within the curriculum. Research links are fostered primarily through the research dissertations completed by students during their second year. Partnership agreements are established with various universities and socio-economic institutions. However, the agreements with foreign universities are largely inadequate, which hinders the robust development of the programme's international dimension. The agreement with MIT, yet enables teaching methods and courses to be improved and updated. In addition, the international collaborations remain limited to teaching staff mobility. Regarding outgoing student mobility, the lack of a Memorandum of Understanding (MoU) has hindered the encouragement of outgoing mobility. Furthermore, there have been no foreign students in the programme for the past four years, highlighting a significant weakness in the programme's international standing. As such, it is imperative to enhance the international positioning of the programme.

ACCREDITATION CRITERION 2: THE PEDAGOGICAL ORGANISATION OF THE STUDY PROGRAMME

The Master's programme is characterised by a well-structured, coherent, and clearly defined curriculum. It adheres to the expected and documented skills for each specialisation, is based on and emphasises advanced theoretical teaching, practical laboratory work, and the use of simulation tools and software typical of industry practices. The programme introduced students to research within their specialisation laboratories. Significantly, the programme adopts progressive teaching methodologies, such as project work and flipped classrooms, enhancing the learning experience. Students receive personalised guidance, which can be instrumental in navigating any shifts in their academic paths. The involvement of socio-economic partners in guest lectures and seminars enriches the learning process. However, a suggestion is made here to make the internship compulsory for all students, not just in the ACE programme. This would bridge the gap between the teaching methods and the expected skills and foster preparedness for the job-market.

The programme should systematically develop soft skills to facilitate students' outgoing mobility, equip them with additional skills relevant to job-market integration, and ensure proficiency in information and communication tools.

ACCREDITATION CRITERION 3: ATTRACTIVENESS, PERFORMANCE AND RELEVANCE OF THE STUDY PROGRAMME

The M.Sc. EEE measures its attractiveness by assessing indicators like applicants' numbers and admission quality. However, the programme needs a more effective promotional strategy to attract future applicants. The decline in numbers, a trend partly imputable to the Covid-19 pandemic and national industrial actions, has seen student intake plummet from 14 in 2016-2017 to just one in 2021 and 2022. These recruitment challenges hinder the Master programme's ability to prepare a capable workforce. Several measures are implemented to boost student success, including personalised advising, tutoring and counselling. The programme also closely monitors the success rate, which could be elevated by providing financial assistance. Presently, only 10% of the students admitted between 2017 and 2021 received funding, a figure deemed insufficient. To gauge graduates' career integration, data is collected from multiple sources, such as dedicated career monitoring, alumni surveys, employer feedback, and professional networks reviews. This approach has enabled the programme to track the post-graduation trajectory of over 65% of its alumni.

ACCREDITATION CRITERION 4: MANAGEMENT AND CONTINUOUS IMPROVEMENT OF THE ACADEMIC PROGRAMME

The curriculum is supported by sufficient human resources. A partnership agreement with the MIT (USA) has facilitated the modernisation of teaching methods and has made a significant contribution in terms of equipment. Nevertheless, equipment obsolescence remains a major concern that requires additional funding for renewal.

The postgraduate coordination staff is clearly identified, maintaining efficient coordination with the teaching staff. Quality policies are implemented at both the University and the Department level. The NUC periodically evaluates the M.Sc. programme, and though informal, students' assessments of teachings are regularly conducted. The programme also includes an improvement council and ethics committee at the Department level. Recruitment procedures, examination regulations, and the grading system are well-documented and thoroughly explained in the Faculty of Technology Handbook, ensuring transparency and clarity.

Article 2

The M.Sc. Electronic and Electrical Engineering delivered by Obafemi Awolowo University in Nigeria, is not accredited.

Article 3

The decision is accompanied by the following recommendations and comments:

- Increase opportunities for scholarships or research grants and leverage them to enhance the number of students, relying on formalised partnerships.
- Establish an information system tailored to future students and scrutinise applications to foster the long-term attractiveness of the M.Sc. programme.
- Utilise the international teaching team to create new Memorandums of Understanding (MoUs) and facilitate both students' incoming and outgoing mobility.
- Mandate internships for all the students, leveraging close relationships with socio-economic partners.
- With support from the Advisory Boards, prioritise updating equipment to keep pace with rapid technological advancements in electronics and electrical engineering.



Article 4

This decision will be published on the Hcéres website.

Paris, 27th June 2024.

The acting President
signed
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