Macau University of Science and Technology

Institutional Accreditation

March 2022

External Quality Assurance Agency

Quality Assurance Agency for Higher Education

Date submitted to the University: 31 May 2022

Vicki Stott
Chief Executive, QAA

Contents

Abbreviations

DSEDJ   Macau Bureau for Education and Youth Development

EQAA   External quality assurance agency

HEI   Higher education institution

IA   Institutional Accreditation

KPI   Key performance indicator

MOP   Macanese pataca

MUST   Macau University of Science and Technology

NCEE   National college entrance examination

OBA   Outcomes-based approaches

QAA   Quality Assurance Agency for Higher Education in the United Kingdom

SAR   Special Administrative Region

SER   Self-evaluation report

STEM   Science, technology, engineering and mathematics

VLE   Virtual learning environment

Executive summary

Focus of Institutional Accreditation

Founded in 2000, Macau University of Science and Technology (MUST) has grown rapidly. It is the largest multidisciplinary university in Macau. MUST is situated on land in Taipa, Macau. It is authorised by the Macau Special Administrative Region (SAR) government to award academic degrees at doctoral, master's and bachelor's levels. The University attracts students from Macau, from other parts of Greater China and the world, and specialises in developing knowledge-based professional capabilities. In 2020-21, the University offered 80 academic programmes in 10 faculties, in diverse disciplines that include science and engineering, medicine, information technology, law, business and economics, humanities and arts, languages, hospitality and tourism management. To cater for students recruited internationally, the University offers programmes that are conducted in English, Chinese, Portuguese and Spanish. At the time of the audit, enrolment was 14,005 students (9,239 undergraduate and 4,766 postgraduate students).

MUST was established as a private, multidisciplinary university to serve the needs of the local community and society, the Pearl River Delta region, the wider East Asian community and beyond. It is run by the Macau University of Science and Technology Foundation (MUST Foundation), set up by entrepreneurs and business leaders in Macau. The Foundation's jurisdiction includes the University, a hospital and an international school.

The University's mission, as stated in its strategic plan for 2021-25, is 'to nurture talents, promote cultural exchange, foster economic development and further societal progress'. Its core values are stated as 'pursuit of excellence, innovation, multi-culturalism, openness and inclusiveness, internationalization and social responsibility'.

To serve the needs of the 14,005 students, the University employs 1,369 staff. Among these are 886 academic staff, 167 researchers and 483 non-academic staff. There are 10 faculties or academic units delivering 80 approved degree programmes. There are 10 research units at University level and a total of 57 research laboratories. There are seven administrative units: Academic Registry; Human Resources Office; Student Affairs Office; Accounts Office; General Affairs Office; Estates and Facilities Office, and Information Technology Office.

Key objectives on which the University is focused are: internationalisation; teaching and learning; research innovation and cooperation, internationalisation and diversification, integrating into the Guangdong-Hong Kong-Macau Greater Bay Area and serving the country, sustainable development, social and economic development; the practical nature of programmes; research and scholarship; and cultural exchange. In its Strategic Plan (2021-25), the University has recognised shortfalls and limitations when compared with leading universities in the world. It has identified the following areas for strategic development: diversity of academic programmes, faculty development, research capability, educational autonomy and internationalisation.

During the academic year 2020-21, the University delivered a total of 80 programmes: 21 undergraduate; 37 master's; and 22 doctoral. A list of academic units and programmes offered can be found in Annex 2.

Approach

This is a report of an Institutional Accreditation conducted by the United Kingdom Quality Assurance Agency for Higher Education (QAA) of Macau University of Science and Technology. The accreditation virtual visit took place from 21 February to 2 March 2022 and

was conducted by a team of five international peer reviewers, referred to as the External Accreditation Panel (Panel). The Accreditation Panel membership is set out in Annex 1 on page 46.

The Institutional Accreditation (IA) was conducted at the request of the Macau University of Science and Technology. IA is a means of evaluating education quality to determine whether the operation of institutional management and the programmes offered by a higher education institution meet the quality assurance requirements of Macau as set out in the Guidelines for Institutional Accreditation (2018) as published by the Macau Bureau for Education and Youth Development (DSEDJ).

IA is a voluntary quality assurance process conducted by HEIs in Macau. For the purposes of this audit, QAA acted as the recognised External quality assurance agency (EQAA) appointed to conduct the accreditation. The responsibilities of an EQAA are set out by the DSEDJ in the Guidelines for External Quality Assurance Agencies (2018).

IA is conducted according to the relevant laws and regulations of Macau. Outcomes of the IA documented in the accreditation report are submitted to MUST. The University must submit to DSEDJ the final accreditation report for confirmation of the IA outcome.

IA is conducted on the following guiding principles.

- **Student-centred.** Education is by nature student-centred. Under this core philosophy of education, the primary objective of IA is to ensure that HEIs can provide favourable and quality learning environments as well as learning experiences so that the students can attain the intended learning outcomes upon completion of the programmes under reasonable circumstances.

- **Fitness for purpose.** HEIs differ in scale, mode of operation, educational philosophy, and so on. As such, IA should be conducted based on HEIs' stated educational goals to evaluate whether HEIs have adequate institutional systems, resources and operation to meet their stated goals and achieve corresponding standards sustainably.

- **Evidence-based.** Judgement is made based on evidence to ensure objectivity, fairness and consistency of IA outcomes. Evidence includes the accreditation document prepared by HEIs for IA, and the solid empirical data collected by engaged EQAAs as well as the observations made by the Panel during the site visit. HEIs should be entitled to express their views and present evidence throughout the IA process.

- **Open and transparent**. IA is conducted in an open and transparent manner. Information concerning accreditation areas, standards, criteria, possible sources of evidence, process and so on, is detailed in the Guidelines for Institutional Accreditation (2018).

The frame of reference used by the panel is the Accreditation Areas, Standards, Criteria and Evidence set out in the Guidelines for Institutional Accreditation (2018). There are five Accreditation Areas: Institutional Governance and Management; Academic Planning, Development, Management and Monitoring; Financial Management and Resources Deployment; Staffing and Staff Development; and Quality Assurance.

The Panel was provided with a self-evaluation report prepared by the University. The self-evaluation report was accompanied by documentary evidence to support the University's reflections and analysis. The Panel conducted a desk-top analysis of the self-evaluation and documentary evidence, and further evidence was provided at the request of the Panel. Due to COVID-19 pandemic restrictions the Panel was unable to conduct an

on-site visit to the University campus. Instead, a virtual visit took place from 21 February to 2 March 2022. During the visit, the Panel held discussions with the President of the University, representatives of the University Council, executive members of staff, students, academic staff, professional and administrative support staff, as well as alumni, graduates and stakeholders from Macau society. The Panel was also provided with a video tour of the campus and facilities as well as a real-time demonstration of, and some access to, the University's digital platforms. The purpose of the virtual on-site visit was to verify the University's self-evaluation and to reach conclusions about the effectiveness of the University regarding the five accreditation areas. The five areas form the structure of this report.

Special circumstances

There are no special circumstances to report. The Panel reached a consensus on all conclusions.

A summary of the findings can be found in the following paragraphs in this executive summary. Explanations of the findings are given in numbered paragraphs in the section starting on page 6.

Accreditation outcomes and respective decisions

The Accreditation Panel concluded that the Macau University of Science and Technology **meets** all standards for Institutional Accreditation.

Commended good practice

The QAA Accreditation Panel **commended** the following features of **good practice** at Macau University of Science and Technology:

- the Comfort Heart Fellowship Program, which has significant potential to raise awareness of, and to prevent, student mental health issues (paragraph 3.25)
- the comprehensive nature and multifunctionality of the WeMUST platform, which allows ready access to a wide range of functions (paragraph 5.25).

Conditions

The Accreditation Panel did not apply conditions to the accreditation decision.

Recommendations for improvement

The QAA Accreditation Panel makes the following **recommendations** to Macau University of Science and Technology:

- develop a robust and proactive process for the consideration of a comprehensive range of risk types, to include oversight and management of the risks identified, including monitoring and reporting the current level, establishment of management and mitigation processes, and assignment of responsibility for each risk (paragraph 1.25)
- define the terms of reference of the University Council and its Executive Committee, including the delegation of any authority from the former to the latter, and ensure that each body has sufficient meeting time to discharge its responsibilities paragraph 1.33)

- introduce a formal process for the annual monitoring of programmes, with particular reference to maintaining academic standards (paragraph 2.22)

- ensure effective training for all class mentors (paragraph 3.21)

- develop and implement a scheme that facilitates the development of new faculty members in learning, teaching and assessing in higher education (paragraph 4.10)

- effectively explain the complaints mechanism to its students (paragraph 5.19)

- develop and implement systems and processes to analyse the incidence and patterns of student appeals and student complaints (paragraph 5.20)

- develop and implement a grievance policy that considers all grievances at University level and provides for grievances to be heard by persons independent of the faculty concerned (paragraph 5.21)

- ensure that faculty members understand and effectively implement processes for the setting and maintenance of academic standards (paragraph 5.22)

- ensure that all minutes, policies, procedures, guidelines, reports and appropriate training materials are produced in English, in addition to other languages as appropriate (paragraph 5.28).

Panel's professional advice on the approved scope(s) for the HEI granted the status to self-regulate and offer new programmes (i.e. disciplines, academic units and academic levels)

The Panel's carefully considered opinion is that no restriction in scope, for example related to disciplines, academic units and academic levels, in relation to self-regulation and the ability to offer new programmes should be placed on the University.

Explanation of the findings

The following section explains the accreditation findings in more detail.

Terms that may be unfamiliar to some readers have been included in a brief glossary on page 51 of this report.

Accreditation Area I: Institutional governance and management

Criterion 1: Educational philosophy and purposes

Standard(s)

1.1 HEIs must specify their educational philosophy, purposes and goals, and demonstrate that they align with the missions of their legal entities.

1.1   According to its charter, the University has autonomy in setting its own direction and agenda, within the legal framework of Macau. The University can establish its own operating principles, regulations, financial accountability systems, and personnel, so long as any actions do not threaten educational and academic autonomy. The University can set its own objectives, choose which research to prioritise, and decide on its programme offer. However, in recent years there has been more oversight from the Government of Macau such that planning processes for new programmes have been slowed and the University has identified the lack of autonomy and flexibility to offer new programmes in an agile manner as a threat.

1.2   According to its self-evaluation report (SER), the University's mission is 'to nurture professional talents, promote scientific research and innovation, prompt economic development, advance societal progress, and foster cultural exchange', all in relation to strengthening the competitiveness of Macau and the surrounding region. However, the mission as stated in the strategic plan (2021-25) is different and is 'to nurture talents, promote cultural exchange, foster economic development and further societal progress'. Further, the mission publicised on the University's website is marginally different again, and is 'to promote cultural exchange, nurture intellectual growth, foster economic development, and further societal progress'. The mission was revised as part of the production of a new strategic plan, and the version that appears on the website is that contained within the old strategic plan of 2014-20. Although senior members of the University suggested that the differences might be owing to translation issues, the Panel considered the differences between the version in the SER and the other versions to be significant and encourages the University to ensure that mission version control is tightly maintained. For the purposes of this Institutional Accreditation, the Panel regards the mission as stated in the current strategic plan as definitive.

1.3   The University has adopted the following core values that demonstrate its institutional culture and strategic development path: towards excellence; innovation-driven; multiculturalism; openness and inclusive; internationalisation; and socially responsible. Students met by the Panel were particularly keen to further increase multiculturalism and internationalisation, recognising the steps the University has already taken regarding these values.

1.4   The vision of the University is not set out as a single statement, but instead occupies a short paragraph in the strategic plan and refers to adherence to the mission and core values, aspiring to be the university of choice for students and academics, and upholding the University's motto of 'dedication to practical studies, enhancement of knowledge, ability and quality'. In light of its mission and vision, the University claims to

adopt 'innovation' and 'quality' as the principal values for its education and operation, and thus it states its educational philosophy as innovation for growth and quality to ensure efficient strategic development.

1.5   The Panel confirmed that, in general, the steering apparatus adopted by the University provides a firm platform that sets out the direction of the University, bounded by ethically appropriate values. Examples lie in the research conducted by staff, in the curricula of new postgraduate programmes in Environmental Science & Engineering and Materials Science & Engineering being developed to meet the demands of the Technology and Innovation Hub in the Greater Bay Area, and in training education professionals through postgraduate programmes. A further example is in the prospective Faculty of Innovation Engineering, which aims to provide a platform to integrate existing resources for more coherent academic planning and development and will facilitate interdisciplinary engineering research and teaching.

1.6   To test the alignment between steering apparatus at University level and that at sub-units, the Panel examined the strategic plans for the Faculties of Information Technology and Hospitality & Tourism Management, the University International College, and the School of Business. The visions, missions, strategic objectives and strategic actions of these sub-units showed complete congruence with University drivers, particularly in increasing internationalisation, diversity, and promoting the development of the Greater Bay Area.

1.7   To a large extent the University's operational alignment with its steering apparatus is reported on in this document and in broad terms the University is operating within its stated parameters and in pursuit of its goals.

1.8   The University has also shown the capacity to consider carefully external reports and to instigate positive change as a result. An example is the use it made of the report of the 2017 QAA Institutional Quality Audit, which led to the development of the 'WeMUST' app as a component of the University's intranet.

Criterion 2: Educational experience

> *Standard(s)*
>
> *2.1   HEIs must explicitly indicate their educational experiences, history of development, institutional and program characteristics as well as the strengths and weaknesses in their operation so as to demonstrate how HEIs live up to their educational philosophy and purposes.*

1.9   The University claims to have a unique identity by virtue of being run by a foundation that includes a hospital and an international school; by embodying the merging of Asian and Western cultures, values and practices, and an international outlook; by achieving international recognition; and by developing collaborative networks with leading academic and industry partners. It also claims that its rapid growth is underpinned by an entrepreneurial spirit.

1.10   By virtue of producing its SER the University has indicated its educational experience, its developmental history and its characteristics. These features are also clearly explained on the University's website. The main characteristics are commented on in the sections of this report that follow. However, the SER is largely descriptive, rather than evaluative, and the opportunity was missed to analyse weaknesses in operation that the University had self-identified, and to indicate the steps being taken to address any such

weaknesses. Although the current strategic plan does not specifically identify weaknesses, it does identify areas to be developed in the pursuit of excellence and to reach parity with leading global universities. These areas are diversity of academic programmes, faculty development, research capability, educational autonomy, and internationalisation. There are plans to respond to the development of the Greater Bay Area by offering new academic programmes. At faculty level there is also a deficiency in identifying weaknesses to be addressed: only one of the four faculty plans made available to the Panel indicated any weaknesses.

1.11   The University's development has been steady and measured. It was instigated to cultivate talented professionals to serve the Macau Special Administrative Region (SAR) of China and initially (in 2000) comprised four faculties, each of which received considerable support in its development from a long-established Chinese University, for example by the provision of visiting faculty members. As the University gained its own identity and its systems stabilised, the University expanded with the introduction of more faculties; a process that is still ongoing. More recently (from approximately 2013), the University has developed its own research profile such that research sits alongside teaching as a key pillar of strategic activity. The University is now focusing on internationalisation and developing an international profile, including through developments in the Greater Bay Area. Development continues to be measured, or sensibly cautious, for example, the Panel heard that any collaborative ventures are carefully considered for risk, especially reputational risk.

1.12   The University claims that all its degree programmes are based on the societal need in Macau and the world and are aimed at fostering talent development. It also claims that programme structure and course curricula align closely with international standards and aim to nurture the bilingual ability of students with proficiency in Chinese and English. The Panel formed the view that this latter claim was true for some programmes but not others.

1.13   Emphasis is placed on developing 'brand' or 'niche' programmes in relation to both societal demands (local and national), for example a Master's in Supply Chain Management, and advances in technology, for example a Master's in Space Big Data Analytics. In this respect the University's mission is driving the educational experience. Further, the University has responded to the Macau SAR Government's initiative to diversify the economy away from a reliance on gambling, by introducing programmes and research areas in Chinese Medicine, Digital Finance, Creative Industries & Cultural Heritage, and Sustainable Development, which are of direct relevance to the Government's priorities.

Criterion 3: Development strategies and risk management

Standard(s)

3.1   HEIs must formulate development strategies to illustrate how they achieve their educational philosophy and purposes progressively with effective strategies and approaches.

3.2   The development strategies must reflect HEIs' vision in higher education, HEIs' local and international positioning, and the performance indicators that they intend to achieve.

3.3   The development strategies must align with the mid- to long-term strategies for academic development.

3.4   HEIs must formulate comprehensive risk management strategies embracing an effective risk management mechanism that can ensure sustainability in institutional operation in the face of uncertainty and change.

1.14   The Strategic Plan 2021-2025 describes five major strategies, namely: Teaching and Learning; Research Innovation and Cooperation; Internationalisation and Diversification; Integration into the Greater Bay Area, Serving the Country; and Sustainable Development. These strategies align with the University's core values. The Teaching and Learning section of the Strategic Plan provides several specific objectives, designed to enable the University to achieve its strategic aims. These are as follows:

- employment of new technologies and new models of teaching and learning, including the establishment of a learner-centred environment, and the promotion of student awareness of self-directed learning
- review of students and faculty to optimise the organisational structure, and to reform teaching and learning to develop an innovation-based teaching and learning environment with optimised learning outcomes
- build upon the perspective of continuous improvement, strengthen the link between learning and practice and cultivate student creativity, analytical ability and problem-solving skills
- 'innovation, entrepreneurship and creativity' will be added to the teaching and learning process to enable students to engage in innovative and entrepreneurial ventures and scientific research
- conduct in-depth analysis to determine a set of graduate attributes, to direct the teaching process to develop well-rounded graduates
- introduction of new programmes, particularly in engineering and humanities, and establishment of faculties and institutes with postgraduate programmes
- development of a multifaceted curriculum, to nurture a new generation of postgraduate students with an interdisciplinary outlook
- development of the tutoring scheme, STEAM, will be formulated as a dynamic force in higher education in Macau and the Greater Bay Area.

1.15   The University currently offers bachelors, master's, and doctoral degrees across 11 disciplines: liberal arts, sciences, laws, management, business, medicine, pharmacy, tourism, art, communication, and foreign languages. The Strategic Plan 2021-2025 clearly states the intention to introduce engineering and humanities to this list.

1.16   The University is currently preparing to introduce seven new postgraduate programmes in materials science, mathematics and education. These programmes are intended to meet the rising demands for the development of a Technology and Innovation Hub in the Greater Bay Area, and to provide training for high-level educational professionals in Macau and nearby regions.

1.17   A new Faculty of Innovation Engineering was officially opened at the University's 22nd Anniversary Ceremony in March 2022. The new Faculty will bring together the existing Faculty of Information Technology and several engineering research institutes to provide a restructured, coherent platform that facilitates interdisciplinary research and teaching. The initiative has been driven by the need to provide the Greater Bay Area with future-proofed engineers. The programmes offered will combine a training in engineering with a broader range of subject underpinning such as biology, physics and chemistry.

1.18   The Faculty of Innovation Engineering is just one of a number of interdisciplinary initiatives. Building upon existing strengths in information technology, engineering, Chinese medicines and medicines, a new Centre of Biomedical Engineering has been established to promote interdisciplinary research and teaching, and a National Observation and Research Station of Coastal Ecological Environments in Macau was approved by the Ministry of Science and Technology of the People's Republic of China in 2021, and inaugurated in 2022. The Research Station will facilitate cooperation and collaboration among different research fields with other universities in the areas of environmental science and engineering,

sustainability, artificial intelligence and coastal risk management, joint research, and talent development.

1.19   In keeping with the Strategic Plan, research carries a high priority. The University hosts two State Key Laboratories and a number of other national-level facilities, including a number in partnership with other universities. The quantity and quality of research publications and patents are increasing.

1.20   The University's strategic plan was formulated by a taskforce that included senior management, University Council members, and administrative support. Prior to this, the President met with each of the schools to take soundings. Development of the plan included consideration of existing feedback from staff, students and employers, though there is no evidence of a more sustained approach to stakeholder engagement in the process.

1.21   Each faculty, institute, and school has its own strategic plan, which builds on the themes and objectives of the University strategic plan and contextualises them for the particular circumstances of that part of the University. Deans described to the Panel how Faculty Strategic Plans are generated, starting with discussions at Department Meetings and School Boards. Draft plans will then be revised following feedback from a consultation process. There is usually a School retreat to discuss the plan. The Faculty Advisory Board (see paragraph 2.1) is consulted, as are student representatives.

1.22   The strategic plans are operationalised through the annual planning process, in which each faculty, institute or school bids for resource for activities that align with its strategic objectives. Each unit submits an Annual Work Report that describes the progress made towards its strategic objectives, supported by key performance indicator (KPI) data and descriptive indicators of progress in areas that are not readily quantifiable. These reports are considered by the University Senior Management Team.

1.23   The University's approach to risk management concentrates on financial controls that include a comprehensive review process to scrutinise major financial proposals for spending at both University and faulty levels. The University addresses other forms of risk, such as academic, staff and student safety, and reputational risks, in a much less systematic way. It tends to manage such risks on an ongoing, reactionary basis that includes discussion at regular meetings of the President's Group, and daily exchanges by WeChat. Nonetheless, the University reacted appropriately to the global pandemic and has emergency plans in place for response to typhoons. However, there is no risk register stating the current level of total or individual risk to the University. This means that the Senior Management Team and University Council may not be able to monitor the changing risk landscape as new threats arise and existing ones are mitigated and managed.

1.24   Noting the University's high levels of reliance on its WeMUST system (see Accreditation area V, Criterion 2) for functions that include human resources, student feedback, communication with staff and students, library access and many others, the Panel identified that there was no evidence of assessment, management or mitigation of information technology risks.

1.25   The Accreditation Panel therefore **recommends** that the University develop a robust and proactive process for the consideration of a comprehensive range of risk types, to include oversight and management of the risks identified, including monitoring and reporting the current level, establishment of management and mitigation processes, and assignment of responsibility for each risk.

Criterion 4:

- **Governance structure, roles and responsibilities of various ranks**
- **Decision-making process checks and balances, and delegation of authority**
- **Management effectiveness, performance indicators and engagement of staff**
- **Transparency in procedures and disclosure of information**

Standard(s)

4.1 HEIs must establish an appropriate governance and management structure based on the composition requirements of their respective legal entities. The roles and responsibilities of governing and management units have to be explicitly specified. These units are guiding HEIs towards their stated educational goals, intended educational performance and academic levels to meet international standards according to the prescribed principles and operational procedures, and they are also meeting legal, academic/professional and community expectations and requirements.

4.2 HEIs must appoint eligible and devoted management and academic leaders to effectively implement the governance objectives and facilitate institutional development.

4.3 To meet the intended performance indicators, HEIs must periodically carry out reviews and implement improvement measures on their governance and management effectiveness (at both institutional level and academic unit level).

4.4 Performance indicators must be able to reveal the following means of governance and management:

- *appropriate and effective delegation of authority and accountability;*
- *effective checks and balances;*
- *well-reasoned and law-abiding decisions built upon supporting facts together with staff's engagement;*
- *effective monitoring to ensure proper execution of governance policies;*
- *transparent governance to ensure that stakeholders (staff, students, employers and other related external parties) understand and support HEIs' development and operation.*

4.5 HEIs' operational procedures and information must be transparent and open enough for students to acquire sufficient information about the learning outcomes and graduation requirements, etc. of the programs that they have enrolled in.

1.26 The University has an appropriate governance and management structure with the various roles and responsibilities explicitly specified in the University Charter, which defines the basic policies, procedures and practices of the University, together with its governance and organisational structure.

1.27 The University is run by the MUST Foundation as a self-sustaining non-profit organisation to pursue higher education in Macau. The Foundation also operates a hospital and an international school. The main governing body is the University Council, which carries responsibility for defining and executing the direction of the University's development,

formulating and monitoring the implementation of university strategies and policies, and for approving budgets. Chaired by the Chancellor, University Council includes representatives from specified constituent groups, including the Senate, the University Executive Committee, Teaching Staff Group, Research Staff Group, recognised outstanding and prestigious social elites, experts in the field of higher education, professional elites with credibility and contributions to society, and others recommended by the Chancellor.

1.28   The Executive Committee of University Council, which oversees the university administration on behalf of the Council, includes seven members of University Council and is also chaired by the Chancellor. The President is a member, and the Senior Management Team members are invited to attend as non-voting delegates.

1.29   The Charter allows the University Council to delegate aspects of its authority to the Executive Committee of University Council. The delegated authority may include oversight of the work of management in the administrative and academic areas of the University, supervision of compliance with relevant laws and statutes, appointment and dismissal of senior managers, setting tuition fees and other charges, approval of and changes to academic programmes, and approval of the annual report of the President. University Council may not delegate authority for assessing and approving the University's development policies, approval of the annual operational plan and budget, or approval of proposals for the establishment, alteration, or cancellation of academic or administrative units.

1.30   University Council meets once per year, normally just before the Annual Graduation Ceremony; additional meetings may be called if required, such as when the membership changes. Agendas show that the meetings are very short, typically 75 or 90 minutes. The Panel was unable to find a definitive record of which aspects of University Council's authority were formally delegated to its Executive Committee. However, even if there were full delegation of all those powers permitted by the Charter, execution of the quantity and quality of the retained authority would require more committee time than is currently available. This authority includes scrutiny and approval of two major reports: the President's annual operation and development plans, and the Vice President for Administration's financial accounts and budget. There is thus a mismatch between the responsibilities carried by University Council and the time available for it to discharge them properly. The Panel was told that the University Council had never questioned, or turned down, a management proposal.

1.31   Although the Panel was informed that significant university developments, such as establishment of new academic units, and major restructuring of university operational and administrative systems, are reviewed and approved by the Executive Committee of University Council, the Charter does not allow University Council to delegate this authority.

1.32   By delegating authority for decision-making to its Executive Committee, the University Council loses the potential benefits of the contributions stemming from the breadth and depth of experience of its full membership, which includes leaders from the education, political, business, social work, and legal sectors, several of whom have high social influence and credibility, and have made major contributions to the economic growth, industrial development and prosperity of Macau.

1.33   With reference to what is permitted by its Charter, the Panel **recommends** that the University should define the terms of reference of the University Council and its Executive Committee, including the delegation of any authority from the former to the latter, and ensure that each body has sufficient meeting time to discharge its responsibilities.

1.34   Reporting to University Council and its Executive Committee, Senate is the ultimate academic authority, with responsibility for academic and research organisation, and quality

assurance at the University. Senate mandates and monitors planning and operation of academic activities for teaching and research, and carries authority for approving the award of degrees, and approving curriculum structures, study plans, programme regulations, and other academic matters. Senate is composed of University Senior Management Team members, academic leaders at faculty or institute level, and some representatives of senior faculty members or researchers. Since Senate is an academic body it has no representatives from administrative or professional support staff, but the Vice-Presidents for Administration and Student Affairs are members. Minutes of the meetings of Senate confirm that it exercises its responsibility effectively. Seven subcommittees report to Senate: Teaching, Learning, and Assessment Committee (TLAC), Graduate Committee (GC), Research Committee (RC), Student Affairs Committee (SAC), Library Committee (LC), Teaching Excellence Awards Committee (TEAC) and Teaching Achievement Awards Committee (TAAC).

1.35   The President is the Chief Executive Officer and takes the lead on institutional planning and administration, including academic planning and development, human resources management, and institutional operations. The President reports to the Chancellor and the Council and is supported by the President's Office and the Senior Management Team consisting of the President, Vice-Presidents and Associate Vice-President. Together, the President and the Senior Management Team oversee all academic, research, administrative and teaching/academic support units. There is a formal allocation of responsibilities to the President and Vice Presidents.

1.36   The University Executive Committee was formed in 2018, in response to a recommendation from the 2017 QAA Institutional Quality Audit (IQA), by the merger of the University Senior Academic Committee and the University Executive Committee that included the heads of the administrative units. It is responsible for planning and administration of university operations and its membership includes the University Senior Management Team and senior management of all faculties and administrative offices. It meets at least once every two months. Minutes of its meetings indicate that it is discharging its responsibilities effectively.

1.37   The University has an Advisory Committee whose membership includes prominent academics, government officials, Legislative Council Members, business executives and professional leaders. Currently, the University Advisory Committee consists of 31 members.

1.38   There are 13 administrative units that provide support to academic programmes and in running institutional operations. These are the President's Office, Academic Registry, Human Resources Office, School of Graduate Studies, Research and Technology Administration Office, Information Technology Development Office, Admissions Office, the Student Affairs Office, General Affairs Office, Quality Assurance Office, Campus Construction Office, Accounts Office and the University Library.

1.39   Academic units are located within faculties and research units in institutes or centres. There are defined and established reporting lines within each affiliated faculty, institute or centre.

1.40   At faculty level, there is a structure of boards and committees whose responsibilities include oversight of the delivery of academic programmes. Faculties each have their own Advisory Committee.

1.41   The administration structures of the faculties facilitate transparency in decision-making and communication of information. For example, internal quality assurance processes require all proposals for new programmes to go for approval or endorsement by the relevant Faculty Board before submission to the University-level committees. Example documentation supplied showed this process operating effectively in practice.

1.42   In its SER, the University states that it places great emphasis on the selection and appointment of senior administrators and academic leaders. This includes the President, Vice-Presidents, Deans of the Faculties, Heads of Department, and Directors or Heads of Administrative Units. Biographies of senior post holders were provided and the Panel viewed them as appropriate for the holders of these posts.

1.43   The University periodically conducts reviews and implements improvements to its governance and management structures, with the goal of improving their effectiveness and operational efficiency. Examples of recent improvements are documented in the following paragraphs.

1.44   The review and restructuring of administrative units in 2016-17 resulted in the merging of the Academic Affairs Office and Registry to form the new Academic Registry.

1.45   The review and restructuring of the Information Technology Development Office in 2019-20 expanded its function and responsibility in light of the progress of the Smart Campus project and digitisation of university operations. The Vice-President for Administration assumed the role of Director, with the appointment of an executive director to oversee daily operation.

1.46   Following discussion and approval at President's Briefing meetings, the University established an Industry-Education Integration and Development Office in 2018, and a Culture and Sports Development Office in 2019. These units report to the President's Office, to promote industrial application of University research output, and to expand the cultural and sport activities of campus life in step with overall University growth.

1.47   A restructuring of the Research and Technology Administration Office in 2020-21 created a clearer division of responsibility for research project management and research funding management.

1.48   In response to the IQA report delivered by QAA in 2017, occasional joint meetings between the University Executive Committee and Senate were introduced to enhance internal communication and cooperation among faculty deans and directors of University administrative units.

1.49   A thorough review of administrative units in 2021-22 resulted in a comprehensive restructure and the creation of a new Centre for Student Services that brought together staff from several administrative offices to combine the functions of student registration, accounting services, student assistances and library services, in a user-friendly one-stop shop.

1.50   There has been a similar pattern of review and refinement of the University's academic units. The University established the first School of Pharmacy in Macau in 2016 and upgraded the Faculty of Health Science into the first (and currently only) Faculty of Medicine in Macau in 2019, in order to train medical and pharmacy professionals to serve local and regional communities. In 2020, the University restructured its School of Continuing Studies into the School of Liberal Arts to expand both vocational and degree programmes to accommodate the growing market demands for part and full-time training in Macau and the region.

1.51   The University has management and governance structures of responsibility and accountability that incorporate checks and balances. This structure includes clear delegation of responsibility to the senior team, as defined in the Charter. The President, who reports to the University Council Executive Committee, also presents regular activity reports and accounts of University Executive Committee.

1.52   To promote transparency and accountability, the Deans submit annual reports to the President, and thence to University Council Executive Committee. Annual reports from Deans and Directors are also presented to University Executive Committee and Senate, normally three or four reports per meeting. The Deans' reports summarise the work of the past year and present proposals for the next. They include operation of the faculty's academic programmes, teaching, research and services, manpower, resources deployment and staff development, student study progression and achievements, challenges, and planning for the next academic year. Discussion of the reports, in the form of comments and suggestions, particularly from other academic units, is encouraged. The discussions are recorded in the meeting minutes.

1.53   The heads of administrative units are also invited to present reports to University Executive Committee and Senate, as required.

1.54   In its SER, the University states that all its decision-making takes into account contributions from a wide range of stakeholders. Both top-down and bottom-up approaches are adopted in institutional decision-making. This includes input from the academic and administrative units, and external input through the University and Faculty Advisory bodies. There are student representatives on several of the Senate subcommittees, including the Student Affairs Committee, Teaching Excellence Award Committee, and the Student Awards and Discipline Committee.

1.55   At faculty level, the Faculty-Student Consultation Committee includes student representatives from different programmes and different stages of study. Some faculties have student membership of their faculty board.

1.56   The opinions of alumni are sought through a network of alumni associations across Greater China, where former students are invited to comment on programme review and development and on the effectiveness of institutional operations. Alumni and employers reported that their feedback had contributed to the design and development of academic programmes.

1.57   Students reported that the information available to them through the University's website had been sufficient for them to make their decision to apply. Information about their academic progress is readily available from the website or through email communications. Information about teaching, learning and assessment activities, examination rules, study plans, and administrative policies and procedures is provided in the student handbooks. Further information for students is provided on WeMUST, which students reported using every day.

1.58   The University prospectuses for undergraduate and postgraduate students provide clear overall information on the programmes available. These are complemented by the University website, which provides further information. While the general information about admission requirements for the University and for specific programmes is generally clear and transparent for local and international applicants, that for applicants from mainland China is less transparent. As well as the general brochure, a mainland China-oriented brochure is downloadable from the University website, which refers to a more detailed document, *Admission Rules and Instructions for Mainland Students*. However, none of these documents has details of entry criteria beyond the need to take the gaokao (the mainland China national university entrance exam system based on province-level exams) or gives indicative gaokao entry scores. It appeared from MUST's internal analysis of gaokao entry scores that these vary dramatically across programmes, for example from 0% to 100% of students with Tier 1 gaokao scores. For example, all entrants to bachelor degrees in Chinese Medicine, Information Technology, English and Medicine obtained Tier 1 gaokao scores, whereas entrants to bachelor degrees in Hospitality and Tourism Management had

no Tier 1 gaokao students at all. Overall, 66% of mainland students obtained Tier 1 gaokao scores, with none below Tier 2. In relation to business school admissions, the Association to Advance Collegiate Schools of Business accreditation eligibility application states that, 'MUST admission is offered based on the students' academic achievement in NCEE (National College Entrance Examination), taking the regional differences into consideration. The minimum NCEE score requirement is required by the University comparable to well-recognized peer universities in Mainland China.' However, the nature of these peer universities is unclear. While the post-examination nature of the gaokao makes definitive information difficult to specify, it would be helpful for the University to provide more transparent indicative information on the expected standards for mainland student gaokao entry requirements, though the University is aware of the inherent difficulties here since required admission scores vary across provinces and between years, owing in part to admissions based on a ranking of applicant performance.

1.59   There are generally comprehensive student handbooks for undergraduate and postgraduate students. This includes such areas as the programme portfolio; rules and regulations for study; assessment; communication within the University; management of student status; discipline, including awards and penalties; graduation; and fees, including tuition, other charges and refunds. These are complemented by programme handbooks; some of which are bilingual while others are only in Chinese. While in general these give a clear overview of programme structure, guidelines for projects and other information, detailed information on individual modules is not covered. Students and staff indicated that such information was in practice available both before and during study on a module. Pre-information was available through channels that varied by academic unit, while information on current modules was available on the virtual learning environment.

1.60   The University provides guides to using the WeMUST cloud classroom, a customised Zoom platform for online teaching for both students and teachers. Online information is also available through the WeMUST platform. This includes academic registration, registration for classes, and information on grades obtained. As well as academic matters, the platform supports non-academic areas such as dormitory pre-selection, check-in and maintenance; student associations; sports; and personal and career development. Students use the application daily. They noted that it was user-friendly and considerate, for example giving out a reminder of different issues in a timely way (see Accreditation Area V, Criterion 2). Students and staff also noted that the WeChat application was used extensively for less formal communication and information sharing.

1.61   Information is typically bilingual, in Chinese (traditional characters) and English. Simplified Chinese is used in some documents specific to audiences in mainland China. One area where only very general information is provided is student destinations and career outcomes. As noted in Accreditation Area V, Criterion 2 (paragraph 5.28) there is no clear policy on the languages to be used for different types of communication.

1.62   Overall, MUST's operational procedures and information are transparent and in general enable prospective and current students to acquire sufficient information about the programmes, including learning outcomes and graduation requirements. The comprehensive approach to providing student information through WeMUST contributes to the recognition of WeMUST by the Panel as good practice (paragraph 5.25).

Accreditation Area II: Academic planning, development, management and monitoring

Criterion 1: Academic leadership

Standard(s)

1.1 HEIs' academic leaders must embrace a global vision and be able to sheer HEIs towards continuous development and advancement in relevant discipline(s) in the ever-changing higher education sector.

1.2 Academic leaders should be able to formulate specific academic development objectives and cultivate common values among teaching and/or research staff to strive for services, including quality teaching and/or scientific research.

1.3 Academic leaders must possess requisite intellectual literacy to determine that institutional academic development meets legal and quality requirements, aligns with both local and international academic development and ties in with students' developmental needs for the purposes of responding to the manpower demand of society and relevant industry/industries and improving students' competencies.

1.4 Academic leaders should be able to develop corresponding and workable academic development plans according to HEIs' development objectives and monitor execution in order to foster advancement in academic development.

1.5 Academic leaders must maintain close connection with relevant academic and professional networks both locally and internationally, actively participate in relevant academic and professional development activities and make contributions to upgrade the academic and professional positioning of HEIs and Macau.

1.6 Academic leaders and leaders of disciplines/academic units must effectively facilitate collaboration and communication among the teaching and/or research team and improve morale for the purposes of ensuring program quality and achieving the educational performance of relevant disciplines/academic units.

1.63   The University's strategic Plan, which includes a section on Internationalisation and Diversification, expresses the institution's aspirations to elevate its international reputation by enhancing collaboration with international partners, emphasising internationalisation and multiculturalism in teaching and learning, and through international accreditation of the institution and its programmes. The engagement of industry experts through the institutional and faculty Advisory Boards, together with the external benchmarking that is embedded in programme review, ensure that the teaching maintains good alignment with the ever-changing higher education sector and the needs of society. Thus, there is evidence that academic leaders embrace a global vision and show commitment to continuous curriculum development.

1.64   Each academic subunit of the University, that is, each faculty, institute or school, has its own strategic plan, which builds on the themes and objectives of the University strategy and contextualises them for the particular circumstances of that part of the University. These strategic plans form the basis of the annual planning process, in which the head of each unit requests resource for activities that align with its academic development objectives for the coming year, including teaching and research activities. To close the quality loop, each unit submits an Annual Work Report that describes the progress made towards its strategic objectives, supported by KPI data and other evidence. These reports are considered by the Senior Management Team.

1.65   In addition to the numerical KPIs selected by each academic unit, there is a defined list of 26 descriptive indicators that are used by the University to provide direction for academic development, management, and planning.

1.66   The academic leaders at the University possess the required intellectual literacy to direct the academic development of their units in alignment with local and international requirements. The University recruits its academic leaders internationally and deans and directors of academic units are considered to be academic leaders in their relevant disciplines. Most have studied or previously worked at overseas universities or research institutions, as shown by the sample biographies provided.

1.67   Academic leaders maintain close ties with partner institutions and professional bodies in their disciplines. Recognising that professional accreditation brings opportunities for networking and benchmarking, the University encourages academic programmes to seek external accreditation. Examples include programmes accredited by the Hong Kong Institution of Engineers, Pacific Asia Travel Association (PATA), TedQual (UNWTO certified), Association of Chartered Certified Accountants (ACCA), CPA Australia, and The Chartered Institute of Logistics and Transport (CILT).

1.68   Members of senior management attend international conferences organised by leading international higher education development and quality assurance associations or agencies, to benefit from the networking opportunities they provide, and to promote the University in the international arena.

1.69   The University organises several major international academic and professional conferences in Macau each year, with sponsorship from The Macau Foundation and other government authorities. Examples from the recent past include The Macau Forum, the Forum for World University Presidents, and the Youth Forum of the Bo'ao Forum for Asia.

1.70   According to the SER, the University promotes transparency by encouraging its staff to participate in planning and management processes and values their opinions. Important components of this approach are the New Staff Orientation process, the Staff Handbook, meetings of various committees and boards, and regular announcements.

1.71   The New Faculty Orientation is a three-day programme that covers a wide range of topics, including introductions to the Macau legal system, University issues and policies, information technology systems, and demonstrations of classroom equipment. There is a welcome reception with the President and Senior Management Team.

1.72   The Staff Handbook is a comprehensive guide to the rules, regulations and requirements placed on academic staff at MUST. However, it gives little indication that the University values its staff, other than implying that salary increases related to performance are possible. Information concerning their development is transmitted to staff (see Accreditation Area IV) and the University may wish to expand the Staff Handbook to reflect how it expects staff to develop themselves.

1.73   There are staff representatives on committees at all levels of the institution. The most senior committee, University Council, includes representatives from specified constituent groups, including Teaching Staff Group and Research Staff Group. Feedback from staff members is also sought through the annual Staff Opinion Survey.

1.74   The WeMUST platform, email system, and weekly newsletters allow academic leaders to connect with their staff, supplemented at faculty level by staff meetings, typically held twice per semester.

1.75   Although a wide-ranging infrastructure of communication systems exists as described above, teaching staff met by the Panel expressed a disconnection from the decision-making processes and were unable to provide examples of changes arising from the Staff Opinion Survey. The University may wish to address this.

Criterion 2: Planning and development, management and monitoring of existing programmes

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Standard(s)

2.1   The planning of existing programs must align with HEIs' educational purposes and goals and respond to the manpower demand of society and relevant industry/industries.

2.2   The planning and development of existing programs must be able to reflect HEIs' academic positioning, vision as well as their implementation strategies and approaches.

2.3   Program planning must be carried out under the 'Outcome-based Program Design' principle as well as according to HEIs' capacity and scale of operation for the purpose of meeting the QA requirements of Macau and international standards.

2.4   Program planning and development must be conducted by relevant teaching and/or research staff under the leadership of qualified academic leaders, who together seek fit-for-purpose consultation.

2.5   HEIs must specify the roles and responsibilities of various units involved in program planning and development for effective management and monitoring.

2.6   HEIs must establish internal program approval procedures to ensure that their programs meet the stated educational goals and the intended learning outcomes.

2.7   Planned programs must be launched according to the prescribed policy, operational mechanism and mode; reviews must be conducted periodically to ensure program quality.

1.76   The academic regulations articulate an outcomes-based approach and locate the University's programmes within the framework set by the Macau Education and Youth Development Bureau. The University's guidance on programme development, and template for programme accreditation, also make clear reference to the Macau Education and Youth Development Bureau and two of the University's core values, 'Quality' and 'Innovation'.

1.77   The emphasis for planning, implementing, monitoring and evaluating all existing programmes and developing new ones, is placed on developing 'brand' and 'niche' programmes in terms of the societal demand (local and national) and available resources. The University's processes provide for a check on alignment with institutional drivers in annual review; such alignment is also a key topic of periodic review.

1.78   The University's Guidelines on Program Review and New Program Accreditation comprehensively sets out principles and procedures to be followed, and selection criteria for external accreditation agencies and subject experts.

1.79   Approval and review events make appropriate use of external accreditation agencies. The University has a protocol for accreditation and, in accordance with recommendations from the Macau Government, three external accreditation bodies have been identified (Hong Kong Council for Accreditation of Academic & Vocational

Qualifications, Taiwan Assessment and Evaluation Association, and Higher Education Evaluation Centre of the Ministry of Education, P.R. China) and invited to carry out accreditation for the most appropriate programmes. The University's Plan and Schedule for Program Review (2021-2025) demonstrates clear timelines for programme review arrangements and gives pre-selected external quality agencies that will likely be involved.

1.80   External subject experts from other institutions are deployed at consultation stage, when ensuring that learning outcomes are appropriately assessed. External experts are also invited to provide written comments on new development proposals before the approval events and periodic review events. Particular emphasis is placed on using external expertise at the point where academic standards are set.

1.81   The Panel was provided with an example of the new programme approval process and was able to confirm its alignment with the stipulated procedure. The resultant report was sufficiently detailed, including conditions, commendations, and recommendations. Full responses from the University to each recommendation were supplied, which were subsequently accepted in the Fulfilment of Condition report.

1.82   As mandated by the Macau Education and Youth Development Bureau, programme periodic review takes place every seven years. The review process, described in the Macau Higher Education Quality Assessment (Guidelines for Program Review), follows the pattern of initial approval and confirms that programme structure, content and assessments are appropriate for the level of study and the achievement of learning outcomes.

1.83   Periodic review panels comprise internal members, plus up to six external subject specialists, some of which may be appointed by external accreditation bodies, with criteria stipulated for their appointment.

1.84   Annual monitoring is a more localised affair, typically at faculty/school level, as part of the Dean's annual report. Programme-level performance data is only shared among the programme team, and not to a University-wide standard. The Panel considered that this is a missed opportunity for wider dissemination of programme-level good practice. The University may wish to address this through more comprehensive annual reporting. In addition, and of more concern, the lack of a formal annual monitoring process opens the door to slippage in academic standards and the Panel was not wholly convinced that the relatively informal mechanisms suggested by the University, including graduate employability, could secure academic standards on a continuous basis. Accordingly the Panel **recommends** that the University introduce a formal process for the annual monitoring of programmes, with particular reference to maintaining academic standards.

Criterion 3: Mid to long-term strategies for academic development

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Standard(s)

3.1   Mid- to long-term strategies for academic development is the core part of the institutional development strategic plan and serves as HEIs' positioning in teaching and/or research as well as a blueprint for HEIs' mid- to long-term academic development.

3.2   Reasonable and appropriate academic development strategies should be built upon objective data and HEIs' self-evaluation on their own capacity and the practicability of their scale of development. Objective data can be obtained from manpower forecast, research on social development, feasibility study, benchmarking, consultation, etc.

3.3   Mid- to long-term strategies for academic development must be formulated in a law-abiding and reasonable manner to meet Macau's socio-economic development and manpower demand for the purpose of meeting the QA requirements of Macau and international standards.

3.4   Institutional development strategic plan as a whole must align with the mid- to long-term strategies for academic development.

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1.85   The University has a clear approach to forward planning and the use of Government directives to identify development priorities, for example the Outline on the Mid- and Long-Term Development Plan of Macau's Higher Education (2021-2030). This approach is driven by the University's mission, vision and values and supported by a series of underpinning strategies, which drive improvement across all areas of the University's provision.

1.86   The University articulates its approach to forward planning, including the use of data to identify enhancement priorities, in its overall Quality Assurance Environment; an umbrella term for the various quality-related activities that the University and its staff engage in. There are clear mechanisms to engage students in forward planning through the collection and consideration of student feedback through the Student Satisfaction Survey.

1.87   The University takes a strategic approach to programme development, exemplified as follows. The University's previous Strategic Plan (2014-2020) set out its aspirations and commitment to 'continuous improvement and updating of its curricula, bringing in new, multidisciplinary programs and drawing on advances in information and communication technologies for effective pedagogy'. The new Strategic Plan (2021-2025) explains that 'new initiatives for degree programs will continue to be launched; new programs to be planned and developed, including new academic programs in engineering and in humanities – aiming at ensuring the implementation of strategic initiatives in the preparation for the establishment of faculties and institutes and post-graduate programs, in line with the University's development goal and its plans for cultivating talents'.

1.88   Programme development is driven by University priorities and societal demands defined by local and national needs. New programmes are developed following consultation with external stakeholders and detailed market analysis. Programmes are developed to take account of relevant resources and to promote learning opportunities.

1.89   At faculty level, five-year Development Plans are set based on an endorsement of the University's Strategic Plan. To some extent all faculty plans review past achievements

and consider future directions, but some plans are more perfunctory than others and it was not clear to the Panel how, in some cases, performance could be measured against them.

1.90   Overall, mid to long-term strategies are sound, show internal consistency, and there are robust plans for implementation. There is clear evidence of following the Macau Government's requirements and guidance, including societal consideration and acknowledging regional and Greater Bay Area priorities.

Criterion 4: Development in research consultancy and other profession services, cultural inheritance and innovation (if applicable)

Standard(s)

4.1   HEIs must formulate objectives and strategies for research, consultancy and other professional services so as to achieve their own operational vision and objectives.

4.2   HEIs are committed to taking up a leading role in the development of academic disciplines and relevant professions/industries. Through development in research and/or provision of consultancy and other professional services, HEIs foster cultural inheritance and innovation by extending knowledge in both academic and professional fields.

4.3   HEIs must be socially responsible by making contributions to relevant fields with the provision of expert opinions

4.4   HEIs must formulate appropriate policies and mechanisms to promote teaching and/or research staff 's engagement in research, consultancy and other professional services.

4.5   HEIs must establish effective, practicable review mechanisms and indicators to review outputs, outcomes, effectiveness and impacts for follow-up and improvement purposes.

4.6   HEIs must establish academic and professional networks with local and international coverage for development in research, consultancy and other professional services.

4.7   HEIs must maintain close connection with all relevant stakeholders in order to have a precise understanding of Macau's developmental needs.

1.91   According to the University, 'research is a core institutional value' whose broad scope includes 'research programs and professional consultancy activities'. The University Charter features research prominently, linked to the wider social role of MUST: 'The University, in the enjoyment of academic autonomy, may formulate plans and carry out research projects and other academic activities, in order to attain its objectives, and seek to solve problems arising from social, economic, educational and cultural development'. International links are seen as important, as are those with mainland China, in particular within the Greater Bay Area**.**

1.92   The University has developed its research significantly over time and now has well-recognised research in several areas, as well as emerging research centres. Most notable achievements are the two State Key Laboratories under the Ministry of Science and Technology (MoST) of China in 'Quality Research in Chinese Medicines' (jointly established with the University of Macau) and 'Lunar and Planetary Sciences'. There are also four Research Centres in partnership with key research institutions of social sciences and humanities under the Ministry of Education (MoE) of China and 20 further internally recognised research centres. A High-Performance Computing Centre on campus, funded by the Macau Government, also supports research.

1.93   According to the new Strategic Plan, areas of excellence will be developed into 'world class platforms of frontier science and technology'. Academic units within the University develop plans for research within their overall academic planning and have Academic Committees (or an equivalent) to manage research. The Panel saw evidence of these plans from a range of faculties. In terms of outcomes, The University has achieved Essential Science Indicators top 1% status in seven STEM disciplines. In 2020-21, there were 657 Science Citation Index/Social Sciences Citation Index publications, 58% in quartile one (Q1) journals, with eight staff featured in the Clarivate Global Highly Cited Researchers List. There is a range of research laboratories for different subjects. State Key Laboratories have been supported by the Macau Foundation, Macau Science and Technology Development Found, and the MUST Foundation. Research awards are mostly at the Macau level, though with three national (China) awards in 2012, 2014 and 2018. Thus, the research activities of the University are well founded.

1.94   As well as a focus on academic research, the University supports applied research and professional engagement. Outcomes include over 300 patents plus two pharmaceutical commercialisations, one with an initial value of RMB 200 million. Other engagement with Government and business includes a series of industry-university-research open innovation platforms with the Zhuhai Municipal Government, including the establishment in Zhuhai of a University Research Institute, and a Teaching Hospital in partnership with Zhuhai People's Hospital in Hengqin. University policies support such external engagement as well as advisory work for Government and other organisations. Commercialisation of research outcomes is a feature of some research units, in particular the State Key Laboratories.

1.95   The University aims to contribute to the economic and cultural development of Macau, supporting the goal of diversification of Macau's economy away from dependence on gambling with initiatives in such areas as Chinese Medicine, Digital Finance, Creative Industries and Cultural Heritage, and Sustainable Development. Research is undertaken in relation to areas of social and cultural heritage as well as the environment and sustainability. Future plans include research institutes in the Greater Bay Area to foster technological innovation, especially on the west coast of the Pearl River delta; with a further aim of promoting an innovation-friendly environment. One example is a Field Science Station focusing on coastal ecology.

1.96   The University Research Committee formulates University-wide policy and guidelines on research, consultancy and professional work. It has appropriate terms of reference, though most of its business appears to be discussing and approving research grant applications. While its terms of reference are bilingual, minutes are in Chinese only. Formally, the Research Committee reports into Senate, which, among other things, is responsible for 'approval of policies, planning and guidelines for research, consultancy and professional work; assessment criteria for research outputs and awards'. Although an examination of the minutes of Senate revealed no evidence of its review of research activity, there was evidence of the consideration of new initiatives, for example an Institute of Fintech Innovation. Minutes reviewed by the Panel confirm that in overseeing research activity the University Executive Committee regularly receives reports on research institutes and the University Council considers research and doctoral student topics.

1.97   Policies and mechanisms for research and related activities have been defined and updated from time to time. These include 'Regulations on Research, Consultancies and Intellectual Property' which covers such areas as responsibilities, finance and intellectual property. Research and medical ethics policies are also in place. Workflows associated with policies have been defined and administrative support is provided by the Research and Technology Administration Office, which also monitors research projects. Research-oriented staff commented positively on the administrative support provided.

1.98   The University utilises a range of measures for research targets and performance evaluation at both academic unit and individual researcher level. Faculty Plans and Deans' Annual Reports (other than for University International College) include research targets. Measures typically include quantity and level of research publications, external research income, awards, patents and external recognition, though targets are sometimes vague and qualitative. Faculties report annually on research achievements, though this is often descriptive of publications, projects, other faculty achievements and research seminars with no trend or other analysis.

1.99   Staff have significant autonomy in deciding areas of research to pursue, provided that these can satisfy the University performance objectives. Internal University research funding is relatively small for most researchers, as it is targeted on early career researchers and priority research areas. More substantial funding comes externally. However, the funding environment in Macau was seen by staff as more generous than in other environments because significant funding is available from Macau bodies, as well as from organisations in mainland China and internationally. In general, funding was not seen as a significant challenge by most research-active staff met by the Panel.

1.100   In summary, the University sees research as a key part of its strategy with a combination of focused areas of research excellence, such as the two State Key Laboratories, and research based on individual and team interests. Research is seen as contributing to the social and economic development of Macau and the Greater Bay Area, including topics associated with sustainability and cultural heritage. Research policies and mechanisms have been established to set direction, develop and maintain policies, promote a research culture and monitor research achievements.

Criterion 5: Student performance

Standard(s)

5.1   *HEIs must formulate appropriate, fair and consistent policies for student admission, and for the assessment and monitoring of students' performance.*

5.2   *HEIs put the policies into practice, and collect objective data as well as facts for regular review of students' performance so as to ensure their attainment of the intended learning outcomes.*

1.101   The University's recruitment, selection, and admissions policies are informed by its strategic priorities and are published in the undergraduate and postgraduate prospectuses respectively. The admissions policy makes sure it opens the door to students from both Macau and mainland China and provides opportunities for these students to serve not only Macau but the Greater Bay Area.

1.102   The panel was told that the University has annual discussions between the President and Vice-Presidents to review its admissions policy but the Panel was unable to find evidence showing how discussions in University committees have led to policy revisions. Notwithstanding this, both staff and students confirmed that recruitment and admissions procedures were effective, well organised and therefore fit for purpose. The Panel concurred with the assessment of staff and students and concluded that the University effectively manages recruitment and admissions from both Macau and mainland China. There is also a comprehensive enrolment and induction programme for both Macau and mainland China students.

1.103   Completion rates, grade distributions for undergraduate programmes and degree classification distributions are produced annually at university level for year-on-year

comparison and improvement. However, the Panel was unable to determine any processes at faculty or University level to systematically collate and consider qualitative and quantitative data, including survey data from students, to identify areas of good practice or areas for development. The University may wish to strengthen its arrangements for learning from data sources.

1.104   In addition to the monitoring of student performance during degree programmes, the University also carries out a one-year follow-up survey of graduates, using the data to confirm the 'Outcome-based Program Design' principle.

1.105   University Council delegates operational responsibility for the monitoring and review of taught programmes to the University Academic Accreditation Steering Taskforce. However, as previously stated (paragraph 2.22) annual reporting is somewhat localised, and any enhancement of annual monitoring may wish to take available data and data trends into account.

Accreditation Area III: Financial management and resources deployment

Criterion 1: Financial condition and budgeting

Standard(s)

1.1   *HEIs must have stable financial condition to ensure sustainable operation of the institutions themselves, their disciplines/academic units as well as their programs and to achieve HEIs' operational objectives performance indicators.*

1.2   *HEIs must establish a sound financial management mechanism which embraces the following management means to ensure effective implementation of the financial management policy:*

- *effective delegation of authority and accountability;*
- *effective checks and balances;*
- *effective monitoring.*

1.3   *Financial management must be implemented according to the prescribed policy and mechanism.*

1.4   *HEIs must effectively utilize and deploy resources in accordance with the development objectives of each operational unit to ensure HEIs' attainment of their own overall operational objectives and performance indicators.*

1.106   In principle, the University operates financially as an independent institution. According to its audited accounts, in 2018 the University had revenue of MOP 819 million and total costs of MOP 982 million, giving an operating deficit of MOP 163 million. In previous years it also had operating deficits, with an accumulated deficit of MOP 494 million at the end of 2018 and MOP 520 million at the end of 2019. While such deficits would typically cast doubt on the University's ability to continue as a going concern, the accounts were 'unqualified' as the MUST Foundation supports the University and provides a financial guarantee for its operation. The financial arrangements between the University and the MUST Foundation include rent being paid by the University for buildings and facilities which are owned by the MUST Foundation. The University forms around two-thirds of the activity of the MUST Foundation, the other main areas being the University Hospital and Macau International School.

1.107   Given ongoing support from the MUST Foundation, which had a retained surplus of MOP 1,327 million at the end of 2019, the University has a sufficiently stable financial condition to enable sustainable operation of the institution. The MUST Foundation in turn is supported by the Macau Foundation, a semi-official body established by the Macau SAR Government. To put the University's financial status into context, the University's accumulated deficit represents approximately 1.5% of the Macau Foundation's liquid assets.

1.108   The University has a system of financial responsibility and a centralised financial management system. Operationally, responsibility for financial management lies with the Vice-President for Administration. 'Finance prudence' is a stated principle, with strict control of non-essential spending. Examples of financial control policies and processes provided to the Panel were expense reimbursement, cash advances and stationery requests, as well as a number of authorisations. Some processes are still paper based, providing further opportunity for operational improvement through digitisation. However, digitisation of some processes such as expenses were constrained by regulatory (Government) factors.

1.109   Annual planning and budgeting are undertaken to ensure delivery of the next year's plan. Priority areas are supported, as well as often targeted for donations. The Vice-President for Administration assembles the University's overall budget, which is approved by senior management, University Executive Committee and University Council Executive Committee. Budgets are aligned with academic plans and assigned to relevant managers such as Deans. However, delegation below this level was limited, other than for specific projects. The Head of Accounts Office monitors budget execution, reporting to the Vice-President for Administration.

1.110   Annual accounts at University level are audited as well being sent to the Macau Government. As noted above, these accounts are not qualified and hence are certified as a 'true and proper presentation of financial statements'. The Head of Accounts Office reviews comments and recommendations from the external auditor, reporting to the Vice-President for Administration. The annual accounts and a financial report of the MUST Foundation (which incorporates the University) are discussed and approved at a joint meeting of the MUST Foundation Trustees and University Council.

1.111   Internal audit is also undertaken, though no details were available. Research grants from external bodies are subject to their audit processes. The University's financial management is also monitored by the Macau Education and Youth Development Bureau and the Macau Foundation as major government-related funding bodies.

1.112   The University is planning to establish a significant presence in Zhuhai. This reflects Government priorities in the development of the Greater Bay Area. As part of this overall strategy there will be deep cooperation between Guangdong and Macau in the Hengqin area of Zhuhai in mainland China. Hengqin is an island within Zhuhai adjacent to Macau, designated as a Guangdong-Macau In-depth Cooperation Zone. Given the scale of this campus development, alongside a hospital established jointly with Zhuhai People's Hospital in September 2021, there are significant financial implications for the University in relation to capital spending and operational costs. This development is not part of the Strategic Plan 2021-25, though it is in line with the idea in the Strategic Plan of 'One Institution, Two Systems, and Three Campuses'. The Panel heard from representatives of University Council that the independence of the University was of continued importance. As a result, degree-level education would remain centred in Macau to avoid the complexities associated with a joint venture university in the mainland, while research would be expanded in Zhuhai. As the legal framework of Hengqin was under development, it was not yet clear whether locating degree-level education there would be feasible.

1.113   In summary, despite ongoing operational deficits, the University is financially stable as a result of the backing of the MUST Foundation and indirectly the Macau Foundation established by the Macau Government. The University has established systems for financial management, including budgeting, monitoring and audit, which are effective in internal financial management. However, the University's planned expansion, with a third campus in Zhuhai, has large potential financial risks that will require ongoing and potentially significantly increased support from the MUST Foundation, the Macau Foundation and other government bodies in Macau and Guangdong.

Criterion 2:

- **Campus facilities and equipment**
- **Teaching and/or research and practicum facilities as well as support**

Standard(s)

2.1   HEIs must have an adequate and appropriate campus, teaching facilities and equipment as well as support to achieve their operational objectives and ensure educational quality.

2.2   HEIs must periodically review the campus, facilities and equipment, and deploy resources in a timely manner for the upgrade of existing devices and the purchase of new ones so as to tie in with HEIs' operation and development.

2.3   HEIs must effectively utilize and deploy resources in accordance with the development objectives of each operational unit to ensure HEIs' attainment of their own overall operational objectives and performance indicators.

2.4   HEIs must provide appropriate and adequate teaching and/or research and practicum facilities as well as support (e.g. laboratories, libraries, online teaching and learning resources, student hostels, recreational amenities, etc.) in order to provide students with appropriate learning experiences in a favourable learning environment, ultimately acquiring the intended learning outcomes.

2.5   If facilities are provided by other organizations for teaching, research and/or practicum purposes, HEIs must formulate effective and practicable policies on partner organizations' approval, partnership agreement, codes and regulations on operation, monitoring and review, etc. to ensure quality.

2.6   HEIs must maintain close connection with their partner organizations to ensure that staff of partner organizations have a clear understanding of HEIs' requirements and provide timely, proper and sufficient support for relevant staff and students of the HEIs who can then receive quality teaching, research and practicum resources to attain the intended outcomes.

1.114   Currently, the University operates from a main campus in Taipa, Macau with a smaller, second campus nearby in Praia Park on Coloane Island, also within Macau. Over 13,000 students are accommodated on the main campus and 900 in Praia Park. From late 2020, there have been branches of the University's State Key Laboratories in Hengqin. As noted in paragraph 3.7, there is a plan for a significant new campus in nearby Zhuhai across the border in mainland China.

1.115   Currently, there are 18 buildings on the main campus, completed between 2001 and 2019, with a medical school teaching building planned for completion in 2023. These buildings include teaching buildings, library, sports and recreational facilities, and student dormitories. Two buildings are occupied by the International School of Macau. A campus hotel and restaurant are linked to programmes. Recent improvements include CCTV for recording teaching sessions.

1.116   Campus planning is the responsibility of the Vice-President for Administration. There are regular reviews of space utilisation with an example given of optimising classroom scheduling as a result of such a review. User feedback is obtained on various aspects of facilities, for example catering. In general, both students and staff made positive comments to the Panel about research and teaching facilities, especially the State Key Laboratories and the School of Hospitality and Tourism Management. Constraints on space in Macau

were mentioned by both senior management and staff, together with collaborative mechanisms across departments to manage these challenges.

1.117   The University has undertaken some sustainability-related initiatives in its campus facilities, such as parking area covers generating solar power. In the new Strategic Plan, one aspect of the institution's sustainable development is the creation of a 'low carbon, green, intelligence-based campus'. However, there was no evidence of specific plans to achieve this target beyond IT upgrading and the development of WeMUST.

1.118   Given the disruption associated with the COVID-19 pandemic, virtual learning facilities have become even more important. The University launched its WeMUST digital platform in 2018-19. This is seen as part of a push for a 'smart campus'. WeMUST is used for attendance monitoring. There have also been changes to physical facilities, for example installation of body temperature monitoring in all buildings. In 2020, WeMUST was expanded to include Cloud Classes to enable online teaching during lockdowns or when students could not be on campus. This is based on a commercial virtual meeting platform and provided over 20,000 teaching sessions in 2020 when education pivoted online, representing 92% of planned classes. There are also meeting platforms of different sizes for up to 300 participants. Online examinations were also held, though online invigilation was labour-intensive, increasing teachers' workload. Subsequently, mixed online and on-campus teaching has been used with alternate online/offline sessions for large teaching groups. WeMUST has also enabled more staff to work from home. The University has planned further development of WeMUST to expand its scope and deepen its services. These observations on the support provided by WeMUST contribute to the identification of good practice in Accreditation Area V, Criterion 2 (paragraph 5.25).

1.119   In developing the new, third campus in Zhuhai, there are a number of risks relating to physical and digital facilities, as well as operational human resource issues.

1.120   The physical issues are mostly those associated with a major development project that is nearby but under a different administrative authority, as it is outside the Macau SAR. In relation to digital facilities, a number of widely used international platforms available in Macau are not available or have limits on use in mainland China, such as YouTube, Google, LinkedIn and Zoom. Staff reported that virtual private networks could be used within mainland facilities, but it remains to be seen how access to some platforms or equivalent functions will be ensured; and if equivalent providers are used, how the systems will be able to communicate with each other. In general, the University's approach is to plan these developments so as to maintain the University's independence.

1.121   Operational human resource issues for staff and students stem from current border policies that enforce quarantine or isolation periods and/or restrict travel. These have affected the University's operations given China's zero-COVID approach to the pandemic. To prevent the spread of COVID-19 there have not only been lockdowns of affected areas but also strict border and immigration restrictions, including those with the mainland and Hong Kong SAR. As a result, the University has provided living accommodation and other facilities for staff restricted to on one side of the border. While historically, the relationship between Zhuhai and Macau has been close, these risks have the potential to significantly hamper the cross-border operations inherent in the new campus. Obviously, amelioration of this situation is beyond the control of the University.

1.122   Overall, the University has an adequate and appropriate campus, teaching facilities and equipment. With the development of the WeMUST platform and associated virtual classrooms, it has successfully adapted to a more volatile external environment in which virtual learning capability is essential. The development of the new campus in Hengqin will bring new challenges. One area for consideration by the University is to develop more

concrete plans to achieve the stated goal of a 'low carbon, green, intelligence-based campus'.

Criterion 3: Student support

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Standard(s)

3.1 HEIs must formulate a student support policy with relevant implementation mechanism and procedures to support student learning to foster students' holistic development. Student support generally covers the following areas:

- *academic counselling and advisory on major selection;*
- *career and employment advisory;*
- *advisory on further studies;*
- *advisory on personal growth;*
- *financial aid (e.g. bursary).*

3.2 HEIs must formulate an appropriate mechanism for rewards and penalties in order to cultivate learning initiatives and positive attitudes among students.

3.3 HEI must formulate an appropriate assessment review and appeal mechanism for the purpose of allowing students with sufficient justification to request assessment review and/or put forth an appeal against unfair assessment in an open and fair manner.

3.4 HEI must offer channels for students to acquire sufficient information in a timely manner so that they can have a precise understanding of their own rights and obligations. As a result, they can attain appropriate learning experiences and support to achieve the intended learning outcomes under law-abiding and reasonable circumstances.

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1.123   Fostering and promoting talent is a key facet of the University's mission and operation (see Accreditation Area I), and this leads the University to take its support of students seriously. Support is overseen by the Student Affairs Committee and implemented by the Student Affairs Office.

1.124   Academic guidance takes on particular significance because of the University policy that allows undergraduate students to select or change their study programme in the early phase of their studies. Briefings are held with students at induction and then regularly during their programme to help them make appropriate choices. Students reported satisfaction with the support they received during this transition period, and with being able to change programmes, which they cited as a factor in choosing to study at the University.

1.125   All faculty members except those in research institutes are available for consultation through the adoption of an 'office hours' system of 10 hours per week per faculty member; this system is valued by students. More formal guidance comes through the academic mentoring system where, from sophomore year, students are formally allocated to faculty members for academic and careers advice and should meet with their academic mentor on a monthly basis. Dependent on the faculty, the allocation may be done by the faculty or can be made by student choice, on a first-come, first-served basis. While monthly meetings were, in general, confirmed by students, faculty members indicated variability: some met with students monthly, while for others meetings were according to students' needs. Moreover, staff of the Student Affairs Office were unable to state definitively how often academic mentors should meet their students and suggested that the practice might vary by faculty. As

a result it is possible that mentor support is not equitable across the University and the University may wish to address this.

1.126   There is also a 'class mentor' available to all students, who is focused towards providing a more pastoral form of support. The Panel read and heard that class mentors provide a very wide range of advice, including psychological support and on interpersonal relationships. Given both the broad range of skills required of class mentors and the sensitive nature of the issues they are expected to deal with, the Panel asked about training for class mentors and was informed that some brief training was available, and that it was in Chinese only and so non-Chinese-speaking class mentors could not participate. Accordingly, the Panel **recommends** that the University ensures effective training for all class mentors.

1.127   The mentoring systems are codified for staff in the comprehensive document Implementation of Mentorship Program, and are organised on a faculty basis by a head mentor. The University regards the role of mentors as 'Learning facilitator, growth mentor, virtue enlightener, life navigator', and notes, 'mentors shall take up the functions of teaching students the fundamental relationship between oneself and the society, telling students the knowledge and skills for their careers, and helping students answer questions in the learning process'.

1.128   At the end of each semester the academic mentor and class mentor jointly complete a report on the progress of each student that is shared with the student to encourage her/him to reflect on her/his own progress. Reports are stored digitally for staff and student access. Students reported that they valued the mentoring system.

1.129   First-year students are recognised as being particularly vulnerable. Following a pilot in two faculties, the University rolled out in 2019-20 a Quality Enhancement Education Scheme for Freshmen that provides a variety of activities and support, including understanding study programmes, careers development, giving feedback, promoting teamwork, enhancing social communication, and interpersonal skill development. Overview and monitoring of the programme is the responsibility of the TLAC.

1.130   In supporting students with mental health issues, the University has a psychological counselling service whose website offers a broad range of practical advice for maintaining good mental health. The service offers confidential professional personal counselling support across a broad range of issues and through the Comfort Heart Fellowship Program trains groups of students to become psychological health ambassadors who promote psychological health and provide emotional support to their peers in the University. The Panel considered that this initiative had significant potential to raise awareness of, and to prevent, student mental health issues and **commended** the Comfort Heart Fellowship Program as a feature of **good practice**.

1.131   The Centre for Entrepreneurship and Career Planning acts as a clearing house for careers information, development opportunities and job vacancies, and provides students with a wealth of practical information on boosting their career prospects. It also provides skills workshops, funded visits to regional employers, and runs an annual on-campus recruitment fair. Students were able to cite practical examples of how the Centre had enhanced their employability.

1.132   In supporting positive attitudes among students and cultivating learning, the University applies a progress monitoring mechanism. Students receive warning letters should their attendance or attainment fall below set thresholds and mentors are alerted. Likewise, positive performance is rewarded through various scholarships and bursaries. Admission scholarships are awarded on the basis of entrance examination performance and more than 100 have been awarded each to undergraduate and postgraduate students in each of the last three years. The benefits of such scholarships vary by faculty but can

include tuition fees and expenses for the duration of a programme. A range of other scholarships, some sponsored, are available to reward students for good performance during their undergraduate programme of study; for example, in 2020-21 nearly 400 were awarded. Annual investment by the University and specific sponsors in admission and reward scholarships is considerable, amounting to over MOP 50 million. In addition, some bursaries are available to students from low-income backgrounds.

1.133   For information on assessment review and associated students appeals, please refer to Accreditation Area V Criterion 2 (paragraphs 5.18-5.28)

1.134   Communication to students is manifold; key channels are the WeMUST app and the student handbooks. Students met by the Panel were content with the means by which information was made available to them and were aware of how to access the information they needed.

Accreditation Area IV: Staffing and staff development

Criterion 1:

- **Staffing**
- **Appointment criteria and selection mechanism**
- **Teaching load and allocation of other duties**
- **Performance appraisal and teaching effectiveness**
- **Support for staff development**
- **Engagement in research, consultancy and professional services (if applicable)**

Standard(s)

1.1 HEIs must formulate an appropriate and reasonable staffing structure which aligns with their development strategies and operational needs.

1.2 HEIs must ensure that there are sufficient staff with requisite qualifications and experiences to facilitate their own effective operation.

1.3 The roles and responsibilities, appointment criteria, selection mechanism, promotion, contract renewal, salary review, performance appraisal and evaluation of teaching effectiveness, etc. of staff at various ranks must be defined in a fair manner, and details must be explicitly specified for management purpose.

1.4 HEIs must formulate a policy as well as a mechanism on staff development, and deploy resources accordingly to promote staff's active participation. This is to ensure that staff keep pace with the latest development for the provision of quality services in order to achieve HEIs' educational performance.

1.5 HEIs must put into practice the above staffing and relevant policies.

1.6 HEIs must delegate and assign teaching load and other duties in an appropriate and timely manner.

1.7 HEIs must formulate an appropriate appeal mechanism to allow staff with sufficient justification to put forth an appeal against unfair treatment in an open and fair manner.

1.8 HEIs must offer channels for staff to acquire sufficient information in a timely manner for a precise understanding of their own rights and obligations so that they can provide quality services to achieve institutional objectives and educational performance under law-abiding and reasonable circumstances.

1.136   The University emphasises in its SER 'having appropriate and sufficient human resources to engage in quality delivery of its academic programs and administrative services to carry out its institutional operations efficiently and effectively'. Further, it is committed 'to build up a sufficient and qualified staff team to ensure quality delivery of its academic programs, research and consultancy work, and administrative services in accordance with the development strategy and academic planning'.

1.137   The University divides its staff into two categories: academic and non-academic. Academic staff include teaching-track employees and those in research institutes. The

difference between these two groups is in their responsibilities. For teaching-track staff the emphasis is on teaching (usually 360 hours per year) but also includes research and service. For those in research institutes the emphasis is on research. There are also instructional-track staff who have no research time allocation and an even greater emphasis on teaching. The teaching-track staff and those in research institutes can hold the ranks of Assistant Professor, Associate Professor, Professor and Chair Professor. Instructional staff have the ranks of lecturer and senior lecturer. Non-academic staff include administrative and technical (sometimes termed 'professional support') staff. The Panel heard from senior staff that the University does not employ a tenure-track policy. Instead, a renewable contract mechanism based on employees' performance is used. The University has established teaching loads for each of its academic ranks.

1.138   The University formulates personnel policies and qualification requirements to create a sufficient and effective staffing structure. The Panel considered these arrangements to be sound, in accordance with the law and to be readily available to staff on the University's intranet.

1.139   In general, there is a clear-cut assignment of responsibilities in relation to staffing. At the University level, the President and the Vice President for Administration are responsible for planning and administration of staffing, the latter supported by the human resource office. The President reports annually to University Council and key information is included in the University's Annual Report. At faculty and department level, academic leaders create staffing deployment plans and individual academics can consult the documents Teachers' Regulations and Staff Handbook, which clearly set out the responsibilities of staff. Workforce planning at faculty level takes place annually in anticipation of future developments, as indicated in strategy documents and is detailed in faculty annual reports.

1.140   The University claims to have clear procedures for recruitment of staff, with high qualification standards. Normally, academic staff candidates hold a terminal degree. Academic units initiate the recruitment process following their workforce plan and in conjunction with the human resources office prepare an advertisement. Job descriptions are directly related to institutional goals and are clearly described. The faculty/institute typically establishes a selection and review committee. Sample employment contracts viewed by the Panel clearly indicated position, duties, rights, remuneration, benefits and termination. The term of appointment generally ranges from one to eight semesters. Contract renewal of academic staff is determined by teaching performance, quality of research and service , as determined at annual appraisal.

1.141   Internationalisation is one of the pivotal visions in the University's latest two strategic plans. To this end, the University has taken a global view of recruitment, with some success. The students met by the Panel supported this stance and encouraged its continuation. However, success has meant that the University now has significant numbers of staff who are not fluent in either Mandarin or Portuguese and this has posed communication challenges as elaborated in the section covering Accreditation Area V, Criterion 2.

1.142   The Panel considered that the academic staff to student ratio, at approximately 16:1, was appropriate to facilitate a good student experience. In general, students met by the Panel were satisfied with the quality of teaching they received.

1.143   The Panel concluded that staffing matters, including roles and responsibilities, appointment criteria, selection mechanisms, promotions, contract renewal, performance appraisal and evaluation of teaching effectiveness, are defined in a fair manner, and details are explicitly specified and communicated for management purposes.

1.144   The University recognises the importance of staff development and accordingly 'provides a variety of staff development opportunities and support for its staff members to enhance their capabilities to deliver academic programs and institutional operations efficiently and effectively'. A variety of training and workshops are provided. For all new staff, the human resources office organises a three-day Orientation Training at the beginning of each academic year, covering an introduction to the University and administrative matters. The Educational Development Centre provides training workshops, seminars and resources for academic staff to develop their teaching and research competence and capacity. The Research and Technology Administration Office encourages and supports staff to conduct consultancies and commissioned projects with external parties.

1.145   Although some academic staff met by the Panel indicated they had taken advantage of these training opportunities, they were unable to convincingly explain what forms support for teaching and research took, or what they had learned from the processes. A significant proportion of the staff met indicated they had not availed themselves of the support at all and were unclear about what was and what was not available to them, and cited that they learned how to teach by observing and following the lead of others. In particular, the Panel could find no evidence that new faculty members are required to undergo any training in learning, teaching and assessment as they develop their academic practice. Indeed, some faculty members confirmed that they had received no such training. Accordingly, the Panel **recommends** that the University should develop and implement a scheme that facilitates the development of new faculty members in learning, teaching and assessing in higher education.

1.146   To recognise and set examples of high-quality teaching and research output, the University has established a variety of awards. Those for teaching include excellence and achievement awards that recognise an average of approximately 12 persons annually. There are similar awards for research performance.

1.147   The SER claims the University assures the effectiveness of its human resource management by systematic performance appraisal on an annual basis and that individual academic staff members' performance is evaluated three ways: self-evaluation, evaluation by the students they teach, and annual appraisal. Teaching staff met by the Panel confirmed that the evaluation criteria and procedures were clearly defined.

1.148   There is an annual round of promotion for academic staff. The criteria and process are clearly stipulated in the Rules for Application of Academic Rank Promotion document. To ensure fairness and objectivity, the views of external assessors are always sought. Academic staff met by the Panel were aware of the procedures. In recent years, promotion requirements have been adjusted in light of the University's strategic development. For example, in 2016 the University raised the minimum number of research outputs required and, in 2019, it extended the service period from four to six years, both changes for associate professor applicants applying for full professorship. The amendment of promotion criteria was thoroughly discussed at Senior Executive Committee and the Senate, and the announcement was made to all academic staff with a one-year transition period for implementation.

1.149   The ability of staff to appeal and the associated mechanism is dealt with under grievances in Accreditation Area V, Criterion 2, paragraph 5.21.

1.150   The University states that it strives to improve internal communication and engagement with all staff and in general it uses communication channels and media effectively. Its major policies, guidelines, regulations and rules are available on the internet or the WeMUST app (intranet). Decisions on personnel matters, amendment of awards criteria and assessment procedures, teaching and research awards recipients, and

academic rank promotion are all properly announced internally with, in many cases, a 30-day period for feedback before confirmation. The University deploys a University-wide staff opinion survey but the Panel heard from staff that, in the main, they are unfamiliar with the survey and oblivious of its results and therefore any actions taken in response. The University may wish to address this deficiency.

Accreditation Area V: Quality Assurance

Criterion 1: Quality management mechanism and performance indicators

Standard(s)

1.1 HEIs must establish a quality management mechanism and performance indicators to periodically monitor and review their own educational performance with effective, practicable and consistent means. This is to sustain the standards of their educational provision and meet the QA requirements of Macau as well as international standards.

1.2 Review results must be built upon objective data and facts, and then triangulated (with students, alumni, management level, staff, partner organizations, employers, etc.) for improvement purpose.

1.3 HEIs must make good use of both internal and external networks (e.g. academic and industry sectors, external examiners, honorary advisors, etc.) in order to have a comprehensive understanding of their own operational effectiveness as a reference for the formulation of corresponding policies and development blueprint.

1.4 The QA mechanism and procedures must cover institutional operation quality and academic quality, and ensure that both meet their corresponding standards.

1.5 For requirements for institutional operation quality, refer to "Accreditation Area I: Institutional Governance and Management", "Accreditation Area III: Financial Management and Resources Deployment" as well as "Accreditation Area IV: Staffing and Staff Development".

1.6 For requirements for academic quality, refer to "Accreditation Area II: Academic Planning, Development, Management and Monitoring"

1.7 HEIs must establish an effective monitoring mechanism covering the following areas:

- *targets of feedback collection, corresponding mechanism and follow-up;*
- *consultation with external parties (e.g. external examiners, industry and academic sectors, honorary advisors, etc.);*
- *external benchmarking;*
- *periodic review mechanism and procedures, and follow-up action on relevant review results.*

1.8 HEIs must provide channels for stakeholders (e.g. students, staff, etc.) to give opinions in order to ensure institutional operation quality and program quality.

1.151   The University has a quality management mechanism that ensures its educational provision continues to meet the requirements of Macau's legislative infrastructure. The quality management system operates at both institutional and programme levels. It covers academic, administrative and research functions, and includes a set of performance indicators. The quality assurance environment is a system of organisational structure, regulations, policy, procedures and behaviours that align with Macau SAR Government requirements and is embedded into administrative and governance structures for planning, implementation and monitoring. University-level quality structures underpin faculty-level processes for staff development, teaching innovation and monitoring student performance.

1.152   Quality management at the University is broadly divided into two streams: an administrative management structure, covering all administrative positions with managerial responsibilities; and an academic governance structure that consists of academic governance bodies that engage directly with academic decision-making matters.

1.153   Senate carries responsibility for supervising, evaluating and making recommendations to improve the quality and results of the work of committees, academic units, research and support units, but the Teaching Learning and Assessment Committee is the key committee for academic quality assurance. It carries responsibility for all matters concerning the quality of the University's educational curricula and programmes, including monitoring, reviewing and evaluating, and the development of teaching, learning and assessment across the University.

1.154   To assist these committees in discharging their responsibility, the University has established a central Quality Assurance Office that provides directions for specific aspects of quality planning, implementation and evaluation. Among the materials it has produced are a Handbook on Teaching and Learning, a Handbook on Assessing Students, and supporting materials for assessment that include guidance on the use of rubrics.

1.155   The document Quality Assurance Procedures and Mechanisms summarises the quality assurance requirements for each academic programme, including the data to be collected and monitored, the functioning of the Board of Examiners, the responsibilities of the Faculty Board, and the processes for faculty review and programme review. The document includes guidance on where to find more detailed information about each of the requirements.

1.156   Performance reporting is through a system of KPIs. Institutional-level KPIs are set by the President, with the assistance of the Senior Management Team. Academic and administrative and support units have their own KPIs, which are reported on in their annual reports. The KPIs chosen by the units align with University development strategies, taking into consideration each unit's operational specifics.

1.157   The faculty deans' reports play a central role in academic quality assurance. The Guide on the Preparation of Annual Work Report defines the areas to be included, including staff development and promotion, development of academic programmes and outreach and social participation. There is also a defined set of (non-numerical) performance indicators to be used for academic planning, management and development. The reports provide an annual summary of student performance data and programme revisions, report on progress towards strategic objectives in the form of KPIs and are used to assess the completion of activities and objectives set following the previous year's reports. Commonly used KPIs include quantifiable descriptors, such as the number of refereed publications, the value of research grants awarded, and the participation in academic events, and descriptive indicators of those that are not easily quantifiable, such as certain types of services rendered, or graduate destinations. The reports are presented to the Senate or University Executive Committee; comments and feedback provide the faculties with an assessment loop to feed into their next year's planning.

1.158   Quality assurance processes for academic units are mirrored in the administrative and support units of the University. There are also corresponding processes for research and innovation.

1.159   The University underpins its decision-making processes with evidence in the form of management information data, internal consultation, and external input from individuals, academic networks, professional bodies and reference points.

1.160   Management information is used to inform decision-making, where available. Annual analysis reports on student completion rate, study duration, grade distribution by programme and by faculty, and degree classification distribution are prepared by the Academic Registry and the Quality Assurance Office and are presented to Teaching Learning and Assessment Committee for discussion where all leaders of academic units and supporting administrative units are present. Student graduation destination data are collected by the faculties or the Centre for Entrepreneurship and Career Planning through an annual survey.

1.161   The University states that it values external input into its decision-making processes. To benefit from the experience and expertise of renowned scholars, business leaders and professionals, it has Advisory Boards at institutional and faculty-levels. The research institutes have Academic Committees that are chaired by external high-profile scholars or researchers. Some University committees, such as the Faculty and School Academic Committees, Teaching Excellence Awards Committee, and Program Review and Development committees, have external members.

1.162   The approval processes for new programmes and major modification of existing programmes both require external input. This means that the University uses external expertise at the point where academic standards are set. External subject specialists are invited to provide written comments on new programme development proposals before the approval events and periodic review events. The University considers that such external consultation has become an accepted practice for the institution and its faculty members. For postgraduate research programmes, external examiners are required for the proposal presentation and oral defence. In the case of doctoral students, at least two members of the thesis examination committee should be external members, one of whom should be physically present at the oral thesis defence.

1.163   The University has membership of several international and regional professional networks, including the International Association of Universities; Asia Pacific Quality Network; Association of Universities of Asia and The Pacific; World Innovative Cities Cooperation Organization; International Society for Chinese Language Teaching; World Portuguese-Speaking Countries Medical School Alliance; World Directory of Medical Schools; Asian Law Institute; The Chinese Society of Academic Degrees and Graduate Education; The Consortium for Globalization of Chinese Medicine; China Association of Higher Education; and other national and regional alliances or networks of higher education institutions, particularly those drawn from the Greater Bay Area.

1.164   The University encourages academic programmes to obtain professional accreditation and recognises that the accreditation process provides a useful source of external feedback. The Faculties of Information Technology, Hospitality and Tourism Management, Chinese Medicine, and Law, together with the School of Business, provide programmes that are professionally accredited and work closely with the related professional bodies, including the Hong Kong Institution of Engineers, Pacific Asia Travel Association, TedQual (UNWTO Certified), Association of Chartered Certified Accountants, Certified Practicing Accountant Australia, and the Chartered Institute of Logistics and Transport.

1.165   The University has showed commitment to external review by voluntarily joining the pilot project of new programme accreditation by the Hong Kong Council for the Academic Accreditation of Vocational Qualifications in 2015-16 and submitting itself to the UK Quality Assurance Agency for Higher Education's Institutional Quality Audit (IQA) exercise in 2016-17. These external reviews provided helpful feedback and valuable experience in quality assurance processes for staff at all levels of the institution.

1.166   Until recently, the University has evaluated its programmes at two points: when major changes are required to an existing programme and at the approval of new programmes. However, since 2018, periodic programme review has been a mandatory requirement of the new Higher Education Law in Macau, to be conducted by external quality assurance agencies on a seven-year cycle. All programmes must have undergone the first review by August 2025. The University has developed its own internal arrangements for such a process, including the selection of external agencies, and at the time of the virtual accreditation review visit, 46 programmes had undergone external periodic review or professional accreditation. Sample reports provide evidence of consideration and responding to recommendations from the review process, together with the construction and monitoring of action plans. External benchmarking forms part of the process for both undergraduate and postgraduate programmes. The evidence base supplied to the periodic review team by the University included comparison of the programme under review with similar programmes offered by other higher education institutions. The review process includes scrutiny of how effectively the programme team convert the strategic aims and objectives into action plans and how the KPIs and benchmarks are used to set performance goals.

1.167   The University seeks feedback from its staff and students through a number of different channels. Staff membership of academic governance and management committees provides opportunities for bilateral communication with representative members. Annual Faculty Meetings for staff, and Faculty-Student Consultative Committees for students provide for a sharing of ideas and opinions and engage a larger number of the academic community. The routine workflow and processes of administrative staff produce both routine and periodic feedback from all involved. There is an annual Staff Opinion Survey and students are able to provide feedback through routine course evaluation, the satisfaction survey, and through other channels, such as the University-wide mentor programme. There are also Facebook and WeChat groups for communication with staff and students. Students reported finding the Faculty-Student Consultative Committees valuable and were able to provide examples of ways in which the University had responded to student feedback from these meetings.

Criterion 2: Communication and implementation mechanism

Standard(s)

2.1   Complaint Mechanism, Appeal Mechanism, Grievance Mechanism and Information Sharing.

2.2   HEIs must establish an effective communication and implementation mechanism for stakeholders to acquire sufficient information in a timely manner so that they can express their views to HEIs for fair and equitable treatment.

1.168   Information on academic appeals is supplied to students in their handbooks, and students met by the Panel were aware of the appeals process. Students who wish to appeal against their results must apply, with a fee of 500 MOP, within 10 working days. An independent assessor from the relevant faculty or school reviews the student's work and forms a decision either to adjust the mark or retain it. The relevant Dean or Director then also reviews the work and endorses, or otherwise, the assessor's judgement; however, the procedure to be followed when the Dean or Director does not endorse the decision is not specified and was unknown by Deans met by the Panel. The procedure typically takes about 40 working days, which cannot be considered to be swift. If the student is successful, the fee is returned. The University collates data on appeals. In the last three years there have been 681 appeals, of which approximately 45% have been upheld. The Panel considered this a large proportion, potentially indicative of some faculty members not fully understanding

assessment processes. Additionally, the Panel neither saw nor heard any evidence that the University considers and analyses student appeals so that it might learn from them and reduce their number.

1.169   The SER indicated that students may freely make complaints to programme directors, Deans or Directors, Academic Registry, the QAO and the President. If the complaint concerns teaching staff, the relevant Dean or Director discusses improvement actions with them. Complaints are generally handled at department level, with difficult cases escalated to the relevant Faculty Executive Committee, or very rarely the President's Office. Given the size of the University there has been relatively few (91) complaints in the last three years, of which approximately 40% were upheld, though some were of a minor nature such as delay in responding to emailed queries. Although the University indicated that contact details of the various offices to which students can complain are publicly available, there is little formal communication to students of the channels or mechanisms involved, for example, complaints are not featured in the student handbooks, and students met by the Panel were in general unaware of any complaints process. Accordingly, the Panel **recommends** that the University should effectively explain the complaints mechanism to its students. Further, the Panel neither saw nor heard any evidence that the University considers and analyses student complaints so that it might learn from them and reduce their number.

1.170   While there is no suggestion that complaints and appeals are not effectively dealt with, there is an unexploited opportunity for the University to learn from such incidences and the Panel **recommends** that the University develop and implement systems and processes to analyse the incidence and patterns of student appeals and student complaints.

1.171   The University has acknowledged that there is scope for it to be better accountable to its staff, and for it to more formalise procedures relating to staff complaint, appeals, feedback and consultation. For example, at present neither the staff handbook nor the teachers' regulations give information on how staff might initiate a grievance. Indeed, faculty members met by the team were unaware of any grievance process. The incidence of grievances that are reported to the Human Resources Office, i.e. that go beyond faculty level, is low (two cases in the last three years). However, an unknown number is dealt with at faculty level. Although there are procedures in place to deal with specific types of grievance, for example those related to sexual harassment, there is no overall grievance policy or process, which may lead to differences in procedure in the various faculties. Also, handling grievances within faculties does not allow the University as a whole to learn from individual grievances and stifles somewhat the independent nature of any outcome. The Panel agrees with the University that there is more work to be done and **recommends** that the University should develop and implement a grievance policy that considers all grievances at University level and provides for grievances to be heard by persons independent of the faculty concerned.

1.172   The Panel enquired of faculty members how they know at which level to set academic standards and received answers that were indicative of informal and ad hoc means. The University is clear that standards are set at programme approval and review, and when programmes are professionally accredited. Notwithstanding the recommendation concerning the role of annual programme monitoring in maintaining academic standards, the Panel formed the view that there is room for improvement in the way the University communicates its policies and procedures concerning academic standards to faculty members such that informal and ad hoc means are eliminated and play no part in managing standards in practice. The Panel **recommends** that the University ensures that faculty members understand and effectively implement processes for the setting and maintenance of academic standards.

1.173   The University makes information available on programmes and other relevant aspects of student life through a number of channels, including the website, printed brochures, student and programme handbooks, the WeMUST app (intranet), social media such as WeChat and Weibo, and other programme-specific documents. Information is also provided on extracurricular activity such as the Centre for Entrepreneurship and Career Planning, as well as on other University facilities such as the library.

1.174   The University conveys its announcements to students through bulletin boards on campus, the electronic student portal WeMUST, and the University's student email system. The University makes plain to students in their handbooks, that students are responsible for any consequences should they fail to check these communication channels.

1.175   The University uses its WeMUST app (intranet) as a primary means of communication with both students and staff. The Panel was able to confirm that the following items are readily available online, as stated in the SER for the appropriate members of the University. The composition, responsibility, terms of reference, guidelines and working procedure for major University committees and academic/administrative units, the staff handbook, undergraduate and postgraduate students' handbooks, policy and guidelines for teaching, learning and assessment activities, research and scholarly work performance assessment and reward criteria, examination and invigilation regulations and rules, study plans and academic administration policy and procedures, and guidelines for student activities. However, WeMUST is much more than a repository of information. For students it is integrated with the virtual learning environment and provides, among other things, their personal data, academic progress, timetable, library services including the borrowing of material, status of payments and fees, messaging and alerting systems, feedback on their work, a research thesis submission portal, and a wallet to pay for University services, including catering. While staff are initially informed of the University's policies, procedures and guidelines at orientation, update announcements occur through email and WeMUST. Staff are informed of new or amended policies, guidelines and regulations on an ongoing basis, via alerts within WeMUST. WeMUST is also used to accomplish a range of administrative functions, for example requesting and approving annual leave, managing research degree supervision and assessing research theses. WeMUST is accessible on a range of devices. The Panel **commended** the comprehensive nature and multifunctionality of the WeMUST platform, which allows ready access to a range of functions, as a feature of **good practice**.

1.176   The University considers the parents of its students to be important stakeholders, and uses the social media platforms WeChat and QR Code, to keep them informed of activities at the University, to gather their feedback, and to provide them with information to help them assist their children with University administrative processes, such as course selection and appeals. Because of its low volume, feedback from parents is dealt with on an ad hoc basis by the relevant University office or department. Nonetheless, the University provided examples of how it responded positively to parents' concerns, for instance changes made to the login system for the selection of elective courses.

1.177   As part of a broader strategy of alumni engagement, alumni are kept abreast of activity at the University through an annual e-magazine. The Panel noted the comprehensive nature of the magazine, covering a broad range of topics, but also that it is almost exclusively in Chinese. The University already has many alumni who do not speak Chinese and if its vision in relation to its core values of multiculturalism and internationalisation is realised then it will have many more, and may wish to consider making its alumni magazine bilingual.

1.178   Although the official languages of the University are Chinese and Portuguese, the majority of teaching takes place in English. Approximately 5% of faculty members are

ethnically non-Chinese and many do not speak Putonghua or Cantonese, or read Chinese. Some minutes of deliberative bodies, for example University Council, Student Affairs Committee, Research Committee and Student Academic Integrity Committee, some procedural documents, for example Guidelines on Program Review and New Program Accreditation, some annual reports, for example of the Student Affairs Office, and some training sessions are almost all in Chinese, which limits their utility in the University. Indeed, it means that some staff cannot readily access these minutes, documents and training materials. There is no University policy that states what documents should be in what languages, except for very high-level documentation, for example the charter, which must be in Chinese and Portuguese. Also, the lack of availability of documents in English does not sit comfortably with aspirations of multiculturalism and internationalisation. Accordingly, the Panel **recommends** that the University should ensure that all minutes, policies, procedures, guidelines, reports and appropriate training materials are produced in English, in addition to other languages as appropriate.

Conclusion

The QAA Accreditation Panel reached the following conclusions about the higher education provision at Macau University of Science and Technology.

Accreditation outcomes and respective decisions

The Accreditation Panel concluded that Macau University of Science and Technology **meets** all of the standards for Institutional Accreditation.

Commended good practice

The QAA audit Panel **commended** the following features of **good practice** at Macau University of Science and Technology:

- the Comfort Heart Fellowship Program, which has significant potential to raise awareness of, and to prevent, student mental health issues (paragraph 3.25)
- the comprehensive nature and multifunctionality of the WeMUST platform, which allows ready access to a wide range of functions (paragraph 5.25).

Conditions

The Accreditation Panel did not apply conditions to the accreditation decision.

Recommendations for improvement

The QAA Accreditation Panel makes the following **recommendations** to Macau University of Science and Technology:

- develop a robust and proactive process for the consideration of a comprehensive range of risk types, to include oversight and management of the risks identified, including monitoring and reporting the current level, establishment of management and mitigation processes, and assignment of responsibility for each risk (paragraph 1.25)
- define the terms of reference of the University Council and its Executive Committee, including the delegation of any authority from the former to the latter, and ensure that each body has sufficient meeting time to discharge its responsibilities paragraph 1.33)
- introduce a formal process for the annual monitoring of programmes, with particular reference to maintaining academic standards (paragraph 2.22)
- ensure effective training for all class mentors (paragraph 3.21)
- develop and implement a scheme that facilitates the development of new faculty members in learning, teaching and assessing in higher education (paragraph 4.10)
- effectively explain the complaints mechanism to its students (paragraph 5.19)
- develop and implement systems and processes to analyse the incidence and patterns of student appeals and student complaints (paragraph 5.20)
- develop and implement a grievance policy that considers all grievances at University level and provides for grievances to be heard by persons independent of the faculty concerned (paragraph 5.21)
- ensure that faculty members understand and effectively implement processes for the setting and maintenance of academic standards (paragraph 5.22)

- ensure that all minutes, policies, procedures, guidelines, reports and appropriate training materials are produced in English, in addition to other languages as appropriate (paragraph 5.28).

Annex 1: Panel membership and on-site visit dates

The Panel comprised the following membership:

Panel role	Name	Job title	Department/faculty and institution
Chair	Professor Mark Davies	Independent Consultant and Emeritus Professor of Bioscience	Independent and University of Sunderland, UK
Member	Professor Shu Xiaomei	Director of International	Communication University of China
Member	Professor Martin Lockett	Dean, Nottingham University Business School China	University of Nottingham, Ningbo, China
Member	Dr Felix Zhu	Associate Professor and Associate Dean International, Community and Partners	University of Hertfordshire, UK
Member	Professor Jeremy Bradshaw	Independent Consultant and former Pro Vice Chancellor	Independent and University of Bath, UK
Case Officer and Panel Secretary	Mr Alan Weale	Quality Manager	Quality Assurance Agency for Higher Education, UK (QAA)

Virtual visit dates: 21-25 February 2022 and 28 February-1 March 2022

Annex 2: Academic areas/units and academic levels programmes delivered by Macau University of Science and Technology at the time of the virtual visit

Table:1 Academic units and levels of study

Academic unit	Bachelors	Master's	Doctoral
Faculty of Information Technology	✓	✓	✓
School of Business	✓	✓	✓
Faculty of Law	✓	✓	✓
Faculty of Chinese Medicine	✓	✓	✓
School of Pharmacy	✓		✓
Faculty of Medicine	✓	✓	✓
Faculty of Hospitality and Tourism Management	✓	✓	✓
Faculty of Health Sciences			
Faculty of Humanities and Arts	✓	✓	✓
University International College	✓	✓	✓
Institute for Sustainable Development			✓
Institute for Social and Cultural Research			✓
Space Science Institute		✓	✓
Macau Institute of System Engineering		✓	✓
Macau Environmental Research Institute		✓	
Department of General Education			
School of Liberal Arts	✓		
Exchange/Study Aboard	✓	✓	✓

Table: 2 List of programmes offered by faculty

Faculty	Level	Title in English
Faculty of Information Technology	UG	Bachelor of Science
	M	Master of Science (Information Technology)
	M	Master of Science in Applied Mathematics And Data Science
	PhD	Doctor of Philosophy In Science
	PhD	Doctor of Philosophy in Artificial Intelligence
School of Business	UG	Bachelor of Business Administration
	UG	Bachelor of Applied Economics

	M	Master of Management Studies
	M	Master of Business Administration
	M	Master of Public Administration
	M	Master of Supply Chain Management
	M	Master of Science in Accounting
	M	Master of Science in Finance
	M	Executive Master of Business Administration
	M	Master of Charity and Social Organization Management
	M	Master of Science in Business Analytics
	M	Master of Applied Economics
	PhD	Doctor of Business Administration
	PhD	Doctor of Philosophy in Management
Faculty of Law	UG	Bachelor of Laws
	M	Master of Laws
	M	Master of International Economic and Commercial Law
	M	Juris Master
	M	Master of International Arbitration
	M	Master of Laws In Criminal Justice
	M	Master of Financial Crime and Regulation
	PhD	Doctor of Philosophy in Law
Faculty of Chinese Medicine	UG	Bachelor of Biomedicine
	UG	Bachelor of Traditional Chinese Medicine
	UG	Bachelor of Pharmacy in Chinese Medicine
	M	Master of Traditional Chinese Medicine
	M	Master of Pharmacology in Traditional Chinese Medicine
	PhD	Doctor of Philosophy in Chinese Medicine
	PhD	Doctor of Philosophy in Chinese Medicines
	PhD	Doctor of Philosophy in Integrated Chinese And Western Medicine
Faculty of Hospitality and Tourism Management	UG	Bachelor of International Tourism Management
	UG	Bachelor of Hotel Management
	UG	Bachelor of Food and Beverage Management
	M	Master of International Tourism Management

	M	Master of Hotel Management
	PhD	Doctor of Philosophy in Tourism Management
Faculty of Humanities and Arts	UG	Bachelor of Arts in Art Design
	UG	Bachelor of Arts in Journalism and Communication
	UG	Bachelor of Fine Arts in Digital Media
	UG	Bachelor in Film and Television Production
	UG	Bachelor in Acting
	M	Master of Arts in Communication
	M	Master of Design
	M	Master of Management in Film Industry
	M	Master of Film Production
	M	Master of Fine Arts
	M	Master of Architecture
	M	Master of Fine Arts in Interactive Media
	PhD	Doctor of Philosophy in Management in Film Industry
	PhD	Doctor of Philosophy in Fine Arts
	PhD	Doctor of Philosophy in Communication
	PhD	Doctor of Philosophy in Design
	PhD	Doctor of Philosophy in Architecture
Faculty of Medicine	UG	Bachelor of Food and Nutrition Sciences
	UG	Bachelor of Medicine and Bachelor of Surgery
	M	Master of Public Health
	M	Master of Nursing
	PhD	Doctor of Public Health
University International College	UG	Bachelor of Arts in Foreign Language Studies
	M	Master of Teaching Chinese as a Foreign Language
	M	Master of Arts in Foreign Language Studies
	PhD	Doctor of Philosophy in Teaching Chinese as a Foreign Language
School of Pharmacy	UG	Bachelor of Pharmacy
	PhD	Doctor of Philosophy in Pharmacy
Institute for Social and Cultural Research	PhD	Doctor of Philosophy in International Relations
	PhD	Doctor of Philosophy in History

Space Science Institute	M	Master of Earth and Planetary Sciences
	M	Master of Space Big Data Analytics
	PhD	Doctor of Philosophy in Earth and Planetary Sciences
Macau Environmental Research Institute	M	Master of Environmental Science and Management
Macau Institute of System Engineering Ministry of Education	M	Master of Science in Intelligent Technology
	PhD	Doctor of Philosophy in Intelligent Science and Systems
School of Liberal Arts	UG	Bachelor of Commerce
	UG	Bachelor of Hospitality Management
The Institute for Sustainable Development	PhD	Doctor of Philosophy in Urban and Regional Economics

UG=Undergraduate; M=Master's; PhD=Doctor of Philosophy

Glossary[1]

Academic unit
Refers to an academic-related unit within an HEI, such as faculty.

Accreditation document
The document provided by HEIs for review by EQAAs when conducting IA; it is to be prepared in a self-evaluative manner. The IA document should elaborate the HEI's educational performance with reference to the different accreditation areas, and be supported with relevant documentary evidence and data.

Accreditation outcome
The possible outcomes are 'Meeting Accreditation Standards', 'Meeting Accreditation Standards with Condition(s)' and 'Not Meeting Accreditation Standards'; the accreditation outcome is detailed in the accreditation report.

Accreditation Panel
This is the Panel formed by the EQAA under the principle of peer review. This Panel executes external evaluations in accordance with this set of Guidelines and the Guidelines for EQAAs by making judgements and recommendations on the operation of the HEI being accredited and the standards of the programmes offered by the HEI.

Accreditation report
It is the final report sent by the EQAA to the HEI being accredited after the site visit for IA. The accreditation report covers the EQAA's observations, judgements and respective justifications made on the standards of the HEI's governance, management and operation according to the different accreditation areas, leading to the concluding accreditation outcome and respective decisions.

Case officer
A case officer, in his/her capacity as the representative of the EQAA, is responsible for handling the evaluation exercise and acts as the contact point between the HEI being evaluated and the Panel.

Discipline
A discipline refers to the grouping of programmes based on the definition of a 'narrow field' in International Standard Classification of Education (2013) by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Evidence-based
This is one of the guiding principles of IA, under which judgement is made on the basis of evidence (including the IA document provided by HEIs, the solid empirical data collected by engaged EQAAs as well as the observations made by the Panel during the site visit) to ensure objectivity, fairness and consistency.

External Quality Assurance Agency (EQAA)
EQAAs are quality assurance organisations that provide evaluation services for HEIs. Such organisations must meet the requirements specified in Chapter 1 of Section A in the Guidelines for EQAAs and be approved by DSEDJ before providing specified evaluation services for relevant HEIs.

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[1] The glossary is mainly taken from the glossary provided in the *Higher Education Quality Evaluation of Macao Guidelines on Institutional Accreditation* (2018). Education and Youth Development Bureau (DSEDJ), Government of Macao Special Administrative Region.

Fit-for-purpose
This is one of the guiding principles of IA, under which engaged EQAAs must evaluate whether institutional systems, resources and the operation of HEIs being accredited are adequate enough to achieve corresponding standards based on the HEIs' stated goals.

Institutional accreditation (IA)
IA is a type of evaluation under the higher education quality evaluation system of Macau to evaluate whether the governance, management and operation of local HEIs meet the quality assurance requirements of Macau, and to determine whether programmes that these HEIs intend to offer within specified disciplines/academic units, and academic levels are within the approved scope(s) for HEIs granted the status to self-regulate and offer new programme(s).

Institutional accreditation areas
IA areas are the various aspects of institutional operation and development categorised into five major areas for specification of the standards and criteria for IA.

Institutional accreditation standards
IA standards are the standards set with reference to Law No. 10/2017 on Higher Education Regime of Macau as well as related administrative regulations, relevant industry/professional practice requirements (if applicable), and the standards stated in the annex of the *Guidelines on Institutional Accreditation* to determine whether the HEI being accredited and its programme(s) intended to be offered within relevant discipline(s)/academic unit(s), and academic level(s) meet the standards.

Meeting Accreditation Standards with Condition(s)
The outcome for HEIs accredited with condition(s). Such HEIs must take follow-up action according to the condition(s) set forth in the accreditation report. Upon fulfilment of all condition(s), HEIs will be granted the 'Statement Confirming Fulfilment of Condition(s)' by their engaged EQAAs.

Open and transparent
This is one of the guiding principles of IA, under which accreditation is conducted in an open and transparent manner. Both HEIs and engaged EQAAs must abide by the same set of accreditation guidelines which details the accreditation areas, standards, criteria, possible sources of evidence and process, etc. when conducting IA. IA outcomes are to be included in final IA reports.

Outcome-based programme
It refers to a programme with quality determined by learning outcomes, with a focus on the cultivation of graduates with intended competencies and attributes.

Peer review
Peer review is the execution principle of the higher education quality evaluation system of Macau. Under this principle, evaluation must be conducted by peer experts with experience relevant to IA. Peer experts include institutional leaders with governance and management experience as well as academic leaders of relevant disciplines/academic units, academic experts who understand the education and cultural contexts of Macau, etc., and professionals from relevant industries.

Pre-visit Meeting
The preparatory meeting held by the Panel normally one day prior to the site visit. In the Pre-visit Meeting, the case officer, as instructed by the Panel, provides the following information: background information of the HEI being evaluated, analysis data and related documents, etc., and the major questions to be discussed during the site visit.

Programme
Programme refers to the teaching content, teaching activities and student assessment, etc. arranged according to the programme objectives as well as the Program and Curriculum Plan.

Quality assurance requirements of Macau
The quality assurance requirements of Macau refer to the compliance with Law No. 10/2017 on Higher Education Regime and related administrative regulations of Macau, particularly the provisions of the higher education quality evaluation system of Macau, as well as the requirements specified in the evaluation guidelines of Macau.

Site visit
The Panel's visit to the campus of the HEI being accredited on specified date(s) set forth in the service agreement to meet different stakeholders of the HEI, visit relevant equipment and facilities, and examine records and other supporting documents in order to fully comprehend the HEI's educational purposes, educational goals and operation.

Staff
This term refers to teachers and other staff of HEIs.

Student-centred
This is one of the guiding principles of IA, under which HEIs provide favourable and quality learning environments as well as learning experiences for students so that they can attain the intended learning outcomes upon completion of the programmes under reasonable circumstances.

Substantial changes
Substantial changes primarily refer to changes that have a major impact on the operation, management and academic development of an HEI. Changes in the following areas may be considered substantial: the HEI's educational purposes, goals, overall management structure, resources deployment policy or directional change in academic development, etc. These merely serve as examples for reference and are by no means exhaustive.

Teaching facilities
Teaching facilities refer to all facilities and equipment needed by students for learning, including classrooms, laboratories, training rooms, online learning platforms, libraries, study rooms and/or relevant workplace attachment sites, etc.

May 2022