

Doc. 300.1.2

Date: 22.09.2022

Higher Education Institution's Response

- **Higher Education Institution:**
University of Central Lancashire Cyprus (UCLan Cyprus)

- **Town:** Larnaca

- **Programme of study Name (Duration, ECTS, Cycle)**

In Greek:

Μεταπτυχιακό (Μάστερ) στην Ανάλυση Δεδομένων (1 ακαδημαϊκό έτος, 90 ECTS, Master of Science, Εξ αποστάσεως)

In English:

MSc Data Analytics (1 academic year, 90 ECTS, Master of Science, Distance Learning)

- **Language(s) of instruction:** English
- **Programme's status:** New
- **Concentrations (if any):**

In Greek: N/A

In English: N/A



The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws” of 2015 to 2021 [L.136(I)/2015 – L.132(I)/2021].

A. Guidelines on content and structure of the report

- *The Higher Education Institution (HEI) based on the External Evaluation Committee's (EEC's) evaluation report (Doc.300.1.1 or 300.1.1/1 or 300.1.1/2 or 300.1.1/3 or 300.1.1/4) must justify whether actions have been taken in improving the quality of the programme of study in each assessment area. The answers' documentation should be brief and accurate and supported by the relevant documentation. Referral to annexes should be made only when necessary.*
- *In particular, under each assessment area and by using the 2nd column of each table, the HEI must respond on the following:*
 - *the areas of improvement and recommendations of the EEC*
 - *the conclusions and final remarks noted by the EEC*
- *The institution should respond to the EEC comments, in the designated area next each comment. The comments of the EEC should be copied from the EEC report **without any interference** in the content.*
- *In case of annexes, those should be attached and sent on separate document(s). Each document should be in *.pdf format and named as annex1, annex2, etc.*

1. Study programme and study programme's design and development (ESG 1.1, 1.2, 1.7, 1.8, 1.9)

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
<p>Currently there is no specific policy of review process of the program to include the external stakeholders' input in a formal procedure. It is recommended to specify a policy with a target to have the program review panel and aim on reviewing the curriculum. The industry external advisors should have an active role in the reviews since the role of the courses needs to be more strategic in the context of the program in consideration of the current expectations of employers. The EEC recommends that the university enhances the quality assurance practices by engaging and receiving feedback from international or local industry experts in the related field, to assure that the program is enriched with key topics in the field. This will also contribute to the attractiveness of the program.</p> <p>The EEC recommends that student representation is ensured in the internal quality review process (including meetings) at all times. The scope of this review should include an analysis of the learning outcomes of the program to identify who are the exact intake prospective applicants and the content of each course regarding the market needs in Data Analytics and not to create false expectations for the applicants. Special focus should be on the purpose of specific electives and the content of the core courses.</p>	<p>We agree with the EEC's recommendation and would like to emphasise that the programme team considers it vital to build and sustain a strong network of partners and long-term collaborations with depth and breadth. Since the development of the conventional delivery of the MSc Data Analytics in 2017, the team managed to develop a large network of national and international collaborators, especially industry partners, which have been informally engaging with the programme in terms of providing advice on curriculum development, industry knowledge/skill needs and student employability aspects. Moreover, our industry partners have been engaging in other educational activities, such as guest lectures, field trips, real case studies, real life student projects, student internships, student competitions, student awards and many more.</p> <p>We welcome the EEC's constructive recommendation to develop a more formal and systematic approach towards this and we acknowledge the substantial benefit and value this can offer to the programme. To this end, the programme team along with the Head of the School will proceed to form its first Advisory Board, which will provide formal advice and feedback to the programme team, not only in terms of its existing curriculum, but also in terms of future directions and developments. It is expected that the Advisory Board will be in place and active within the current academic year.</p> <p>Regarding student engagement in the review of the programme and internal quality assurance processes, this is something the University and the School of Sciences already has in place. According to our current quality assurance policies, students engage in the processes as follows:</p> <ul style="list-style-type: none"> • Student Staff Liaison Committee (SSLC) meetings: For each programme of study and for each year of study, students elect a student representative who is responsible to represent them during the SSLC meetings and be the liaison between the students and the programme's academic team. The SSLC meetings are carried out in a way to provide student representatives the opportunity to provide collective feedback about the programme, individual modules, university services, and the overall student experience and to make recommendations for further course development and improvements. These meetings are 	<p>Choose an item.</p>

<p>If an industry and/or student representative is not present, the meeting should not take place.</p>	<p>scheduled once per semester (twice in the academic year). Students are asked to provide their feedback on six main categories:</p> <ul style="list-style-type: none"> • Teaching and Learning • Student Support • Assessment and Feedback • Employability • Course Organisation and Management • Learning Resources • University Services • Overall Satisfaction <p>Students are also asked to provide what they consider the most positive aspect of the programme/module along with one thing they would like to improve, and identify the most effective elements for their learning</p> <ul style="list-style-type: none"> • Module Feedback Questionnaires (MFQs): The purpose of the MFQs is to collect feedback from the students on each individual programme module, considering several aspects of the teaching and learning experience, such as teaching quality, learning value, support and guidance provided, assessment, quality of feedback, clarity of the marking scheme, organisation of the module, infrastructure, library resources, learning environment, IT resources, student support services, etc. The results of the MFQs are sent to each module leader, the course leader and the Head of School for internal review and action. <p>Both, SSLC meeting minutes and MFQ results inform the annual Module Leader and Course Leader reports. Actions arising from SSLC meetings and MFQ results are discussed and addressed by the programme team and accordingly, feedback is provided to the students.</p> <ul style="list-style-type: none"> • School Internal Academic Standards and Quality Assurance Committee (ASQAC): Each School has its own internal ASQAC that reports to the University ASQAC. The School Internal ASQAC includes in its membership constitution undergraduate (3rd year of students) and postgraduate student representatives. The School ASQAC holds three meetings per academic year. During the ASQAC meetings, the students along with the other members of the Committees are actively participating in all matters discussed as per the respective agenda of the meeting. The student feedback is highly valued in terms of enhancement and development of academic regulations, compliance with the CyQAA and UK QAA guidelines and legislation, the portfolio of study, etc. 	
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	<p>Furthermore, during the School ASQAC meetings, the students are involved in the internal evaluation processes of the respective department/School and the programmes of study under evaluation by CyQAA external evaluation committees. Their role in ASQAC includes the consideration of specific self-evaluation reports in relation to the External Evaluations concerning each School and its programmes of study, in accordance with standards set and published by the QA Bodies, the analysis of internal strengths and weaknesses (SWOT analysis) of the Department /School and programme, as well as external factors that create opportunities and threats to achieve their goals and many more.</p>	
<p>Regarding the curriculum, the EEC recommends two different routes in terms of the title of the program and the content of the curriculum depending on what the learning outcomes are and what the targeted intake of students' background is. The following changes are recommended based on the choice of title of the MSc program: O MSc in Data Analytics: a series of changes to the curriculum need to take place to ensure that courses not related to the learning outcomes of the program are reduced and the focus is on Data Analytics if the program is aimed for students who wish to develop a career in data analytics. For example, in the current curriculum the only modules related to DA are: CO4761; CO4760; CO4762. The core modules expected within an MSc in DA should provide core modules for the students to demonstrate in depth knowledge in computational methods, including computer programming and scientific visualisation. The EEC recommends the consideration of the following</p>	<p>We would like to thank the EEC for the constructive comment and the thorough guidance provided for the two different programme directions. The programme team has reviewed, researched and discussed the two options and decided to proceed with the second one, i.e. MSc in Business Data Analytics. The team believes that the existing content of the programme is better represented with this award title.</p> <p>At its current state, the programme covers in-depth skills in data analytics, including:</p> <ul style="list-style-type: none"> • Statistical Methods <ul style="list-style-type: none"> - Descriptive statistics: Basic Statics (Central Tendency, Data Dispersion) - Inferential Statistics: statistical significance, hypothesis testing, t-tests, non-parametric tests - Predictive statistics: Regressions (linear, multi-linear, ANOVA, logistic, non-parametric), Time-series (exponential smoothing, ARIMAX models) - Statistical methods for outlier detection (parametric, non-parametric) - Statistical Tests of Significance for model selection • Programming for Analytics <ul style="list-style-type: none"> - R programming: Programming skills (variables, conditionals, loops), Descriptive Statistics, Data Visualisation (simple graphs, correlation, complex graphs), Data Preparation, Statistical inference (t-tests, goodness of fit), Regressions (linear, multi-linear, diagnostics, ANOVA, logistic, non-parametric), Time-series (exponential smoothing, ARIMAX models) - SQL programming: querying and reporting, filters, groupings, aggregates, ranking, programming (views, triggers, indexes, cursors, stored 	<p>Choose an item.</p>

<p>example module titles: Data Programming with R; Statistical Machine Learning; Data Programming with SAS; Data Programming with Python; Predictive Analytics; Multivariate Analysis; Statistical Network Analysis; Time Series; Stochastic Models; Machine Learning and AI. In this case the program would be suitable for graduates from ICT background and need to develop a career in data analytics.</p> <p>O MSc in Data Analytics for Business: EEC recommends that the title of the course should be updated if the aim of the course is for the students to be provided with a set of analytical methods for solving problems to aid decision making in Business within the context of large quantities of data. In this case the program would be suitable for graduates from different disciplines or applicants with practical experience that would like to re-direct their career. Within an MSc in Business Analytics the applicants will be able to apply business analysis tools and apply current research into data science, decision making and management science.</p> <p>O In either MSc title the program director and Teaching and Learning Committee should focus on the in depth skills in data analytics as a learning outcome for the students enrolled (i.e. Statistical methods; Programming for Analytics; Decision and Behavioural Analytics; Mastering Big Data). Minimum entry requirements in terms of Maths and Statistics for the successful student progression during the program and limiting the withdrawal rate.</p>	<p>procedures, variables, conditionals, loops), data preparation, data management</p> <ul style="list-style-type: none"> - Python programming: Programming skills (variables, conditionals, loops), Dataframes, Data Preparation, Visualisations, Clustering, Regressions, Frequent Pattern Mining, Decision Trees • Decision and Behavioural Analysis <ul style="list-style-type: none"> - Foundations and Technologies for Decision Making: Decision Support, Business Reporting, Business Performance Management, Visual Analytics - Analytics for Decision and Behavioural Analysis: Descriptive, Predictive (Data mining, classification, clustering, frequent pattern mining, text analytics, web analytics), Prescriptive (model-based decision making, modelling, simulation, automated decision systems, knowledge management) • Data Management and Automations <ul style="list-style-type: none"> - Principles of Data Management - Data Architectures - Information Modelling - Data Storage and Operations - Data Integration - Data Preparation and Data Quality - Querying and Reporting - Data Warehousing • Machine Learning and Data Mining <ul style="list-style-type: none"> - Data Pre-processing: Data Quality, Data Cleaning, Data Integration, Data Reduction, Data Transformation - Supervised Learning: Classification (decision tree induction, Naive Bayesian Classification, rule-based, neural networks, support vector machines, classification using frequent patterns, lazy learners, genetic algorithms, bagging, boosting, random forests, ensemble), Regressions (linear, multiple-linear, ANOVA, logistic, non-parametric), Model Evaluation and Selection (metrics for classifier performance, holdout method, sampling, cross validation, bootstrap, statistical tests of significance, Clustering Tendency, number of clusters, cluster quality) - Unsupervised Learning: Clustering (partitioning methods, hierarchical methods, density-based methods, grid-based methods, probabilistic clustering, clustering with constraints), Pattern Mining (Frequent Pattern Mining, constrained FPM, association analysis, sequence analysis) 	
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	<ul style="list-style-type: none"> - Reinforcement Learning (part of elective in Artificial Intelligence): Associative reinforcement learning, Deep reinforcement learning, Adversarial deep reinforcement learning, Fuzzy reinforcement learning - Text Analytics (Text Mining, Sentiment Analysis) - Web Analytics (Web Mining, Social Analytics) - Other topics: Data Mining for Society, Legal and Ethical Aspects of Data Mining <p>Following from the structure of the programme and its target audience, the minimum programme requirements (admission criteria) include at least a Bachelor's degree (Lower Second Class of 2.2) or equivalent. Applicants must demonstrate an adequate level of English Language proficiency at least IELTS 6.5 or equivalent. Interviews with the course leader may be required as part of the admissions process, especially for prospective students who cannot demonstrate basic mathematics and statistics skills or programming skills.</p> <p>It should be noted that students who do not have the knowledge and/or skills (e.g. mathematics and statistics skills) to successfully follow and complete the programme can be provided with the option to take relevant preparatory modules before they are admitted to the programme.</p>	
<p>The EEC also recommends that the process of collecting, analysing and communicating student and other statistics is rigorous and upgraded with gender based data, so that it is digitised, different sources of information are cross-referenced so that contradictions, errors and gaps are avoided, and constructive analytics can be communicated efficiently.</p>	<p>The University currently collects and analyses student data across multiple levels (programme level, School level, University level).</p> <p>It should be noted that such data is an integral part of the annual programme monitoring process. The following minimum statistical data is currently considered and presented on the annual course leader report (i.e. programme evaluation report) for each programme of study:</p> <ul style="list-style-type: none"> • Application data, which includes: <ul style="list-style-type: none"> ○ Applications by age ○ Applications by gender ○ Applications by residency ○ Applications by ethnicity ○ Applications by declared disability • Enrolment data, which includes: <ul style="list-style-type: none"> ○ New enrolments ○ Enrolments by age ○ Enrolments by gender ○ Enrolments by residency ○ Enrolments by ethnicity 	<p>Choose an item.</p>

	<ul style="list-style-type: none"> ○ Enrolments by declared disability ● Progression data, which includes: <ul style="list-style-type: none"> ○ Completion of studies ○ Withdrawal of studies ○ Interruption of studies ● Completion of study data, which includes: <ul style="list-style-type: none"> ○ Completion by age ○ Completion by gender ○ Completion by residency ○ Completion by ethnicity ○ Completion by declared disability <p>It is also worth mentioning that upon its completion, the Course Leader report is made available to all the students of the programme.</p> <p>The programme team recognises that there is always room for improvement, and we are committed to continue and enhance our data collection and analysis processes at all levels.</p>	
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2. Student – centred learning, teaching and assessment (ESG 1.3)

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
<p>The program could be reviewed in terms of T&L approaches to promote online student-centred learning and increase student autonomy and confidence, which is of high importance for the market needs in Data Analytics. We provided examples of how this can be done further down.</p>	<p>Student engagement and student-centred learning is at the core of the School's Policy for Teaching, which aims to provide guidance for the development of an exceptional learning environment across all the programmes of the School. Among other things, the policy provides general guidelines for academics to ensure student-centred learning.</p> <p>To this end, throughout the programme delivery, the academic team utilises different approaches to engage students in the learning process. A summary of the applicable teaching and learning approaches is available in each of the programme's module descriptors (provided in Appendix 1) as well as in the individual learning guides for each module.</p> <p>As it is demonstrated by the weekly activities for each module, the team utilises a diverse approach to teaching learning activities, some targeting individual and independent learning, whereas others target collaborative learning. Learning activities include, but are not limited to, the use of live lectures, synchronous breakout rooms, asynchronous discussion forums, problem based learning, gamification activities, discussion and reflection on case studies, formative and summative assessment, interactive exercise, self-assessment exercises, application of knowledge to real life scenarios, online laboratories, etc.</p>	<p>Choose an item.</p>
<p>Rigorous internal reporting in terms of the pipeline year on year of students graduating and alumni for future data analysis is highly recommended. This reporting should include the student's progression to industry and academia after the graduation or the advancement of their current career (reporting should be on each academic year and not on the average for all years of operation).</p>	<p>We agree with the EEC's recommendations, and we acknowledge the importance of having such information available and sharing it with students. Indeed, the School and the University are actively working towards this.</p> <p>Overall, collection of formal alumni information and communication is primarily handled centrally by the University's Student Support Office and the University's Alumni officer. Given the young age of the University and the small number of students/graduates, until recently, alumni specific information was not available or representative to be formally shared with students, although anecdotal information is always shared with students as well as general information about future employability and potential career pathways.</p> <p>In its efforts to strengthen the collection of information and further support its alumni, the University has recently established an Alumni Association, basic details of which are specified on its website at https://www.uclancyprus.ac.cy/connect/alumni-association/. The University has also established the UCLan Cyprus</p>	<p>Choose an item.</p>

	<p>Alumni Steering Committee after elections in July 2020. The steering committee is now in office and comprises of a dynamic group of graduates who together with the UCLan Cyprus academics, support the University in its efforts to establish a strong alumni network, whilst administering the Alumni Association of the University. The members of the committee aspire to provide a constructive platform for networking with fellow graduates and aim to support current students by sharing knowledge and expertise on how to advance their career path post-graduation. Moreover, aiming to establish a strong and mutually beneficial relationship with its graduates, the University has an open communication channel and a procedure in place for the graduates to subscribe to the Alumni Association leading to an already available database of alumni that we intend to grow as the University is further developing. All latest news and announcements as well as the e-form for subscription to the Alumni Association can be found on the University's website (https://www.uclancyprus.ac.cy/connect/alumni-association/).</p> <p>Moreover, the UCLan Cyprus Alumni has its own Facebook group, where announcements, promotional material and other related info are published.</p> <p>Beyond the centrally coordinated University efforts, every effort will be made at the programme level to keep in contact with the programme's alumni and collect relevant information through different means (e.g. LinkedIn).</p> <p>Additionally, the Student Experience and Enhancement Committee of the University in collaboration with the Student Support Office and under the coordination of the Alumni Officer, has recently developed an Alumni Survey that allows the collection of information on the graduates' progression to the employment market or academia.</p> <p>Moreover, programme graduates who consist of successful cases in terms of employability will be invited to provide guest seminars/lectures and share their experiences.</p> <p>All relevant alumni data will also be kept separately and annually at the programme level.</p>	
<p>The teaching and learning effectiveness are highly linked with the level of expertise of the teaching staff. All staff have compulsory basic pedagogical training but not sufficient on e-learning. The Associate UK HEA Fellowship that members of staff have the opportunity to receive does not necessarily have a</p>	<p>The University considers academic development, and more importantly, the cultivation of pedagogical skills, an essential element for the successful delivery of a programme and the provision of an effective student experience.</p> <p>As the EEC points out, all academic staff have compulsory pedagogical training through the UK HEA and they all must achieve Fellow level.</p> <p>Beyond that, the University has the Teaching and Learning Enhancement Committee (TLEC) that is responsible to provide e-learning training and support for all members of academic staff. Throughout the academic year, beyond the e-learning seminars and</p>	<p>Choose an item.</p>

<p>focus on distance and online practitioners. The close relationship with UCLan UK would help to address this need for continuous professional development, via the use of joint seminars and workshops.</p>	<p>trainings, TLEC provides forums for the exchange and sharing of information between academics who deliver on distance learning programmes. This takes place through interactive workshops as well as a monthly bulletin/newsletter where academics can write about their own classroom experience.</p> <p>TLEC works closely with the UCLan UK’s Centre of Collaborative Learning (CCL), and specifically, the Technology Enabled Learning and Teaching (TELT) unit of CCL. Through TELT, academics have access to several professional development resources including in the following categories:</p> <ul style="list-style-type: none"> • Inclusive Learning (producing inclusive and accessible content) • Teaching Technologies • Creating and re-using e-learning content • E-learning packages and interactive apps • Graphics and animations • Video production • Classroom Technologies • Case Studies <p>In addition to the resources available, through e3Hub (part of TELT), academics have access to seminars and trainings focusing on areas such as, but not limited to:</p> <ul style="list-style-type: none"> • Feedback and assessment • Content creation and curation • Collaborative practice • Digital learning environments • Student engagement • Learning design and development <p>Some of these trainings are compulsory for academics delivering modules on distance learning programmes.</p> <p>Finally, through CCL, there is an active blog that is shared between both campuses (UCLan Cyprus and UCLan UK) and in which academics can share their experiences as well as best practises in e-learning.</p> <p>https://msuclanac.sharepoint.com/sites/TechnologyEnabledLearningTeaching</p> <p>Of course, beyond all of the above, academics receive support (financial or otherwise) by the University to attend external seminars and trainings, according to their individual needs.</p> <p>The University remains committed to support the academics and strengthen its collaboration with UCLan UK to continue enhancing its academic training provision for e-learning.</p>	
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<p>The recorded sessions from the conventional program included elements of student engagement, active student-learner interaction, student-student interaction, to mention but a few. However, online interactivity should be enhanced further by the use of appropriate technologies (e.g. breakout rooms to allow the students to work in small groups on their own on activities and report back to the plenary) and activities where the lecturer is not always the central focus and peer learning is also facilitated.</p>	<p>We thank the EEC for the constructive feedback on how we can enhance our online delivery through student-centred and interactive activities.</p> <p>Following the programme’s teaching and learning strategy, there are several interactive learning activities embedded in the programme, which can be further enhanced through appropriate technologies. Student collaboration is one of the programme’s activities that can be done both, synchronously (e.g. MS-Teams live classroom discussions and breakout rooms, student group meetings, etc.) and asynchronously (e.g. online forums and chat rooms through Blackboard discussion board and closed groups). Through the discussion board, students have the opportunity to introduce themselves, share information and network with each other. They are also able to provide answers on the discussion board to questions posted and the instructor can monitor the discussion boards to provide further feedback. The classroom discussions, breakout rooms, etc. allow students to initiate further discussion on a subject and exchange ideas or contribute with their own perspective on specific topics, in real time. Furthermore, such activities, in a synchronous or asynchronous form, can facilitate peer-review and peer-feedback among the students.</p> <p>Taking into consideration the EEC’s feedback further interactive activities will be embedded in the live lectures through the breakout rooms, to allow students to discuss reflect on certain topics, before sharing their team’s views with the rest of their classmates/groups.</p> <p>Moreover, after the first year of operation, as we do with all our programmes, the programme team will evaluate the delivery of the programme, taking into consideration students’ feedback, and update the teaching and learning approach and material as necessary. Student engagement and motivation is always at the centre of the annual monitoring of our programmes.</p>	<p>Choose an item.</p>
<p>Enhancing the practical component using technologies and applications that support running online labs would benefit the students greatly. In the example the EEC reviewed this was done in a ‘show and tell’ format where the lecturer would present the problem, allow time for the students to work on their own and then reveal the correct answer. A different</p>	<p>We thank the EEC for the constructive feedback on how we can enhance our online lab delivery through student centred and interactive activities. Following the EEC’s recommendation, relevant adjustments to the material delivery will be made for certain lab demonstrations and practical sessions to include additional group work and collaborative projects/exercises to promote both learning and teamwork. Proper guidance and structure for group interactions will be provided by the lecturer ensuring that teams complete specific steps on time and correctly, but at the same time allowing flexibility for different group dynamics. Such group interactions can be accommodated synchronously through MS Teams’ break out rooms during the live lectures as well as asynchronously through Blackboard closed groups. Moreover, for</p>	<p>Choose an item.</p>

<p>organisation of the online session (with the use of tools such as computer simulations) would allow greater student input and enhancing the student-centred aspect of the interaction.</p>	<p>certain sessions students will be asked to present their approach to solving a problem, which can then be openly discussed with their classmates under the guidance of the lecturer.</p> <p>Although there are several software that are utilised in the delivery of the programme curriculum (as indicated in the module descriptors and learning guides), the team was not able to identify any existing specialised simulations that can be effectively embedded into the curriculum to aid the learning process. The team will continue monitoring the resources available on an annual basis (during the programme’s annual review) and provided the opportunity, it will enhance its delivery accordingly.</p> <p>As an alternative, the team utilises gamification elements throughout the curriculum along with other interactive learning activities.</p>	
<p>Overall, assessment is appropriate, and all grades must be accompanied by written feedback that makes it clear why the specific grade was awarded and that supports the students in learning what their mistakes were and how they could be rectified. A rigorous process is needed within online environments to make sure the students receive feedback on time and there is a line of communication. This should be standard practice for all courses and all forms of homework or examination online.</p>	<p>We strongly agree with the EEC that promptly providing feedback to students and having an active line of communication is crucial for online learning. It is part of the University’s policy that teaching staff have regular and effective communication with their students and provide timely and effective feedback to them.</p> <p>In line with the University’s academic regulations (section G., Assessment), individual assessment feedback to students must be provided within 15 days and in various formats (e.g. written, audio, digital format), for distance learning programmes, the University developed the “Online Assessment Policy and Electronic Management of Assessment (EMA) – Online Submission, Marking and Feedback” to accommodate the diverse needs of distance learning assessments. As it is expected, a distance learning programme can have a different set of assessment (formative or summative) methods, which means that there will be learning activities in which students will receive immediate feedback (e.g. electronic quizzes, multiple choice exercises, oral presentations) and others that will require more time for the feedback to be provided (e.g. essays, projects). Thus, according to the type of assessment, students can receive feedback on their performance from 0-15 days. It should be noted, that although the University policy refers to the maximum of 15 days (to allow time for moderations of marks), it is a common practice for academics to provide feedback to the students earlier than this, so that students can review the feedback and reflect on it, until their final mark is provided (within 15 days).</p> <p>Moreover, as it was noted by the EEC, every assessment is accompanied by an assessment brief, which provides a description of the assessment, the targeted assessment learning outcomes, the assessment guidelines, and more importantly, the marking criteria</p>	<p>Choose an item.</p>

	<p>(rubric) for the specific assessment. The assessment rubrics are discussed with the students so that they are aware of the expected learning outcomes and how their performance will be assessed. As a result, students can utilise the marking rubrics to self-evaluate themselves so that they are aware of the feedback to be expected.</p>	
<p>Although the description and organisation of the courses is of good quality, we noticed that the development of students' competencies and general learning experience could vary, given the admission criteria. EEC advises that the university should take the necessary actions as noted in Section 1 for the review of entry requirements and connect the teaching and learning with real-life challenges and experiences for Data Analytics in Business.</p>	<p>The programme's admission criteria are provided in Section 1 (page 7). Regarding the connection of teaching and learning with real-life challenges and experiences for Data Analytics, this is implemented through the use of real datasets, case studies, exercises provided by partner organisations from multiple diverse domains including retail, healthcare, banking, pharmaceutical, compliance and regulatory tech, and many others. Moreover, students have the opportunity to collaborate with one of the programme's industry partners for their thesis project.</p>	<p>Choose an item.</p>

3. Teaching staff (ESG 1.5)

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
<p>The School has recruited academic staff and professional development activities for teaching staff focused on the Teaching and Learning skills will prove impactful in the years to follow on the quality of the teaching and learning in the program and the reputation of the program. The panel would advise as well in the future rounds of recruitment to review the curriculum needs of the program and the research strategy of the School in order to identify candidates with potential to progress within your institution. The university tries to improve the teaching skills of the teaching staff through the compulsory training for the Fellowship of the UK Higher Education Academy. These efforts are appreciated.</p>	<p>We appreciate the EEC's advice on future academic recruitments. As with all of our recruitment efforts, we will ensure that new academic appointments for the programme and the School will be directly aligned to the curriculum needs of the programme as well as the research strategy and future research directions of the School. It is important for us to identify people who can strengthen the research profile of the School and assist the School in achieving its long term goals.</p>	<p>Choose an item.</p>
<p>The EEC recommends having clear documentation in terms of how the research activities of the staff members benefit the curriculum and the teaching and learning activities within this program.</p>	<p>The Research Policy of the University is clear on the importance of research-informed teaching and how research work should connect to teaching.</p> <p>Research informs teaching throughout the curriculum delivery in and out of the classroom as well as through the co- and extra-curricular activities taking place in each School and/or programme or at university-level. Programme curriculum is frequently reviewed and updated according to the latest research findings in the field. Results of externally funded projects, outputs, publications, events (round tables, conferences, trainings, seminars, workshops, surveys), CPD and public outreach events are embedded directly and/or indirectly in the course of teaching and learning, as learning activities and/or resources.</p> <p>In general, research informed teaching activities include, but are not limited to, the following:</p>	<p>Choose an item.</p>

	<ul style="list-style-type: none"> • Learning material reflecting the latest research findings • Discussions of research findings, online materials, news items or practical scenarios • Library search of specific research sources • Design of blogs, short research questionnaires or surveys (short research studies) • Discussion of research case studies, arguing and debating • Development of arguments on a research position/topic • Writing of case studies, essay planning and problem questions • Collaborative writing and critique, peer review • Group presentations, with or without group representative • Diagnostic and formative tasks, mocks • Discussion of assignments and proposals • Post-it activity to give feedback or titles to discussions • Creation of mind maps and spider graphs to tackle complex problem questions • Progressive generic and individual feedback. <p>The MSc Data Analytics curriculum is both, research-informed and industry-informed. Academics do a regular research and technology scouting, alongside their own research activities, integrating research and industrial project outcomes into the delivery of the curriculum. As with all our programmes, the programme curriculum delivery is updated yearly, and on many occasions, specific learning material is updated during the academic year to cope with the dynamic nature of the data analytics landscape and relevant research and technological advances.</p> <p>Furthermore, we would like to emphasise that MSc Data Analytics students have the opportunity to conduct applied research in the context of their Master’s Project (thesis), working on real world problems and contributing innovative solutions.</p> <p>We would like to assure the EEC that we greatly value research- and industry-informed teaching and we will continue working in this context, strengthening even further the research component in the MSc Data Analytics.</p>	
<p>It would be interesting if there were some internal mentoring</p>	<p>The University operates a university wide academic mentoring scheme, the Research and Innovation &</p>	<p>Choose an item.</p>

<p>mechanism through which more experienced professors could guide and mentor less experienced staff when they join the university.</p>	<p>Enterprise Mentoring (RIEM) scheme. Through the RIEM scheme, early career academics are partnered with more experienced academic staff (their mentors) who will support and guide them through their early career years.</p> <p>In addition to the University RIEM scheme, UCLan Cyprus academics enjoy further mentoring from colleagues in UCLan UK. We currently have 3 peer groups (early career, mid-career and professor groups), in which academics from both campuses are members. Academics who are members of these groups, enjoy two main benefits, which is the exchange of information, ideas and practises with other academics who are at the same career level as them, and the group mentoring from more established academics.</p> <p>Furthermore, we recently established joined research centres with UCLan UK. The primary aim of the centres is to bring together young, early career researchers and well-established researchers in a specific area (each centre has a specific research focus), from both Universities, for the purpose of implementing innovative, state-of-the-art collaborative research projects. Although the development of the centres is very recent (December of 2020), it has already proven beneficial for UCLan Cyprus academics, as they submitted joint proposals for research funding, and they are currently co-supervising PhD students with UCLan academics. An additional benefit of the centres is the research mentoring of UCLan Cyprus academics by very well-established researchers of the centre. The University has developed a formal mentoring process between the two campuses, where academics from both campuses have regular online meetings as groups and as individuals. As these initiatives were implemented during the COVID-19 pandemic with many restrictions for physical meetings and travelling, we expect that now that the pandemic is over, we will also be able to have research mobilities and physical meetings for the members of the centres.</p>	
<p>Recently, the master’s program has not had any visiting professors. However, the faculty has been visited by several visiting professors through the Erasmus program, who have given opening sessions, specialized seminars, etc. from which staff have benefited.</p>	<p>Although, as noted by the EEC, the conventional programme engaged external researchers/academics with the programme delivery as well as the delivery of seminars and workshops (primarily through the Erasmus programme), the programme team agrees with the EEC that engaging Visiting Professors with the programme can be very beneficial. The programme team will actively pursue this for the next academic years.</p>	<p>Choose an item.</p>

4. Student admission, progression, recognition and certification (ESG 1.4)

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
<p>The teaching staff (particularly those at early stages of their career) could be supported from the Institution with further continuous professional development on e-learning and e-tutoring to enhance their visibility at EU and International level.</p>	<p>Relevant information about the support provided to teaching staff and their continued professional development is provided in Section 3 (page 15-17).</p> <p>Moreover, the University participates in the Erasmus+ programme, which funds short-term teaching and training mobilities to other partner institutions (EU and international mobilities). Already many of the School's –and the programme's—faculty have taken advantage of this and have participated in such mobilities that contributed to their professional development and the enhancement of their knowledge and skills. Furthermore, in the framework of Erasmus +, the University and the School have welcomed reputable academics from partner Higher Education Institutions who actively participate in the delivery of some sessions of the programmes of study. These lectures have contributed to the enhancement of the learning experience of our students as well as the teaching methodology of our academic team. Additionally, the School often sponsors training or research visits for each faculty member to organisations and academic institutions abroad.</p>	<p>Choose an item.</p>
<p>The panel also recommends the development of a longitudinal 5-10 year plan for the program and monitoring the intake year on year, in order to plan for recruitment activities in EU and abroad and increase the number of applicants of enrolled students over the next years (if the university wishes to grow the registration numbers).</p> <p>Some initiatives could be utilised to help attract the right applicants. Examples of such initiatives include: 1) maintaining the gender balance a modern university should have in place by using the current/alumni female students and female graduates as</p>	<p>We thank the EEC for the constructive feedback to enhance the programme recruitment and we greatly appreciate the activities suggested by the EEC to assist us in this process. We will communicate this information with the University's Marketing Department and Recruitment & Admissions Department, so that they can enhance their efforts within EU and abroad.</p> <p>The programme team will also work closely with the Marketing Department to identify unique selling points for the programme as well as unique module elements that can be highlighted to attract more students.</p>	<p>Choose an item.</p>

<p>“ambassadors” for the program and include related videos on the School website 2) having a gender-balanced website and external presence of the university in broader activities (Erasmus+), to the extent that this is possible.</p> <p>To attract larger numbers of students, it may be helpful to review the modules taught with content highly relevant with current data science market needs, and to actively promote and advertise the positive values and high potential of this program to prospective students and relevant stakeholders.</p>		
<p>We recommend greater clarity in the program documentation on how research is linked to teaching, particularly with regards to how students benefit directly from staff involvement in research activities.</p>	<p>SEE OUR EARLIER RESPONSE IN SECTION 3 (pages 15-16).</p>	<p>Choose an item.</p>
<p>Although the application is complete, and the plans of the university are coherent (students’ admission, progression, and recognition), the potential difficulties in recruiting new students in a competitive higher education environment needs to be tackled. To attract the right intake of students, it may be helpful to review the courses taught (as advised in Section 1) with content highly relevant with the current data science for business industry.</p>	<p>Regarding the programme content, the programme curriculum is industry and research informed. It has been designed based on the latest industry trends and research findings. Of course, the Data Analytics field is continuously evolving, and therefore the programme team reviews the curriculum on an annual basis and adjusts the delivery material accordingly, to ensure that it is up to date.</p> <p>Furthermore, the programme’s material is aligned with the SAS professional material. Following the establishment of a strategic partnership of the programme with SAS Institute S.A., one of the leading analytics providers in the world, the programme proudly offers students the opportunity to receive the SAS Joint Certificate in Business Intelligence and Data Mining, in addition to their MSc award. This unique opportunity offered through the MSc Data Analytics programme, equips students with additional knowledge and skills to apply analytics to real business problems using real business data and provides students with a competitive advantage in the marketplace, through a professional certification which is in high demand by the international market. SAS is recognised for the ninth consecutive year as a Leader in 2022 Gartner Magic Quadrant for Data Science and Machine Learning Platforms.</p>	<p>Choose an item.</p>

5. Learning resources and student support (ESG 1.6)

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
<p>In terms of student support, in addition to the mentor academic support, a potential solution could be a “buddy coder” mentor system for students to reach out to PhD students that have completed this program or alumni.</p>	<p>As the MS Data Analytics DL is a new programme and does not yet have alumni, it will not be possible to currently develop the “buddy coder” mentor system with our alumni. At the same time, we currently do not have any PhD students who completed the programme. Nevertheless, we consider the EEC’s recommendation an excellent one and we will implement it in the near future.</p>	<p>Choose an item.</p>
<p>The panel also recommends inclusion of a formal industry advisory Board along with the existing External examiner.</p>	<p>SEE RESPONSE EARLIER IN SECTION 1 (page 3).</p>	<p>Choose an item.</p>
<p>The School has a rigorous process of data collection in terms of reviewing the pipeline and year on year alumni of the students. Attention should be paid to the diversity and gender balance of the program.</p>	<p>SEE RESPONSE EARLIER IN SECTION 1 (pages 7-10).</p>	<p>Choose an item.</p>
<p>The Department should periodically assess (every 2 years) the adequacy and suitability of resources and IT platforms and inform the responsible services of the University for their actions.</p>	<p>The Department reviews its resources, including the IT needs in terms of equipment and software, on an annual basis. Budgeting is handled centrally by the University and specific budget is allocated to the School according to yearly needs. Within the overall yearly budget, there is a specific budget allocated to resources (e.g. human resources, IT resources, Library resources, facilities, etc.) for each School. To this end, resources are reviewed at the School and programme level before the beginning of each academic year and necessary provisions/budgets are requested for the covering of the School’s resource needs.</p>	<p>Choose an item.</p>



6. Additional for doctoral programmes (ALL ESG)

NOT APPLICABLE

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
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7. Eligibility (Joint programme) (ALL ESG)

NOT APPLICABLE

Areas of improvement and recommendations by EEC	Actions Taken by the Institution	For official use Only
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B. Conclusions and final remarks

Conclusions and final remarks by EEC	Actions Taken by the Institution	For official use Only
The EEC recommends that within their rigorous policy of review of the program the external stakeholders (i.e. industry representative) to be included formally in the process.	SEE RESPONSE IN SECTION 1 (page 3).	Choose an item.
The EEC recommends the review of the entry requirements in terms of the field of background degree. It is clearly presented that the conventional program attracts more students with Maths/computer science background, and it is a very positive development to see 16% of the students have a business background.	SEE RESPONSE IN SECTION 1 (page 7).	Choose an item.
The EEC recommends that student representation is practically ensured at all meetings of the internal quality assurance committee.	As indicated by the constitution of the School Internal Academic Standards and Quality Assurance Committee (ASQAC) its membership includes student representatives. Specifically, undergraduate (on their 3rd year of studies) and postgraduate student representatives. These students are also members of the University ASQAC.	Choose an item.
The EEC recommends that the number and gender balance of admitted students is subject to a targeted strategy that needs to be improved and the Athena SWAN Charter in the UK can be of assistance with a number of recommendations.	<p>The University recently formed its Equality, Diversity and Inclusion Committee (EDIC) that is responsible to form and monitor the University's EDI strategy, including the University's Gender Equality Plan (GEP).</p> <p>The UCLan Cyprus EDIC is working closely with the respective UCLan UK EDIC and the Chair of the UCLan Cyprus EDIC is a member of the UCLan UK EDIC, thus ensuring effective two-way communication related to EDI matters between the two campuses. As indicated by the EEC, UCLan UK is member of Athena SWAN, something that informs its actions and strategy, which in turn, informs and guides the UCLan Cyprus actions and strategy.</p> <p>Gender balance of admitted students per programme and for the University as a whole is one of the key pillars of the University's EDI strategy and GEP plan.</p> <p>Beyond this, the School is very active in its efforts to increase its number of female students and achieve a good</p>	Choose an item.

	<p>gender balance between its students population. Evidence of the School's commitment to gender balance and recruitment of female students in its programmes, is the organisation and hosting of the ACM womENCourage 2022 conference (https://womencourage.acm.org/2022/), which is an international conference aiming at connecting women from diverse technical disciplines and encouraging them to pursue their education and profession in computing and STEM areas.</p> <p>The University, the School and the programme team are committed to strengthen their efforts towards this cause.</p>	
<p>A similar strategy to the above should be established to attract higher numbers of students in general, if the School plans any growth in this program.</p>	<p>As mentioned earlier in Section 4 (page 18)., we agree with the EEC that a strategy is needed to enhance the programme recruitment and we will work closely with the University's Marketing Department as well as the Recruitment & Admissions Department, so that we can support them to strengthen their marketing and recruitment efforts.</p>	<p>Choose an item.</p>
<p>The EEC recommends two different routes in terms of the title of the e-learning program and the content of the curriculum depending on what the learning outcomes are and what the targeted intake of students' background is. The following changes are recommended based on the choice of title of the MSc</p> <p>O MSc in Data Analytics: a series of changes to the curriculum need to take place to ensure that courses not related to the learning outcomes of the program are reduced and the focus is on Data Analytics if the program is aimed for students who wish to develop a career in data analytics. For example, in the current curriculum the only modules related to DA are: CO4761; CO4760; CO4762. The core modules expected within an MSc in DA should provide core modules for the students to demonstrate in depth knowledge in computational methods, including computer programming and scientific visualisation. The EEC recommends the consideration of the following example module titles: Data Programming with R; Statistical</p>	<p>SEE RESPONSE EARLIER IN SECTION 1 (pages 5-7).</p>	<p>Choose an item.</p>

<p>Machine Learning; Data Programming with SAS; Data Programming with Python; Predictive Analytics; Multivariate Analysis; Statistical Network Analysis; Time Series; Stochastic Models; Machine Learning and AI. In this case the program would be suitable for graduates from ICT background and need to develop a career in data analytics.</p> <p>O MSc in Business Analytics: EEC recommends that the title of the course should be updated if the aim of the course is for the students to be provided with a set of analytical methods for solving problems to aid decision making in Business within the context of large quantities of data. In this case the program would be suitable for graduates from different disciplines or applicants with practical experience that would like to redirect their career. Within an MSc in Business Analytics the applicants will be able to apply business analysis tools and apply current research into data science, decision making and management science.</p> <p>O In either MSc title the program director and Teaching and Learning Committee should focus on the in-depth skills in data analytics as a learning outcome for the students enrolled (i.e., Statistical methods; Programming for Analytics; Decision and Behavioural Analytics; Mastering Big Data). Minimum entry requirements in terms of Maths and Statistics for the successful student progression during the program and avoiding withdrawals from an e-learning program.</p>		
<p>The EEC has found the workload of the courses quite low in terms of the corresponding ECTS (10/course currently). The ECC recommends including to each module descriptor how the workload is allocated within each course for activities of 10 ECTS. Based on current descriptions the courses are overestimating the</p>	<p>In line with the ESG and CyQAA guidelines, 1 ECTS is estimated at around 25 learning hours. Therefore, any 10 ECTS module offered under the MSc Data Analytics programme involves a total of 250 learning hours. The workload distribution per module is available in Appendix 1.</p>	<p>Choose an item.</p>

<p>workload for introductory concepts of data analytics and the detailed list of workloads per activity needs to be provided to the course descriptions for students' clarity and expectations.</p>		
<p>The EEC recommends the review of the course descriptors to reflect on the online delivery of each course and address the pedagogy and the teaching and learning techniques to be used in the different activities.</p>	<p>Following the EEC's recommendation, we have updated the module descriptors and provide them in Appendix 1.</p>	<p>Choose an item.</p>
<p>The EEC recommends that the collection, analysis, and communication of data such as student statistics by the college is digitised and integrated more closely into the management of the program taking into account students' feedback.</p>	<p>SEE RESPONSE EARLIER IN SECTION 1 (pages 7-10).</p>	<p>Choose an item.</p>
<p>Students will be assigned to mentors, and it is advised a student mentoring scheme that could be addressed through the volunteer work of PhD students.</p>	<p>SEE RESPONSE EARLIER IN SECTION 5 SECTION 1 (page 20).</p>	<p>Choose an item.</p>
<p>After carefully considering all the facts and evidence provided to the committee as part of this evaluation, the committee believes that the curriculum needs revision before being approved, as suggested by the recommendation made above (especially under section 1&2).</p>	<p>SEE RESPONSE EARLIER IN SECTION 1 (pages 5-7).</p>	<p>Choose an item.</p>

C. Higher Education Institution academic representatives

<i>Name</i>	<i>Position</i>	<i>Signature</i>
Prof. Nearchos Paspallis	Deputy Head of School of Sciences and Chair of Teaching and Learning Enhancement Committee, UCLan Cyprus	
Dr Panayiotis Andreou	Course Leader of MSc Data Analytics, UCLan Cyprus	
Dr Cosmina Theodoulou	Director of Academic Quality and Compliance, UCLan Cyprus	
Click to enter Name	Click to enter Position	
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Click to enter Name	Click to enter Position	

Date: 22nd September 2022

