



MCAST Research Framework

facilitated through the

**MCAST Applied Research & Innovation Centre
(ARIC)**

'Real Solutions to Real World Problems'

May 2019

Index

Introduction

1. Underlying Pillars
2. Regulatory and Operational Framework
 - 2.1. MCAST Corporate Research Committee
 - 2.2. Institute Research Sub Committee
 - 2.3. Senior Research Officer
 - 2.4. Senior Lecturer/Associate Professor/Professor
 - 2.5. Assistant Lecturer/Lecturer
 - 2.6. Post-Graduate/Under-Graduate student
3. Concept Design showing the Multiplier Effect of Research
4. Overview of Request Process for Research Contact Hours
 - 4.1. Approval Process
 - 4.2. Request Form
 - 4.3. Deliverables

Introduction

As already proposed in the draft MCAST Strategic Plan 2019-2021, driving applied research and innovation within MCAST is one of the main priorities for the College. We are keen to continue reaching out to you with the proposed MCAST goals for your consideration and feedback. Our plan is to continue to be relevant and responsive to industry's needs, particularly with the advent of Industry 4.0, the fourth step of the industrial revolution, driven by cyber physical systems.

This overall objective highlights the significance of preparing learners to be flexible, specialist in specific vocational areas as required by industry, but also in possession of analytical skills, behavioral skills and attitudinal skills. This scenario motivates MCAST to manage costs wisely by implementing a lean culture, respond smartly to the changing student requirements and industry, collaborate with other educational and industrial stakeholders and embrace an innovative approach to render the students' stay at MCAST truly meaningful.

Presently, workshop, salon and laboratory spaces are limited and cannot be catered for through the re-design of the old buildings. The shortfall of workshop and laboratory space limits MCAST's ability to conduct research and development at the desired rate. This lack of adequate space is being addressed through another priority of our plan for the coming years: new infrastructure. In the meantime, management is working in parallel to lead this VPET institution as a success story in the EuroMed region. Industry-driven research, publications, international conferences, participation in international forums, mobility of staff and learners with other VPET institutions and industry should be the norm, rather than the exception. Continuous professional development and space for research and innovation to truly foster within the academic cohort at MCAST will enable the College to move towards a culture of inclusion and excellence.

This process should lead the College into a new era of research governed by adequate processes and procedures incentivizing the lecturing staff to embark on new projects at national and international level. Establishing research partnerships within and outside the College will be the College's priority in the coming years backed by sustainable ESF funding for capacity building.

We look forward to a more robust research policy across MCAST.

Frederick Schembri
President, Board of Governors

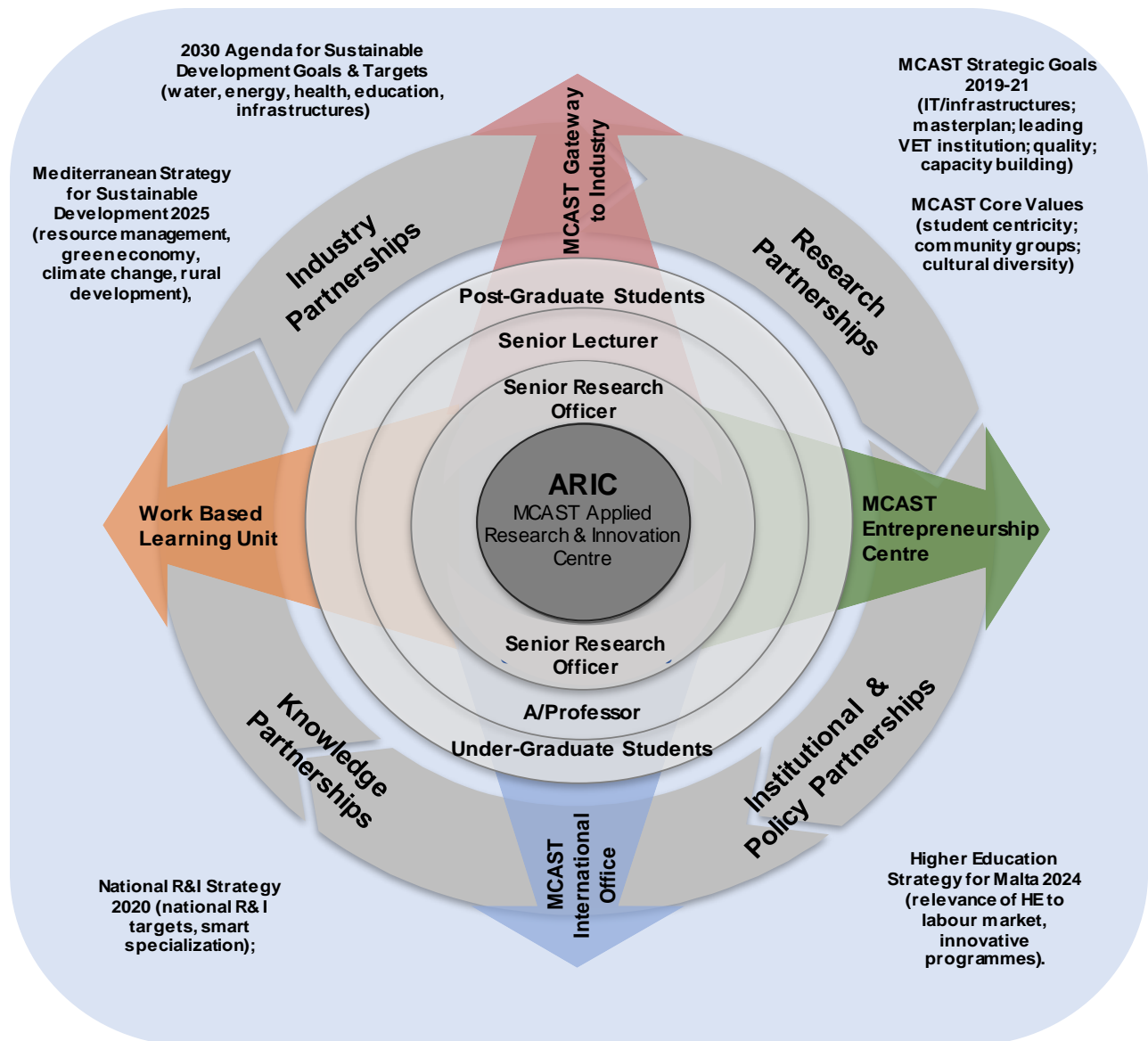
Joachim James Calleja
Principal and CEO

1. Underlying Pillars

The Applied Research and Innovation Centre (ARIC) strategy is anchored on the premises of making existing structures more flexible, and fostering their ability to innovate, react and respond.

Three main underlying pillars:

1. A focus on **key, select research thrusts** leading to smart specializations.
2. Creating and working within one or more Knowledge Centre / R&I Ecosystem, Centres for Smart Specialization, and **peer learning through international networks** such as ASEF, Eurashe and UAS4Europe.
3. Developing and propagating **new research, innovation and pedagogical & andragogic methodologies** and technologies.



There are three main concepts that fuel the ARIC, these being:

1. **'What'** constitutes Research, and similarly, what constitutes Innovation? From the General Annexes of Horizon2020, research aims to establish new knowledge or explore the feasibility of a new or improved technology, product, process, service or solution, whilst innovation aims at producing designs for the application of new, altered or improved products, processes or services, and for the vital piloting and dissemination of these innovative solutions.

2. **'Why' the need for Applied Research & Innovation?** "We cannot consider higher education without research and innovation" (UAS4Europe; 5/12/2018). Research and innovation provide: 1) new knowledge, not reproduction; 2) A solving of real world problems; 3) a process of learning, translating into new teaching; 4) a cycle of collaborating and disseminating findings, solutions and new understandings.

3. **'How'** to enable and gear up MCAST?

- By enabling motivated lecturers through research hours, working within the Institutes, and driven/supported by the ARIC.
- By applying a multiplier effect whereby senior academics guide juniors who then enable students, and where this internal capacity is used to acquire externally-funded EU research projects that would significantly add to the funding volume. This would allow for a combined top-down, largely smart specialization themes as well as EU project-driven research, with bottom-up curiosity-driven research that has the potential to open unexpected new fields of research and innovation.
- By having strong pre-award and post-award support teams that assist in, and take on, part of the ownership of the research projects.
- Approved non-timetabled research hours allow lecturers to focus on gathering data, review journals and literature on the subject, network with like-minded colleagues in Malta and abroad, draft funding proposals, research and draft papers, carry out qualitative and/or quantitative research.

2. Regulatory and Operational Framework

Six inter-linking operational levels are identified here, each with its own objectives, roles and policy dimensions.

Complementary to this applied research initiative, as visualized in Section 3 of this document, are;

- a) a separate Strategic Innovation Unit, that would pilot and develop innovative technologies & programmes, and
- b) a Research Project Management office.

To the right is a depiction of the proposed operationalization cascading effect of Applied Research within MCAST



1: MCAST Corporate Research Committee (MCRC)

Preamble: The MCRC would be tasked with the setting of corporate direction and the overseeing of R&I implementation across MCAST. In summary, tasks entrusted to the MCRC would include, but not be limited to the following:

- a) Decisions regarding funding and financing of R&I at the various levels within MCAST.
- b) Decisions and direction on choice of key research themes.
- c) Provide direction to the IRCs on requests which go beyond the indicated research parameters.
- d) Base of operation of the MCAST Ethics Committee.
- e) Monitoring of the performance and progress of the ARIC, holding of direct interaction with the Senior Research Officers.

Setup: Members to include the Deputy Principals for R&I and VPET, MCST/ME members, a representative elected by and from the employees of the MCAST and a member of the MCAST BOG.

Role: Strategic. To oversee R&I policy compilation and implementation, supported and guided by the proposed Strategic Innovation Unit. To include the existing MCAST Research Ethics Committee (REC) within its remit.

Policy Docs: To be included in College Board Procedures (Doc188) and to operate within the Intellectual Property Policy (Doc085) and the Research Ethics Policy & Procedure (Doc074).

Operation: The MCRC would meet on a regular monthly (or 6-week) basis, establish procedure and review operations, and decide upon tactical issues requiring high-level intervention. To note is the fact that a Research Committee used to exist and function within MCAST in recent years, but did not have the structural and regulatory framework to operate effectively.

2: Institute Research Committee (IRC)

Preamble: The IRC's were set up in all 6 institutes and the Gozo centre, just over 3 years ago, operating under Regulation Doc074. These IRC's have, so far, only been active when reviewing research proposals and managing research mentors, and could be tasked with far more encompassing institute-level research endeavors. The limiting factor to the operation of the IRC is the restricted availability of its members, particularly the Director/Deputies. A solution here would be to have the SENIOR RESEARCH OFFICER (see below) acting as the executive secretary to the IRC and working strongly to sustaining its momentum.

Setup: This is an existing structure that operates within each Institute, chaired by the Institute Director and supported by Institute Deputies and Senior Lecturers relevant to a particular research theme. To be strongly supported by the Senior Research Officer (see Point 3 below).

Role: To oversee all undergraduate and post-graduate student research proposals and subsequent projects, and all funded research projects.

Policy Docs: Research Ethics Policy & Procedure (Doc074) and Research Proposal Forms (Doc164 & Doc181).

Operation: The IRC would oversee and support all Institute-related R&I initiatives, going beyond solely student undergraduate/postgraduate dissertations and into external research projects and initiatives. The aim of the IRC is also to direct research into specific research areas which are prioritized by the Institute and provide decisions and direction on choice of collaborative partners. Both regular monthly meetings and ad-hoc meetings would allow the IRC to involve itself in ongoing and targeted research initiatives and provide direction, decisions and approvals in a timely manner depending on the urgency. A significantly higher level of activity and involvement within the IRC shall be sought. The IRC is also involved in the monitoring of the research processes and ensuring the receipt and reviewing of the deliverables.

Cross-Disciplinary Research

MCAST believes in research being also a means for academics from different sectors to work together in multi-disciplinary teams towards common research goals. The SRO will also disseminate the research proposals received from other partners to interested lecturers within different departments as a way to foster interlinkages between Institutes. The IRC approves all research initiatives and thus is central to ensuring that research teams do not overlap in their focus areas. While each academic is expected to seek approval from their respective IRC, the SROs should act as the facilitators of the multi-faceted research initiatives. Research teams will be champion and/or led by single academics who will direct the work of the team, coordinate with the SRO and ensure the deliverables.

Lecturers carrying out any form of research are to work from *within* the Institute that they are attached to, ultimately reporting to the Institute Director who chairs the *Institute Research Sub-Committee* (IRC). This will allow institutes to fully integrate research into their curricula, and to guide research endeavors in the appropriate directions. The IRC shall report periodically to the Corporate Research Committee.



3: Senior Research Officer

Preamble: To date only a handful of academic staff are significantly involved in applied research, having taken the personal initiative to drive their chosen research themes forward after successfully acquiring 'research contact hours' to do so. For the rest of MCAST's academic staff, the combination of a lack of insight into research practice and a significant teaching load all but eliminates any initiative to take on research. There is strong potential in these academic staff, but they must be nurtured and supported to take on research. No one can do this better than a colleague working within the same Institute, who can identify initiatives, motivate and mentor staff, and liaise/interact with the ARIC for necessary resource requirements such as allocation of research contact hours. This is the role of the Senior Research Officer whose job definition is non-academic in nature.

Setup: This is a new but pivotal administrative position within the ARIC. The Senior Research Officer shall operate within the ARIC but be based within the respective Institute. Ideally there would be one full-time, academically qualified Senior Research Officer in each institute. The Gozo Centre and the Curriculum and Student Affairs Departments will also be serviced through dedicated hours of an SRO.

Role: To act as a contact point and liaison between the Institute and the ARIC. To drive and support the adoption of research initiatives by institute academic staff and to facilitate inter and intra institute research initiatives. To work with academics drafting research proposals pre-award. To be familiar with different funding options available for research in the MCAST vocational areas. To support the lecturers in putting together research funding bids. To support the IRC.

Policy Docs: To operate under a newly compiled terms-of-reference that reflects the significant academic and managerial challenges of the post.

Operation: Within each Institute a Senior Research Officer will be identified and given the remit of building research capacity within the Institute. This will be done through the facilitation of information sessions and collaboration meetings, as well as the direct, individual interaction with lecturers that show an interest to be involved in research. The Senior Research Officer will essentially be the 'facilitator' for the adoption of applied research endeavors by Institute academic staff.

4: Senior Lecturer/Associate Professor/Professor

Preamble: In line with the new MCAST – MUT Collective Agreement, Senior Lecturers 1 and 2, Associate Professors and Professors will be expected to carry out academic research related to their area of specialization as directed by MCAST. A separate clause mentions a reduction of contact hours to reflect additional responsibilities.

Setup: This role relates to the existing positions of Senior Lecturer I and II (totaling 168), and the planned position of Associate Professor.

Role: To dedicate an approved number of contact hours towards areas of applied research that complement MCAST's R&I interests.

Policy Docs: Collective Agreement 2018 between MCAST and MUT.

Operation:

Underlying Parameters for Allocation of Research Hours to Academics

1. In line with present MUT collective agreement criteria, Clauses 14.4 and 14.6, lecturers are to be allotted contact hours for research, in accordance to research budget availabilities and in line with lecturer competencies and MCAST requirements.
2. Lecturers are not to go below a 50% teaching workload (50% of contact hours), meaning that research contact hours allotted to them cannot exceed 50% of the contact load at maximum. Thus, for example, if a Senior Lecturer II has a 15-hour per week contact load, the maximum research load that can be adopted is 7 hours, allowing for 8 hours of contact time per week for teaching.
3. Research contact hours not to exceed a maximum of 5 hours/week when going beyond a full teaching contact load. This will ensure that lecturers retain a strong focus towards their teaching commitment, whilst still benefiting from initiatives to take on research beyond their workload.

Position:	Allotted Research Contact Hours:	Deliverables/Expectations: (1-low 2-med 3-high)	Monitored by:
Senior Lecturer II/ Associate Professor/ Professor	0 - 8	<ul style="list-style-type: none"> - Acquiring research funds – 3 - Industry collaboration – 3 - Research partner collaboration - 3 - Publications, proceedings – 3 - Supporting junior academic researchers – 3 - Supporting research training/skilling - 2 - Mentoring research students – 3 	IRC & Institute Director
Senior Lecturer I	0 – 5	<ul style="list-style-type: none"> - Acquiring research funds – 2 - Industry collaboration – 2 - Research partner collaboration -3 - Publications, proceedings – 2 - Supporting junior academic researchers – 3 - Supporting research training/skilling - 1 - Mentoring research students – 2 	IRC & Institute Director

5: Assistant Lecturer/Lecturer

Preamble: In line with the new MCAST – MUT Collective Agreement, academic staff may be required to participate in research and/or industrial collaboration activities. Staff participating in such activities shall have their contact load reduced by an amount of time which reflects their additional responsibilities.

Setup: This role relates to the existing positions of Assistant Lecturers and Lecturers (totaling 300) within MCAST.

Role: To dedicate an approved number of contact hours towards areas of applied research that complement MCAST's research and innovation interests.

Policy Docs: Collective Agreement 2018 between MCAST and MUT.

Operation:

Position:	Allotted Research Contact Hours:	Deliverables/Expectations: (1-low 2-med 3-high)	Monitored by:
Lecturer	0 – 3	<ul style="list-style-type: none"> - Acquiring/bidding for research funds – 2 - Industry collaboration – 2 - Research partner collaboration - 2 - Publications, proceedings – 1 - Following the PG Cert in Research Methods - Mentoring research students – 2 	Senior Lecturer, IRC & Institute Director
Assistant Lecturer	0 – 2	<ul style="list-style-type: none"> - Acquiring/bidding for research funds – 1 - Industry collaboration – 2 	Senior Lecturer, IRC & Institute Director

		<ul style="list-style-type: none"> - Research partner collaboration - 1 - Publications, proceedings – 1 - Following the PG Cert in Research Methods - Mentoring research students – 1 	
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6: Post-Graduate/Under-Graduate Student

Preamble: By far the largest component of absorption capacity towards applied research within MCAST is that of under-graduate and post-graduate student research initiatives. Within any academic year MCAST hosts over 1,000 under-graduate/post-graduate research initiatives, many of these with strong practical significance and industry collaboration. The challenge remains to channel and focus these varied research initiatives, allowing them to cumulate into areas of knowledge and expertise within MCAST, and subsequently the nation.

Setup: This position relates to around 600 Level 5 student research projects, 500 final year dissertation students, and 50 post-graduate dissertation students annually.

Role: To carry out research within select research themes that are supported and guided by Junior and Senior Research/Lecturing staff.

Policy Docs: University College Programme Regulations (Doc005) and Research Proposal Forms (Doc164 & Doc181).

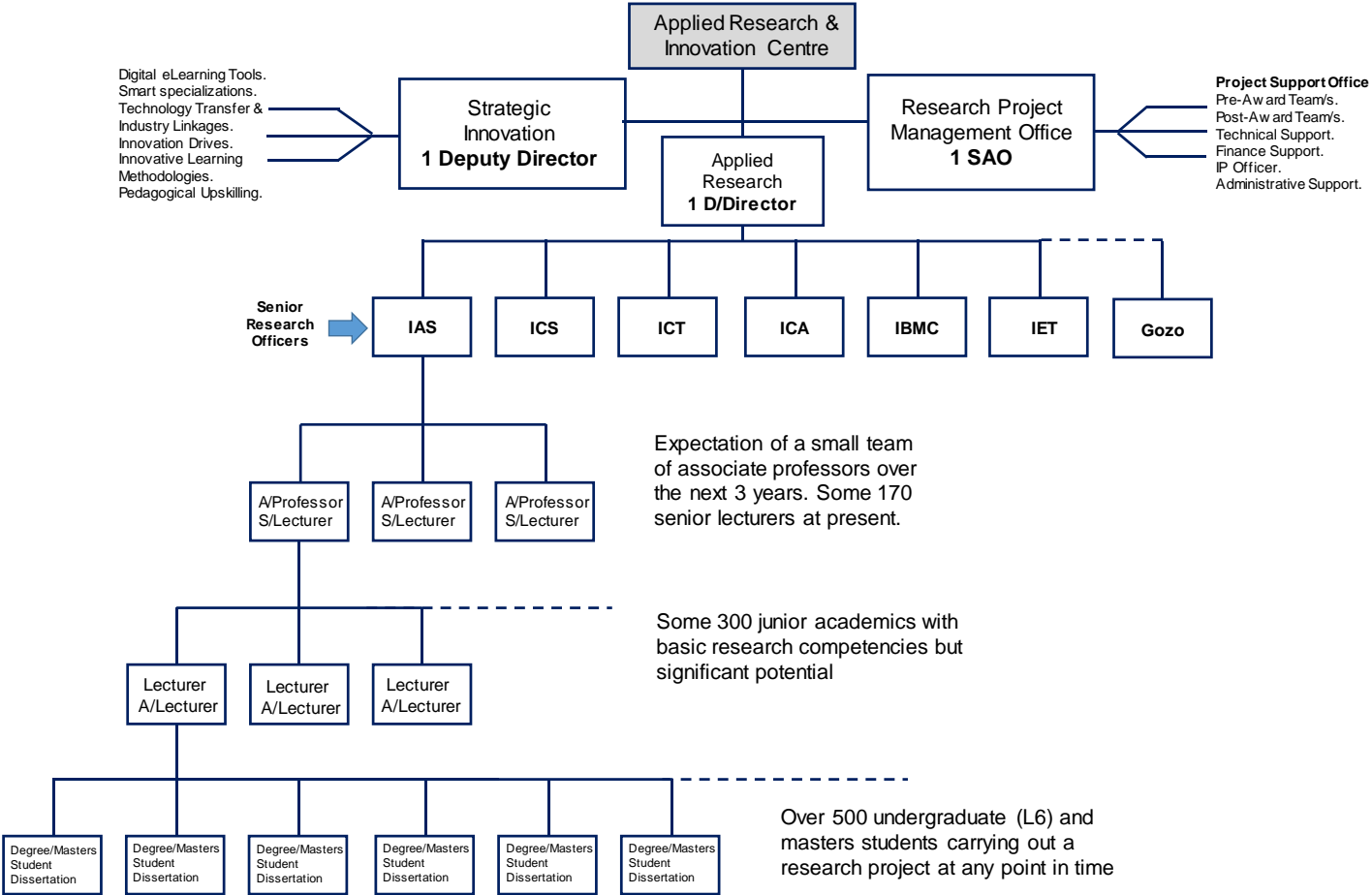
Operation: On an annual basis the following student-based research projects take place:

- a) EQF Level 5 – approximately 600 student interventions, at an early exploratory research stage.
- b) EQF Level 6 – approximately 500 dissertation projects, at a more advanced exploratory stage.
- c) EQF Level 7 – around 50 MSc/MBA/MA post-graduate dissertations, Post-Graduate Certificate in Research Methods dissertations, and Masters by Research projects.



Picture by: RRossignaud, Courtesy of Aurobindo Malta

3. Concept Design showing the Multiplier Effect of Research:




4. Overview of Request Process for Research Contact Hours

4.1 Request for Approval

All requests for approval of research hours need to be made by the individual academic to their respective Institute Research Committee (IRC).

Applications should include all the details requested in the template as shown to the right. If the research proposed forms part of a formal study programme at MQF Level 6, 7 or 8, which the academic is following, this needs to be indicated and reference to how MCAST benefits from the research need to be highlighted.

Requests can be made for a single semester or for one whole academic year (two semesters). Requests need to be submitted at least 1 month before the start of the respective semester. Decision by the IRC will be communicated, latest, within 3 weeks from the date of submission. Any urgencies in the submission should be included and highlighted upon submission.



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 Page 1 of 1

REQUEST FORM FOR RESEARCH CONTACT HOURS FOR LECTURING STAFF

Lecturers should only have one active form for any point in time, collating all research-hour loading for a defined period

Lecturer Name/Surname		Institute / Centre	
Grade			
Signature		Academic Year / Semester	
Research Area/s, Title/s, Topic/s			
Links to other relevant / previous studies (if any)			
Proposed Research Theme/s (1,000 words max.)			
Proposed Research Deliverables <i>Deliverables are the achievements obtained at the end of the specific research period, such as submitting a publication, hosting a seminar, bidding/achieving research funds, directing a research team, acquiring significant research data/findings...</i>			
1. 2. 3.			

For Office Use Only			
Number of approved weekly research contract hours	Do not leave blank	Year / Semester	
Position	Name/Surname	Signature	Date
Director of Institute			
Deputy Principal (R&I)			
Deputy Principal VPET			

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4.2 Request Form

The one or two-page request form should be submitted to the Director of the Institute as Chair of the IRC. Guidance can be sought at pre-application stage either through the SRO or staff at the ARIC. Request forms should also include any flexibility in contact hours necessary for the research work. Requests beyond the indicated research parameters can be considered by the Corporate Research Committee.

4.3 Deliverables

The proposed deliverables are negotiated during the approval process. Once agreed, interim and final reporting is expected by the lecturer at the end of the semester. The SOPs provide further detail. The sharing of research process and outcomes with MCAST students and academics, publishing articles, and presenting papers are very important deliverables.