

**Master of Science
in Engineering and Technology Management
Akamai University**

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In most cases the Master of Science by Research degree is designed for well-qualified students who can complete a major publishable quality thesis. The program also intends to prepare students for future doctoral research. The Research Master's degree provides the participants' an opportunity for understanding the nature and potential of research study through major thesis planning and research.

The Research Master's degree program is different from taught Master's degree due to the fact that the program places heavy emphasis on a large thesis (typically approximating 40,000 words), or an equivalent practice-led research project, with limited taught modules. Research Master's classes are conducted by one-on-one mentorship, primarily project based, individualized, with high quality scholarly paper as an outcome for each preparatory module. The three Master's tutorials include training in research methodology, literature search, and proper citations and referencing of scholarly literature, in preparation for the comprehensive examination and the thesis proposal.

Admission Requirements

Akamai provides an effective path to the Master's for mid-career professionals who have completed the baccalaureate degree an appropriate field of study and considerable experience at the higher levels of the profession. The primary objective of the program is to provide a means for qualified candidates to produce publishable quality theses under the tutorial of a graduate committee of two qualified members of the Akamai faculty.

As prerequisites for acceptance to the Master of Science by Research by thesis, participants should have completed the equivalent of a recognized baccalaureate degree in an appropriate field of study, have solid understanding of research, and several years of meaningful professional experience. Participants are expected to be proficient in English language skills or provide other assurances of effective language support throughout the program. Participants must have access to a computer, appropriate software, email and Internet, and academic library resources.

Degree Requirements

Participants pursuing the Master's degree by research shall complete a process equivalent to 40 credits above the Bachelor's degree including the following classes. Note two of the classes are in two parts and meant to be completed in sequence:

- RES591: Research Methodology (6 credits)
- RES592A: Literature Review (6 credits)
- RES592B: Referencing and Presentation (6 credits)
- RES593A: Comprehensive Review (4 credits)
- RES593B: Thesis Proposal and Defense (6 credits)

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RES594: Thesis Project (6 credits)

RES 595 Thesis Review VIVA (6 credits)

As a minimum degree requirement, Master's participants must maintain enrollment at Akamai University for at least one calendar year. Although a maximum period of four years is allowed to complete the program, most Master's participants are fully capable of finishing their programs within two years. No transfer credit shall be applied to this degree, as it is based upon a seven-step quality review process.

At each phase of the Master's process, in order to progress to the next phase, written approval by the University Master's Committee is required. To remain in good standing, participants must demonstrate effective progress toward achieving quality standards at each phase. Upon successful completion of the process, participants are awarded the Master of Science degree.

Primary Areas of Research Focus for the Master of Science by Research Option

Participants in the Master of Science by Research, conducted by thesis are required to select an effective topic for research for Committee approval. The following fields of study are eligible for the Master of Science by Research option:

Business Administration

The research option is available to well qualified business and corporate executives and business leaders who have demonstrated a strong ability to write and research in any of the following concentrations: International Business Administration, Nonprofit Administration, Human Resource Management, Supply Chain Management, eCommerce, Entrepreneurship, and Community and Economic Development,

Engineering Management

Engineering Management is a specialized form of management that is concerned with the application of engineering principles in the arena of business practice. Engineering management brings together the technological problem-solving knowledge of engineering and the organizational, administrative, and planning abilities of management in order to oversee complex enterprises from conception to completion. Areas of engineering management include product development, manufacturing, construction, design engineering, industrial engineering, technology, production, and other fields which employ personnel performing engineering functions.

Cyber Security

Cyber security is the body of technologies, processes and practices designed to protect networks, computers, programs and data from unauthorized access and damage. Effective cyber security requires harmonized efforts across any information system. Some of the main elements of cyber security include: application security, information security, network security, systems recovery, and customer education.

Operations Research

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Operations research deals with quantitative models of complex operations and uses these models to support decision-making in any sector of industry or public services. Supply chain management is the process of planning, flow of goods, services and related information from the point of origin to the point of consumption. implementing and managing the

Technology Management

The "information technologies" theme focuses on how technology is designed and managed to support effective decision-making. Topics deal with technical applications in software design and development, data mining and telecommunication as well as the organizational and social issues associated with the use of information technologies. This area of research may take a focus related to managing innovation and technological change.

Decision Engineering

Decision engineering seeks to use engineering principles in the creation of a decision, which it views as an engineering artifact in its own right. From this point of view, the creation of a decision includes agreeing to objectives, developing a detailed specification, and then creating a decision model, which captures the key cause-and-effect elements of the decision environment (a systems thinking approach) with a focus on the particular decision, instead of the entire system (which can be otherwise intractable). Like other engineered artifacts, a decision model can be subject to Quality assurance review, and-since it is documented-is amenable to Process improvement over time. Decision engineering models draw from the information technologies described above for data supporting the decision, but are distinguished from IT in that they model the decision, not just the data supporting it.

Master's Committee Expectations

Master's participants will progress through their programs under the advisement and mentorship of a two-member Master's Committee composed of qualified Akamai graduate faculty. The Committee is comprised of a primary and secondary mentor, each with a assigned role in directing the Master's process.

Master's participants are expected to work in unity with the same Master's committee members throughout the entire program. However, participants requiring a change in committee members or field of study must submit a formal petition to the University administration to request the change and such petitions must include a special fee. It must be understood that changing the composition of a Master's committee may result in a readjustment of expectations, as the committee works to incorporate the ideas and advisement of the new committee member. This may also result in extending the completion date of the degree.

Description of Required Master's Modules

RES591: Research Methodology (6 credits)

This class instructs the participant in foundational theories, principles, and practices

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specific to the proposed thesis research, thus clarifying the underlying principles and justifications that support the proposed concept for research. An effective paper is required relative to clarifying the research process the student shall undertake for the thesis. As a minimum element of this class, participants must submit the methodology paper and pass a quality review examination conducted by the Master's committee, and if deemed essential, complete additional readings and rewrite of the methodology paper to satisfy preparation requirements. The student should have access to either of the following style manuals in the preparation of the papers: *Publication Manual of the American Psychological Association*. or *The AMA Style Guide for Business Writing*, as agreed by the Committee Chair. The outcome of this class is the preparation of a draft methodology for the student's thesis.

RES592A: Literature Review (6 credits)

This class is designed to guide the participant in conducting a thorough and effective search of the scholarly literature in relation to a major project or research endeavor. Participants examine the quality of existing scholarly literature in their field of research and participate in a quality review under the guidance of the Master's Committee. An outcome of this class is the preparation of a draft scholarly literature review for the thesis.

RES592B: Referencing and Presentation (6 credits)

This class is intended to guide the participant in understanding the requirements for effective written argument, referencing, and citations of the scholarly literature, and presentation of the findings from research. Students must participate in a quality review under the guidance of the Master's Committee. An outcome of this class is the final rework of the literature review incorporating an effective academic discussion and scholarly argument with proper citations and referencing in follow-up of the RES592A class paper.

RES593A: Comprehensive Review (4 credits)

This is the traditional comprehensive examination of Master of Science students, conducted by the Thesis Committee immediately following completion of the Master's RES592 elements and prior to undertaking the thesis proposal. The examination includes both written and oral components and is confined to the research discipline of the student.

RES593B: Thesis Proposal and Defense (6 credits)

Through this class, participants prepare a formal thesis proposal related to their approved focus for research. The proposal is completed under the direction of the Master's Committee and prepared according to published University guidelines, which shall be made available to the participant. This class includes the development of the research methodology, the data gathering device, and data analysis techniques to be followed.

<http://www.akamaiuniversity.us/PartsofDissertationProposal.pdf>

RES594: Thesis Project (6 credits)

Following approval of the thesis proposal, participants will begin their research project. The thesis may take the form of a traditional research project or it may be a major scholarly project in lieu of research of the type appropriate to the discipline. Whichever

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approach to the thesis is chosen, the resulting project must demonstrate mastery of a body of knowledge in the field and represent a meaningful contribution to the betterment of the student in the profession. The thesis project may be conducted by quantitative, qualitative, or participatory action research. The body of the thesis manuscript should exceed 75 double spaced, typewritten pages and be structured according to a set of approved research and manuscript guidelines provide by the University. If the thesis is to take the form of a major scholarly project, it must follow the guidelines provided by the University for such projects.

<http://www.akamaiuniversity.us/images/GuidelinesforWritersofMajorProjects.pdf>

RES595: Thesis Review VIVA (6 credits)

Once the participant has prepared the thesis manuscript, the Master's Committee Chair will schedule the formal review process and act to conduct both the formal physical review of the manuscript and oral review of the thesis project using the approved assessment rubric of the University. Following receipt of the research manuscript, it usually takes the two member Master's committee approximately four weeks to complete the physical review and prepare questions and commentary for later discussion. One outcome of the thesis review process is a set of final expectations directing the participant through the remaining tasks for completing the final thesis manuscript. Once the final manuscript is approved, the participant will submit the formal document to an approved bindery and later arrange for the bound thesis to be shipped to the University headquarters in Hawaii for permanent archival storage.