

Doctor of Philosophy
in
Engineering and Technology Management
Akamai University

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Aloha and Welcome to Akamai!

As Program Directors, we welcome you to Akamai's Engineering and Technology Management Programs. The programs offered are focused on enhancing your executive, entrepreneurial, management and decision-making capabilities in the fields of engineering and technology. The various program levels build skills required for success in today's ever-changing global and industrial environment. As a participant, your journey developing skills will start at the point where you are currently and build on that basis. This approach will ensure you develop the skills necessary for your continued success and will enable you to acquire the capability to be a life-long learner.

As we all know, the problems of mankind are fast approaching critical dimensions. Growing and seemingly irreversible economic problems persist in spite of continued wealth and advancements in much of the developed world. The Business Center acknowledges the vital role of highly qualified business leaders, able to mightily advance the interests of their firms and their industries, and address local and national economic concerns while simultaneously bringing about sustainable solutions to the world's emerging economic, intercultural, and environmental difficulties. We understand that resolving global problems will require dynamic solutions, involving business leaders, international corporate cooperation, community-based nonprofit and public advancements, and the guidance of broad based coalitions of world leaders toward sustainable economic solutions.

The programs offered are well suited for you if you desire further development of your skills in our vital areas of concentration including engineering management and technology management. Studies may be customized to meet your unique needs, to develop necessary skills, knowledge, and abilities for your unique career challenges. The program faculty looks forward to mentoring and empowering your learning journey that will result in a respected degree. As you look over the programs and concentrations offered, feel free to contact our international headquarters in Hawaii, USA, so we may best serve you during your quest for empowerment and transformation.

Sincere regards,
Niranjana Ray Ph.D.
Technology Management

Khoo Voon Ching, Ph.D.
Technology Management

PROGRAM FOCUS

Professionals in the fields of engineering and technology management can no longer afford to continue doing business without the critical skills necessary for success. To address this challenge, Akamai teaches the fundamentals of business, emphasizing practical skills important to the "real world" of corporate and business administration in a manner that is applicable to the regional and business challenges of the participant. In an increasingly competitive global environment, organizations need to develop managers capable of dealing with complexity and change. Advanced study at Akamai University provides an effective path to the Ph.D. via a major research project for those in the fields of engineering and technology management. Through its faculty strengths, Akamai has assembled the essentials of business knowledge and basic principles, Akamai presents business specializations in a wide array of major concentrations, permitting participants to personalize their overall program of study.

PROGRAM AUDIENCE

Akamai offers access to its Ph.D. in Engineering and Technology Management for eligible professionals from the fields of engineering management, cyber security, operations research, technology management, and decision engineering

ENTRY REQUIREMENTS

For acceptance to the PhD in Engineering and Technology Management, participants should have completed a recognized Master's degree or equivalent in an appropriate field and have several years of meaningful professional experience in engineering and technology management. Successful applicants are proficient in English language or provide assurance of effective language support. As an entry requirement, participants must demonstrate access to a computer, email, and Internet, and academic business library resources for the duration of their studies.

DEGREE REQUIREMENTS

Participants pursuing the doctorate degree by research shall complete a seven-phase process, equivalent to 52 credits above the Master's degree in traditional doctoral program, including three doctoral research tutorials, a comprehensive review, and a dissertation project. The doctoral research tutorials are intended to assure the participants have the skills and knowledge to examine the existing scholarly literature, design an effective advanced research study, carry out the project, analyze the data and present the findings in a publishable quality manuscript. The comprehensive review includes written and oral components that permit faculty to determine if the participant has sufficient preparation to proceed to the research phase of the program. The dissertation process includes preparation of a formal dissertation proposal, completion of the dissertation project, and preparation of the manuscript for review by the doctoral committee review. Participants complete an oral review of dissertation as a conclusion of the degree process.

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- RES641: Dissertation Tutorial I -Basic Research Methods (12 credit equivalency)
- RES 642: Dissertation Tutorial II -Literature Review (12 credit equivalency)
- RES 643: Dissertation Tutorial III -Research Presentation (12 credit equivalency)
- EXM 980: Doctoral Comprehensive Review (2 credit equivalency)
- RES 985: Dissertation Proposal Process (4 credit equivalency)
- RES 990: Conduct of Dissertation Project (8 credit equivalency)
- EXM 995: Oral Review of Dissertation (2 credit equivalency)

As a minimum degree requirement, doctoral participants must maintain enrollment at Akamai University for at least one and one-half calendar years. Although a maximum period of six years is allowed to complete the program, most doctoral participants are fully capable of finishing their programs within three 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 doctoral process, in order to progress to the next phase, written approval by the University doctoral 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 doctor of philosophy degree.

AVAILABLE RESEARCH CONCENTRATIONS

Participants in the PhD in Engineering and Technology Management may pursue a research concentration in any one the following fields of inquiry:

Decision Engineering
eCommerce
Cyber Security

Engineering Management
Technology Management
Operations Research

THE DEGREE PROCESS

Step #1: Assignment of Faculty Review Committee

After the participant's admission and registration, as the first step in the program, the University will assign the participant's Graduate Review Committee, including a Chair and one supportive faculty members. Once the Committee Chair has been assigned, the participant shall begin the preliminary activities of the degree program.

Step #2: Study Plan Process

The first activity of the program is the completion of the Study Plan document, which guides the participant and review committee through the degree process. The Study Plan clarifies the specialization that will be pursued, itemizes the subject modules, and clarifies the project activities to be completed as expectations for the degree, and includes a preliminary timeline of completion of each of activity.

Step #3: Conduct of Doctoral Tutorials

The doctoral research tutorials are designed to help the student to expand the quality of their literature search, build the competencies for scholarly argument and establish high-level research and presentation skills. As an element of each tutorial, students are expected to pursue instructor

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-directed, as well as self-directed scholarly readings that extend understanding of the theories, principles, and practices in their defined field of study and research. Students are expected to comprehend the critical features of sound quantitative or qualitative research including subject selection, research design, and statistical analysis in order to develop a sound dissertation or project proposal. Students will be expected to define an applied problem or theoretical issue to investigate, articulate a rationale for the study of the problem or issue, and formally propose and implement a quantitative or qualitative method of evaluation of the issue or problem. Students will demonstrate the ability to complete a thorough scholarly literature review on the topic they wish to present. Students are encouraged to select research methodologies that will assure valid and reliable evaluations of the effects of variables on individuals or groups being studied. The intent is to ensure that students have the competency to examine applied or theoretical issues in their fields of study and implement programs of intervention that are cogent, scholarly, and that make an original contribution to the body of information available in their field of study. Each student must clearly address issues related to research with human subjects and live animals.

Students are directed to undertake theoretical and practical discussions with their faculty advisors at Akamai and colleagues at outside institutions involved with the student's field of study. Students submit written plans for University approval relative to these ongoing discussions. Students are expected to submit scholarly written work (approximately 10,000 words) in each tutorial as directed by the instructor. These papers must reflect high-level information gathering skills, quality written work, with effective academic argument with proper citations and referencing of the literature. The student submits the scholarly paper for instructor evaluation and detailed follow-up discussions. It is expected that work in the doctoral tutorials be directly related to and supportive of the proposed dissertation project that will follow the tutorials. Students are also expected to demonstrate successful skills in the formal verbal presentation of their work (in increasingly more formal and detailed manner) before their professional colleagues. Presentations may be made at professional conferences, tutorials, workshops or retreats or at scholarly symposia organized by the student via formal written invitation. Students may also make arrangements to speak before college classes or meetings of professional associations, fraternal organizations, non-profit and community membership organizations. Under certain carefully monitored circumstances, students may arrange to make presentations in an innovative manner through videoconference, production and distribution of video-or audiotapes and other electronic, distance and online means. As an alternative, doctoral students may have the paper accepted for publication in the Akamai Journal for Human Advancement. Each research tutorial is summarized by asynchronous conference, permitting detailed oral review and follow-up of the tutorial activities.

RES 641: Doctoral Tutorial #1: Basic Research Methods (12 credit equivalency)

The first tutorial instructs the participant in foundational theories, principles, and practices specific to the proposed dissertation research, thus clarifying the underlying principles and justifications that support the proposed concept for research. As a minimum element of this tutorial, participants must complete suitable courses selected from the appropriate research offerings. Participants must pass a quality review examination conducted by the graduate Committee, and if deemed essential, complete additional research methodology coursework to satisfy preparation requirements.

<http://www.akamaiuniversity.us/RES%20641%20Doctoral%20Tutorial%20I-%20Research%20Methodology.pdf>

RES 642: Doctoral Tutorial #2: Literature Review (12 credit equivalency)

This second research tutorial is designed to guide the participant in conducting a thorough and effective search of the scholarly literature in relation to a project of research. Participants examine the quality of existing scholarly literature in their field of research and participate in a quality review under the guidance of the doctoral committee.

<http://www.akamaiuniversity.us/RES%20642%20Doctoral%20Tutorial%20II-%20Literature%20Search.pdf>

RES 643: Doctoral Tutorial #3: Research Presentation (12 credit equivalency)

The third tutorial 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.

<http://www.akamaiuniversity.us/RES%20643%20Doctoral%20Tutorial%20III-%20Referencing%20and%20Presentation.pdf>

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Step #4: Doctoral Comprehensive Review

Upon satisfactory completion of the doctoral research tutorials, the participant will be authorized to schedule the comprehensive review. The senior member of the doctoral committee will direct the written and oral components of the review. The written portion is open book style with selected essay questions requesting creative responses that reach for the higher levels of understanding. Answers should be drawn from the scholarly literature as well as applications within the professional business environment. Proper referencing of the scholarly literature is expected. The oral component of the review shall be completed by conference between the participant and committee members and is intended to encourage an open discussion of the written essay responses. Participants are expected to complete the requirements of the following structured coursework:

EXM 985: Comprehensive Examination (2 credits)

This is the traditional comprehensive examination of doctoral students, conducted by the dissertation committee immediately following completion of the doctoral tutorials and prior to undertaking the dissertation proposal. The examination includes both written and oral components and is confined to the research discipline of the student.

http://www.akamaiuniversity.us/EXM980_ComprehensiveExamination.pdf

Step #5: Dissertation Proposal Process

During this phase of the process, participants prepare a formal proposal related to their concept for research. The proposal is completed under the direction of the doctoral committee and prepared according to published University guidelines, which shall be provided to the participant. Participants are expected to complete the requirements of the following structured coursework:

RES 985: Dissertation Proposal (4 credits)

This program element is required of doctoral students to guide them through the formal research proposal process for their dissertations, including the development of the research methodology, data gathering device, and data analysis techniques.

http://www.akamaiuniversity.us/RES985_DissertationProposal.pdf

Step # 6: Conduct of Dissertation Project

Following approval of the dissertation proposal, participants will begin their research project. The dissertation may take the form of a traditional research project or it may be a major scholarly project of the type appropriate to the discipline. The dissertation project may be conducted by quantitative, qualitative, or participatory action research. Whichever approach to the dissertation is chosen, the resulting project must demonstrate mastery of a body of knowledge in the field and represent a meaningful and original contribution to the betterment of the profession. The body of the dissertation manuscript must be structured according to a set of approved research and manuscript guidelines provide by the University. Participants are expected to complete the requirements of the following structured coursework:

RES 990: Dissertation Project (8 credits)

This program element governs the conduct of the dissertation project. The dissertation is a major undertaking that is a demonstration of mastery of a field of study and an original contribution to the field usually 150 or more pages in length. The project may take any of several forms, depending upon the specialization in the field of study and the expectations of faculty. This may be quantitative or qualitative research, participatory action research, or a major project demonstrating excellence.

<http://www.akamaiuniversity.us/RES990DissertationResearch.pdf>

Step #7: Oral Review of Dissertation

Once the participant has prepared the dissertation manuscript, the senior member of the doctoral committee will schedule the formal review process and act to conduct both the formal physical review of the manuscript and oral review of the dissertation project. Following receipt of the research manuscript, it usually takes the three member doctoral committee four to six weeks to complete the physical review and prepare questions and commentary for later discussion. The oral review is carried out by personal conference and is designed to allow detailed investigation of the underlying review of the literature, the dissertation methodology, and the mechanics of the project, presentation of the findings, and conclusions and recommendations. One outcome of the dissertation review process is a set of final expectations directing the participant through the remaining tasks for completing the dissertation manuscript. Once the final manuscript is approved, the participant will submit the formal document to an approved bindery and later arrange for the bound dissertation to be shipped to the University headquarters in Hawaii for

permanent archival storage. Upon the participant's completion of the final tasks, and receipt of the needed records and documentation, the University will issue a letter of completion to the participant. It will then make preparation for issuance of the transcript of record and diploma certificate.

EXM 995: Oral Defense of Dissertation (2 credits)

This examination is an oral defense of the doctoral dissertation by the student conducted by the doctoral committee immediately following reading of the dissertation manuscript.

http://www.akamaiuniversity.us/EXM995_OralDefenseofDissertation.pdf

FURTHER DESCRIPTION OF THE DOCTORAL TUTORIALS

RES 641: Doctoral Research Tutorial I: Research Methodology (12 credits equivalent)

The second research tutorial is designed to guide students in building effectiveness in research design, data gathering and presentation of statistics. Students are expected to prepare a draft of their dissertation research methodology for review by the instructor and at least one outside academic. Should the instructor find gaps and inefficiencies in the proposed research methodology, the student may be directed to complete appropriate course modules in research methodologies or directed readings under the instructor's guidance. It is possible that the doctoral Committee Chair will require the student to complete formal research preparation coursework, such as:

RES 500: Survey of Research Methods (3 credits)

RES 504: Introductory Research Statistics (3 credits)

RES 506: Advanced Research Statistics (3 credits)

RES 508: Qualitative Research (3 credits)

RES 510: Participatory Action Research (3 credits)

RES 512: Effective Data Analysis (3 credits)

RES 520: Social Science Research Methods (3 credits)

RES 524: Techniques in Transpersonal Research (3 credits)

RES 526: Biological Illustration (3 credits)

RES 527: Biological Modeling (3 credits)

RES 528: Environmental Science Research Methods (3 credits)

RES 529: Calculus for Environmental Science (3 credits)

RES 642: Doctoral Research Tutorial I: Literature Search (12 credits equivalent)

RES 642: Doctoral Research Tutorial II: Literature Review (12 credits equivalent)

The second research tutorial is designed to help in expanding the student's literature search, building competence in scholarly argument and high-level verbal and written skills. This tutorial includes an emphasis in formatting the presentation of the literature review, written argument for research. For this tutorial, students submit an annotated bibliography for mentor approval, and progress to complete the readings in preparation for the literature review of the dissertation. Students prepare a draft of their literature review for evaluation by the instructor and at least one outside academic. Students finalize the literature review for approval and publication in the Journal for Advancement of the Human Advancement or Pacific Journal for Science and Technology. It is possible that the Dissertation Committee Chair will require or allow the

student to complete formal supporting coursework, such as the following, to reinforce the literature review:

- TEM 504: Strategic Management (3 credits)
- TEM 505: Financial Management (3 credits)
- TEM 507: Project Management and Analysis (3 credits)
- TEM 511: Engineering Leadership (3 credits)
- TEM 512: Operations Management (3 credits)
- TEM 513: Quality Control (3 credits)

RES643: Doctoral Research Tutorial III: Referencing and Presentation (12 credits equivalent)

The third research tutorial is designed to help students construct proper citations and referencing of the literature and effectiveness in describing the findings and stating the conclusions and recommendations from their study. Students complete a report discussing the methods to be used for citation and referencing of the literature, explaining guidelines for effective presentation of findings, conclusions and recommendations.

Under the guidance of the Committee Chair, students will select effective publication manual and other resources in support of an effective dissertation. Examples of effective publication manuals include:

American Psychological Association
Publication Manual of the American Psychological Association.
5th Ed. Washington: APA, 2001. Print.

American Management Association
The AMA Style Guide for Business Writing.
New York: AMACOM, 1996. Print.

DOCTORAL COMMITTEE EXPECTATIONS

Doctoral participants will progress through their programs under the advisement and mentorship of a three-member Doctoral Committee composed of qualified Akamai graduate faculty. The Committee is comprised of a primary, secondary and tertiary mentor, each with a assigned role in directing the doctoral process. Doctoral participants are expected to work in unity with the same doctoral committee members throughout the entire program. However, participants requiring a change in committee members 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 doctoral 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.

