

Policy and Procedure for Certification of Comprehensive Knowledge for Non-Thesis Option Master of Science in Technology

I. Purposes:

- 1. To determine the quality and degree of knowledge that students gained during their study in the Master of Science in Technology program.**
- 2. To serve as a basis for certifying comprehensive knowledge to the Graduate School.**

II. Objectives:

1. To verify that a graduating student has met the goals and objectives of his/her graduate study, and has attained comprehensive knowledge of the field of study.
2. To verify that a student has the ability to integrate and synthesize information.
3. To ensure the student can demonstrate proficiency with presentation technologies.
4. To ensure the student is able to effectively communicate with written and oral modalities.

III. Format: Written Report and Oral Defense

In consultation with the faculty chair, the graduating student may elect one of the following three options to fulfill the requirement of certification of comprehensive knowledge (CCK).

Option 1: Case Study:

Definition and Scope:

A student will research and identify a reality-based case (extended example). S/he is expected to present solution(s) to demonstrate how the knowledge, principles, and tools learned during the graduate study may be applied to solve problems or to resolve practical issues. The case should be an actual case based upon candidate's professional experience and/or personal experience, or literature review. Concepts and principles from at least four (4) graduate courses should be integrated into the case.

A final paper and a presentation will be required.

Tasks and Requirements:

a. *Case:*

The case should be agreed upon and documented by the student and his/her adviser at the initial stage of the case study.

b. *Written Report: The written report will fulfill the following requirements:*

- *Case context and identification of problem(s).*
- *Relevant principles/methods/tools used to solve the above problem(s): at least four (4) graduate courses will be required to integrate the knowledge in solving problems.*
- *Research beyond the course work is also required.*
- *Proper reference citations are required.*
- *Deemed publishable with the student and advising faculty as coauthors.*

c. *Oral Presentation:*

- *The student will demonstrate his/her ability to present his/her comprehensive knowledge to solve realistic problem(s).*
- *The student will demonstrate his/her ability to answer questions related to the case and graduate study in general.*

Option 2: Capstone Project or Project-Based Activity:

Definition and Scope:

A student will engage in a capstone project or project-based activity. S/he is expected to develop and deliver a technology-related project/product including mission definition, project scope and measurable outcomes. Examples of the project could be (but are not limited to): developing a secured online ordering system, an online marketing web site, a networked telephony system, a face recognition system, a training program, or a quality management system for an organization. Students are expected to fully document the project and present the final products, including the paper, to the committee.

A final paper and a presentation will be required.

Tasks and Requirements:

a. *Project/Product:*

The technology-related project/product developed by the student should function or produce outcome as initially defined and documented by the student and his/her adviser. If deemed as inventive or innovative in the field,

it should show promise, even though it may not fully function.

b. Written Report: The written report will fulfill the following requirements:

- Document the project mission, scope, measurable outcomes and other implementation details so that others may be able to replicate the work.*
- Show evidence of integrating knowledge gained during the graduate study (more than one class).*
- Include research beyond the course work.*
- Cite research results and references.*
- Be deemed publishable with the student and advising faculty as coauthors.*

c. Oral Presentation:

- The student will demonstrate his/her ability to present detailed information relevant to the project/product.*
- The student will demonstrate his/her ability to answer questions related to the project/product and graduate study in general.*

Option 3: Mini-Thesis or Research

Definition and Scope:

A student will engage in a scholarly investigation, similar to but not as intensive as thesis research. The student is expected to conduct literature research, design their experiment or research instrument, perform the research or experiments, collect and analyze the data, and write a report regarding the research. The research topic has to be related to career and technical education, computer technology, technology management, or training and development.

A final paper and a presentation will be required.

Tasks and Requirements:

a. Research Work:

A student is expected to conduct literature research related to the topic, design the experiment or research instrument, perform the research or experiments, collect and analyze the data, and draw conclusion(s) from the research.

Real data collected by the student are required.

- b. *Written Report: The written report will fulfill the following requirements:*
- *Document the details of the research including literature review, methods or research design, description of the procedure, materials, equipment and/or other research instrument, data collection, organization and analysis, results and discussion, and conclusions/summary of the research.*
 - *Show evidence of integrating knowledge gained during their graduate study (more than one class).*
 - *Include research beyond the course work.*
 - *Cite others' research results and references.*
 - *Be deemed publishable with the student and advising faculty as coauthors.*
- c. *Oral Presentation:*
- *The student will demonstrate his/her ability to present information relevant to the research or mini-thesis.*
 - *The student will demonstrate his/her ability to answer questions related to the research or mini-thesis and graduate study in general.*

IV. Evaluation

The CCK Committee will evaluate the comprehensive knowledge of the candidate based upon the Tasks and Requirements defined in each of the above three options.

Score for Pass, Pass with Distinction and Failures:

1. *Pass:* A candidate has to achieve at least 70 points of a possible 100 in order to be certified with comprehensive knowledge as a part of the degree completion requirement.
2. *Pass with Distinction:* Students receiving a score above 92 will be eligible for Pass with Distinction if other criteria are met.
3. *Failure 1:* Candidates who score between 61 and 69 points may repeat the process the semester following their first attempt.
4. *Failure 2:* Candidates scoring 60 points or less must petition their CCK Committee in order to be eligible for a second opportunity to certify comprehensive knowledge. The CCK Committee may prescribe remediation for the candidate.

Failure in the Certification:

- *Candidates who score between 61 and 69 points may repeat the process the semester following their first attempt and the same procedure.*

Students will be given “NC” grade for the registered TEC 5990 on student transcript. On the subsequent semester, the candidate needs to register another TEC 5990 for another CCK attempt.

- Candidates who successfully petition their CCK Committee to repeat the process may do so the semester following their first attempt.
- The same CCK Committee will administer the certification process the next term. In the event that members of the original committee are not available, new members will be selected and approved by the student’s CCK Chair and remaining committee members.
- Failure to achieve a passing score during the second attempt will result in permanent loss of degree candidate status.
- The student will be required to select a problem/topic significantly different from the previous one for the subsequent attempt for certification of comprehensive knowledge. Candidates will not be permitted to proceed to the oral defense the next term if the written report is not significantly improved and to the satisfaction of the CCK Chair.

V. Summer Graduation

1. A student may petition to have his/her comprehensive knowledge certified in spring semester in order to permit graduation in summer semester, under the following conditions:
 - a) Student completes all required core courses by the end of spring semester.
 - b) Student completes at least 29 semester hours by the end of spring semester, including the one semester-hour CCK independent study.
 - c) For the certification of comprehensive knowledge in a spring semester, the student is required to submit application to the graduate coordinator by the end of proceeding fall semester.

VI. Procedure

1. On the semester the student intends to graduate from the program, the candidate shall enroll in a one-semester-hour Independent Study course (TEC 5990) as a formal mechanism for the Certification of Comprehensive Knowledge (CCK).
2. In order for a student to be registered, the student needs to submit a CCK Application form to the CCK chair. The registration form needs approval by the CCK Chair, Coordinator of Graduate Programs, and Chair of the School of Technology.
3. Upon the above approvals, the CCK registration is managed by the office staff of the Graduate Programs in Technology. .
4. The Program of Study chair will direct the student’s Certification of Comprehensive Knowledge (referred as CCK Chair). In the event that the

original faculty is not available or under unusual circumstance, the Coordinator of the Graduate Programs will assign another faculty as student's CCK Chair.

5. In consultation with the CCK Chair, students shall select two additional graduate faculty members to serve on their CCK Committee. The student shall finalize the committee membership by the third week of the semester.
6. In cooperation with the CCK Chair, the student shall establish the date and time for the oral defense. The oral defense shall be completed PRIOR TO the final exam week of the semester.
7. Four (4) weeks before the oral presentation, the graduate candidate submits a hard copy of the completed final report to the CCK Chair. Email submission will be acceptable at the discretion of the CCK Chair. If the written report is not acceptable, the candidate must revise it to the satisfaction of the CCK Chair before the candidate can proceed to the oral defense.
8. Three (3) weeks prior to the oral defense, the CCK Chair will notify the candidate regarding the status of the written report. The CCK chair may prescribe further revision for the report so that the candidate can improve it before distributing the report to the CCK committee members.
9. Two (2) weeks prior to the oral defense, the candidate shall provide the final copy of the report to the following faculty members: CCK Chair, CCK committee members either in hard or electronic copy at the discretion of the faculty.
10. One (1) week prior to the oral defense, the candidate shall email the final copy to the Graduate Programs in Technology (using techgrad@eiu.edu).
11. If a candidate fails to meet the above time line, the CCK committee may not allow the candidate to proceed with the oral defense.
12. If a candidate fails to defend his/her CCK report by the last day of the class in a specific semester, the candidate will not be certified for his/her CCK and the candidate will not be eligible for graduation. The grade for the registered Independent Study (TEC 5990 for CCK) will be and remain as "I (incomplete)" on student's transcript. If the candidate attempts the CCK on the subsequent semester, s/he will have to register another Independent Study (TEC 5990 for CCK) following the same procedure above.
13. During the oral defense, a graduate candidate will be given approximately 20 minutes to present an overview of the written report.

14. CCK Committee members will then ask questions related to the presentation, course work, and other experiences during graduate study.
15. The CCK Committee will then quantitatively evaluate the comprehensive knowledge of the graduate degree candidate based upon the established guidelines.
16. At the conclusion of the oral defense, a candidate will be notified by the CCK Chair and committee members, regarding the CCK result. Possible result will be: Pass, Failure 1 or Failure 2. (See Section of Evaluation for more details.) Pass with Distinction may be awarded if the candidate meets other conditions including a final GPA of 3.92.
17. In case of failure, the CCK Chair will prepare a written report, and communicate the written report to the candidate and the Coordinator of Graduate Programs, within five (5) business days.

V. Acknowledgement:

The revised policy and procedure was a result of painstaking work by the Graduate Committee during Spring and Fall 2013. Special thanks are due to many faculty and students who provided feedback and insights, to make the capstone experience more meaningful.

9/26/13: Dr. Melton (second by Dr. Wyatt) motion to accept the procedure with the changes as suggested, effect Spring 2014. The committee unanimously approved it.