

**Handbook
For
Ph.D. Students
In
Manufacturing and Technology Management**

**College of Business Administration
The University of Toledo
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INTRODUCTION

Manufacturing and Technology Management Ph.D. students are required to maintain good academic standing and to make adequate progress toward the degree. In addition to academic regulations of the University and College of Graduate Studies, Manufacturing and Technology Management Ph.D. students are expected to comply with all requirements for the Ph.D. program. The purpose of this handbook is to set down these specific requirements which will insure the continuation and completion of the degree for Manufacturing and Technology Management Ph.D. students.

PERFORMANCE APPRAISAL

The annual performance appraisal is designed to determine if the Ph.D. student is making satisfactory progress toward degree. Many factors are used to judge progress including development and demonstration of research and teaching skills, and performance in course work.

Objectives of Ph.D. Performance Appraisal

Student Development

1. The faculty is committed to developing doctoral students who are well prepared to successfully compete for jobs at top-tier research oriented institutions. Student performance will, therefore, be appraised in part on their rate of progress and preparation for career goals.
2. It is recognized that student development cannot be accomplished solely by formal performance appraisal. The goal of development can only be achieved through constant interaction and mentoring on the part of the advisors. The formal performance appraisal system complements and supports the ongoing development of students. It does not in any way substitute for those critical interactions.
3. The faculty is committed to helping its doctoral students develop to their fullest potential. Student performance appraisal is intended to help students identify their strengths and weaknesses, identify and solve problems, and set specific goals for improvement. The feedback process is, therefore, as important as the evaluation of student performance and feedback will be provided in a timely manner.

Administrative Decision Making

1. The faculty is committed to using the results of performance appraisal for making administrative decisions. These decisions include but are not limited to the nomination of students for fellowships, teaching and other awards, and attending

doctoral consortium. Performance appraisal information will also be used in the award and continuation of fellowships, scholarships, teaching, and research assistant assignments.

2. Appraisal results will also be used to determine continuation of financial support or continuation in the program.

Program Evaluation

Systematic and formal review of doctoral student performance also allows the faculty to evaluate its success as a whole in achieving its goals for the Ph.D. program. As such, cumulative data will be used to examine criteria including but not limited to student placements, rates of student progress, and validity of selection criteria.

The appraisal system is based upon the following considerations:

1. The performance dimensions employed in appraising doctoral students will be derived from their performance as students. These dimensions will be relevant and comprehensive for achieving the developmental and administrative purposes outlined above.
2. All doctoral students will be appraised annually and appraised in the same manner. (e.g., procedures and documentation).
3. The appraisal system will comply with Federal, State, and local legislation and regulations pertaining to equal opportunities without regard to students' race, gender, religion, age, or national origin.

Appeal Process

Appeals are to be handled according to the College of Business and University appeal processes.

Roles of Involved Parties in Ph.D. Performance Appraisal

Faculty Advisor

Each student will be assigned a faculty advisor by the Ph.D. Program Director at the time of admission. When a student enters the program, he will consult with the faculty advisor to determine which courses should be taken during the first year of study.

Depending upon the level and type of preparation of the entering student, these courses will include foundation courses, research and quantitative methods seminars, doctoral seminars, and courses for the minor degree. During this first year of study, the student will choose a permanent advisor who will assist the student in preparing a Plan of Study, choosing a dissertation topic, forming a dissertation committee, and in other matters concerning the program.

Students

1. Maintaining records – Students need to keep track of their accomplishments with regards to the evaluation criteria and evidence of progress towards their specified goals and should inform their advisors of these accomplishments. Students should also maintain a curriculum vita.
2. Planning and self-evaluation – Students will work with their advisors to set goals and develop action plans to meet those goals
3. Submitting required forms – The evaluation and planning forms must be completed and submitted to the Ph.D. Review Committee by the specified date. It is ultimately the students' responsibility to make sure the Ph.D. Review Committee has full and accurate information.

Advisors

1. Advising – Advisors will provide mentoring year round and monitor students' progress towards their expected goals and standards. Advisors should meet with the students at least once a month. Advisors may also initiate additional formal reviews at any time during the year.
2. Maintaining records – Advisors need to record their students' activities throughout the year. Copies of past evaluations and goals should also be maintained for reference.
3. Meeting administrative requirements – The student with the help of his/her advisor is responsible for ensuring that the necessary forms are completed and submitted and that the various required activities take place in a timely manner.
4. Reporting to the faculty as a whole – The Ph.D. Director will report the performance summary and recommendations of the Ph.D. Review Committee to the Dean or his/her representative.

Ph.D. Review Committee

The committee will be appointed by the Ph.D. Director. The members of this committee will have graduate faculty status. The number of faculty on this committee will be at least three.

The committee will evaluate the performance of the students by

1. Securing the necessary information, and
2. Completing the evaluation forms

The committee will also

1. Prepare the summary reports for the full faculty,
2. Conduct the feedback and planning sessions,

3. Audit the system, ensure that students and faculty follow the proper procedures, use the required forms and meet the timelines.
4. Collect, record, and analyze data. Collect initial summaries from the faculty and maintain records of final evaluations and action plans. Examine aggregate data to evaluate success of doctoral programs and report those results to the faculty.
5. Receive recommendations for improving the system. Gather and study written complaints and recommendations for improving the performance appraisal system and process.
6. Hear appeals from students. Process student appeals and, when necessary, appoint appeal committees.

PERFORMANCE APPRAISAL FORM I

(To be completed by faculty teaching the course.)

Date: _____

Student: _____

Completed By (Faculty Name): _____

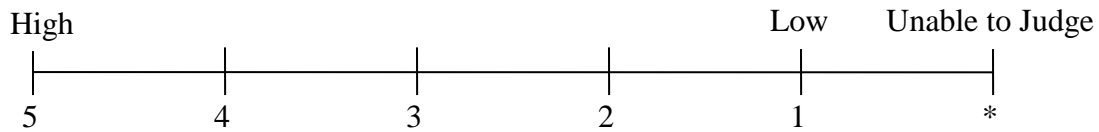
Course and Title: _____

Semester (circle one): Fall Spring Summer

1. What were the strengths displayed by the student while taking your course?

2. What were the weaknesses displayed by the student while taking your course?

3. What is the student's potential for successfully completing the doctorate program?



4. What are your recommendations to improve the weaknesses?

PERFORMANCE APPRAISAL FORM II

(To be completed by student every year)

Date: _____

Completed By (Student Name): _____

1. Development and demonstration of research skills:

Involvement in Research Projects: List and describe the research projects in which you are involved.

Presentations: List title, co-author, place, date and status of submissions to professional meetings.

Publications: List title, journal, co-author, date and status of submission to refereed journals.

2. Interest and Commitment to Professional Development

Memberships: List your memberships in professional associations.

Attendance at Professional Meetings: List the professional meetings, place and dates you have attended.

Other Events: List participation in other events, places and dates you have attended (i.e. departmental presentations, brown bags, guest speakers).

3. Teaching

Courses Taught: List your course assignments and attach a summary of your teaching performance.

PROGRESS TOWARDS PH.D.

(To be completed by the Director of the Ph.D. program from second year of Program)

Student Name: _____

A) Program of Studies Approved

Yes _____ No _____ Date _____

B) Comprehensive Exams Taken

Result _____ Date _____

Result _____ Date _____

C) Residency Requirement Met

Yes _____ No _____

D) Progress Relative to Planned Program

Below Average _____

Satisfactory _____

Outstanding _____

E) Dissertation Committee Formed

Date _____

Chair _____

Members _____

F) Dissertation Proposal Accepted

Yes _____ No _____ Date _____

G) Defense of Dissertation

Successful _____ Not Successful _____ Date _____

Director of Ph.D. Program: _____

DOCTORAL PROGRAM PROPOSAL

At the end of each student's first full year of study, the student prepares a "Doctoral Program Proposal" worksheet using the Ph.D. Student Advising website. This is a planning document that describes the courses the student plans to take to meet his/her degree requirements and his/her anticipated plans for taking the comprehensive exam. This Doctoral Program Proposal is based on the curriculum and any other course substitutions. Course substitutions must be approved by the Director under the guidelines established by the Ph.D. Policy committee.

This "Doctoral Program Proposal" is formally approved by the Ph.D. Program Director. When it is approved and signed by the student, the dissertation advisor, the program director, and the Dean of the Graduate School, it becomes the student's official doctoral program proposal. Currently, all students except those on approved leaves of absence should have a formally approved doctoral program proposal.

PUBLICATION REQUIREMENTS (COURSE AND PROGRAM)

1. A learning objective of Doctoral Seminars is to develop the writing and presentation skills of students, so requiring students to prepare and present term papers should be encouraged. However, Doctoral Seminars will not require either explicitly or implicitly a publication or the creation of publishable paper as part of the course.
2. Faculty and students are encouraged to work together on topics of mutual interest to publish high quality papers, but not as a requirement of the seminar courses.
3. Each student is required to publish or have accepted for publication of at least one journal article and build and demonstrate a base of research through proceeding publications and conference presentations before graduating from the Ph.D. program.
4. Each term, course outlines/syllabi must be submitted to the Ph.D. program Director. This is not only for the review of course requirements but also to provide students with access to course materials.

Ph.D. COMPREHENSIVE EXAMINATION

The Ph.D. in Manufacturing and Technology Management is designed to educate students who are capable of doing interdisciplinary research by addressing a broad range of issues of managing knowledge bases. This interdisciplinary research address issues in product and process knowledge in manufacturing, information and product technologies

(R & D), and integrating knowledge of technology and innovation processes with competencies in management, entrepreneurship, technology commercialization, human resources, marketing and sales, international business, and supply chains. The comprehensive examination is designed to test the students' understanding of these areas, ability to integrate across areas, and ability to demonstrate understanding of quantitative and qualitative research methodologies and their proper applications. The comprehensive examination requires the students to understand and apply knowledge learned in all of the courses required for the program.

The format of the comprehensive examination is as follows:

1. The written examination will cover issues in manufacturing and technology management and research and quantitative methodologies.
2. An oral examination may be required of students who have not passed the written comprehensive examination, at the discretion of the examination committee.
3. The comprehensive examination (written and oral) will be closed notes and closed book unless otherwise specified by the comprehensive examination committee.
4. The students will not be allowed to modify answers to the questions once the written examination is completed.

Applying for the Comprehensive Examination

The comprehensive examination must be passed in order for a student to be admitted to Ph.D. candidacy. It is up to the student to apply for the comprehensive examination at least six weeks prior to the scheduled time for the examination. The exam is normally scheduled once a year. A student will be allowed to take the comprehensive examination if he/she has successfully completed business foundations, major field doctoral seminars, the research and quantitative methods courses, and courses for the minor degree. In other word, these courses should not have incomplete or progress grades. Exceptions are provided for Seminar/Colloquia, Readings and Research, and Field Research.

Comprehensive Examination Committee

Responsibilities

1. Confirm students' eligibility to take the Comprehensive exam with the Ph.D. program Director.
2. Establish rules for the Comprehensive exam.
3. Structure the Comprehensive exam sections and questions.
4. Approve the final Comprehensive exam sections, questions, and time length for each section.
5. Administer the Comprehensive exam.
6. Grade the comprehensive exam.

7. Render a written report of the Comprehensive exam results to the Ph.D. Director. In case that a student does not pass the exam, the report has to describe the reasons and any remedial action(s) that student needs to take before the Oral exam.
8. Administer the Oral exam.
9. Render a written report of the Oral exam results to the Comprehensive exam Committee. The Comprehensive exam Committee will render its recommendations to the Ph.D. Director. In case that a student does not pass the Oral exam, the committee has to submit a report describing the reasons.

Composition

1. The Associate Dean for Graduate studies, The Director and/or the Assistant Director of the Ph.D. program.
2. The Director of the Ph.D. program appoints the Chair of the committee in consultation with the Associate Dean for Graduate studies.
3. Other graduate faculty interested in participating in the Ph.D. Comprehensive exam.
4. Professors who are teaching the five integrative Ph.D. seminars, Advanced Statistics, and Research Methods.
5. At least one ex-chair of the comprehensive exam committee, if available.
6. A faculty member of each department that is not represented in the above items, if available.

Written Comprehensive Examination

For a student to pass the written comprehensive examination, a majority vote of the members of the comprehensive examination committee is required. Members must be present to vote. Voting will be by secret ballot only. Based on the written comprehensive examination, the comprehensive examination committee can recommend a pass for students who have clearly demonstrated in depth knowledge of the materials. A student passes or fails the entire examination. The categories of low pass or conditional pass are not to be used. The chair of the comprehensive examination committee will inform the program director of the committee's decision in writing. The program director will inform the student in writing of the results of the written comprehensive examination upon receipt of the decision from the chair of the comprehensive examination committee.

Supplementary Comprehensive Examination (Applicable only to students entering the PhD program after Fall of 2010)

A student who passed all-but-one question in a comprehensive exam and is considered as borderline on that question may be, at the discretion of the Committee, allowed to take a

supplementary exam. This supplementary exam will be in the written format and subject to the same rules and conditions applicable to the comprehensive exam. In the supplementary exam, the student will be required to answer only one question. That question will cover the same subject matter as the question in the comprehensive exam on which the student's answer was considered as borderline. It will not repeat the same question in the comprehensive exam, however. The purpose of this supplementary exam is to offer an opportunity for the student to better demonstrate his/her understanding of the subject matter under question, and for the committee to ascertain that the student can satisfactorily pass the comprehensive exam on this subject matter in addition to the other questions he/she already received the passing grade from the Committee.

Within two weeks of the release of the outcomes of a comprehensive exam and based on the committee's recommendations, the PhD program director will notify each student, if any, who has been recommended for the supplementary comprehensive exam. The PhD program Director shall arrange for that supplementary exam to be taken within six weeks of such notification.

A student is given only one such exam during his/her entire PhD program, not for each comprehensive exam taken, and only if he/she is recommended by the committee as stipulated above. A student who already took one such supplementary exam but did not pass it will not be considered for another such exam in a subsequent comprehensive exam. A student who fails two comprehensive exams will be dropped from the PhD program regardless of whether he/she was granted a supplementary exam following either of these two comprehensive exams.

Oral Comprehensive Examination (Applicable only to students entering the PhD program before Fall of 2010)

Students who did not pass the written examination but considered borderline may be given an oral examination at the discretion of the committee. The purpose of the oral examination is not to give a new comprehensive examination orally. Rather, the oral examination should be used to (1) clarify the student's answers on the written examination, (2) provide an opportunity for the student to explain how and why he/she has answered in a certain way, and (3) further probe the student's understanding of the subject matter in question.

The oral examination is open to all faculties. The coverage of the oral examination is defined as in the previous paragraph. The oral examination will be conducted by a subcommittee of the comprehensive examination committee appointed by the chair of the comprehensive examination committee. The oral examination subcommittee must include at least three members of the comprehensive examination committee. The subcommittee will report back to the comprehensive examination committee and a fresh vote by secret ballot will be taken to decide on passing the student candidate. A majority

vote of comprehensive examination committee members present and voting will be needed to pass the examination.

A student is given only one attempt at the oral examination. In the event the student fails the written examination the first time, takes the oral examination and fails it, and takes the written examination a second time, a failure on the second attempt on the written examination is final, and the student will be dropped from the program.

The Ph.D. program director will base on the decision of the comprehensive examination committee and notify the student within two weeks of that recommendation to appear for an oral examination, if needed. Usually, the oral examination will be conducted within 4 weeks of the notification.

Number of Attempts

If the student fails the comprehensive exam, the student will be counseled by the program director and the comprehensive examination committee as to the weaknesses. The student may apply to attempt the examination again at the next regularly scheduled period. A student may take the written comprehensive examination only twice.

Frequency of Offering

Comprehensive examination is usually offered once a year after the Spring semester. It must be taken at the University of Toledo.

Admission to Candidacy

Following successful completion of the comprehensive examination, the student is admitted to candidacy for the Ph.D. and undertakes dissertation research. It is the student's responsibility to initiate the application of candidacy on a form available from the Graduate School.

Candidacy is a special status which indicates that the student has met all the course requirements and has mastered the appropriate areas of knowledge needed to complete the dissertation. It enables the university to formally recognize the research topic on which the candidate has been working and to put in place the dissertation committee.

DISSERTATION

The dissertation must be based on work initiated and undertaken specifically for that purpose. It must reflect a high level of scholarship, must constitute a substantial piece of work, which is original, and must indicate and document its claims to be a significant

contribution to knowledge in its subject area. The selection of a topic for the dissertation research is made by the student with the assistance of the advisor. A student has seven years from the time of entering the program to complete the dissertation.

Some General Guidelines for Selection of a Dissertation Committee

The selection of the dissertation advisor (Chairperson of the Dissertation Committee) is made by the student with the assistance and consent of the Ph.D. Program Director. As the student is preparing a dissertation proposal, he/she can petition the Director of the Ph.D. Program to appoint a Dissertation Committee.

The dissertation committee should include at least two faculty members from the student's primary research area of interest (including the Chairman of the Dissertation Committee), one from outside the primary area of interest, and one from outside the College of Business Administration who is a UT faculty member. These constitute the voting members of the committee as a minimum. Additional voting members can be included. The Graduate School may appoint a non-voting representative to oversee the integrity of the final dissertation defense.

This committee should be formed early in the research stage to provide advice and guidance on the dissertation. All of the committee members should be members of the Graduate Faculty. An associate member of the Graduate Faculty may serve on, but may not be the chair of, the dissertation committee.

If, for warranted reasons, it is desirable to have a person on the committee who does not meet the above qualifications, special permission must be obtained from the Program Director and the Graduate School.

Responsibilities of the Dissertation Committee

This committee is responsible for the progress of the candidate's dissertation and will keep in touch with his or her research. When the advisor believes the dissertation proposal is ready for preliminary approval, he/she will circulate it in final typewritten form among the members of the committee. The advisor will allow a minimum of two weeks for reading of the dissertation proposal and will then convene the dissertation committee (without the candidate) for the purpose of evaluating it. Recommended revisions will be noted by the advisor and communicated to the candidate. When, in the opinion of the advisor and the candidate, the appropriate revisions have been made, the advisor will inform the Program Director in writing and a dissertation proposal presentation session will be arranged.

Dissertation Policies

After the dissertation committee has been established, the student will develop a detailed dissertation proposal. Prior to defense of the dissertation proposal, the student will circulate to each member of the Graduate Faculty in the College an abstract of approximately one page in length briefly describing the nature of the dissertation, the methodological approach, and announcing the time and date of the defense of the dissertation proposal.

The dissertation proposal will be prepared and presented to the dissertation committee and defended in an open meeting. The proposal shall describe the background, objectives and general methods of the proposed research.

It is hoped that all Graduate Faculty members will attend the defense of the proposal and make constructive suggestions to the Chairperson of the Dissertation Committee. All suggestions will be carefully reviewed by the Dissertation Committee. The committee will have the right to accept or reject these suggestions.

Approval of Dissertation Proposal

The candidate must formally present his or her dissertation proposal before the dissertation committee. Final approval of the dissertation proposal requires the unanimous approval of the members of the Dissertation Committee. The committee must notify the Program Director and the Dean of the Graduate School that the dissertation topic has been formally approved by filing an appropriate form in duplicate with all necessary signatures.

Approval of the dissertation proposal does not insure approval of the dissertation. It does, however, certify that:

1. The study represents a significant contribution to the field.
2. The candidate can obtain the necessary data and successfully execute the study.
3. The timetable for completing the study is realistic.

Format of the Dissertation Proposal

The specific format required by the dissertation committee may vary somewhat depending upon the nature of the study, but will normally include the following points:

1. A precise statement of the problem which the student proposes to investigate.

2. A statement of the reasons for undertaking the study. This will include specifying relationships being explored, definitions of terms, gaps in the literature, and controversies that only research can clarify.
3. A section indicating previous work, which has been done and a relevant bibliography as evidence of the fact that he or she has carefully searched the literature on the topic he or she proposes to investigate and that this study will, in fact, represent a contribution to knowledge.
4. A clear statement of the theoretical foundation of the research, its contribution to the field, and the research methods that will be used to complete the study.

Defense of Dissertation

After successful defense of the proposal, the student devotes himself or herself to the detailed research on the dissertation topic under the direction of the Dissertation Committee. After approval by the Dissertation Committee at the Pre-dissertation Defense Meeting, there will be a public defense of the dissertation. This is an oral examination conducted by the Dissertation Committee, but is opened to other members of the faculty of the University. The student should submit the dissertation to the Dissertation Committee at least three weeks prior to the examination.

The time of holding the dissertation defense should be chosen by the student and approved by the Dissertation Committee and the Ph.D. Program Director. The schedule of the defense should be submitted to the dean of the Graduate School.

It is possible that the final oral examination (dissertation defense) may lead to some revision of the dissertation, and time should be allowed for this. A student qualifies for graduation after passing the final oral examination and presenting a satisfactory dissertation as determined by Dissertation Committee. The final dissertation must be presented to the Dean of the Graduate School at least four weeks before the degree is to be conferred.

Final Dissertation Defense

The dissertation committee should have a minimum of two weeks to read the dissertation before determining a defense date. In the absence of the Dissertation Chairperson, the oral defense may not be held. In the case of a prolonged absence of the Dissertation Chairperson, the Program Director, in consultation with the remaining committee members, should make appropriate arrangements for a substitute.

The final oral defense will be open to the University community. Copies of the abstract of the dissertation should be available to the Graduate Faculty of the College two weeks prior to the defense and at the defense itself to familiarize members of the graduate faculty with the methodology and findings.

The candidate will open the defense with a brief presentation of his or her findings, after which the members of the Dissertation Committee and the audience will question the candidate. When the members of the audience have completed their questions, the audience will be excused and members of the committee may continue questioning until they are satisfied. At this point, the candidate will be excused and the committee will vote.

Questions dealing with the substance, meaning, and usefulness of the research in the dissertation are appropriate. Questions or comments dealing with punctuation or grammatical minutiae, spelling, etc., are out of order; such comments should be written and privately submitted to the chair.

The candidate should be evaluated both upon the overall quality and significance of his or her dissertation and the oral defense of his or her findings.

A candidate passes the final defense if the candidate does not receive more than one dissenting vote.

All members of the Committee will sign the “Report of Final Examination” form, recording their votes. Committee members may vote “Yes” or “No,” but they should not abstain.

Rescheduling of Final Dissertation Defense

A rescheduling of the oral defense, if necessary, will occur when, in the opinion of the chair, the dissertation has been modified to incorporate the suggested changes. The dissertation must be acceptable, with no dissenting vote, before the rescheduled final oral can be held. If the dissertation is not in suitable form at this second scheduled oral, the Program Director will be notified. Further action is then the responsibility of the Program Director.

Completed Dissertation

The final form of the dissertation may follow that suggested by Kate L. Turabian of APA (American Psychological Association). For additional information concerning the technicalities, the booklet “A Style Guide for Typing Theses or Dissertations” is available at the Graduate School.

Dissertation Ownership

It must be clear to faculty, students/graduates (hereafter referred to as graduates), and administrators that the dissertation is an essential outcome of a Ph.D. program and that the ideas, work, and findings of the dissertation should primarily be the direct result of

the graduate's efforts. Dissertation Committee members, including the Chair or Co-Chairs, provide guidance and feedback and evaluate the outcome – render judgment as to the dissertation value and sufficiency in meeting the requirements for graduation. Dissertation Committee members, including the Chair or Co-Chairs, do not have rights to the dissertation or its components. These belong to the graduate.

Based on this understanding, the dissertation is a product produced by the graduate and he/she has the right to publish the results in ways that benefit him/her. This means that the graduate may publish results without permission of the Dissertation Committee members, including the Chair or Co-Chairs, and without including them as co-authors. It is expected, however, that due credit be given to the intellectual contributions of the Chair and/or Co-Chair. This can be by many ways such as co-authorship in work published from the dissertation.

Dissertation Research Funding

College of Business provides the financial support for the students who have defended their dissertation proposal to conduct survey for their dissertation. The financial support should ease part of financial burden for Ph.D. students to complete their dissertation. The maximum amount of funding support from the College is \$1,200. It is available to students who have passed the comprehensive examination. To receive the funding, the chair of the dissertation committee must submit a written request to the Ph.D. program director, who will review, approve, and forward to the dean's office for authorization.

STUDENT CENTEREDNESS

The idea of student centeredness is highly integrated with the mission of Ph.D. Program in Manufacturing Management. Student centeredness is a focus that support student's need for learning, professional development, and connection to academic communities. The goal of student centeredness is to help students obtain high-quality education and professional development in teaching and research so that they can become successful teacher and researcher in the academic communities.

The following programs and activities are implemented for the purpose of student centeredness:

Research Mentor Program

Each student in the Ph.D. program is assigned a research mentor, who is a faculty in the College of Business. The benefits of research mentor program are two folds: students have opportunities to gain research experience by assisting faculties doing research, and

the faculties in College of Business have better understanding of the Ph.D. Program and further actively involve in the development of the Ph. D. Program.

Teaching Mentor Program

Each full time Ph.D. student is likely to have a teaching assignment for an undergraduate course in every semester, if College of Business has need for the instructors in that semester. Students, who don't have teaching experience, are assigned a teaching mentor, so that they can direct their teaching related questions to and gain the needed support from their teaching mentors. On one hand, teaching assignment provide the opportunities for students to gain teaching experience, which is very important for their career development. On the other hand, teaching assignment of Ph.D. student also support the needs for the instructors in College of Business.

Graduate Assistant Teaching Certification (GATC)

The Graduate Assistant Teaching Certification is to ensure that graduate assistants in the Doctoral program in Manufacturing and Technology Management are prepared to teach undergraduate classes. The teaching requirement is essential to satisfy the teaching component of the Doctoral program. To gain this certificate, students have to go through the Certification Screening Process.

Certification Screening Process

The certification committee will provide material to students in their second semester in the Ph.D. program to be presented two weeks later. Each student will have 15 minutes to deliver the presentation and answer questions from the certification committee. The committee will decide whether to grant the certification to the student or inform the student about his/her shortcomings and suggest remedial action(s) to help the student.

A student who fails to pass the certificate screening process may request to be screened again during the next regularly scheduled screening period after he/she takes remedial actions required by the committee and provides evidence on the completion of these requirements.

Possible Remedial Actions

Remedial actions will vary depending on the demonstrated weaknesses of each student. For example, it could be related to improvement in the teaching style, delivery style, or communication skills. Based on the specific shortcomings, the committee may suggest different actions and evidence to demonstrate the completion of these actions. For example, the committee may require a student to attend specific teaching workshop(s) or to recommend an accent reduction therapy. Obtaining the evidence of completing these

requirements is the responsibility of each student. The evidence of completing the remedial actions must be submitted to the Ph.D. Director for the student to be re-screened.

Frequency of the Certification Screening Process

The Certification Screening will be held twice each academic year. The spring screening will be held during the third week of March for students who are scheduled to teach a fall class. The fall screening will take place during the second week of September for students who are scheduled to teach spring class.

Certification Committee Composition

The committee will be composed of three of the following members:

1. The Associate Dean for Undergraduate Programs.
2. Chairs of the Accounting, Information Operations and Technology Management (IOTM), Management, or Marketing, one per screening session.
3. Director/Assistant Director of the Doctoral program.
4. Student observer from the Teaching and Learning Center (TLC).

At least two committee members should attend each screening process. A simple majority vote of those present and voting will be needed to grant the GATC or to recommend remedial actions. In case of a tied vote, the Associate Dean's recommendation shall be final.

Requirements for Screening

Students must fulfill the following requirements before the screening process:

1. Student with no or very limited teaching experience before joining the Ph.D. program will be required to go through the teaching mentor program. According to this program, the student will shadow a professor in his/her class for a Six-Week period. The class will be jointly determined by the Department Chair and the Director of the Doctoral Program. The professor will use his discretion to allow the student to teach one class period during the six-week period. The professor will be required to submit a report to the Director of the Doctoral Program about the commitment and readiness of the student to teach.
2. Students will be required to attend a minimum of three hours teaching workshop provided by the Teaching and Learning Center (TLC) or College of Business Administration (COBA).
3. Students with prior teaching experience need to provide copy of teaching evaluations and/or evidence of teaching quality to the Director of the Doctoral Program.

Students must fulfill the above requirements before they sit for the certification screening process.

Student Mentor Program

Each new student in the Ph.D. program is assigned a student mentor, who is a current Ph.D. student in the program. The benefit of student mentor program is to provide new Ph.D. students with a peer-based resource to ease the transition into the program. Student mentorship is a voluntarily participation. Should the Ph.D. student volunteers to be a student mentor/mentee, his/her participation will last for one academic year.

Each student mentor needs to fulfill the following requirements:

1. Make a reasonable effort to provide support to your mentee on an ongoing basis. Try to be available in person or via indirect communication methods such as telephone and email.
2. Make a reasonable effort to meet with your mentee regularly, for example one per month, to discuss his/her experience as a Ph.D. student and his/her progress in the program.
3. Provide guidance to your mentee regarding conference participation and publications expectation.
4. Introduce your mentee to the College and University's Research Resources (i.e., Library and OhioLink). If possible, try to connect your mentee with resources and activities in the community.

Professional Development

Students are encouraged by the Director and other faculties of the Ph.D. program to attend the professional conferences, such as the regional and national conferences of Decision Science Institute. By attending the professional conference, students can develop their professional experience in presenting paper and building connection in the academic communities. The second year Ph.D. students are also encouraged to attend doctoral student consortium at the national conferences to receive trainings on the research and job searching.

Students who are on financial assistance will normally be assumed to be in need of assistance. Students who are employed/working full time are not eligible to apply or to spend remaining approved funds.

To be awarded funds, a student must have passed the comprehensive examinations (major and minor) and must submit a dissertation proposal to the Ph.D. program director that has been endorsed by the student's committee chair.

The money does not have to be spent in any single year, it may be carried forward. Expenditure must be supervised (approved) by the chair of the student's dissertation committee. Expenses must be directly related to the student's dissertation planning and execution (no conference travel).

Funding Doctoral Student Travel for Presentations and Participation in Doctoral Student Consortium

The goal of this policy is to contribute to the Ph.D. student's professional development by encouraging their participation in quality academic conferences. All students who are traveling representing the University of Toledo are eligible for this travel support whether they are part-time or full time students.

Students who have completed one academic year (two semesters) in the Ph.D. program will be eligible for partial financial support for professional presentations at conferences and participation in doctoral student consortiums. Students may be funded for only one doctoral student consortium. Funding will be limited to two trips at a maximum of \$500 per trip. The money does not have to be spent in any single year, it may be carried forward. Students will be reimbursed upon submission of appropriate receipts.

Students must forward documentation of their paper acceptance or consortium participation to the Director of the Ph.D. Program for prior approval. He will then email the College Budget Officer indicated that the travel is approved. Students are to focus on quality academic conferences at a national level.

Ph.D. in Manufacturing and Technology Management Program (Effective Fall 2008)

Plan of Study

CourseNumber	Course Description	Credit Hrs	Status
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PREREQUISITES

	1 Year of Calculus		
	Statistics that includes regression and analysis of variance		
	1 academic term of computer systems with application		
	Micro- and macro-economics		

BUSINESS FOUNDATIONS - 15 hours

ACCT 5000	Financial and Managerial Accounting	3 hours	
FINA 5310	Managerial Finance	3 hours	
MGMT 5110	Introduction to Management	3 hours	
MKTG 5410	Marketing Systems	3 hours	
OPMT 5520	Analysis of Manufacturing and Service Systems	3 hours	

Quantitative and Research Methods - 12 hours

MFGM 8630	Management Science	3 hours	
MFGM 8860	Advanced Statistics	3 hours	
MFGM 8880	Research Methods and Theory Building	3 hours	
MFGM 8870	Seminar in Statistics/Research Methods	3 hours	

MAJOR Field - 20 hours

MFGM 8480	Management of Technology	3 hours	
MFGM 8690	Innovation and Technology Commercialization	3 hours	
MFGM 8830	Organizational Issues in Implementation of Technologies	3 hours	
MFGM 8890	Advanced Manufacturing Systems	3 hours	
MFGM 8490	Supply Chain and E-Business Issues in Manufacturing	3 hours	
MFGM 8980	Special Topics Seminar	3 hours	
MFGM 8810	Seminar/Colloquia	2 hours	

MFGM 8960	Dissertation	16 hours	
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MINOR Field

12 hours

The students can choose one of the fields *operations, marketing and customer relationship management, human resources, international business, information systems* for a minor field. The minor will be a supporting field of 3 courses at the master's (MBA) specialization, and a related advanced seminar with the objective of integrating the Manufacturing and Technology Management major field with developments in the fields *operations, marketing and customer relationship management, human resources, international business, information systems*.

Total hours for the Ph.D. program	60 hours (Post Master's)
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Note: Business Foundations courses are satisfied by prior course work. These are not included in the 60-post master's hours above.

MINOR FIELD

The students can choose **one** of the fields operations, marketing and customer relationship management, human resources, international business, information systems for a minor field. The minor will be a supporting field of 3 courses at the master's (MBA) specialization, and a related advanced seminar.

Operations Management-Minor (12 hours)

OPMT – 6270/8270 SIMULATION
OPMT – 6680/8680 TOTAL QUALITY MANAGEMENT AND SPC
OPMT – 6690/8690 MANUFACTURING RESOURCES MANAGEMENT
OPMT – 6720/8720 MANUFACTURING SYSTEMS DESIGN SEMINAR

Marketing/CRM-Minor (12 hours)

The minor field consists of the following courses:

MKTG - 6140/8140 CUSTOMER RELATIONSHIP MARKETING
MKTG - 8790 INTEGRATED MARKETING/CRM SEMINAR

and any two of the following courses:

MKTG - 6150/8150 CRM ANALYTICS
MKTG - 6220/8220 INTEGRATED MARKETING COMMUNICATION
MKTG – 6230/8230 DIGITAL MARKETING PROCESSES AND VIRTUAL VALUE NETWORKS
MKTG – 6250/8250 STRATEGIC ACCOUNT MANAGEMENT
MKTG - 6310/8310 MANAGING INNOVATION AND PRODUCT COMMERCIALIZATION
MKTG - 6320/8320 STRATEGIC BRAND MANAGEMENT
MKTG - 6330/8330 APPLIED MARKETING RESEARCH

Human Resource Management-Minor (12 hours)

The minor field consists of the following courses:

HURM – 6700/8700 HUMAN RESOURCE MANAGEMENT
HURM – 8740 HUMAN RESOURCE STRATEGY AND METRICS

and any two of the following courses:

HURM – 6710/8710 EMPLOYMENT AND LABOR LAW
HURM – 6720/8720 EMPLOYER-EMPLOYEE RELATIONS
HURM – 6730/8730 PERFORMANCE MANAGEMENT

International Business- Minor (12 hours)

The minor field consists of the following courses:

IBUS - 8790 INTERNATIONAL BUSINESS RESEARCH SEMINAR

and any three of the following courses:

IBUS – 6360/8360 MANAGEMENT OF MULTINATIONAL FIRMS
IBUS – 6490/8490 GLOBAL MANAGEMENT SYSTEMS
MKTG – 6400/8400 INTERNATIONAL MARKETING
FINA – 6370/8370 MBA INTERNATIONAL FINANCIAL MANAGEMENT

Information Systems-Minor (12 hours)

The minor field consists of the following courses:

INFS – 8990 INTEGRATIVE SEMINAR
INFS – 6470/8470 INFORMATION TECHNOLOGY
INFS – 6570/8570 INFORMATION SYSTEMS POLICY AND ADMINISTRATION
INFS – 6930/8930 CONTEMPORARY TOPICS SEMINAR - OUTSOURCING

Public Health Administration-Minor (12 hours)

PUBH – 804 PUBLIC HEALTH ADMINISTRATION
PUBH – 821 MANAGEMENT OF PUBLIC HEALTH AGENCIES
PUBH – 822 BUDGET AND FINANCE IN PUBLIC HEALTH
PUBH – 828 ECONOMICS, MARKETING, AND HUMAN RESOURCE

Note: Given courses taken by the student at the undergraduate or masters level, appropriate substitute courses may be identified for these courses with the approval of the student's an academic advisor.

Public Health Epidemiology-Minor (12 hours)

The minor Public Health Epidemiology field consists of the following courses:

Required

PUBH – 801 PUBLIC HEALTH EPIDEMIOLOGY

and any three of the following courses

PUBH – 812 INFECTIOUS DISEASE EPIDEMIOLOGY

PUBH – 815 CLINICAL EPIDEMIOLOGY

PUBH – 818 CANCER EPIDEMIOLOGY

PUBH – 855 CHRONIC DISEASE EPIDEMIOLOGY

Please note: Course descriptions available [here](#).