Career and Technology Education

Master of Education
College of Technology, Bowling Green State University
www.bgsu.edu/colleges/technology/graduate/

The Career & Technology Education program responds to changing needs in education and industry for individuals who teach, design curriculae and engage in evaluation and research for education in public schools, higher education, and in training functions in business and industry. This program has been most successful as measured by significant placement of its graduates and of the percentage of its graduates who have gone on and completed doctoral programs. This is a rigorous and individualized professional degree program that facilitates career development in such roles as training and development professional and technology education professional. These roles are highly visible in business and industry settings as well as at all levels of educational institutions.

Training and Development Professional (HRD):

Course work is based on the American Society for Training and Development (ASTD) competencies for professional practice in human resource development (HRD). Each course of study is prepared based on individual background, interests, and needs. Course work in the College of Technology emphasizes skills in needs analysis, instructional design, instructional strategies, presentation graphics, evaluation, cost benefit analysis, adult learning, and motivation. These can be blended with course selections from other university program offerings such as technical communication, industrial psychology, human resource management, education, and organization development. Many courses involve projects in a business or industry setting.

Technology/Technical Education Professional:

Course work includes curriculum development, evaluation, instructional media, presentation graphics, and research in technology/technical education. The program also allows for technical upgrading related to the subject being taught. An emphasis can also be developed in the area of administration, supervision, or evaluation and research.

Prerequisite to Graduate Work

A candidate may enter the program at the beginning of any semester. To be admitted to this program, candidates must meet the admission requirements described in the Graduate Catalog and present an undergraduate grade point average of no less than 2.7 on a 4.0 point scale. Foreign students must establish English proficiency and must take the Test of English as a Foreign Language (TOEFL). Graduate Record Examination (GRE) scores are required from all applicants. Competitive stipends are available for graduate research and teaching assistantships. To qualify for an assistantship requires a minimum grade point average of 3.0. Applications for assistantships must be completed and submitted to the Office of Graduate Studies, College of Technology.

Requirements for the Career & Technology Education Program

To earn a Master of Education degree in Career and Technology Education, students complete a minimum of 33 semester hours of study in Plan I (thesis) or 36 semester hours in Plan II (comprehensive exam/major project), and must maintain at least a 3.0 grade point average. The course work is composed of three phases: (1) the program core, (2) the concentration phase, and (3) the synthesis phase.

Program Core (12 semester hours)

The core courses provide a foundation for the program. Included are courses in principles and theories, data analysis and decision making, research techniques, and an integrative seminar. With the exception of the seminar, the core courses are taken relatively early in the program. Toward the end of the program the required seminar will be taken to integrate and synthesize the experience.

Concentration Phase (minimum of 15 semester hours for Plan I; 18 semester hours for Plan II)

This phase is designed to build specific competencies related to one of the two career roles mentioned earlier. Courses will be selected to meet career goals with the assistance of a faculty advisor. As an example, a technical college teacher's concentration can be designed to increase technical knowledge and competencies in specific technology programs within the college.

Course Work Requirements and Options

Current course descriptions and program requirements can be found online at:
www.bgsu.edu/colleges/gradcol/documents/GradCat.pdf)

Students must consult with an academic advisor to develop a Tentative Degree Program (TDP). The TDP is a written agreement between the graduate student and the university that the program embarked upon meets the requirements of the degree. The TDP is initiated by the student at the completion of 12 hours of study and must be filed with the Graduate College before the completion of 15 hours. The TDP becomes the student's academic plan and the basis for scheduling courses each term in cooperation with the major advisor. All courses that will be taken to meet the degree requirements are listed on the TDP and determined by the student and major advisor.

Program Core

(12 Semester hours)
C&TE 601
TECH 603
C&TE 679
C&TE 680

- Synthesis hours cannot be taken without consent of advisor and graduate coordinator.
- C&TE 680 must be taken during one of the two final semesters of the program.
- Concentration courses do not have to be taken in any specific order unless there are required prerequisites.

Synthesis

(6 Semester Hours)

Plan I (Thesis)
C&TE 699

Plan II
Comprehensive Exam
C&TE 685
C&TE 698
or
Major Project
C&TE 690 or 691

Concentration Phase

Training and Development Professional
Or
Technology/Technical Education Professional
(15 – 18 Semester Hours)

Courses must be selected with approval by advisor. No more than one 500 level course, one independent study, one workshop, and one internship can be applied to the Concentration Phase.

C&TE 650	TECH 662
C&TE 653	TECH 663
C&TE 654	TECH 665
C&TE 656	TECH 633
TE 562	ORGD 670
C&TE 657	ARCH 536
ARCH 550	ENVR 521
C&TE 659	DESN 504
C&TE 660	DESN 552
C&TE 661	ECT 541
C&TE 666	ECT 542
C&TE 675	ECT 543
C&TE 682/683	ECT 553
C&TE 684/685	ECT 586
C&TE 688/689	VCT 556
C&TE 694/695	VCT 560
ENG 640	VCT 566
EDCI 610	VCT 583

Synthesis Phase (6 semester hours): During this final phase there are two major alternatives available:

Plan I - Thesis	- Involves the completion of a thesis /applied research.
Plan II - Comprehensive Examination/Major Project	- Involves the completion of a formal, comprehensive examination or completion of a directed major project.

Course Descriptions

Program Core (12 Semester hours)

C&TE 601 Principles of Career and Technology Education (3)
Principles and purposes of career development and education in adult, special, vocational, and technical education in public and private agencies; impact of federal and state legislation on such programs.

TECH 603 Data Analysis and Decision Making in Technology (3)
Concepts of data analysis, distribution and probability, variance, and inference, data and their uses, and other statistical analysis techniques, with technological and industrial applications.

C&TE 679 Research in Career and Technology Education (3)
Identification of problem areas and specific problems in career and technology education. Within current theories, research design and techniques, individual student problems are defined and developed.

C&TE 680 Seminar in Career and Technology Education (3)
Directed study, investigation, and research in selected fields in career and technology education.

Technology Concentration (15-18 Semester hours)

C&TE 650 Instruction of Career and Technology Subjects (3)
Planning, controlling, mediating, and evaluating learning activities; use of instructional systems and appropriate laboratory management techniques for programs in public schools , college, business, and industry.

C&TE 653 Theory of Technology Education (3)
Current practice and theory of technology education related to technological, societal, and educational influences and placed in historical perspective.

C&TE 654 Curriculum in Career and Technology Education (3)
Critical review of existing and theoretical comprehensive career and technology education curricula.

C&TE 656 Curriculum in Technology Education (3)
Critical review of existing curricula, diffusion techniques, adoption problems in technology education, vocational education, and technical education.

C&TE 657 Facilities Planning in Career and Technology Education (3)
Architectural, equipment, and instructional problems are considered in developing and applying criteria to design, modify, and manage facilities in career and technology education.

C&TE 658 Technology in America (3)
Nature of technology, development, effects upon society, and likely impact on future.

C&TE 659 Training in Industry and Business (3)
An introduction to the theory and practice of training and development systems within the area of human resource development. Addresses the role of training in organizations, adult learning, needs analysis, instructional design, formative and summative evaluation, cost-benefit analysis, professional organizations in HRD, and other relevant topics.

C&TE 660 Evaluation in Career and Technology Education (3)
Principles and procedures in measuring and evaluating programs, courses, students, and teacher behavior in career and technology education.

C&TE 661 Curriculum Development in Career and Technology Education (3)
Develops competencies in the process of curriculum development; includes preparation of curricular language, occupational analysis techniques, instructional procedures, implementation and evaluation, diffusion, and adoption techniques.

C&TE 666 Theories of Vocational Behavior (3)
Review of contemporary vocational development theories, related literature, and research in education and, business and industry. Implications for structuring career education programs and personal career development are stressed.

C&TE 675 Administration and Supervision in Career and Technology Education (3)
Responsibilities and administrative relationships in career and technology education. Supervisory techniques, personnel relations, program development, processing proposals, interpretation of pertinent legislation, and in-service programs.

C&TE 682/683 Topics in Career and Technology Education (1-3)
This course will address selected topics such as regulations, legislation, curriculum, instructional technology, or personnel issues. May be repeated on approval of advisor. C&TE 682 for a grade; C&TE 683 graded S/U.

C&TE 684/685 Directed Readings in Career and Technology Education (1-3)
Supervised study, selected problems, and/or tailored readings. Proposed program of study must be approved by instructor prior to registration. May be repeated to six credit hours. C&TE 684 for a grade; C&TE 685 graded S/U.

C&TE 688/689 Internship in Career and Technology Education (1-3)
Placement within setting related to student's academic specialization: training and development professional or technology education professional. Proposed field placement must be approved by major advisor prior to registration. May be repeated to six hours. C&TE 688 for a grade; C&TE 689 graded S/U.

C&TE 694/695 Workshop in Career and Technology Education (1-4)
Workshops on current topics and issues within discipline. May be repeated. C&TE 694 for a grade; C&TE 695 graded S/U.

C&TE 697 Supervised Practicum in Career and Technology Education (1-6)
Supervised practical field application or clinical experience offered on an individualized basis. Graded S/U.

TECH 633 Visual Communication for Business and Industry (3)
An accelerated inquiry into the theories and processes of systematic communication problem solving, slide presentation, desktop publishing, presentation graphics, and non broadcast television production.

TECH 662 Analysis, Design, and Development in Training (3)
Emphasizes the theory and competencies in training needs assessment, subject matter analysis, development of training/HRD proposals, and the design of training projects and programs to meet client needs. Course work includes training projects in business, industry, and other organizations. Prerequisite: C&TE 659.

TECH 663 Implementing Training Systems (3)
Emphasizes the theory and processes involved in implementing, evaluating, and documenting effective training and development projects and programs. Course work includes training projects in business, industry, and other organizations. Prerequisite: C&TE 659.

TECH 665 Computer Courseware Design (3)
An inquiry into the systematic development of instructional computer software ("computer courseware"); use of "multimedia" courseware authoring systems (CAS) applied to training problems; plus an overview of courseware authoring languages (CAL) and hypertext-based development tools.

With approval of the major advisor, students may select one course from the following list to meet the Concentration Phase requirement, strengthen technical areas, or as prerequisites.

ARCH 536 Planning and Design of Industrial Facilities (3)
Planning, estimating, design and modeling of industrial facilities with consideration of management, personnel, production, aesthetics and environment. Four hours lecture and laboratory. Prerequisite: Consent of instructor.

ARCH 550 Architectural Graphics III (3)
Third course in the architectural design sequence with focus on design of large complex buildings. Emphasis on design of multiple circulation patterns and multiple uses within a single building or complex of buildings. One hour of lecture and four hours of laboratory. Prerequisite: Consent of instructor.

DESN 504 Computer Aided Design (3)
Study and application of computer modeling systems. Use of interactive methodologies. Development of three-dimensional entities and complex surface generation. Emphasis on learning how to comp uter model, simulate and analyze as it relates to design. Prerequisite: Consent of instructor.

DESN 552 Design in Industry (3)
Capstone course for mechanical design. Systems approach applied to solution of one or two product design problems; emphasis on feasibility of design solutions, manufactureability and consideration of assembly. Prerequisite: Consent of instructor.

ECT 541 Instrumentation (3)
Industrial instrumentation, measuring mechanical, fluid and electric phenomenon, transducers, recorders, indicators and controllers. Principles underlying their design and applications. One and one-half hours lecture and three hours laboratory. Prerequisite: Consent of instructor.

ECT 542 Digital Computer Analysis (3)
Organization and construction of mi ni-macro computers, machine language programming, interfacing, including developing logic design, selection of integrated circuits, assembly, testing and system diagnostic testing procedures. One and one-half hours of lecture and three hours laboratory. Prerequisite: Consent of instructor.

ECT 543 Electronic Devices (3)
Semiconductor devices, FET transistors, operational amplifiers, and optoelectronic devices including theory of operation, specifications, performance testing and applications. One and one-half hours of lecture and three hours laboratory. Prerequisite: Consent of instructor.

ECT 553 Digital Computer for Process Control (3)
Basic concepts, terminology, evaluation and types of control systems as they apply to industrial process control and positioning systems. These systems will be subdivided into measurement, controllers and final control elements. One and one-half hours of lecture and three hours laboratory. Prerequisite: Consent of instructor.

ECT 586 Digital Communication and Networking (3)
Intensive study of digital electronic communication and networking: digital modulation schemes, transmission media characteristics, interface standards like RS 485, network standards and configurations, testing equipment. One and one-half hours lecture and three hours laboratory. Prerequisite: Consent of instructor.

ENVR 521 Industrial Pollution Control (3)
Air and water pollution control regulations as they apply to industry. Functioning and selection of parameters of industrial pollution control equipment and selected case studies.

TE 562 Career and Technology Education in Elementary Schools (3)
Development and evaluation of instructional activities to facilitate career development and understanding of technology among elementary children.

VCT 556 Digital Color Applications (3)
Basic color theory and color models as applied in color capture (scanning, photo, video) and output (monitors/videos, color printers, color separation). Color management as applied in color image processing is also studies. Fours hours of lecture/laboratory. Prerequisite: Consent of instructor.

VCT 560 Digital Photography (3)
Research and experimentation in computer-generated digital imaging techniques. Four hours lecture/laboratory. Prerequisite: Consent of instructor.

VCT 566 Principles of Multimedia Production (3)
Exploration and experimentation in various visual presentation technologies including digital media. Emphasis on the design and production of total presentations. Four hours of lecture/laboratory. Prerequisite: Consent of instructor.

VCT 583 Color Photography (3)
Theories and principles in production of color negatives, prints and transparencies for commercial and industrial photographic applications; emphasizes basic color sensitometry, quality control techniques and use of laboratory color films. Four hours lecture/laboratory. Prerequisite: Consent of instructor.

Synthesis Experience (6 Semester hours)
C&TE 690/691 Directed Research in Career and Technology Education (1-9)
Supervisor independent research on delimited topic. Generation of new knowledge as contrasted with a private reading course. Proposal for directed research must be approved by instructor/major advisor prior to registration. Prerequisite: C&TE 679. C&TE 690 for a grade; C&TE 691 graded S/U.

C&TE 698 Readings for Comprehensive Examination (1-12)
Supervised independent readings in preparation for the master's comprehensive examination. Prerequisite: C&TE 679. Graded S/U.

C&TE 699 Thesis Research (1-12)
Credit for thesis study. A student may register for unlimited thesis credits with a maximum of six credits allowable toward degree requirements. Prerequisite: C&TE 679. Graded S/U.

For More Information

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