

Learning Technologies

Applied Technology, Training and Development, ATTD

5101. Performance Assessment. 3 hours. A focus on the preliminary assessment of human performance problems in organizations. The design, development, implementation and evaluation of training programs for supervisors and trainers is discussed.

5100. Principles of Applied Technology, Training and Development. 3 hours. This overview course investigates the design, delivery and evaluation of training programs. The relationship of modern technology and training theories with organizational practices will also be addressed.

5110. Curriculum Design and Instructional Resources. 3 hours. Development, organization and use of curriculum materials and resources in career and technical education, with an emphasis on employability skills, work-based learning and instructional technology.

5120. Demonstrating Effective Presentation Skills. 3 hours. Such instructional strategies as lecture and demonstration are emphasized; includes introduction, questioning and summary techniques, as well as the use of basic media commonly utilized in technical presentations.

5121. Corporate Training Presentation Skills. 3 hours. Such training strategies as job coaching and small group instruction are emphasized; includes motivation techniques, one-on-one interaction skills, questioning and summary techniques and the use of electronic presentation media.

5130. Roles and Responsibilities of Career and Technical Education Professionals. 3 hours. Focuses on the career and technical education teacher's role in the classroom, laboratory, school and community. Emphasizes the roles of technology, discipline and liability.

5140. Developing Work-Based Experiences in Career and Technical Education. 3 hours. This course is designed to address all aspects of work-based learning. Basic standards and the development of educational training opportunities are included.

5160. Advanced Computer Applications in Education and Training. 3 hours. Advanced preparation for students entering into education or training organizations that utilize modern computer-based technologies including graphic applications, telecommunications, networking, programming and instructional technology. Prerequisite(s): consent of department.

5200. Leadership Practices in Health Science Technology Education. 3 hours. Internet-based course consisting of seven modules designed to assist the health science technology education (HSTE) professional in organizing, facilitating and evaluating a successful leadership program for health science technology students. Requires participation in an e-group to share ideas and experiences.

5210. Authentic Assessment Techniques in Health Science Technology Education. 3 hours. Internet-based course consisting of three modules that examine a wide variety of assessment techniques and strategies for use in health science technology programs. Emphasis is placed on the practical application of assessment.

5400. Planning and Organizing Programs of Vocational Guidance. 3 hours. Purposes and functions of a guidance program, group guidance procedures, components of a vocational guidance program and techniques for providing vocational guidance services for elementary, secondary and adult populations.

5430. Historical Foundations of Applied Technology. 3 hours. An examination of the historical and philosophical foundations of applied technology. Interrelationships of economic, sociological and psychological foundations are considered. Includes the role and responsibility of the professional educator in applied technology programs.

5440. Facilitation Strategies in Applied Technology and Training. 3 hours. Advanced instructional strategies, such as group facilitation, cooperative learning, questioning, discussion, problem-solving, simulation, reflective teaching and other instructional techniques. Participants are expected to employ various presentation techniques through small group exercises. Prerequisite(s): ATTD 5120.

5470. Interpersonal Skills Development. 3 hours. Development of human relations and communication skills; human relations as a factor in developing programs in business, education and industry.

5480. Research Techniques in Applied Technology and Training. 3 hours. A general orientation to basic methods of research in applied technology, training and development; including the scientific method as a basis for analysis, interpretation of results. This course should be taken in the last 15 semester hours of the program.

5490. Diversity Issues in Applied Technology, Training and Development. 3 hours. This course will address general diversity issues that affect applied technology, training and development. Effective strategies and model programs will be discussed to enhance individual development in applied technology classrooms and training and development courses.

5500. Research Seminar in Applied Technology, Training and Development. 3 hours. The course focuses on research issues in applied technology, training and development. Problems related to the fields of applied technology, organizational culture, training and human resource development, research designs and statistical methods for conducting research in training and development will be studied.

5530. Curriculum Development in Applied Technology, Training and Development. 3 hours. Designed for applied technology and training professionals, this course focuses on curriculum theories, approaches to curriculum development and curriculum evaluation strategies. Includes development of goals, competencies, objectives, knowledge-based testing and performance-based testing.

5630. Principles of Marketing Education Program Administration. 3 hours. Demonstration of key marketing education program concepts. Concentration on application of procedures and strategies with an emphasis on planning, implementing, and managing an effective marketing education program. Students design a comprehensive marketing education program. It is recommended that this course be taken at end of the certification course series as a capstone class.

5720. Evaluation Seminar. 3 hours. A seminar designed to assist master's candidates in conducting research in the field of applied technology, training and development, including the dissemination and discussion of findings. Scheduled during last resident registration. Prerequisite(s): ATTD 5480.

5800. Studies in Education. 1–3 hours. Organized classes specifically designed to accommodate the needs of students and the demands of program development not met by the regular offerings. Short courses and workshops concerned with specific topics are organized on a limited-offering basis, to be repeated only upon demand. May be repeated for credit.

5900-5910. Special Problems. 1–3 hours each. Open to graduate students who are capable of developing a problem independently. Open only to resident students.

5950. Master's Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

6030. Practicum, Field Problem or Internship. 3 hours. Supervised professional activities in vocational education. Registration is on an individual basis. May be repeated for credit.

6100. Technological Innovations in Training and Development. 3 hours. Study of current technological trends in the field of training and development. Emphasis on technologies used in the design, development and support of training programs.

6200. Leadership Development in Applied Technology and Training. 3 hours. The function of the applied technology administrator and training facilitator as a professional leader in developing, planning, organizing, controlling, coordinating and evaluating programs, services and activities.

6210. Trends and Issues in Applied Technology, Training and Development. 3 hours. A study of current national trends and issues in the fields of applied technology, training and development. Emphasis on topics related to leadership, organizational culture and total quality improvement.

6450. Needs Analysis and Curriculum Development. 3 hours. Study of learning outcomes, including goals, general objectives and performance objectives. Emphasis on curriculum derivation utilizing a competency-based curriculum system.

6460. Consulting Skills. 3 hours. Overview of the role of the consultant in HRD. Skills of organizing a practice, marketing consulting services, performing consulting services and performing practice management procedures.

6470. Evaluation and Accountability in Applied Technology and Training. 3 hours. Methods and procedures used in evaluating applied technology and industrial training programs; services, activities and current practices used in determining and improving accountability.

6480. Research Seminar. 3 hours. An orientation to basic methods of doctoral dissertation research in applied technology, training and development; including the scientific methods as a basis for analysis and interpretation of results. Students begin preparation of a dissertation proposal in the field of applied technology, training and development. This course should be taken in the last 15–18 semester hours of the program.

6900-6910. Special Problems. 1–3 hours each. Research by doctoral students in fields of special interest. Includes project research studies and intensive reading programs. Conferences with professors in the fields also are included.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

Computer Education and Cognitive Systems, CECS

5010. Computer Education Tools. 3 hours. Application of computer software tools in education. Study of computer application packages and their utilization in the classroom.

5020. Computers in Education. 3 hours. Analysis of computer use in education and applications programming in education. Topics include software and hardware evaluation, planning computer education curricula and facilities. Prerequisite(s): CECS 5010 (may be taken concurrently).

5030. Introduction to Internet. 3 hours. Introduction to Internet technology. Using the Internet for research and professional productivity.

5100. Educational Computer Languages. 3 hours. An in-depth study of an Object-Oriented Programming Language. Requires "hands-on" programming independent of classroom instruction. Topics include variables, simple and complex data structures, object-oriented design, debugging, interface design plus creating and using objects. Educational implications of object-oriented programming. Prerequisite(s): CECS 5020 or consent of department.

5110. Multimedia in Technology Applications. 3 hours. Study and analysis of the use of the computer to deliver instruction. Topics include design, development and review techniques for CAI, current trends in CAI technology and lesson development with an authoring language. Prerequisite(s): CECS 5020.

5111. Introduction to Video Technology. 3 hours. Basic skills in the production of audio and video materials for multi-media and other digital presentation media. Study of both analog and digital production techniques, nature of audio and video signals, and how those signals are optimized in both the analog and digital domains. Other topics include camera techniques, shot composition, scene construction and visual continuity, audio techniques, script preparation, optimization of finished product and distribution mediums. Prerequisite(s): CECS 5010 or equivalent.

5120. Authoring Systems. 3 hours. Creation of comprehensive computer-based instructional systems that integrate presentation of materials with the monitoring of student performance and modification of the instructional system based on both internal and external factors. The class will focus on the use of current authoring system tools to develop representative systems.

5130. Educational Software Development. 3 hours. Application of software engineering principles to the development of educational software using high-quality human/computer interaction as the primary design criterion. Each student completes a major educational software development project during the course. Prerequisite(s): CECS 5100, 5110 or 5120, and 5210.

5200. New Technologies of Instruction. 3 hours. Selection, utilization and evaluation of media technology, and techniques used in the instructional programs of education and industry. Includes hands-on digital audio and visual processes.

5210. Instructional Systems Design. 3 hours. The design of instructional systems is examined through research reports on the theoretical assumptions of learning and analysis of learning systems as they apply to the development of educational and instructional training programs.

5260. Computer Graphics for Mediated Communications. 3 hours. Application of computer graphics to the preparation and presentation of mediated materials. Includes principles of graphics communication, concepts in computer graphics, graphics input systems, graphics manipulation software and graphics output systems.

5300. Cognitive Processing. 3 hours. The study and analysis of models of cognitive systems including acquiring, manipulating, storing, interpreting and using information; special emphasis on the unique interactions between human information processing and computer-based processing as they apply to the instructional environment.

5310. Human-Computer Interaction. 3 hours. Study of the human as an information processor. Computer interface design that takes into consideration human capabilities and limitations. Educational implications of system input/output facilities. Impact upon instructional system design. Prerequisite(s): CECS 5210 or consent of department.

5400. Educational Telecommunications. 3 hours. Study and analysis of past and currently-emerging telecommunication technologies and their application to the field of education. Topics include history of telecommunication, digital and wireless communications, computer networks and distance education.

5420. Web Authoring. 3 hours. Course to aid education and training professionals in creating web-based materials and application utilizing Internet resources. Integration of text, graphics and multimedia elements in a web environment. Prerequisite(s): CECS 5260.

5440. Wireless Communications. 3 hours. Survey of wireless telecommunications systems and techniques including low-cost radio and satellite technologies potentially useful to educators. Prerequisite(s): CECS 5400.

5450. Building Internet Information Services. 3 hours. Design and implementation of Internet information services including FTP, conferencing and the World Wide Web. Students design and build various information services using software tools and hardware platforms representative of those used in education and training.

5460. Computer Networks for Educational Environments. 3 hours. Study of computer networks used in support of education and training. Includes topics in network topologies, wiring, administration, risk management and disaster recovery. Special emphasis is placed on the application of network technologies to K-12 educational environments, higher education and the training environments of business, industry and the military.

5500. Computer Applications for Curriculum and Instruction. 3 hours. Designed for both elementary and secondary teachers; skills and methods necessary to implement computer applications within the curriculum. Methods for managing the computer in the classroom; courseware implementation; utilization of word processing, databases, spreadsheets and telecommunications within the curriculum. Methods of teaching computer programming. Prerequisite(s): CECS 5020.

5510. Technology-Based Training Systems. 3 hours. An overview of the management and utilization of technology-based training practices in corporate settings. The selection, development, organization and delivery of training to adult learners are tied to instructional development systems. Special attention is given to the role of instructional technologists and the skills, responsibilities and job requirements of the position.

5570. Ethical, Legal and Professional Issues in Computing. 3 hours. Focus on research literature and current issues dealing with ethical and legal issues within the computing profession. Includes units on intellectual property, moral philosophy, gender and minority issues affecting computer education.

5580. Readings Seminar in Computer Education and Cognitive Systems. 3 hours. Broad reading in a defined area of technology interaction. Requires the critical evaluation of sources with particular emphasis on methodology and application to educational environments. CECS majors must take this course during the last 6 hours. Prerequisite(s): consent of department.

5600. Technology Applications Assessment. 3 hours. Supervised professional activities that involve developing instructional strategies and assessments for technology applications that can be adapted for all levels of learner. Includes the creation of an instructional unit that is aligned with the Technology Application TEKS at each level. Prerequisite(s): CECS 5020, 5030, 5100 and 5111.

5610. Analysis of Research in Educational Technology. 3 hours. Interpretation, analysis and synthesis of current research in educational technology for the purpose of integrating research methodology and application to educational environments. Prerequisite(s): consent of department.

5800-5810. Studies in Education. 3 hours each. Organized classes specifically designed to accommodate the needs of students and the demands of program development that are not met by the regular offerings. Prerequisite(s): consent of department. Limited-offering basis; may be repeated for credit.

5900-5910. Special Problems. 1-3 hours each. Independent study and research. Prerequisite(s): consent of department and instructor. May be repeated for credit.

5960. Education Institute. 1-6 hours. For students accepted as participants in special institute courses. Prerequisite(s): consent of department.

6000. Philosophy of Computing in Education. 3 hours. Examination of the philosophical underpinnings of use of computers in education: why we are interested in this technology; what we hope to accomplish; intended and unintended changes that will occur by its use.

6010. Theories of Instructional Technology. 3 hours. Examination and understanding of the underlying philosophical approaches to learning and the paradigms that guide instructional design. How the use of computing and other technologies are enabled within each paradigm.

6020. Advanced Instructional Design: Models and Strategies. 3 hours. Provides students with advanced instructional design and development skills as well as the conceptual underpinnings for various instructional design models. Familiarizes students with a number of different design models that can be used in corporate and/or educational settings. Prerequisite(s): CECS 6010.

6030. Emerging Technologies in Education. 3 hours. Investigation of the challenges and opportunities emerging technologies in educational environments. Emphasis on understanding their use to meet educational needs and goals. Prerequisite(s): CECS 6220.

6050. Practicum/Internship. 3 hours. Supervised professional activities in the profession. Students spend a predetermined number of hours working with an appropriate site in education or business. During class meetings, students review practicum experiences and analyze issues associated with a career in the profession. Prerequisite(s): minimum of 15 hours in the program.

6100. Theory and Practice of Distributed Learning. 3 hours. Introduction to current theories of distributed learning systems with application towards planning, development, utilization and evaluation. Various distributed learning systems are investigated, including applications to distance education. Prerequisite(s): CECS 5210.

6200. Message Design in Education. 3 hours. Study of the relationship between information, meaning, learning and instruction. Principles of message communicating information in learning environments. The design and delivery of educational messages using both verbal and print mediums. Prerequisite(s): CECS 5200 and 5210.

6210. Interactive Video. 3 hours. Utilization of research and application of interactive, multimedia computer technologies in the design and production of interactive learning systems. Emphasis on leading-edge delivery technologies. Prerequisite(s): CECS 5420.

6220. Theory of Educational Technology Implementation. 3 hours. Examination of classic and contemporary research to develop an understanding of the issues of successful technology implementation and the implications in educational environments. Prerequisite(s): CECS 6010.

6230. Advanced Educational Production Design. 3 hours. Advanced design and implementation of educational multimedia and hypermedia products utilizing strategies from message design, human factors research, learning theory and other theoretical and critical approaches. This is a project-based course emphasizing analysis design, development, implementation and evaluation. Prerequisite(s): CECS 5210, 5260, 5420 or equivalent technical production expertise.

6300. Artificial Intelligence Applications. 3 hours. Theoretical and practical educational applications of AI are discussed. Topics studied include neural computing, social issues in AI, natural language processing and robotics. Prerequisite(s): CECS 5100 or equivalent programming course and consent of instructor.

6320. Creating Technology-Based Learning Environments. 3 hours. Study of the design and development of technology infused learning environments. Develops understanding of constructivist philosophy of keeping students active, constructive, collaborative, intentional, complex, contextual, conversational and reflective. Prerequisite(s): CECS 6010, CECS 6020 and CECS 6210.

6400. Educational Technology Systems Design and Management. 3 hours. Analysis of systems and facility design, organizational patterns, administrative strategies, and alternative structures for achieving and evaluating media-based instruction. Includes models and methods of selection, construction, procurement and control of hardware systems in educational settings. Management tools including protection of intellectual property, security issues and budgeting strategies are included.

6510. Analysis of Research in Educational Computing. 3 hours. Students analyze current research in educational computing as a tool for understanding the unique characteristics of technology-based research activities in educational environments. Special consideration is given to strategies for separating influences in research designs that incorporate technology as tools and as variables in the design. Students identify potential dissertation research topics and prepare preliminary reports that are critiqued in class in preparation for doing the dissertation. Prerequisite(s): EPSY 6010, 6020 and 6300 strongly encouraged, or other relevant research experience as approved by the faculty.

6600. Developing Educational Funding Opportunities. 3 hours. The ideal grant is a match between the needs of an organization and the desires of a funding agency. Students examine grants from both viewpoints and build on that knowledge to write effective grant proposals. In addition to investigating some of the logistics of grant-writing, this course examines the relationship between a granting agency and its recipients.

6800. Special Topics in Educational Computing. 3 hours. Organized classes specifically designed to accommodate the needs of students and the demands of program development that are not met by the regular offerings. Prerequisite(s): consent of department. Limited-offering basis; may be repeated for credit.

6900-6910. Special Problems. 3 hours each. Independent study and research in fields of special interest. Conferences with professors in the fields are also included. Problems must be approved in advance by the instructor and the department chair. May be repeated for credit.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

Learning Technologies – see Undergraduate Catalog