Overview

EDCI 601 Disciplinary Knowledge and Research in Curriculum and Instruction
Credits 3. 3 Lecture Hours.
Emphasizes key research and researchers, discipline-specific information, and the initial identification of researchable questions in the field of curriculum and instruction.
Prerequisite: PhD classification in TLAC.

EDCI 602 Cultural Foundations of Education
Credits 3. 3 Lecture Hours.
Contributions of behavioral sciences applied as analytic tools in solving problems of curriculum and instruction.

EDCI 603 Professional Development: Strategies for Teachers
Credits 3. 3 Lecture Hours.
Principles of organizational management, instructional design, and change theory in framing professional development programs.
Prerequisite: Graduate classification.

EDCI 604 E-Learning Classroom Management
Credits 3. 3 Lecture Hours.
Focuses on the development of effective management skills crucial to successful instruction and student achievement; application of theory and research to practice and establish oneself as a professional in the area of classroom management; applicable to elementary, middle level, and secondary school settings.
Prerequisite: Graduate classification.

EDCI 605 Qualitative Research Methods in Curriculum and Instruction
Credits 3. 3 Lecture Hours.
Theoretical and methodological issues related to qualitative inquiry; discussion of qualitative paradigm's ontological, epistemological, and axiological stances; review and implementation of commonly used qualitative research methods and approaches in curriculum and instruction, including narrative, phenomenology, ethnography, grounded theory, and case study approaches.
Prerequisite: Graduate classification.

EDCI 606 Cognition, Culture and Literacies
Credits 3. 3 Lecture Hours.
Exploration of complex interrelationships among cognition, culture, and literacies and their implications for education.
Prerequisite: Graduate classification.

EDCI 609 Analysis and Reporting for Records of Study
Credits 3. 3 Lecture Hours.
Analysis of field-generated and existing data, classroom observations, empirical tests, and discussions; links theoretical and practical educational theory to analyses of qualitative and quantitative data; teacher-leaders interpretation of classroom phenomena using research-based theories for teaching and learning.
Prerequisites: Graduate classification; EPSY 635 or equivalent.

EDCI 610 Second Language Assessment and Development
Credits 3. 3 Lecture Hours.
Second language assessment and development stressing classroom situations to teach second language acquisition.
Prerequisite: Graduate classification.

EDCI 611 Teaching English as a Second Language
Credits 3. 3 Lecture Hours.
Translation of theory into practice stressing various methods and techniques in ESL; relationship of language development, culture and conceptual processes to language teaching.
Prerequisite: Graduate classification.

EDCI 612 Bilingual/ESL Content-Area Instruction
Credits 3. 3 Lecture Hours.
Integrating English language instruction with content-based ESL instruction in science, mathematics and social sciences for non-English speaking students.
Prerequisite: Graduate classification.

EDCI 614 ESL for International and Intercultural Settings
Credits 3. 3 Lecture Hours.
International and intercultural teaching practices with major emphasis on second language instruction in an international setting.
Prerequisite: Graduate classification.

EDCI 615 Classroom Practice in Adult ESL
Credits 3. 3 Lecture Hours.
Literacy practice issues in adult ESL literacy leading to assessment, instructional planning, curriculum development and program evaluation.
Prerequisite: Graduate classification.

EDCI 617 Early Childhood Mathematics and Science
Credits 3. 3 Lecture Hours.
Development of mathematical and science concepts in young children from developmental and scientific perspectives.
Prerequisite: Graduate classification.

EDCI 619 Teaching and Learning Number and Quantity Concepts
Credits 3. 3 Lecture Hours.
Examination of the content, pedagogy, technology, and research on teaching and learning concepts on number and quantity concepts; discussion of contemporary issues in K-12, standards and assessment.

EDCI 620 Science, Technology, Engineering and Mathematics (STEM) Teaching and Learning
Credits 3. 3 Lecture Hours.
Examination of integrated and multidisciplinary practice-based pedagogies; building of interdisciplinary bridges among content areas; melding sociocultural and cognitive factors influencing STEM education across K-12 levels; discussion of underrepresented groups binding best practices; development and evaluation of STEM project-based learning.
Prerequisite: Graduate classification.

EDCI 621 Teaching and Learning Space, Dimension, and Measurement Concepts
Credits 3. 3 Lecture Hours.
Examination of the content, pedagogy, technology, and research on teaching and student learning concepts on space, dimension, and measurement concepts. Discussion of contemporary issues in K-12, standards and assessments.

EDCI 622 Theories of Learning and Teaching Mathematics
Credits 3. 3 Lecture Hours.
Theoretical bases of the learning and teaching of mathematics, including an examination of the research which supports the theoretical bases.

EDCI 623 Teaching and Learning Pattern and Change Concepts
Credits 3. 3 Lecture Hours.
Examination of the content, pedagogy, technology, and research on teaching and learning concepts on skills in algebra, functions and calculus. Discussion of contemporary issues in K-12, standards and assessment.
EDCI 624 Assessing Cognitive, Conceptual, and Fluency Structures Related to Learning and Teaching Mathematics  
Credits 3. 3 Lecture Hours.  
Examines diagnostic and assessment procedures in mathematics and their potential for identifying problem areas related to children's acquisition of mathematical skills; number and quantity concepts.  
Prerequisite: Graduate classification.

EDCI 625 Teaching and Learning Mathematics with Diverse Learners  
Credits 3. 3 Lecture Hours.  
Examining diagnostic and assessment procedures in mathematics and their potential for identifying problem areas related to children's acquisition of mathematical skills; number and quantity concepts.  
Prerequisite: EDCI 624.

EDCI 627 Teaching and Learning Data Analysis and Uncertainty Concepts  
Credits 3. 3 Lecture Hours.  
Examining the content, pedagogy, technology, and research on teaching and student learning of concepts and skills in probability, statistics, and discrete mathematics; discussion of contemporary issues and K-12 curriculum, standards and assessment.  
Prerequisite: Graduate classification.

EDCI 628 Analyzing and Reporting Field Based Research  
Credits 3. 3 Lecture Hours.  
Analyze data from classroom observation, empirical tests and interviews; link theoretical and practical mathematics education to analysis of qualitative and quantitative data; equip teacher-leaders and researchers with the resources to interpret classroom phenomena from the research perspective using research-based theories of teaching and learning.  
Prerequisite: Graduate classification.

EDCI 629 Historical Analysis of Urban School Reform  
Credits 3. 3 Lecture Hours.  
Identifies, analyzes, and applies benchmarks in urban education using research findings.  
Prerequisites: Doctoral classification; urban education emphasis or approval of instructor; concurrent enrollment in EDCI 637.

EDCI 630 Urban Education  
Credits 3. 3 Lecture Hours.  
Develops a knowledge base in urban education; share and discuss historical perspective, pedagogical knowledge and insights of urban educational experiences.  
Prerequisites: Graduate classification; urban education emphasis; concurrent enrollment in EDCI 648; or approval of instructor.

EDCI 631 Mentoring the Novice Educator  
Credits 3. 3 Lecture Hours.  
To prepare the "teaching" graduate student to observe, evaluate, and reflect upon teaching, mentoring, communication, and supervision skills that support the novice or pre-service teacher with tools necessary to be successful. Examine research related to effective mentoring and supervising strategies and behaviors in environments which support mentoring behavior.  
Prerequisite: Graduate classification.

EDCI 632 Program Evaluation in Curriculum and Instruction  
Credits 3. 3 Lecture Hours.  
Program evaluation, investigating its purposes and procedures, with attention to settings, personnel and performance; review of standards, principal theories and models; study of histories, political contexts, ethics and the nature of evidence.  
Prerequisite: Graduate classification.

EDCI 633 Educator as Learner  
Credits 3. 3 Lecture Hours.  
Designed to challenge the graduate learner as one who studies metacognition, working to understand how self and others process learning, maximize application of learning and evaluate the meaning of learning; for students working with others in a role of mentor, supervisor, administrator or coach in a PK-12 setting.  
Prerequisite: EDCI 631.

EDCI 634 Reflective Inquiry  
Credits 3. 3 Lecture Hours.  
Explores the differences and unique characteristics of moral, multiperspective, collaborative, deliberative, autobiographical, and critical inquiries, and reflective practice related to all forms of inquiry; analyzes the implications of educator growth through reflective practices and the part that reflection plays in developmental growth and professional development.  
Prerequisite: Graduate classification.

EDCI 636 Educator as Researcher  
Credits 3. 3 Lecture Hours.  
Develops action research skills to enable them to critically analyze insights into the historical, philosophical and social foundations of reflective teaching and leadership in educational environments. Includes an analysis of theories, methodologies, implications and actions related to educational action research.  
Prerequisite: Graduate classification.

EDCI 637 Urban Education: Policy and Analysis  
Credits 3. 3 Lecture Hours.  
Urban education policy making processes, emphasis on interaction between politics and educational policy.  
Prerequisites: Doctoral classification; emphasis in urban education or approval of instructor; concurrent enrollment in EDCI 629.

EDCI 638 Trends in Curriculum and Instruction  
Credits 3. 3 Lecture Hours.  
Recent research and development in theories and practices of curriculum and instruction; curriculum innovations, school organization and new instructional media.

EDCI 639 Grant Writing for Professional Development  
Credits 3. 3 Lecture Hours.  
Focus on the skills necessary to address a Request for Proposal (RFP) through the development and writing of a competitive funding proposal; attention to the process of identifying foundation, public, and corporate funding opportunities available to support specific programmatic needs/areas.  
Prerequisite: Graduate classification.

EDCI 640 Language/Literacy for Bilingual/Multicultural Young Learners  
Credits 3. 3 Lecture Hours.  
Critical multicultural perspectives on the acquisition and development of communication skills by young children who represent bilingual and multicultural backgrounds; critique of language development practices as applied in education settings with young children.  
Prerequisite: Graduate classification.

EDCI 641 The African American Learner in Urban Settings  
Credits 3. 3 Lecture Hours.  
Supports graduate level students in locating, reviewing, synthesizing, and analyzing research on the African American learner in urban settings.  
Prerequisites: Doctoral classification; urban education emphasis; or approval of instructor.
EDCI 642 Multicultural Education: Theory, Research and Practice
Credits 3. 3 Lecture Hours.
Theory and research that undergirds the discipline of multicultural education by exploring the philosophical, anthropological and psychological theoretical frameworks.
Prerequisite: Graduate classification.

EDCI 643 Teaching in Urban Environments
Credits 3. 3 Lecture Hours.
Provide educators with historical perspectives, pedagogical knowledge and insights concerning educational experience of teachers and learners in urban environments. Will address cognitive, psychomotor and affective aspects of teaching and learning in urban environments.
Prerequisite: Graduate classification.

EDCI 644 Curriculum Development
Credits 3. 3 Lecture Hours.
Curriculum development; bases of curriculum design; problems of balance, scope, organization, sequence, selection and articulation.

EDCI 645 Society and Education in World Perspective
Credits 3. 3 Lecture Hours.
Comparative education; interrelationships among societal institutions and particular roles that education plays in different cultures and political systems.

EDCI 646 Instruction Theory
Credits 3. 3 Lecture Hours.
Theoretical basis for research and training in instruction; systematic study of existing research on key factors influencing instructional effectiveness. Exploration of interaction among variables of instruction. Doctoral level only.

EDCI 647 Curriculum Theory
Credits 3. 3 Lecture Hours.
Theoretical basis for curriculum conceptualization, development, evaluation and implementation; value and empirical basis of curriculum decision-making strategies for curriculum change. Doctoral level only.

EDCI 648 Urban Schools and Communities
Credits 3. 3 Lecture Hours.
Sociological, historical, philosophical, anthropological, and political dimensions of urban schools and community change; issues and contexts grounded in core disciplines of social sciences.
Prerequisites: Graduate classification.

EDCI 650 The Bilingual/Multicultural Young Child in Family and Culture
Credits 3. 3 Lecture Hours.
Bilingual/multicultural notions of family/culture as foundations for learning/anthropological investigation including cross-cultural comparisons of western concepts of "child" and "parenting;" critique of various constructions of child as learner within family context and monocular perspectives of "developmentally appropriate" educational practice.
Prerequisite: Graduate classification.

EDCI 651 Bilingual/Multicultural Early Childhood Education
Credits 3. 3 Lecture Hours.
Historical/current models of early childhood curriculum/methodology as a foundation for the more critical analysis of curriculum as social construction, grounded within values of a particular society or culture; bilingual/multicultural views of early childhood education, curriculum and teaching strategies requiring constant examination.
Prerequisite: Graduate classification.

EDCI 652 Parental Involvement in Early Childhood Education
Credits 3. 3 Lecture Hours.
Dynamics of the family unit, school-home communication systems, legalities of parent participation in the school, parent involvement, parent training and home bound programs; development of programs with parents.

EDCI 653 Education Policy for Language-Minority Children
Credits 3. 3 Lecture Hours.
Analysis of language planning, educational policies and instructional models in the U.S. and internationally for the education of young language-minority students.
Prerequisite: Graduate classification.

EDCI 654 Organization and Operation of Early Childhood Education Programs
Credits 3. 3 Lecture Hours.
Comprehensive survey of the various types of preschool centers serving the needs of young children; operating procedures, programs and services provided; experimental educational research projects now being conducted with young children.

EDCI 655 Contemporary Visual Culture
Credits 3. 3 Lecture Hours.
Interdisciplinary investigation of visual culture and related cultural, social, political, digital, ontological, and educational issues, theories, and production and consumption practices in the postmodern era; examination of contemporary visual culture as a site of critical inquiry that promotes social justice, cultural work, and democratic pedagogy.
Prerequisite: Graduate classification.

EDCI 656 Learning Theories for Teachers of Young Children
Credits 3. 3 Lecture Hours.
Educational applications developed from theory and research of young learners, specifically the processes of learning.
Prerequisite: Graduate classification.

EDCI 658 History of Education
Credits 3. 3 Lecture Hours.
The genesis of formal education in the Western world beginning with the ancient Greeks and working through the Enlightenment; tracing the idea that schooling is a fundamental part of human existence and therefore crucial to all questions concerning the human condition.
Prerequisite: Doctoral classification or approval of instructor.

EDCI 659 History of American Education
Credits 3. 3 Lecture Hours.
The social and institutional role of public education in the United States from 1789 to the present; including clarification of the political and economic underpinnings that have worked catalytically to change the structure of public education in terms of philosophy, methods and curricula.
Prerequisite: Doctoral classification or approval of instructor.

EDCI 660 Research Investigating the Science Teacher Professional Continuum in Texas
Credits 3. 3 Lecture Hours.
Reviews general features and investigates aspects of the science teacher professional continuum (TPC), including recruitment, retention, induction, mentoring, professional development, professional culture, and reformed practice; uses extant data sets in TPC research, including literature review, conceptual framework development, research proposal, IRB approval, data analysis, and making conclusions.
Prerequisite: Graduate classification in EDCI or approval of instructor.
**EDCI 661 Mixed Methods Research in Curriculum and Instruction**  
Credits 3. 3 Lecture Hours.  
Introduction to mixed methods research, including a brief history of approaches to educational research; comparison of scientific research and educational research; specific designs and methods for mixing qualitative and quantitative approaches in data collection, analysis, and synthesis.  
**Prerequisite:** Graduate classification.

**EDCI 662 Philosophical Theories of Education**  
Credits 3. 3 Lecture Hours.  
Selected historical theories of education from Plato to Skinner; evaluating educational ends and means; the nature of knowledge, its acquisition and transmission. Doctoral level only.

**EDCI 663 Advanced Pedagogy in Science Education**  
Credits 3. 3 Lecture Hours.  
Advanced examination of the teaching of science; emphasis on teacher behaviors and strategies, lesson and unit design, laboratory instruction, selection of content, materials and activities, and methods of self-assessment in pre-K to college and informal educational settings.

**EDCI 665 Science and Mathematics Curricula**  
Credits 3. 3 Lecture Hours.  
Critical exploration of the trends and issues in school science and mathematics programs; consideration of the foundations and strategies for the design, selection, and evaluation of mathematics and science curricula.

**EDCI 667 Nature of Science and Science Education**  
Credits 3. 3 Lecture Hours.  
Use of history, philosophy and sociology of science to address issues such as what is science, how science works and the nature of scientific knowledge, improve science teaching, and promote robust science learning and more informed socio-scientific decision-making.

**EDCI 668 History and Foundations of Science Education**  
Credits 3. 3 Lecture Hours.  
Examination of the historical and theoretical background of popular research areas in science education and their influence on current science teaching practices; includes the nature of science, scientific literacy, inquiry, conceptual change, argumentation, and science teacher preparation and professional development.  
**Prerequisite:** Graduate classification.

**EDCI 669 Science Education in Sociological Context**  
Credits 3. 3 Lecture Hours.  
Explores science and its endeavors from a sociological perspective in order to make inferences on school science practice and science teaching; discusses the social context of disciplinary knowledge, problems of experimentation and scientific measurement, originality, cognitive particularism, collectivization of science, and peer review.  
**Prerequisite:** Graduate classification.

**EDCI 670 Social Studies in Elementary and Secondary Education**  
Credits 3. 3 Lecture Hours.  
Methodology course focusing upon the implementation, both practical and theoretical, of the objectives of social studies: current trends, resource materials, demonstrations of teaching methods.

**EDCI 671 How People Learn Science**  
Credits 3. 3 Lecture Hours.  
Investigation of well-established theories of learning, motivation and attribution; significant implications for teaching and learning science; examination of teaching models congruent with how people learn science.  
**Prerequisite:** Graduate classification.

**EDCI 673 Analysis of Teaching Behavior**  
Credits 3. 3 Lecture Hours.  
Identification of beliefs and assumptions regarding teaching; review of research on teacher effectiveness; alternative methods for gathering data regarding dimensions of teaching behavior; development of teacher analysis systems.

**EDCI 675 Teaching Strategies: Patterns of Learning**  
Credits 3. 3 Lecture Hours.  
Learning and teaching theory and research applied to development of teaching strategies appropriate for various contexts, objectives and instructional situations; variables influencing learner behavior and approaches to optimization of teacher behavior.  
**Prerequisite:** EPSY 602 or EPSY 673 recommended.

**EDCI 676 Evaluation and Implementation of Electronic Learning Materials**  
Credits 3. 3 Lecture Hours.  
Principles of instructional design applied to electronic materials adoption and organizational management for implementation of eLearning resources; Emphasis on guidelines for selecting and evaluating eLearning resources addressing individual learner needs using online delivery platforms.  
**Prerequisite:** Graduate classification.

**EDCI 677 Strategies for Teaching in a Culturally Pluralistic Society**  
Credits 3. 3 Lecture Hours.  
Research concerning the cognitive, psychomotor and affective aspects of learning and teaching among culturally diverse learners; practical applications to curriculum and instruction.

**EDCI 680 Proseminar**  
Credit 1. 1 Other Hour.  
Structured seminar on major concepts, principles and issues in education drawn and analyzed from various contributing theoretical and research bases. Critical new developments incorporated as they occur. Required of all Ed.D. students. May be repeated for credit.  
**Prerequisite:** Approval of instructor.

**EDCI 681 Seminar**  
Credit 1. 1 Lecture Hour.  
Professional roles and responsibilities, research, special topics and other issues relevant to master's and doctoral students in curriculum and instruction.

**EDCI 682 Seminar in...**  
Credit 1. 1 Lecture Hour.  
Knowledge, skills and attitudes in educational curriculum and instruction. Specific topics will be assigned for each seminar as it is offered. May be repeated for credit.

**EDCI 683 Field Practicum**  
Credits 1 to 3. 1 to 3 Other Hours.  
Designed to provide supervised experiences based upon a theoretical framework in profession settings related to the work of teaching, learning and culture; practical experiences closely supervised by the department faculty.  
**Prerequisite:** Approval of instructor.
EDCI 684 Professional Internship
Credits 1 to 6. 1 to 6 Other Hours.
On-the-job training for educational curriculum and instruction majors under the supervision of successful, experienced personnel from the University; conducted in a setting appropriate to the student’s projected career aspirations and areas of specialization.

EDCI 685 Directed Studies
Credits 1 to 4. 1 to 4 Other Hours.
Directed individual study of selected problems in the field of education.

EDCI 686 Research Methods in EDCI I
Credits 3. 3 Lecture Hours.
Framework for understanding distinctions among research methodologies used in the field of curriculum and instruction; includes classes of research questions, methods of collecting and decisioning evidence, theoretical assumptions, strengths, weaknesses, and the work of major proponents.
Prerequisite: Admission into TLAC doctoral program.

EDCI 687 Research Methods in EDCI II
Credits 3. 3 Lecture Hours.
Framework for understanding distinctions among research methodologies used in the field of curriculum and instruction; includes classes of research questions, methods of collecting and decisioning evidence; basic principles of descriptive and inferential statistics and their application in context of various research paradigms.
Prerequisite: EDCI 686.

EDCI 688 Research Methods in EDCI III
Credits 3. 3 Lecture Hours.
Framework for understanding distinctions among research methodologies used in the field of curriculum and instruction; includes classes of research questions, methods of collecting and decisioning evidence; basic principles of multivariate statistics and their application in context of various research paradigms.
Prerequisite: EDCI 687.

EDCI 689 Special Topics in...
Credits 1 to 4. 1 to 4 Lecture Hours.
Selected topics in an identified area of curriculum and instruction. May be repeated for credit.

EDCI 690 Theory of Curriculum and Instruction Research
Credits 3. 3 Lecture Hours.
Theory and design of research problems and experiments in various subfields of curriculum and instruction; communication of research proposals and results; evaluation of current research of faculty and student and review of current literature. May be repeated for credit.

EDCI 691 Research
Credits 1 to 23. 1 to 23 Other Hours.
Research for thesis or dissertation.

EDCI 692 Professional Study
Credits 1 to 23. 1 to 23 Other Hours.
Approved professional study of project undertaken as the terminal requirement for doctor of education degree. Preparation of a record of study summarizing the rationale, procedure and results of the completed project.
Prerequisite: Approval of major advisor.

EDCI 701 Scientific Inquiry in Science Education
Credits 3. 3 Lecture Hours.
Inquiry models and aspects of scientific inquiry; modification of science activities in pre-K to college and informal educational settings to be more congruent with science education goals, how students learn and the nature of science.

EDCI 702 Elementary Mathematics Instructional Strategies and STEM Learning
Credits 3. 3 Lecture Hours.
Teaching models and the design of elementary mathematics instruction for digital age learners; emphasis on inquiry learning models in science, technology, engineering and mathematics (STEM).
Prerequisite: Graduate classification.

EDCI 703 International Teacher Education
Credits 3. 3 Lecture Hours.
Examination of socio-cultural, economic and political forces that shape the structure of teacher education, the delivery of teacher education and the pedagogy of teacher education.
Prerequisite: Graduate classification.

EDCI 704 U.S. Teacher Education
Credits 3. 3 Lecture Hours.
Studies American teacher education through using policy documents, historical literature and contemporary commentaries; spotlights key figures and features in American teacher education; debate contemporary issues.
Prerequisite: Graduate classification.

EDCI 705 Studying Teacher Education
Credits 3. 3 Lecture Hours.
Introduction to a multitude of teacher education topics including knowledge of teaching/teacher knowledge, methods, courses, field experience, teacher education pedagogy, traditional/alternative certification programs, working with diverse students and special populations; program accountability and past/present/future research agendas as well as paradigms and politics.
Prerequisite: Graduate classification.

EDCI 710 The Hispanic Learner in Urban Settings
Credits 3. 3 Lecture Hours.
Overview of demographic, social, psychological, cultural, political and historical issues that impact the school achievement of Hispanics in urban settings in the U.S.; analyzes methodological approaches of current research that guides common perceptions about Hispanics in education.
Prerequisite: Graduate classification.

EDCI 711 Theory and Application of Classroom Instructional Strategies
Credits 3. 3 Lecture Hours.
Exploration of the basic principles of curriculum and instruction as applied to five to twelve year old learners; examination of traditional and innovative teaching strategies; focuses on planning curriculum and instruction through planning and utilizing materials, methods, activities, and facilities.
Prerequisite: Graduate classification or approval of instructor.

EDCI 715 Academic Writing for International Graduate Students
Credits 3. 3 Lecture Hours.
Introduction to concepts central to graduate-level writing; designed specifically to benefit those whose native language is not English; exploration of writing productivity strategies and library-based research skills; development of clarity for written expression; improvement in command over textual, rhetorical and discursive conventions common in academic writing genres.
Prerequisite: Graduate classification.
EDCI 720 Engineering Design for School Teaching and Learning  
Credits 3. 3 Lecture Hours.  
Understanding engineering design, the development of an engineering design conceptual framework and the K-12 curricula that are available to address STEM teaching and learning; equips teacher-leaders with the resources to interpret classroom phenomena with a multifaceted perspective using research-based evidence.  
Prerequisite: Graduate classification.

EDCI 721 How People Learn STEM  
Credits 3. 3 Lecture Hours.  
Foundational guide for the design and orchestration of contemporary integrated STEM learning environments; grounded in research findings and new theories about educational practices and outcomes.  
Prerequisite: Graduate classification or approval of instructor.

EDCI 723 Developing Students’ Disciplinary Language and Reading in STEM Teaching and Learning  
Credits 3. 3 Lecture Hours.  
Examination, analyses and application of the role that STEM disciplinary language and reading play in STEM instruction at the middle and high school levels; evolution of STEM disciplinary language and literacies; STEM vocabulary, STEM fluency, factors influencing STEM comprehension, STEM language structure, writing to integrate, evaluate and assimilate STEM knowledge.  
Prerequisites: Graduate classification; classroom teaching experience in middle and/or secondary grades.

EDCI 724 Science and Mathematics in the Teaching of Engineering Content in K-12 Schools  
Credits 3. 3 Lecture Hours.  
Exploration of the integrated approach for teaching science and mathematics concepts using engineering design principles and technology in K-12 levels; learn to deliver contextualized and integrated STEM instruction that promotes student engagement, motivation and interest.  
Prerequisite: Graduate classification.

EDCI 726 History and Trends in STEM Education  
Credits 3. 3 Lecture Hours.  
Exploration of concepts and application of STEM in society; development of understanding of role of engineers, scientists and mathematicians in society; learning basic coding; application of principles to instructional settings.  
Prerequisite: Graduate classification.

EDCI 751 Problem-Based Research Frameworks  
Credits 3. 3 Lecture Hours.  
Introduction to scientific research associated with problems in K-12 curriculum and instruction settings; evaluation and problem solving for effective solutions to educational problems in school-based settings.  
Prerequisite: Graduate classification and admission to online EdD in EDCI.

EDCI 752 21st Century Integration of Theory in Educational Settings  
Credits 3. 3 Lecture Hours.  
Examination of various curricular issues and pedagogical implications encountered by schools and educators in the 21st century classroom; examination of various theoretical frameworks needed to address those issues and implications and advance student understanding.  
Prerequisites: Graduate classification; admission to Online EdD in EDCI.

EDCI 754 Trends in Data Management and Analysis  
Credits 3. 3 Lecture Hours.  
Understanding of basic principles behind modern data management and analysis; exploration and analysis of data to identify school improvement needs and make informed decisions in effecting change.  
Prerequisites: Graduate classification; admission to Online Ed.D. in Curriculum and Instruction.