

## Educational Psychology

### ***Applied Technology, Training and Development, ATTD***

**1100. Introduction to Keyboarding and Document Formatting.** 3 hours. An entry-level course designed for students who have had no more than one term/semester of typewriting/keyboarding in high school or prior college credit. The course allows students to learn proper keyboard techniques, how to format documents and explore popular word processing programs.

**3010. Personal Development.** 3 hours. Course provides opportunities for students to develop themselves professionally. Special emphasis is placed on image development for a chosen career and strategy development to launch that career. Time management, money management, business etiquette, selecting mentors and role models are also addressed.

**4070. Principles of Leadership, Empowerment and Team Building.** 3 hours. The nature and scope of leadership and empowerment as it relates to applied technology and industrial training environments; the techniques for leadership, empowerment and team building are emphasized. Prerequisite(s): junior standing or consent of department.

**4100. Principles of Training and Development.** 3 hours. Investigates the design, delivery and evaluation of training and development programs. The relationship of modern technology and training theories are addressed.

**4110. Instructional Design in Career and Technical Education.** 3 hours. Development and use of resources for preparing contextual learning and instruction, presenting lessons and assessing learner performance. Strategies for infusing employability skills, work-based learning and applying instructional technology.

**4120. Instructional Strategies in Career and Technical Education.** 3 hours. Basic instructional techniques and media commonly utilized in applied technology, training and development; emphasis is placed on illustrated presentations and technical demonstrations.

**4121. Technical Presentation Skills.** 3 hours. Emphasis on technical presentation skills and electronic presentation media commonly utilized in training and development. Topics such as developing an audience profile, arranging facilities, topic introduction techniques, questioning and summary strategies are addressed.

**4130. Professional Responsibilities and Management in Career and Technical Education.** 3 hours. Examines the role and responsibilities of career and technical education professionals as well as the importance of creating a classroom and laboratory environment that fosters a positive learning climate. The role and responsibilities of career and technical education professionals as well as technology applications, effective time management, standards for student conduct and teacher liability are addressed.

**4140. Work-Based Learning in Career and Technical Education.** 3 hours. Study of the basic standards and recent changes in work-based learning. Emphasis is placed on developing materials to effectively facilitate the work-based learning component of a workforce education program.

**4160. Advanced Computer Applications in Education and Training.** 3 hours. Course is designed as an advanced preparation for students preparing to enter organizations

in education or training that utilize modern computer-based technologies that include: graphic applications, telecommunications, networking, programming and computer-based training. Prerequisite(s): ATTD 4300.

**4200. Performance Improvement in Education and Training.** 3 hours. Introduction to the history, theory and practice of human performance technology in education and training. Explores the systemic process of analysis, intervention development, change implementation and process evaluation involved in performance improvement.

**4230. Directed Occupational Internship in Industry or Training.** 1–3 hours. (2000 clock hours equals one year of experience or 8 semester credit hours.) Supervised individual work experience in a recognized occupation or field of specialization. Prerequisite(s): consent of department. For those who meet the necessary state-mandated requirements for years of work experience these credits can be granted for successful completion of an occupational competency examination. May be repeated up to 24 hours of credit.

**4300. Computer Applications in Education and Training.** 3 hours. Two broad areas of applications (occupational and educational) are discussed and demonstrated. Course focuses on an integration of software packages in a project-oriented, real-world environment. Course is primarily hands-on with students working extensively on the computer and related hardware. Prerequisite(s): CECS 1100 or equivalent.

**4340. Office Information Processes.** 3 hours. Course combines skills of hardware and software use with an introduction to teaching methods needed to teach those skills to students in the K–12 office education classroom. Prerequisite(s): ATTD 4300.

**4360. Desktop Publishing in Education and Training.** 3 hours. Course emphasizes the application of desktop publishing theory and practices in education and training. Course utilizes desktop publishing software to create technical brochures, advertisements, newsletters and other publications in the industrial training organization or educational environment. Prerequisite(s): ATTD 4300.

**4435. History and Principles of Applied Technology.** 3 hours. A study of the historical development, founding principles and objectives of applied technology programs in the United States; focus on the types of programs, general organization and methods of delivery.

**4440. Advanced Instructional Strategies.** 3 hours. Emphasis on advanced instructional techniques; including questioning, discussion, problem-solving, motivation, and instructional development used in applied technology and industrial training setting. Prerequisite(s): COMM 1010 or ATTD 4120 or consent of department.

**4470. Human Relations in Business, Education and Industry.** 3 hours. A study of the components of human relations and interpersonal communication factors in business, education, trade and industrial education and training programs.

**4490. Serving Learners from Special Populations in Applied Technology Programs.** 3 hours. Introduction to identification, assessment, instructional and curriculum modifications, support services and evaluation of learners from special populations (e.g. disadvantaged, disabled and limited English-speaking) in applied technology programs.

**4510. Communications in Business, Education and Industry.** 3 hours. Important factors in succeeding on the job. Emphasis is placed on communication, strategies for conducting meetings and seminars, conflict management, developing and arranging agendas, itineraries, minutes and business reports, designing and using business graphics, and job-getting communication.

**4610. Problems in Industrial Cooperative Education.** 3 hours. A review of basic standards, recent changes and the underlying reasons for such standards. Emphasis is placed on identifying, analyzing and reaching logical solutions to real problems encountered in the operation of the cooperative education program. Public relations and promotion of the cooperative program, the development of a course of study for general related material and the operation of adult education classes are included.

**4630. Organization and Administration of Applied Technology Programs.** 3 hours. A study of the organization and administration of applied technology programs, including techniques for the structure, delivery and evaluation of the educational function, budgeting, operations and staffing.

**4730. Occupational Analysis and Course Development.** 3 hours. Procedures for analysis of occupations, jobs and tasks for instructional planning and course development in vocational education and training programs.

**4740. Instructional Internship in Applied Technology and Training.** 3–6 hours. Supervised observation and instructional practice in an approved applied technology program or industrial training environment; discussion and evaluation seminars are scheduled. Prerequisite(s): consent of department.

**4741. Applied Technology and Performance Improvement Capstone.** 3 hours. A capstone course designed for students to synthesize the knowledge, skills and attitudes learned throughout the undergraduate degree in Applied Technology and Performance Improvement. Students will demonstrate their ability to articulate career pathways, apply technology in the workplace, and contribute to the organizational structure of either business and industry or education. Prerequisite(s): This course may only be taken during the final term/semester of the ATPI professional development sequence.

**4800. Studies in Education.** 1–3 hours. Organized classes for program and student interests and needs. Prerequisite(s): consent of department. Limited-offering basis. May be repeated for credit.

**4900-4910. Special Problems.** 1–3 hours each.

**4951. Honors College Capstone Thesis.** 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

### **Computer Education and Cognitive Systems, CECS**

**1100. Computer Applications.** 3 hours. Introduction to computer usage. Integrated approach to software tools such as word processing, data-base management, spreadsheet, communications and graphics applications.

**2100. Surviving the Information Age.** 3 hours. A collegiate guide to Internet resources and information procurement. Topics include: connecting to UNT resources, peripheral selection and use, tips for purchasing and using application software, an overview of graphics software, applications of the Internet, HTML code, methods of establishing an Internet connection, netcasting, voice and video conferencing, PC-based troubleshooting techniques, electronic research, and information processing using the Internet. Prerequisite(s): CECS 1100, or equivalent.

**3220. Computer Graphics in Education and Training.** 3 hours. Application of computer graphics to the preparation of multimedia and web-based materials. Includes principles of graphics communication, concepts in computer graphics, graphics input systems, graphics manipulation software, and graphics output systems. Prerequisite(s): CECS 1100.

**3260. Web Authoring.** 3 hours. Creation of web-based materials incorporating text, graphics, and multimedia elements. Emphasis on use of standards-based technologies for creating content for web-based delivery. Prerequisite(s): CECS 3220.

**3440. Technology and the Teacher.** 3 hours. Introduction to class presentation and teacher productivity systems, including graphic, audio, video and computer-based materials. Laserdiscs, videotapes, LCD systems and computer software for the classroom. Prerequisite(s): CECS 1100.

**3530. Data Communications.** 3 hours. Foundational skills in data communications. Covers the basics of computer networking, including terms and concepts, contemporary network services, transmission media, and protocols. Students learn how protocols are used in networking implementations from many vendors, especially those most common in today's LANs and WANs.

**4100. Computers in the Classroom.** 3 hours. Computers in education; computer topics covered in introductory and secondary school courses. Motivation and objectives in computer education; some programming language. Instructional uses of the computer, topics in curriculum integration. Prerequisite(s): CECS 1100.

**4210. Digital Multimedia in Education and Training.** 3 hours. Production of multimedia materials using digital video and audio production techniques. Project management teams, instructional design, editing techniques, digitizing, using a video camera, and production/post-production techniques are covered. Prerequisite(s): CECS 3220.

**4550. Network Systems Administration.** 3 hours. Study of file and print network services in a directory services environment. Topics include server configuration, user management, resource allocation, risk management, and disaster recovery. Prerequisite(s): CECS 3530.

**4560. Internet Services Administration.** 3 hours. Design and implementation of Internet information services including FTP, NNTP, World Wide Web and streaming media. Conferencing using H.323 and T.120 standards-based systems. Students both design and build various information services using representative software tools and hardware platforms.

**4800. Studies in Education.** 1–3 hours each. Organized classes for program needs. Prerequisite(s): consent of department. Limited-offering basis. May be repeated for credit.

**4830. Practicum, Field Problem or Internship.** 3 hours. (1;0;6) Supervised professional activities in computer education. May be repeated for credit.

**4900-4910. Special Problems.** 1–3 hours each. Prerequisite(s): consent of department. May be repeated for credit.

**4951. Honors College Capstone Thesis.** 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

### **Development and Family Studies, DFST**

**1013 (TECA 1354). Human Development.** 3 hours. Introduction to the theories and processes of physical, cognitive and social development of the individual from conception until death. Suitable for non-majors; DFST majors should take in their first year. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

**1023. Assessment and Observation.** 3 hours. Methods in observation and reporting of child development. Developmental assessment of infants, children and adolescents. Methods, reading and reporting of research in human development and family studies. DFST majors should take in their first year.

**2033 (TECA 1303). Parenting in Diverse Families.** 3 hours. Commonalities and differences in parenting, caregiving and family life are emphasized from systems, ecological and cross-cultural perspectives. Parenting and caregiving in diverse family forms and cultures are studied in relation to adult-child interactions, parent/school/community relations, family roles, laws, and parenting skills. *Satisfies the Cross-Cultural, Diversity and Global Studies requirement of the University Core Curriculum.*

**2313. Marriage and Family Living.** 3 hours. Factors of dating, courtship, marriage and family relationships.

**2900. Special Problems.** 1–3 hours. Open to lower-level students capable of developing a problem independently. Problems are chosen by the student and developed through conferences with the instructor.

**3113. Infant and Toddler Development.** 3 hours. The growth and development of the child from conception to three years, including the influence of the family and environment.

**3123. Child Development.** 3 hours. Basic principles of development and learning; physical, cognitive, language, social and emotional development in early and middle childhood (ages 3 to 10 years). May require some observation and case study.

**3213. Infant and Toddler Education and Care.** 3 hours. Focus on developmentally appropriate interactions with infants and toddlers to promote optimal development in

home and group education and care. Includes planning environments and choosing equipment and materials. Fifteen hours field observation in infant/toddler day care. Prerequisite(s): DFST 3113.

**3323. Advanced Marriage and Family Living.** 3 hours. Family, beginning with marriage through remaining life cycles.

**4011. Prepracticum.** 1 hour. Provides a bridge from theory to professional practice. Determining career goals and assuming professional ethics, roles and responsibilities are emphasized. Preparation and placement for an in-depth practicum for FCS student teaching is including. Prerequisite for DFST 4023 and FCS student teaching, to be taken the prior term/semester.

**4023. Practicum.** 3 hours. The practicum requires a minimum of 150 clock hours of in-depth experience with an approved agency or researcher related to development and/or family studies, plus seminar (online or in person arranged with instructor). Emphasis is placed on application of knowledge and skills to actual job roles and responsibilities. Students must have senior status and meet with an adviser the previous term/semester for approval of practicum site. Prerequisite(s): DFST 4011. May be taken twice, for a total of 6 hours.

**4133. Adolescent Development.** 3 hours. Theories and characteristics of physical, cognitive and social development between 11 and 20 years of age. Effects of family, school, community and other factors on adolescent development are also addressed.

**4223. School-Age and Adolescent Programs.** 3 hours. The components in before and after school child care and related programs that are developmentally appropriate and benefit children aged 5 through adolescence are explored. These include planning, implementing and evaluating activities, facilities, programs, staff, budgets and other aspects necessary for providing healthy services for children and adolescents.

**4233. Guidance of Children and Youth.** 3 hours. Best practices in individual and group guidance and management of children from birth through adolescence. Focus on behavior in the context of family, culture and social practices. Requires 15 hours of observation of individual and group activities in an approved setting, to include 3 hours of interaction with infants, children, or youth. Prerequisite(s): DFST 3123

**4253. Administration of Programs for Children, Youth and Families.** 3 hours. Analysis of programs, personnel policies, facility administration and related topics for teachers and administrators who work with children, youth and families. Prerequisite(s): course in child development.

**4333. Transitions in Family Living and Work.** 3 hours. The effects of family living and work performance throughout the life cycle are considered. Selected skills are offered and/or practiced to enhance a better balance between family roles and the job.

**4343. Romantic Relationships: Theories, Research and Application.** 3 hours. An in-depth, comprehensive exploration of the theories, research and applications thought to promote relationship success in a wide variety of romantic relationships, including dating and marital relationships.

**4413. Family Life Education.** 3 hours. The practice and process of family life education and training of professionals in the child development and family field. Curriculum and program development and evaluation. Teaching strategies and professional responsibilities. Prerequisite(s): DFST 2033 and 3323.

**4423. Families, Schools and Community Resources.** 3 hours. Analyzing family, school and community resources and needs as related to the family life cycle; child welfare and education, ecological approach; and exploration of careers related to children and families. Strategies to improve communication and collaboration are emphasized with a focus on family types, cultures, economic conditions, school systems, community services, political forces, advocacy groups and other factors that impact young children and their families. Fifteen hours a term/semester in field work arranged.

**4433. Family Resource Management.** 3 hours. Application of principles of family resource management includes goal setting; decision making; and time, energy, financial, and consumer management.

**4800-4810. Studies in Development and Family Studies.** 1-3 hours. Organized classes for specific program needs and student interests. Prerequisite(s): consent of department. Limited-offering basis. May be repeated for credit.

**4900. Special Problems.** 1-3 hours. Open to advanced students capable of developing a problem independently. Problems chosen by student and developed through conferences with the instructor.

**4951. Honors College Capstone Thesis.** 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

**Educational Psychology** – see *Graduate Catalog*

### **Special Education, EDSP**

The following special education courses are included in the generic special education service delivery endorsement for the elementary and secondary teaching certificates (EDSP 3210, 3420, 3500, 4110, 4320, 4330 and 4340).

**2500. Human Exceptionality.** 3 hours. An examination of intellectual, physical and social-behavioral exceptionalities across the life span. Students explore educational, cultural, economic, and political perspectives of exceptionalities. Attention is also given to viewing exceptionalities from various disciplines. *Satisfies the Cross-Cultural, Diversity and Global Studies requirement of the University Core Curriculum.*

**3210. Educational Aspects of Exceptional Learners.** 3 hours. Overview of the unique physical, cognitive and behavioral needs of exceptional learners. The teacher's role in identification and referral procedures and implementation of effective educational practices as required by federal and state law are examined.

**3220. Learning Disabilities: Characteristics, Identification and Intervention.** 3 hours. An examination is made of the typical characteristics associated with learning disabilities and identification procedures utilized. Emphasis is on the development of appropriate intervention programs. Prerequisite(s): EDSP 3210 and 3300 or consent of department.

**3240. Family Communication and Collaboration for Exceptional Learners.** 3 hours. (2;1). Analysis of collaboration and communication models and strategies used in working with families, caregivers and professionals concerned about students with exceptionalities. Focus on the changing definition of family, community resources, advocacy groups, political forces, legal mandates and other factors are addressed that may impact students and their families. 15 hours per term/semester of field-work is arranged.

**3300. Special Education Practicum I.** 3 hours. (1;6) Practical experience in field sites (90 hours: 70 hours field experience and 20 hours classroom). Cognitive, affective and psychomotor objectives for observing behaviors, assisting in planning for instruction and participating in diagnostic processes. Professional development is emphasized. Prerequisite(s): 60 hours of undergraduate credit, overall GPA 2.75, all sections of THEA must be passed.

**3410. Mental Retardation: Characteristics, Identification and Intervention.** 3 hours. An examination is made of the typical characteristics associated with mental retardation and identification procedures utilized. Emphasis is on the development of appropriate intervention programs. Prerequisite(s): EDSP 3210 and 3300 or consent of department.

**3420. Behavioral Disorders: Characteristics, Identification and Intervention.** 3 hours. An examination is made of the typical characteristics associated with severe behavior problems and procedures for identification. Emphasis is on the development of appropriate intervention programs. Prerequisite(s): EDSP 3210 and 3300 or consent of department.

**4110. Student Teaching in Special Education.** 3 hours. Teaching under supervision. See "Student Teaching Program" under College of Education section in the *Undergraduate Catalog* for details. Prerequisite(s): EDSP 3210, 3220, 3300, 3410, 3420, 4320, 4330 and 4340; or consent of department. Pass/no pass only.

**4320. Educational Assessment and Evaluation of Exceptional Learners.** 3 hours. Examines a variety of assessment and evaluation strategies that are appropriate for special and general education settings. Knowledge of basic testing procedures and terminology as related to the exceptional learner. Interpretation and utilization of test data in developing individual education plans. Introduction to curriculum-based assessment. Field experiences include administration of academic and teacher-made assessments. Prerequisite(s): EDSP 3210 or equivalent and EDSP 3420.

**4330. Advanced Educational Strategies for Exceptional Learners.** 3 hours. Advanced educational strategies and interventions that promote academic performance of exceptional learners across a variety of settings and situations. Includes an emphasis on instructional use of computers and technology in the classroom. Prerequisite(s): EDSP 3210 or equivalent and EDSP 3240.

**4340. Classroom and Behavioral Management Strategies for Exceptional Learners.** 3 hours. Approaches to behavioral management of exceptional learners across a variety of educational settings. Implementation of individualized techniques including applied behavioral analysis, as well as larger-group strategies, to foster positive behavioral, social and emotional growth. Special attention to the development of behavioral intervention plans and positive behavioral supports for students with challenging behaviors. Prerequisite(s): EDSP 3210 or equivalent and EDSP 3240.

**4350. Strategies to Support Diverse Learners in General Education.** 3 hours. Examination of the roles of various professionals in the successful inclusion of students with disabilities in the general education classroom. Focus on consultation models, practices and principles with an emphasis on collaboration, cooperative learning and inclusion. Provides an overview of assessment techniques applicable for all learners in the general education classroom. Prerequisite(s): EDSP 3210, or equivalent.

**4360. Transition Education and Services for Exceptional Learners.** 3 hours. Transition education and services for individuals with disabilities across the life span with emphasis on the post-secondary years. Examines the theory and practice of transition planning from school to community living, post-secondary education and employment. Legislative history and practical applications of skills such as transition assessment, job development and job placement are emphasized. Prerequisite(s): EDSP 3210, 3240 and 4320.

**4900-4910. Special Problems.** 1–3 hours each.

**4951. Honors College Capstone Thesis.** 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

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## Electrical Engineering

### *Electrical Engineering, EENG*

**1910. Project I (Learning to Learn).** 2 hours. Learning to Learn (L2L) is based on sound cognitive and pedagogical techniques that improve learning outcomes and make lifelong learning habitual. Students develop an understanding of how engineering and computer science are learned and how we can facilitate and encourage the lifelong learning process. Topics covered include consciousness and self-awareness, metacognition, learning styles, memory, language, reading, writing, problem solving, creativity and biology of learning.

**1920. Project II (Engineering Ethics and Professionalism).** 2 hours. Engineering is the place where science, business and society intersect, so engineering ethics provides an interesting way to study the relationships among these three. This project course focuses on the profession of engineering, its role in business and society, and the ethical issues that engineers face. Class involves case studies, discussions,

group projects, reading, writing response papers and exams; topics include international concerns, risk safety, and environmental issues, employee loyalties and professional responsibility, professional organizations and codes of conduct.

**2610. Circuit Analysis.** 3 hours. Introduction to electrical elements, sources and interconnects. Ohm's law, Kirchoff's law, superposition and Thevenin's theorems are introduced. The resistive circuit, OP Amp, RL, RC circuits, Sinusoidal analysis. Prerequisite(s): MATH 1720 and PHYS 2220/2240.

**2620. Signals and Systems.** 3 hours. Elementary concepts of continuous-time and discrete-time signals and systems. Linear time-invariant (LTI) systems, impulse response, convolution, Fourier series, Fourier transforms and frequency-domain analysis of LTI systems. Laplace transforms, z-transforms and rational function descriptions of LTI systems. Prerequisite(s): EENG 2610; MATH 3310 or MATH 2730. (Same as CSCE 3010.)

**2710. Digital Logic Design.** 3 hours. Digital computers and digital information processing systems; Boolean algebra, principles and methodology of logic design; machine language programming; register transfer logic; microprocessor hardware, software and interfacing; fundamentals of circuits and systems; computer organization and control; memory systems, arithmetic unit design. Prerequisite(s): MATH 1720

**2910. Project III (Circuit Design and Analysis Using SPICE).** 3 hours. Students are required to use PSPICE to design and analyze basic DC/AC circuits. Prerequisite(s): MATH 1720; EENG 2610 (may be taken concurrently) and MATH 3310 (may be taken concurrently).

**2920. Project IV (CAD Tools and Design).** 3 hours. Selected design experiments examining programmable logic, VHDL and logic synthesis. Includes a final comprehensive design to accompany and complement the logic design course. Prerequisite(s): EENG 2710 (may be taken concurrently).

**3410. Engineering Electromagnetics.** 3 hours. Electromagnetic theory as applied to electrical engineering: vector calculus; electrostatics and magnetostatics; Maxwell's equations, including Poynting's theorem and boundary conditions; uniform plane-wave propagation; transmission lines – TEM modes, including treatment of general, lossless line, and pulse propagation; introduction to guided waves; introduction to radiation and scattering concepts. Prerequisite(s): EENG 2610 and PHYS 2220.

**3510. Electronics I (Devices and Materials).** 3 hours. Introduction to contemporary electronic devices, terminal characteristics of active semiconductor devices, and models of the BJT and MOSFET in cutoff and saturation region are introduced. Incremental and DC models of junction diodes, bipolar transistors (BJTs), and metal-oxide semiconductor field effect transistors (MOSFETs) are studied to design single and multistage amplifiers. Prerequisite(s): EENG 2610.

**3520. Electronics II.** 3 hours. Concepts, analysis and design of electronic circuits and systems are introduced. Topics include principle of DC biasing, small signal analysis, frequency response, feedback amplifiers, active filters, non-linear op-amp applications and oscillators. Prerequisite(s): EENG 3510.