Technology, Art and Design -Technology Courses

TADT 1109 Computer Applications for Project Managers (3 credits)
This course is an overview of computer applications that are used by Technology, Operations, and Project Managers. The focus of this class is placed on Microsoft Project, Microsoft Excel, and Procore. The course will also provide a review on the basics of Microsoft word and PowerPoint. In this course, students will use these applications to practice spreadsheet using excel, presentation software using PowerPoint, and database using Procore. Students will be familiar with all aspects of project management including project definition, methods and strategy, resource scheduling and allocation, leadership, managing teams, partnering, minimizing risks, benchmarking project progress and performance and project termination and review.

TADT 1111 Introduction to Project Management (3 credits)
Introduction to the principles and practices associated with project management in a professional environment, to include the utilization of project management methodology in support of planning the participants academic career as a student at Bemidji State University. In further support of the participants academic career, the course will also emphasize professional communications in various written and electronic formats.

TADT 1210 Introduction to Manufacturing Processes I (3 credits)
An introduction to manufacturing processes including; welding, metal forming, centrifugal casting, injection/blow molding, silicone molding/resin casting, and vacuum forming. This course will utilize various types of metals, plastic, and resin materials to construct projects.

TADT 1220 Introduction to Manufacturing Processes II (3 credits)
A comprehensive study of the separating processes which occur in manufacturing production. Traditional and non-traditional processes are introduced, along with the primary materials which are utilized in the separation processes.

TADT 1250 The Built Environment (3 credits)
A broad study of the built environment, its history, standards, vocabulary, authorities, and impact on sustainability. Emphasis is given to the Construction Industry¿s role in the Built Environment through its processes and methods, as well as and new and emerging technologies.

TADT 1315 Energy and Power Technology (3 credits)
Survey of types and sources of energy. Addresses the transmission and application of energy and power systems in a variety of construction and industrial applications, including mechanical, fluid, and renewable technologies such as solar, wind and geothermal.

TADT 1450 Introduction to Product Development (3 credits)
This course is an introduction to three-dimensional communication techniques for the model making profession. Utilizing hand tools, project construction will include an awareness of attention to detail, design and technical problem solving. Prerequisite: TADT 1210, TADT 1220.

TADT 1460 2D Graphics And Laser Etching (3 credits)
An introduction to the principles and practices of technical drawing. The course provides a working familiarity with computer-aided design and drafting through the study of multi-view, pictorial drawing systems, and their applications to laser etching.

TADT 1464 Engineering Technology Project I (3 credits)
This is a project based course that introduces fundamental concepts of engineering design, effective teams, lab safety, and engineering ethics. Basic mechanical systems and simple machines will also be covered. Students are required to demonstrate competency in scheduling, applying fabrication techniques, and documentation. Projects are presented at the end of the semester. Prerequisite: TADT 1210, PHYS 1101.

TADT 1911 Directed Independent Study (1-9 credits)
Directed Independent Study

TADT 1912 Directed Independent Study (1-9 credits)
Directed Independent Study

TADT 1913 Directed Independent Study (1-9 credits)
Directed Independent Study

TADT 1914 Directed Independent Study (1-9 credits)
Directed Independent Study

TADT 2100 Impact Of Technology, Art & Design (2 credits)
Defines technology and examines the relationship between technology, human civilization, and other disciplines. Course includes a focus on the related social, cultural, environmental and economic impacts of technology and encourages students to understand the development of technology from the earliest civilizations to implications for the 21st Century. This course is designed primarily for the liberal education program. [**Core Curriculum Goal Area(s) 5 & 9]

TADT 2211 Introduction to Cost Management (3 credits)
This course is an overview of the application of cost management in Technology, Operations, and Project Management fields. The emphasis of this course is on project operations budgeting and costs control. The process of financial decision making will be discussed in this course. Topics include project costing methodologies, value and non-value added cost analysis, breakdown structure cost analysis, service industry costing, and project cost evaluation.

TADT 2217 Strength of Materials (3 credits)
An introduction to stress, strain, and deformation analysis of materials subjected to axial, torsional, and bending loads. Basic mechanics concepts such as defects, elasticity, plasticity, and failure are introduced. Prerequisite: PHYS 1101.

TADT 2252 Construction Materials and Methods (3 credits)
This course is a broad study of the materials and methods used in the construction industry, their design and documentation for quality control, common quantity take-off methods, and classification of work divisions under Uniformat & MasterFormat, emphasizing Facility Construction Divisions 02-19, with further examination of sustainable and modular design trends happening in the Built Environment, preparing students for their first industry related internship requirement.

TADT 2260 Print Reading and Project Documentation (3 credits)
An introductory skills-based course in Print Reading and Construction Documentation. The course includes specification review; Print Reading tools for material quantification; overview of common, work scopes, drawing types, and features; introduction to Print Reading software; and drawing mark-up.

TADT 2310 Small Gasoline Engines (3 credits)
The theory and operation of small 2 cycle and 4 cycle engines. Laboratory exercises and rebuilding of components and engines. Prerequisite: TADT 1315. (Might not be offered every year.)

TADT 2450 Product Finishing & Aesthetics (3 credits)
The purpose of this course is to provide the student an understanding of materials, principles and techniques of spray finishing required to complete a professional model. Processes may include model construction, surface preparation, materials selection and paint application. Prerequisites: TADT 1210, TADT 1220, TADT 1460.

TADT 2461 Parametric 3D Modeling (3 credits)
Examines current topics, research, exploration, testing, and evaluation of computer-aided drafting and design programs for Windows computers. Prerequisites: TADT 1460 or consent of instructor.

TADT 2465 Engineering Technology Project II (3 credits)
This is a project based course that builds on topics covered in Engineering Project 1. Students will be introduced to electrical safety, electrical schematics, electrical circuits, various electrical components, and electrical measuring equipment. Students are required to demonstrate competency in applying fabrication and analysis techniques and setting performance specifications, meeting these specifications, and documenting their designs. Projects are presented at the end of the semester. Prerequisite: PHYS 1102, TADT 1220, TADT 1460 and TADT 1464.

TADT 2470 Professional Ethics (2 credits)
This course is designed to equip students with the skills to apply moral principles and ethical standards in the workplace. Through interactive discussions and case studies, students will learn to identify and analyze ethical dilemmas they may encounter as employees. Emphasis will be placed on practical strategies for resolving these dilemmas in a way that promotes integrity and fosters a positive workplace culture. By the end of the course, students will be prepared to navigate ethical challenges effectively and contribute to a respectful and collaborative work environment. Prerequisite(s): None.

TADT 2877 Engineering Problem Solving (3 credits)
Investigates the terminology, concepts, and analytical techniques essential to solving complex problems which occur in manufacturing.

TADT 2931 Experimental Course (3 credits)
A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

TADT 3100 Principles of Professional Development (3 credits)
An overview for professionals in the fields of Technology & Management. The student will research and report on such topics as historical and future technological developments, personality inventories, trade and professional organizations, professional publications, and personal professional development plans. Educational degree requirements and policies to meet development plans are also reviewed. Prerequisites: Junior status or consent of instructor.

TADT 3111 Project Management Methodology (3 credits)
This course is intended to provide the learner with the understanding, tools and techniques necessary to effectively plan, coordinate and manage the combination of people, systems and other resources required to complete a project in alignment with established goals, standards and deadlines. In addition, elements of leadership principles and practices will be studied to support team development and project success.

TADT 3112 Leadership in a Team Environment (3 credits)
This course is intended to provide engineering and technology management students with the understanding, strategies, and methods necessary to engage, influence, and empower followers in the successful accomplishment of organizational goals in a team-based environment. Prerequisites: Junior Status or Consent of Advisor.

TADT 3217 Materials Science and Metallurgy (3 credits)
This course focuses on the properties of materials and is intended as an introduction to materials science. Materials are used in everything and many major engineering problems are materials problems. This course will provide students with the skills and knowledge necessary to solve many of these problems. This is primarily a lab based course that focuses on mechanical testing and structural analysis of polymers, metals, and ceramics. Prerequisites: TADT 2217, TADT 2877, MATH 1470, and junior status.

TADT 3240 Construction Materials and Practices (3 credits)
Comprehensive study of construction materials, their characteristics, applications and testing. Prerequisite(s): Junior status or consent of instructor.

TADT 3260 Project Bidding and Estimating (3 credits)
A foundational course on construction cost estimating. Students will develop bidding strategies through creating proposals that include, labor and material, equipment, as well as overhead and profit. Students will examine pricing for general contractor direct work vs. subcontracted work, and jobsite general conditions. Prerequisites: TADT 2252.

TADT 3267 Economic and Cost Analysis (3 credits)
Introduction to the methods for determining costs related to developing and producing a product, for analyzing the present and future value of liquid and physical assets, and for analyzing the present and future value of a time series of payments. Other topics include basic accounting practices, cost estimating, and forecasting. Prerequisite: Junior status or consent of instructor.

TADT 3277 Programmable Logic Controllers (3 credits)
This course offers students an in depth exposure to programmable logic controller (PLC) devices, the main components of PLC systems, and DC/AC motor and fluid power. The course will cover configuration and programming of PLCs for motor and hydraulic system control using various programming tools. Prerequisite: PHYS 1102 and junior status.

TADT 3279 Contemporary Project Management (3 credits)
Contemporary Project Management investigates the principles and practices of traditional plan driven methods, with newer Agile approaches. Students will apply the principles of project planning and performing to a Case Study project, furthering their skill of project management software. In addition, students will investigate the attributes of self-managing teams and contemporary approaches to understanding the project environment. Prerequisites: Junior Status or Consent of Instructor.

TADT 3330 Industrial Automation (3 credits)
The integration of robotics and automated controls into manufacturing operations. Topics include planning for, specifying, and integrating sensors, actuators, part feeding devices, fixtures, material handling equipment, robotics, and programmable logic controllers in an automated environment, such as a work cell or an assembly line. Two hours lecture and two hours lab per week. Prerequisite(s): Junior status or consent of instructor.

TADT 3350 General Power (3 credits)
Theory and operating principles of internal combustion engines with over fifty cubic inches of displacement. Laboratory experiences include rebuilding procedures and related technical specifications and data. Prerequisite(s): Junior status or consent of instructor.

TADT 3462 Computer Controlled Machining (3 credits)
Introduction to computer-controlled machining operations including manual programming and programming using CAM application for CNC (computer controlled machining). Emphasis on tools and materials are applied in a wide variety of manufacturing and modeling operations. Prerequisite: TADT 2461.

TADT 3470 Concept to Prototype Model (3 credits)
Construct a prototype model with emphasis on 3D parametric drawing, 3D printing technology and various machining processes. Project will concentrate on form, fit, function, structural integrity and optimization of the design needed to shape concepts and test ideas. Prerequisite: TADT 1450, TADT 2450, TADT 3462.

TADT 3537 Engineering Design (3 credits)
A hands-on course that uses the engineering design process to develop and manufacture a prototype for a unique product. Includes problem identification, brainstorming, defining specific customer needs and requirements, sketching potential product ideas that meet the requirements, using a decision table to settle on a specific product idea to pursue, creating a CAD model for the prototype, manufacturing the prototype, testing, and product assessment. Also included is the development of a design proposal, written and graphic documentation, and the ethical, environmental, social, and economic impacts of design solutions. Prerequisite(s): Junior status.

TADT 3570 Commercial Architecture (3 credits)
Planning and design of commercial buildings and their structural systems, city and industrial planning, and landscaping. Might not be offered every year. Prerequisite(s): Junior status or consent of instructor.

TADT 3610 Industrial Prototypes (3 credits)
Development of industrial quality prototypes from engineering or designer prints. Includes the selection of materials and processes for production feasibility and market testing prototypes. Prerequisites: Junior status or consent of instructor.

TADT 3700 Operations Planning and Control (3 credits)
The concepts, tools, techniques, and quantitative methods used to plan for and control operations in the production of goods and services. Topics include, but are not limited to, traditional inventory management, just-in-time inventory, materials- and enterprise-resource planning, facilities location and layout, process strategies, aggregate planning, scheduling, maintenance and reliability, project management, and supply chain management. Prerequisite: Junior status or consent of instructor.

TADT 3850 Foundation of Technology Education (2 credits)
Survey of the history, philosophy, curriculum, and instructional practices of the industrial technology education field. Emphasizes the goals and objectives of technology education programs in the K-12 public school system. Includes current issues, career options, professional organizations, and licensure requirements. Prerequisite(s): Junior status or consent of instructor.

TADT 3857 Methods of Teaching Industrial Technology/Vocational Education (3 credits)
Approaches to teaching technology education included the philosophy, innovative approaches, classroom and laboratory strategies and methodology. Includes program visitation, evaluation and micro-teaching.

TADT 3860 Logistics in Supply Chain (3 credits)
This course provides an overview of all modes of transportation and their institutional and operational environments. The organizational logistics function and the relationship to the distribution channels is also emphasized. The legal issues and concepts germane to the Transportation and Logistics field, including contracts, liability, insurance requirements, environmental and security regulatory compliance. Prerequisite(s): TADT 3700.

TADT 3873 Capstone Preparation (1 credit)
This course is designed to prepare students to take TADT 4873: Emphasis Related Capstone. Students will identify their project topic, select group members, complete a team charter, and hold their first team meeting with their project sponsor. Students will also prepare for employment by polishing their resume and cover letter, making business cards, and engaging in a mock interview. Students must register for this course the semester before they plan to take TADT 4873. Prerequisite(s): Senior Status and planned graduation within the following year.

TADT 3878 Industrial/Engineering Production Studies (3 credits)
Study and visitations/assessments of the various aspects of industry, particularly in the engineering and technology management fields. The strategy of benchmarking will be used as a primary tool to complete course research. Prerequisites: Junior status or consent of instructor.

TADT 3879 Performance Measurement (3 credits)
The establishment of time standards essential to the decision making, forecasting, and process control efforts of manufacturing engineering groups and operations management. Prerequisites: Junior status or consent of instructor.

TADT 3880 Quality Assurance (3 credits)
The course teaches the theory and applications of statistical analysis, quality problem solving and implementation. Prerequisites: Junior status or consent of instructor.

TADT 3885 Technical Sales, Service and Training (3 credits)
The philosophy and practice of sales and service in a technical environment, including the methodology, planning and design of sales activity, and developing technical proposals and presentations. Course also examines aspects of assessing, designing and implementing human resource training programs. Prerequisites: Junior status or consent of instructor.

TADT 3887 Safety and Risk Management (3 credits)
Introduction to the general principles, regulations, responsibilities, policies and practices associated with Safety and Risk Management from the perspective of a manager in operations, facilities and/or construction. Prerequisites: Junior status or consent of the instructor

TADT 3897 Ergonomics and Human Factors (3 credits)
Students learn how to apply human-centered design principles to minimize the risk of harm while simultaneously facilitating the use of man-made artifacts. These principles may be applied in the work environment to design or improve work methods and work environments. They may also be used in the design of consumer goods. Includes a course project and lab activities. Two hours lecture and two hours lab per week. Prerequisites: Junior status or consent of instructor.

TADT 3970 Internship (1-3 credits)
Internship

TADT 3971 Internship: Lean Six Sigma (2 credits)
An industry supported internship that provides the student with an opportunity to gain knowledge and skills from instruction in Lean Six Sigma. Instruction is provided by a Black Belt in Lean Six Sigma and an exam is offered at the end of instruction. The student must pass this exam at the Green Belt level or higher to obtain a pass and credit for this internship. Prerequisite(s): Instructor Permission

TADT 4259 Construction Management (3 credits)
Students will study construction management project planning and control within the function of the built environment, examining how it operates as a service delivery system, focusing on contract requirements, project documentation, balancing scope/time/cost, and maintaining safety and quality. Prerequisites: TADT 3260.

TADT 4260 Computerized Construction Estimating (3 credits)
An exploration and study of computerized construction estimating methods, software, and approaches for estimating, planning, and documenting construction projects. Prerequisite: TADT 3260 or consent of instructor.

TADT 4340 Industrial Controls (4 credits)
A study of industrial controls including electromechanical devices, programmable logic controllers and computer control. Prerequisites: Junior status or consent of instructor.

TADT 4349 Principles of Technology (3 credits)
A laboratory based study of electrical, mechanical, thermal and optical systems which combines theory and practice to develop an understanding of technological systems based on mathematical and physical models. Prerequisites: Junior status or consent of instructor.

TADT 4370 Computer Integrated Manufacturing (3 credits)
Study of how to synchronize operations in an environment that incorporates automated production equipment, material handling systems, plant control systems, design engineering functions, production- and inventory-control systems, and various management functions. Prerequisites: Junior status or consent of instructor.

TADT 4385 Sustainability and Emerging Technologies (3 credits)
A study of sustainability and the emerging technologies that support its major concepts in a laboratory-based course. Students will experience a variety of emerging technologies and understand how such content may be applied in design, engineering, manufacturing and/or the construction industries. Prerequisites: Junior status or consent of instructor.

TADT 4460 Design for Manufacturability (3 credits)
A study of the tools, techniques, and guidelines used to design parts and products, while minimizing costs, facilitating manufacturing operations, maximizing quality and functionality, and supporting modern production management techniques. Prerequisites: Junior status or consent of instructor.

TADT 4464 Machine Element Design (3 credits)
Application of mechanical principles, such as physics, stress analysis, motion analysis, mechanical power, fluid power, fastening and joining techniques, and electric motor selection/control to the design of components and mechanisms. Prerequisites: Junior status or consent of instructor.

TADT 4465 Mechanical Analysis of Parametric 3D Models (3 credits)
The use of a parametric 3D CAD package, in conjunction with either add-on or third-party software applications, to create virtual part and assembly models, and to analyze their physical performance using computer simulation techniques. Topics include shape optimization, and stress-, fatigue-, and kinematic-analysis, plus additional analysis techniques as planned by the instructor. Prerequisites: Junior status or consent of instructor.

TADT 4589 Advanced Prototype Project (3 credits)
Capstone Project: Construct a highly detailed professional model utilizing a culmination of skills including traditional, non-traditional and 3D printing technologies. Project documentation will be a high priority. This project may be constructed in collaboration with an industry professional. Prerequisites: TADT 3470 and Senior level status or consent of instructor.

TADT 4600 Technology Manager exam (0 credit)
A course designed to document a student's successful completion of the Technology Manager Certificate exam. The exam is the final requirement for the certificate.

TADT 4727 Procurement and Inventory Control (3 credits)
This course focus on global aspects of supply chain technology with primary emphasis on procurement and inventory management. Specific issues in include supplier evaluation and selection, benefits and risks in outsourcing, contracts and legal terms, negotiation, purchasing ethics, inventory cost components, types and uses of inventory, planning inventory levels, maintaining inventory accuracy, and inventory replenishment policies, metrics and roles associated with inventory management. Prerequisite(s): TADT 3700.

TADT 4778 Advanced Topics in Technology (3 credits)
Current topics, or emerging research or exploration and assessment of topics in the applied engineering, industrial technology, and/or technology management fields, or any related field. Prerequisites: Junior status or consent of the instructor.

TADT 4800 Lean Six Sigma exam (0 credit)
A course designed to document a student¿s successful completion of a Lean Six Sigma Certificate exam. The exam is the final requirement for the certificate and an exam pass at the green belt level is required for a pass. Students who pass the exam will be awarded with a certificate at the green belt level. Prerequisite(s): consent of instructor.

TADT 4812 Leadership Mentoring (1 credit)
Introduction to leadership principles in practice through the shadowing of a volunteer mentor currently working in a senior leadership role of a local private sector organization. The student will observe how leadership provides direction and guidance in alignment of their respective organizations toward a common goal and in support of specific performance objectives. Prerequisites: Junior status or consent of the instructor.

TADT 4820 Engineering Case Study (3 credits)
Study and development of a solution to a new or existing engineering-related problem. Students propose an appropriate case within their field of interest to be given approval by the instructor. Based on instructor approval, students submit a case study which documents the proposal, implementation strategy, and results of the proposal.

TADT 4827 Information Technology in Supply Chain (3 credits)
This course provides students with an understanding of the role of information and information technology (IT) in a supply chain. Topics covered include Supply chain visibility, Coordinated logistics applications, Inventory management systems, Bar coding / RFID, Data analytics, MRP/ERP, Cloud computing, Data security and Block chain for supply chain. Prerequisite(s): TADT 3700.

TADT 4830 Foundations in Career and Technical Education (2 credits)
A broad study of the philosophy and practice of Career and Technical Education (CTE). Emphasis is given to tracing CTE history through major legislations changes since the Smith Hughes Act of 1917 through the current requirements of Perkins V, understanding requirements of a CTE Educator under Perkins V, and analyzing demographic data for funding and local needs assessment to implement CTE philosophy and practice within communities. Prerequisites: Junior status or consent of instructor.

TADT 4837 Evaluation in Career and Technical Education (2 credits)
A study of testing and measurement techniques and applications in occupational programs. The construction of teacher-made performance test, written tests, rating scales and checklists is emphasized. Vendor and standardized are included. Prerequisites: Junior status or consent of instructor.

TADT 4839 Industrial/Career and Technical Education Student Organization (2 credits)
Acquaints students with the issues of planning and implementation of student organizations. Also includes student organizations at the secondary and post-secondary levels and their relationship to state and federal policy and legislation. Prerequisites: Junior status or consent of instructor.

TADT 4847 Methods of Teaching Career and Technical Education (2 credits)
Instructional methodology used in the implementation of occupationally and technically orientated curriculum. Prerequisites: Junior status or consent of instructor.

TADT 4849 Classroom Management in Career and Technical Education (2 credits)
A broad study of managing a Career and Technical Education classroom. Emphasis is given to; effective teaching methodologies for safe, equitable, well-managed classrooms; on and off-site laboratory safety & maintenance planning; resource management that includes, inventory, program budgeting for material and equipment purchases, and CTE strategic planning for future funding. Prerequisites: Junior status or consent of instructor.

TADT 4850 Philosophy of Career and Technical Education (2 credits)
A study of the history, philosophy, and practices of career and technical education. Includes a survey of curriculum characteristics, certification requirements, professional organizations, and career options. Prerequisites: Junior status or consent of instructor.

TADT 4858 Curriculum Development in Career and Technical Education (2 credits)
A narrow focus of curriculum development using backward course design and inquiry-based learning, furthering teacher candidates understanding of student-centered learning and the Constructivist Learning Theory (CLT). Emphasis will be given to creating a Unit of Study focused on Employability Skills, to be used in teacher candidates CTE program of study. Prerequisites: TADT 4830 & 4849, Junior status or consent of instructor.

TADT 4859 Special Needs in Career and Technical Education (2 credits)
Objectives, materials, and methods of developing and modifying curriculum in the various vocational fields for students with special needs. Prerequisites: Junior status or consent of instructor.

TADT 4860 Management In Industrial Technology Education (4 credits)
Managing the learning environment, budget, equipment and student projects in the technology education setting, Also covers safety considerations and investigates strategies for learning within the technological clusters and for accommodating special needs students. Prerequisites: Junior status or consent of instructor.

TADT 4867 Lean Principles and Practices (3 credits)
This course teaches the principles and practical application of Lean methods and tools as they would apply in various types of organizational value streams to continually reduce waste and support improvements to operational performance and value creation; organizationally inclusive for all stakeholders. Prerequisites: Junior status or consent of the instructor.

TADT 4873 Emphasis Related Capstone (3 credits)
Students are presented with a sponsor supported project that requires their accumulated academic experience to solve a challenging problem. They will be expected to effectively use oral & written communication, research skills, teamwork, and planning. Prerequisites: TADT 3873 and Senior status with an expected graduation date in the year the course is taken.

TADT 4875 Facilities Management (3 credits)
This course is an exploration of the concepts and organization of an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization/institution in order to create an environment that strongly supports the primary objectives of the organization. Prerequisite: Junior status or consent of instructor. Prerequisites: Junior status or consent of instructor.

TADT 4879 Service Process/Improvement (3 credits)
The design and improvement of work processes in the service industries and in the service functions of manufacturing organizations. Topics include, but are not limited to, the tools and techniques required for designing, setting up, and managing service systems; improving service quality; the impacts of technology on service management; managing nonprofit service organizations; services strategies; and the positioning and marketing of services. Prerequisites: Junior status or consent of instructor.

TADT 4880 Total Quality Management (3 credits)
Total Quality Management is the latest evolutionary culmination of strategies for meeting customer expectations in terms of quality. Besides the traditional tools of quality, this course also investigates how developing an inclusive organizational culture, internal and external partner relationships, and truly understanding the needs and wants of the customer can be leveraged in today's globally competitive environment. Prerequisites: TADT 1111 or TADT 3111.

TADT 4887 Career Development Theory and Practice (2 credits)
A narrow focus of student-centered lesson planning, furthering CTE teacher candidates understanding of backward unit design. Lesson plan design has a specific focus of lifetime career development for students. Activities and assessments will provide CTE Educator with the needed career awareness and development to successfully implement in future CTE program of studies. Prerequisites: TADT 4858, Junior status or consent of the instructor.

TADT 4888 Work/Occupational Assessment of Learners (1-3 credits)
A narrow focus of Career and Technical Education licensure requirements with emphasis given to portfolio completion in CTE teacher candidates career field based on assessment of prior occupational experience, coursework, and other skills relevant to desired licensure area. Prerequisites: Junior status or consent of the instructor.

TADT 4889 Coordination Techniques of Career and Technical Education (2 credits)
The course involves the role of teacher-coordinators in the design and implementation of internships and other cooperative experimental learning methods. Prerequisites: Junior status or consent of instructor.

TADT 4893 Applied Project Management (3 credits)
This course is intended to provide the learner with the opportunity to apply project management principles and methodology to complete a real-world project in alignment with established objectives, standards, and deadlines. In addition, elements of leadership principles and practices will be applied to support team development and project success. Prerequisite(s): Junior Status or Instructor Permission.

TADT 4898 Simulation of Industrial Processes (3 credits)
This course introduces the basic concepts of computer simulation modeling of manufacturing, production, and service processes. The emphasis of this course is on the use of FlexSim simulation software environment to build, analyze, and optimize industrial engineering problems. Topics include simulation of assembly line balancing problem, plant capacity planning problem, routing and scheduling problem, warehouse simulation, and healthcare simulation. Prerequisite(s): Junior Status or consent of instructor.

TADT 4899 Design of Experiments (3 credits)
Planning, execution, and analysis of factorial-based industrial experiments. Topics include, but are not limited to, analysis of variance, fitting of regression models, two-level factorial designs, blocking strategies and confounding of variables, fractional factorial designs, response surface methods, nested and split-plot designs, three-level and mixed-level designs, and experiments with random factors. Prerequisites: Junior status or consent of instructor.

TADT 4917 DIS Tchg Assoc | (1-2 credits)
Directed Independent Study | Teaching Associate

TADT 4970 Internship (1-12 credits)
Prerequesites: Junior status or consent of instructor.

TADT 4971 Internship: Coop (1-12 credits)
This is an extended internship opportunity that typically extends from the Spring and Summer semesters or the Summer and Fall semesters. This Co-Op Provides the student with an opportunity to gain knowledge and skills from a planned work experience in the student¿s chosen career field. Specific Learning Outcomes are selected and evaluated by the Faculty Internship Advisor, Work-site Supervisor, and the student. This emphasis related Co-Op is intended to provide the student with learning experiences not available in the classroom setting. Students must meet with their Faculty Advisor prior to registering. Prerequisite(s) Instructor Permission

All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY
1920, 2920, 3920, 4920 DIRECTED GROUP STUDY
1930, 2930, 3930, 4930 EXPERIMENTAL COURSE
1940, 2940, 3940, 4940 IN-SERVICE COURSE
1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR
1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION
1970, 2970, 3970, 4970 INTERNSHIP
1980, 2980, 3980, 4980 RESEARCH
1990, 2990, 3990, 4990 THESIS