Technology Education

Knowing the Content

The professional education program provides evidence that Industrial Arts/Technology Education certification candidates complete a bachelor's degree that requires them to demonstrate their knowledge of the fundamental concepts and practices of industrial arts and technological applications at the elementary, middle and secondary school levels (K-12) including:

I.A. History, philosophy, and objectives of Technology Education

I.B. Historical development of technology and its present and future social, cultural and environmental impact on people and society

I.C. Role of technology education in relation to vocational education, technical, trade and industrial education, science, mathematics and the general school program

I.D. Communication systems including:
- terms, models, resources and inputs, and products,
- processes, equipment operation, and servicing for communications,

I.E. Construction systems including:
- terms, models and perspectives,
- resources, materials, manufactured products, human resources, and capital,
- managerial processes, designing, contracting, and marketing,
- production processes preparing the site, building, enclosing and finishing the structure,
- residential, commercial and civic projects

I.F. Manufacturing systems including:
- terms, models, perspectives, and types of outputs,
- resources, materials, manufactured products, human resources, and finance,
- management functions and designing production systems,
- extracting raw materials, primary and secondary processes,

I.G. Transportation systems including:
- terms, models, resources, inputs, and outputs,
- energy sources, conversions, measurements, and storage,
- propulsions, suspension, control and guidance systems

I.H. Engineering, design principles and the interpretation of technical drawings

I.I. Contemporary technical processes, systems, and technological applications including:
- computer aided design (CAD),
- computer aided and integrated manufacturing (CAM and CIM),
- computerized typesetting,

- analog and digital electronics,
- desktop publishing and computer networking,
- agriculture, medical and other biotechnologies

I.J. Program management including:
- budgetary practices and recordkeeping,
- laboratory and personnel organization,
- acquisition and maintenance of equipment and supplies,
- facility planning,
- student supervision

I.K. Career exploration and occupational/vocational choices

II. Performance

The professional education program provides evidence of the candidates' participation in sequential and developmental field experiences and student teaching, under the supervision of college personnel and cooperating teachers who are well trained, have interpersonal skills and demonstrated competence in teaching. The program also provides evidence that the criteria and competencies for exit from the Technology Education certification program are assessed in coursework, field experiences and student teaching and require the candidates to demonstrate their knowledge and competence in fostering student learning through:

II.A. Managing the instructional environment including:
- communicating challenging learning expectations to each student,
- establishing and maintaining rapport with students and promoting mutual respect among students,
- establishing and maintaining consistent standards of classroom behavior,
- making the physical environment safe and conducive to learning

II.B. Planning of instruction, done independently and in collaboration with other educators, based upon:
- technological systems,
- students and the community,
- Pennsylvania Academic Standards,
- content analysis with specific objectives,
- instructional methods, including safe use of tools, equipment and materials,
- results of student assessments

II.C. Selecting, adapting and implementing a variety of instructional strategies ranging from simple construction projects and reproductions, to "essay-style" homework, class exhibitions and demonstrations, utilizing traditional tools as well as modern technologies

II.D. Selecting, analyzing, and modifying instructional materials to meet the needs of diverse learners and special needs students

II.E. Assessing and evaluating student's understanding of content through a variety of means, providing feedback to students to assist learning, and adjusting instructional strategies

III. Professionalism

The professional education program provides evidence that each Technology Education certification candidate demonstrates knowledge and competencies that foster professionalism in school and community settings including:

III.A. Professional organizations, professional journals, conferences, student organizations and other resources for ongoing professional development

III.B. Integrity and ethical behavior, professional conduct as stated in the Pennsylvania Code of Professional Practice and Conduct for Educators; and local, state and federal laws and regulations

III.C. Establishing and maintaining collaborative relationships with colleagues of the elementary, secondary and higher education levels to improve student learning

III.D. Communicating effectively with parents or guardians, other agencies and the community at large to support learning by all students