Bachelor of Science - Career and Technical Education

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Admission

For the most current information on the prescribed Virginia Board of Education admission assessment, visit the Office of Clinical Experiences website, https://www.odu.edu/oce (https://www.odu.edu/oce/).

Prescribed Virginia Board of Education Assessment for Admission to an Approved Teacher Education Program

Old Dominion University students seeking admission to an approved teacher education program must satisfy the Virginia Board of Education required assessment for admission into an approved teacher education program. The requirement can be satisfied by meeting a passing score in the following:

1. Virginia Communication and Literacy Assessment (VCLA): Scaled passing score of 235 for the reading subtest and score of 235 for the writing subtest OR a composite score of 470 for the assessment.
2. Students must have an interview with the program leader. Students must be admitted into the approved marketing education or technology education teacher preparation program prior to enrolling in SEPS 408.

For the most current information on the prescribed Virginia Board of Education admission assessment, visit the Virginia Department of Education at https://www.doe.virginia.gov/.

Continuance

Students in marketing education and technology education licensure programs must:

1. Satisfy University requirements.
2. Maintain a cumulative GPA of 2.75, a major GPA of 2.75 and a core GPA of 2.75 with no earned grade less than C- in all courses taken in the major and in the core.
3. Successfully complete SEPS 297.
4. Take and pass the appropriate PRAXIS Subject Assessment (Technology Education – Content Knowledge, 5051 or Marketing Education – Content Knowledge, 5561) prior to or while enrolled in the Instructional Strategies course SEPS 408. All assessments must be passed prior to the start of the Teacher Candidate Internship Orientation session.

Background Clearance Requirement

Old Dominion University requires a background clearance check of candidates interested in many of the professional education programs. Professional education programs have several field experiences that are required for continuance and graduation from the program. The background clearance must be successfully completed prior to a field experience placement. Candidates will be provided a field experience placement when the background check process is completed with resolution of any issues. The process to complete the ODU clearance background check is located at: https://www.odu.edu/oce/teacher-education/placement/background-checks/ (https://www.odu.edu/oce/teacher-education/placement/background-checks/). The ODU clearance process includes: an FBI fingerprint, a child protective service/social service review, and a Virginia State Police sex offender registry review. Candidates interested in the professional education programs are advised to complete this clearance process immediately upon entry into the program since the clearance process takes a minimum of eight weeks to complete.

Assessments Required for Teacher Education Programs and Licensure

In order to obtain a Virginia teaching license, all teacher education students must attain passing scores on the appropriate teacher licensure exams. Students are required to take and pass the Virginia Communication and Literacy Assessment (VCLA) with a scaled passing score of 235 for the reading subtest and score of 235 for the writing subtest OR a composite score of 470 for the assessment.composite score of 470 or higher to be eligible for licensure. The VCLA should be taken during the semester prior to acceptance into teacher education. It is recommended that the VCLA be taken after students have completed their English and reading course requirements. All students will take and attain a passing score on the appropriate Praxis Subject Area Assessment (Technology Education – Content Knowledge, 5051 with a score of 162 or Marketing Education – Content Knowledge, 5561 with a score of 147) in order to be eligible for student teaching and licensure. Score reports of all examinations must be on file in the Office of Clinical Experiences in the Education Building. To review more information on the Virginia Board of Education Prescribed Assessments, visit the Office of Clinical Experiences website, https://www.odu.edu/oce (https://www.odu.edu/oce/).

Exit

Students in marketing education and technology education licensure programs must have:

1. A 2.75 grade point average overall, in the major, and in the core.
2. Earned a passing grade in student teaching.
3. Completed ENGL 110C, ENGL 211C or ENGL 221C or ENGL 231C, and the writing intensive (W) course in the major with a grade of C or better.
4. Completed the senior assessment.

Due to changing University requirements, national accreditation standards, and Commonwealth licensure regulations, the programs in the Darden College of Education and Professional Studies are under constant revision. Any changes resulting from these factors supersede the program requirements described in this Catalog. Students should obtain current program information from their advisors.

Marketing Education Concentration

Four-Year Plan - Career and Technical Education - Marketing Education (http://catalog.odu.edu/undergraduate/dardencollegeofeducation/stemeducationprofessionalstudies/ots-marketinged-bs-fouryearplan/)

- The four-year plan is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

This program is designed to prepare students to teach marketing and related subjects in the secondary schools. It is an approved program for meeting licensure requirements to teach marketing education in Virginia. The requirements are as follows:

Lower-Division General Education

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication Skills</td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>Mathematical Skills</td>
<td>3</td>
</tr>
<tr>
<td>Language and Culture</td>
<td>0-6</td>
</tr>
</tbody>
</table>

Information Literacy and Research is satisfied by STEM 251G in the major.

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Creativity</td>
<td>3</td>
</tr>
<tr>
<td>Interpreting the Past</td>
<td>3</td>
</tr>
</tbody>
</table>
This program is designed to prepare students to teach technology education subjects in middle schools and high schools. It is an approved program for meeting licensure requirements to teach technology education in Virginia. Requirements are as follows.

**Lower-Division General Education**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUN 301</td>
<td>Learning and Development</td>
<td>3</td>
</tr>
<tr>
<td>FOUN 302</td>
<td>Assessment of Learning</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 408</td>
<td>Advanced Classroom Issues and Practices in Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>SPED 400</td>
<td>Foundations of Special Education: Legal Aspects and Characteristics</td>
<td>3</td>
</tr>
<tr>
<td>STEM 370T</td>
<td>Technology and Society (Writing Intensive) **</td>
<td>3</td>
</tr>
<tr>
<td>TLED 326</td>
<td>Socio-Cultural Perspectives in Education</td>
<td>3</td>
</tr>
<tr>
<td>TLED 426</td>
<td>Introduction to Literacy Research, Theory and Practice in the Classroom</td>
<td>3</td>
</tr>
</tbody>
</table>

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 205S</td>
<td>Basic Economics</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 325</td>
<td>Contemporary Organizations and Management</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 311</td>
<td>Marketing Principles and Problems</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 402</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 100</td>
<td>Sales Techniques</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 102</td>
<td>Advertising and Promotion</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 297</td>
<td>Observation and Participation</td>
<td>1</td>
</tr>
<tr>
<td>SEPS 400</td>
<td>Instructional Systems Development</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 401</td>
<td>Foundations of Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 402</td>
<td>Instructional Methods in Occupational Studies</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 405</td>
<td>Directed Work Experience</td>
<td>4</td>
</tr>
<tr>
<td>SEPS 415</td>
<td>Advanced Merchandising</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 485</td>
<td>Student Teaching</td>
<td>12</td>
</tr>
<tr>
<td>STEM 251G</td>
<td>Computer Literacy: Communication and Information</td>
<td>3</td>
</tr>
<tr>
<td>STEM 351</td>
<td>Communication Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Credit**

<table>
<thead>
<tr>
<th>Credit</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>114-120</td>
</tr>
</tbody>
</table>

*Elective credit may be needed to meet the minimum of 120 credits required for the degree.*

* Grade of C or better required in both courses

** Grade of C or better required

**Upper-Division General Education**

Satisfied in the major.

**Technology Education Concentration**

Four-Year Plan - Career and Technical Education

- Technology Education (http://catalog.odu.edu/undergraduate/dardencollegeofeducation/stemeducationprofessionalstudies/ots-teched-bs-fouryearplan/)

- The four-year plan is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

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<td>Learning and Development</td>
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<td>Assessment of Learning</td>
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</tr>
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</tbody>
</table>

**Major Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 120</td>
<td>Computer Aided Drafting</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 297</td>
<td>Observation and Participation</td>
<td>1</td>
</tr>
<tr>
<td>SEPS 400</td>
<td>Instructional Systems Development</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 401</td>
<td>Foundations of Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 402</td>
<td>Instructional Methods in Occupational Studies</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 408</td>
<td>Advanced Classroom Issues and Practices in Career and Technical Education</td>
<td>3</td>
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<tr>
<td>SEPS 485</td>
<td>Student Teaching</td>
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</tr>
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<td>SPED 400</td>
<td>Foundations of Special Education: Legal Aspects and Characteristics</td>
<td>3</td>
</tr>
<tr>
<td>STEM 110T</td>
<td>Technology and Your World</td>
<td>3</td>
</tr>
<tr>
<td>STEM 221</td>
<td>Industrial Materials</td>
<td>3</td>
</tr>
<tr>
<td>STEM 231</td>
<td>Materials and Processes Technology</td>
<td>3</td>
</tr>
<tr>
<td>STEM 241</td>
<td>Energy Systems: Basic Electricity</td>
<td>3</td>
</tr>
<tr>
<td>STEM 242</td>
<td>Technological Systems Control</td>
<td>3</td>
</tr>
<tr>
<td>STEM 251G</td>
<td>Computer Literacy: Communication and Information</td>
<td>3</td>
</tr>
<tr>
<td>STEM 351</td>
<td>Communication Technology</td>
<td>3</td>
</tr>
<tr>
<td>STEM 382</td>
<td>Industrial Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Credit**

<table>
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*Elective credit may be needed to meet the minimum of 120 credits required for the degree.*

* Grade of C or better required in both courses

** Grade of C or better required
Upper-Division General Education
Satisfied in the major.

Minor in Marketing Education
The minor in marketing education is offered by the department to students majoring in disciplines other than occupational and technical studies concentration areas and the technology education concentration.

Requirements for the minor are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPS 401</td>
<td>Foundations of Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 402</td>
<td>Instructional Methods in Occupational Studies</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 408</td>
<td>Advanced Classroom Issues and Practices in Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>SEPS 450</td>
<td>Assessment, Evaluation and Improvement</td>
<td>3</td>
</tr>
<tr>
<td>STEM 351</td>
<td>Communication Technology</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Students must pass the Praxis I examination prior to enrolling in SEPS 408. Students must have a minimum overall cumulative grade point average of 2.75 in all courses specified as a requirement for the minor exclusive of 100- and 200-level courses and prerequisite courses. Six hours of the 300/400-level courses must be taken through courses offered by Old Dominion University. All courses may be applied toward the licensure requirements to teach marketing education in Virginia.

Licensure/Endorsement Programs

Licensure Program in Marketing Teacher Education
The licensure program in marketing teacher education is designed to prepare a person who has a business-related baccalaureate degree to be a marketing education teacher-coordinator. Participants who successfully complete this program will qualify to apply for a Virginia teaching license to teach marketing education.

Admission
Prior to entering this program students must hold a business-oriented baccalaureate degree in which 30 hours of marketing-related courses have been completed including at least three semester hours each of courses covering the marketing process, economics, personnel, the sales process, operations and organization, and promotion. Students must also have completed a rigorous general education program as outlined by the Commonwealth in its Licensure Regulations for Teachers. They must be interviewed and accepted by the marketing education program leader. Finally, students must attain or exceed the minimum score required by Virginia on the Praxis I examination. The Praxis I exam must be passed prior to admittance into teacher education and taking SEPS 408/SEPS 508.

Exit
Students must:

1. Complete the following courses:
   - SEPS 297 Observation and Participation
   - SPED 313 Fundamentals of Human Growth and Development: Birth through Adolescence
   - TLED 408 Reading and Writing in Content Areas
   - SEPS 400/500 Instructional Systems Development
   - SEPS 401/501 Foundations of Career and Technical Education
   - SEPS 408/508 Advanced Classroom Issues and Practices in Career and Technical Education
   - SEPS 450/550 Assessment, Evaluation and Improvement
   - SEPS 485 Student Teaching
   - Total Hours 31

2. Earn a 2.75 cumulative grade point average if licensure is at the undergraduate level and a 3.00 cumulative grade point average if licensure is at the graduate level; and

3. Document at least 4000 clock hours of marketing-related work experience completed within the past five years or complete SEPS 405.

Passing scores on the Praxis Subject Assessment, Marketing Education Content Knowledge are required before teacher internship. Passing scores must be attached to the teacher internship application.

Twelve hours of 500/600 level courses may be applied toward the Master of Science in occupational and technical studies, career and technical education teaching concentration.

Endorsement Program in Industrial Cooperative Training
The endorsement program in industrial cooperative training is designed to prepare a licensed teacher to be endorsed to teach industrial cooperative training in the public schools.

Admission
Prior to entering this program students must have or qualify for a Virginia Collegiate Professional or Postgraduate Professional License. Secondly, they must be interviewed and accepted by the program coordinator.

Exit
Students must:

1. Complete the following courses:
   - SEPS 400/500 Instructional Systems Development
   - SEPS 401/501 Foundations of Career and Technical Education
   - SEPS 402/502 Instructional Methods in Occupational Studies
   - SEPS 408/508 Advanced Classroom Issues and Practices in Career and Technical Education
   - SEPS 450/550 Assessment, Evaluation and Improvement
   - Total Hours 15

2. Earn a 2.75 cumulative grade point average if licensure is at the undergraduate level and a 3.00 cumulative grade point average if licensure is at the graduate level; and

3. Document at least 4000 clock hours of acceptable employment in a trade, technical, or industrial education subject area completed within the past five years or complete SEPS 405.

Twelve hours of 500/600 level courses may be applied toward the Master of Science in occupational and technical studies, career and technical education teaching concentration.

FOUNDATIONS OF EDUCATION Courses

FOUN 101S. Learning to Learn, 3 Credits.
Learning is essential to human development and is a primary goal of formal schooling. Further, the nature of work is ever changing and the need to adapt to changing environments by learning new skills in new domains is essential for future success. In this educational psychology course, students will focus on the theoretical and empirical study of the science of learning. Students will gain insights into learning processes and achieve a deeper understanding of their own learning, including how to enhance their learning in various contexts.

FOUN 301. Learning and Development, 3 Credits.
This course focuses on educational psychology theory and research related to student learning and development. There will be an emphasis on how to incorporate research based principles in designing instruction, motivating students, and promoting a positive classroom climate based on how students learn and develop. Prerequisite: ENGL 110C.
FOUN 302. Assessment of Learning. 3 Credits.
This course focuses on exploring and implementing ethical assessment principles in a K-12 setting in order to ensure equity amongst a diverse population of students. Students will discuss and develop assessments for formative and summative purposes. They will analyze and interpret assessment data to measure and promote student success. State assessment programs will be discussed including social justice implications. The purpose of this course is to prepare future educators to analyze instructional situations, identify instructional targets, and determine appropriate assessment tools to monitor and support student learning. Prerequisites: FOUN 301.

SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS EDUCATION Courses

STEM 101. Step 1 – Inquiry Approaches to Teaching STEM. 1 Credit.
Step 1 provides mathematics and science students with the opportunity to explore teaching in a real classroom setting. Master teachers introduce students to examples of high-quality inquiry-based lessons and model the pedagogical concepts to which they are being introduced. In Step 1, with the guidance of the master teacher, students engage in two classroom observations and prepare and teach three inquiry-based lessons in an upper elementary school classroom. A criminal background check will be required as part of this course.

STEM 102. Step 2 - Inquiry Based STEM Lesson Design. 1 Credit.
This course continues the exploration of inquiry-based lesson design in STEM education. In this course, students build upon and practice lesson design skills developed in Step 1 while also becoming familiar with exemplary mathematics or science curricula at the middle school level. With the guidance of the master teacher, students engage in one observation and prepare and teach three inquiry-based lessons in a middle school classroom. Students incorporate and demonstrate their content knowledge in developing the inquiry-based lessons. At the end of Step 2, students are generally ready to make a decision about whether they want to pursue a pathway to teacher licensure through the MonarchTeach program. Prerequisites: a grade of C or higher in STEM 101.

STEM 110T. Technology and Your World. 3 Credits.
An overview of the resources and systems of technology. Emphasis is on impacts that technology has on individuals and their careers. Activities explore the evolution of technology, its major systems and their impact on individuals and their careers.

STEM 201. Knowing and Learning in STEM Education. 3 Credits.
This course is designed to expand the students' understanding of current theories of learning and conceptual development in STEM. Students will investigate theories of knowing and learning in STEM and implications for teaching secondary mathematics and science. Students will examine their own assumptions about learning as well as critically examine the needs of a diverse student population in the classroom. Students are expected to independently register for and take the Praxis I examination while enrolled in this course. Pre- or corequisite: STEM 102.

STEM 202. Classroom Interactions in STEM Education. 3 Credits.
This course provides students with an overview of principles for teaching middle and secondary school mathematics or science through an exploration of the role of content, pedagogy, curriculum and technology as they promote learning and impact equity. Students are introduced to ways in which curriculum and technology are used in the classroom to build interrelationships among teachers and students. Frameworks for teaching students of diverse backgrounds equitably are emphasized in the course. A field component that consists of observations and teaching in the high school classroom is included. Prerequisites: grade of C or better in STEM 102. Pre- or corequisite: STEM 201.

STEM 221. Industrial Materials. 3 Credits.
A study of materials used by industry to produce products. Emphasis is on the study of ceramics, plastics, composites, and biotechnological materials. Students learn materials identification, use and processing.

STEM 231. Materials and Processes Technology. 3 Credits.
A study of the production processes used with metallic and forest product materials. Industrial resources, their location, extraction, and processing into standard stocks are also covered. Students learn properties, uses and processing of metal and wood materials.

STEM 241. Energy Systems: Basic Electricity. 3 Credits.
A study of direct and alternating current and its use in contemporary technology. Activities include experiments and projects to supplement the theory of electricity.

STEM 242. Technological Systems Control. 3 Credits.
Students will develop an understanding of systems control technology for application to energy and power, manufacturing, processing and transportation systems. Emphasis will be placed on research and development, creativity and experimentation, and trouble shooting in designing control systems.

STEM 251G. Computer Literacy: Communication and Information. 3 Credits.
A guided review of communication technology and information sources to help students discern between reliable and unreliable sources and techniques. Students develop skills in computer applications, information retrieval, filtering and analyzing data, and formatting and presenting information.

STEM 320. Manufacturing and Construction Technology. 3 Credits.
A study of production processes used in manufacturing and construction systems. Students will research and design manufactured products for mass production and constructed products for building. The social, cultural, environmental and economic impacts of manufacturing and constructed products on society are discussed. Prerequisites: STEM 221, STEM 231 or permission of instructor.

STEM 321. Manufacturing Technology. 3 Credits.
A study of the production processes used in manufacturing systems. Emphasis is placed upon planning, organizing and principles of manufacturing. Students research and design enterprise systems for mass production. Emphasis is on manufacturing design requirements and the social, cultural, and economic impacts of manufactured products on society and the environment. Prerequisites: STEM 221, STEM 231 or permission of instructor.

STEM 330. Medical, Agricultural, and Biological Technologies. 3 Credits.
A course for technology education majors that studies technological systems related to medical and food processing technologies. Students learn the basis of these technologies and complete activities that integrate the content with processes and products found in our technological world. Prerequisite: junior standing or permission of department.

STEM 350. Communication Technology Processes. 3 Credits.
The study of communication design principles and techniques for technology education. Emphasis is placed on the skills and equipment used in design, production, and distribution of communications. Print and electronic media are explored through technical illustration, video, audio, and other specialty processes of communications. Prerequisite: STEM 251G.

STEM 351. Communication Technology. 3 Credits.
A study of the development and impact of communication technology. Emphasis is placed on the integration of technical skills to produce information-based products such as print and telecommunications media. Prerequisite: junior standing or permission of the instructor.

STEM 360. Energy, Power, and Transportation Technologies. 3 Credits.
Study of the development of energy, power, and transportation systems and the movement of energy, power, people, and cargo. Areas of concern include vehicle systems design and support systems. Prerequisite: junior standing or permission of the instructor.
STEM 367. Cooperative Education. 1-3 Credits.
Available for pass/fail grading only. Student participation for credit based on the academic relevance of the work experience, criteria, and evaluative procedures as formally determined by the department and the Cooperative Education program prior to the semester in which the work experience is to take place. Prerequisites: approval by the department and Career Development Services, in accordance with the policy for granting credit for Cooperative Education programs.

STEM 370T. Technology and Society. 3 Credits.
A multidisciplinary course designed to provide insight into the fundamental, historical, and contemporary nature of technology as an area of human knowledge. Attention is given to the positive and negative aspects of technology and how they affect society. (This is a writing intensive course.) Prerequisites: grade of C or better in ENGL 211C or ENGL 221C or ENGL 231C; junior standing or permission of the instructor.

STEM 382. Industrial Design. 3 Credits.
Students will analyze and design products representative of today’s industrial technological society. Emphasis will be placed upon design methodology, aesthetic value, and design thinking. Prerequisites: junior standing.

STEM 401. Project Based Instruction in STEM Education. 3 Credits.
Through a dynamic process of investigation and collaboration, students aim to master techniques for project-based investigations in STEM classrooms, and teach project-based lessons in the secondary classroom. Students work in teams to formulate questions, make predictions, design investigations, collect and analyze data, make products and share ideas. The use of assessments to improve student learning is emphasized in the course. This course includes a field component that consists of two observation days and three teaching days in a secondary classroom. Prerequisites: STEM 201 and STEM 202.

STEM 402. Perspectives on STEM. 3 Credits.
This course explores the historical, social, and philosophical implications of mathematics and science through investigations of significant episodes in their history. Students are brought to understand that science and mathematics are not merely body of facts, theories, and techniques but involve diverse processes by which they are continually generated and reformulated. Prerequisites: Junior standing, admission to the MonarchTeach program plus 12 credit hours of science or math courses, and STEM 401. Pre- or corequisite: STEM 485.

STEM 433/533. Developing Instructional Strategies PreK-6: Mathematics. 3 Credits.
Following a theory into practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote children's development of attitudes, behaviors, and concepts in mathematics in grades PreK-6 in support of NCTM national instructional standards and the Virginia Standards of Learning. Prerequisites: MATH 102M, MATH 302, TLED 326, and Junior standing.

STEM 434/534. Developing Instructional Strategies PreK-6: Science. 3 Credits.
Following a theory into practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote children's development of attitudes, behaviors, and concepts in science in grades PreK-6 in support of AAAS national instructional standards and the Virginia Standards of Learning. Prerequisites: TLED 326 and Junior standing.

STEM 453/553. Developing Instructional Strategies for Teaching in the Middle/High School: Mathematics. 3 Credits.
Following a theory/research-into-practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote the development of attitudes, behaviors, and concepts in mathematics, grades 6-12, in support of national instructional standards and the Virginia Standards of Learning; 35 hours of teaching practicum required. Corequisite: TLED 483. Prerequisites: TLED 301, TLED 430W, SPED 313, passing scores on the Praxis Core examination or equivalent SAT scores as established by VA Board of Education, a criminal background check, acceptance into teacher education, grade requirement in the specific content area and professional education core, minimum major and overall GPA of at least 2.75.

STEM 454/554. Developing Instructional Strategies for Teaching in the Middle/High School: Science. 3 Credits.
Following a theory/research-into-practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote the development of attitudes, behaviors, and concepts in science, grades 6-12, informed by national instructional standards and the Virginia Standards of Learning; 35 hours of teaching practicum required. Corequisite: TLED 483. Prerequisites: TLED 301, TLED 430W, SPED 313, passing scores on the Praxis Core examination or equivalent SAT scores as established by VA Board of Education, a criminal background check, acceptance into teacher education, grade requirement in the specific content area and professional education core, minimum major and overall GPA of at least 2.75.

STEM 485. Apprentice Teaching. 9 Credits.
Internship in school. Available for pass/fail grading only. Offers prospective teacher candidates a culminating experience that provides them with the tools needed for their first teaching jobs. Students are immersed in a local secondary school for 10 consecutive weeks and experience the expectations, processes, and rewards of teaching. As part of their Apprentice Teaching experience, candidates will be required to attend a one hour weekly seminar that will bring them together with master teachers to share experiences and to explore issues, problems, concerns, and processes related to their teaching experiences and to entering the profession of teaching. Corequisite: STEM 402. Prerequisites: Completion of all course work in the MonarchTeach professional development sequence program and BIOL 468W or CHEM 468 or OAES 468W or PHYS 468W or SCI 468, passing scores on PRAXIS I or equivalent SAT or ACT scores as established by VA Board of Education, passing scores on the appropriate PRAXIS II content examination and the Virginia Communication and Literacy Assessment, departmental approval, minimum major and overall GPA of at least 2.75 and a criminal background check.

STEM 495/595. Topics. 1-3 Credits.
The advanced study of selected topics designed to permit small groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly. These courses will appear in the course schedule. Prerequisite: permission of the instructor.

STEM EDUCATION AND PROFESSIONAL STUDIES Courses

SEPS 100. Sales Techniques. 3 Credits.
This is an introductory course that emphasizes the concept of determining customer needs, wants, and desires and matching them to products and services for a long-term sales relationship.

SEPS 102. Advertising and Promotion. 3 Credits.
This is an introductory course designed to teach the fundamental product and service promotion processes of planning and producing advertising and promotion campaigns.

SEPS 195. Topics. 1 Credit.
Topics of current interest in the area of STEM Education and Professional Studies.

SEPS 203S. Dress, Culture and Society. 3 Credits.
This course is an analysis of dress in cultures around the world while developing an understanding of its relationship to human beings as biological, aesthetic, and social animals. Human beings dress their bodies to communicate identity and to receive personal satisfaction. Students will discover how global fashion, age, gender, ethnicity, and income influence the fashion industry and our lives.

SEPS 208. Retail Merchandising and Buying. 3 Credits.
This course introduces students to the fundamentals of retail merchandising and explores retail buyers' skills and responsibilities including identifying customers and vendors, retail mathematics, buying plans, and merchandise control.

SEPS 220. The Fashion Industry. 3 Credits.
Course is designed for marketing education and fashion students. It covers fashion as a force which alters patterns of change and growth in the fashion industry to include designers, manufacturers, buyers, retailers, and customers. Students explore the latest trends in style and materials.
SEPS 223A. Visual Merchandising and Display. 3 Credits.
This course is designed to introduce students to the best practices and effective strategies in visual merchandising. It will provide the basic framework with which prospective merchandisers plan and construct visual displays that enhance the selling of merchandise and ideas.

SEPS 234. Survey of Dress and Costume. 3 Credits.
Whether high fashion or low, glitz or grunge, from revolutionary politics to the new machine age, war and depression to growth and prosperity, fashion dress and costume goes hand-in-hand with history. This course examines the evolution of dress and costume and finds innovation at every turn.

SEPS 295. Topics. 1 Credit.
Topics of current interest in the area of STEM Education and Professional Studies.

SEPS 297. Observation and Participation. 1 Credit.
Students observe middle and/or high school classes for 30 clock hours. Assist teachers and students in practical settings. Relate principles and theories of education and specialty content to actual practice in the classrooms and schools. Attend seminars related to contemporary school practices. Prerequisites: sophomore standing.

SEPS 302. Workforce Supervision. 3 Credits.
Explores the skills and knowledge required of successful supervisors: leading, motivating, setting goals, delegating, budgeting, interviewing, negotiating, counseling, coaching, conducting meetings, and handling grievances. Prerequisite: junior standing or permission of the instructor.

SEPS 355. Fashion Consumer Behavior. 3 Credits.
This course is designed to enhance a student's understanding of what drives customers' wants and needs for fashion merchandise. Students examine the forces that affect consumer buying behavior and how they relate to the marketing of fashion. Prerequisites: SEPS 208 and SEPS 220.

SEPS 367. Cooperative Education. 1-3 Credits.
Student participation for credit based on the academic relevance of the work experience, criteria, and evaluative procedures as formally determined by the department and the Cooperative Education program prior to the semester in which the work experience is to take place. Prerequisite: approval by the department in accordance with the policy for granting credit for Cooperative Education programs.

SEPS 389. Education and Training of Adults. 3 Credits.
An in-depth overview of education and training of adults. Attention is given to adult learning theory and strategies for facilitating the learning process. Aspects of the course will focus on helping students understand and visualize jobs and careers in adult education and training. Prerequisite: junior standing or permission of the instructor.

SEPS 395. Topics in Occupational Education. 1-3 Credits.
The department offers selected topics designed to permit small groups of qualified students to work on subjects of mutual interest. Prerequisite: permission of the instructor.

SEPS 400/500. Instructional Systems Development. 3 Credits.
Students learn how to design and develop classroom instructional materials including career and technical education and training curricula and programs for youths and adults. Skills in this area include the selection and use of materials, including media and computers and evaluation of pupil performance. Training specialist students learn to develop instructional materials using the instructional systems design process. Career and technical education students learn to plan instruction, to implement competency-based and standards-based education, and to modify and use the Virginia career and technical education curriculum guides. Prerequisite: junior standing.

SEPS 401/501. Foundations of Career and Technical Education. 3 Credits.
This course is designed to teach career and technical education majors to plan, develop, and administer a comprehensive program of career and technical education for high school students and adults. Students also develop an understanding of the historical and sociological foundations underlying the role, development and organization of public education in the United States. Prerequisite: junior standing.

SEPS 402/502. Instructional Methods in Occupational Studies. 3 Credits.
Designed to develop a student's ability to use basic instructional techniques and methods applicable to career and technical education, and adults in business, government, and industrial organizations. It involves videotaped micro-teaching demonstrations and presentations. Prerequisite: SEPS 400.

SEPS 405. Directed Work Experience. 4 Credits.
Student must be employed the summer prior to his/her senior year in an emphasis-related job approved by the instructor. The student work is supervised by a job supervisor and the course instructor in a cooperative effort. Must complete a job package that describes all aspects of the organization. Prerequisites: junior standing.

SEPS 408/508. Advanced Classroom Issues and Practices in Career and Technical Education. 3 Credits.
An overview of classroom issues and practices for prospective career and technical teachers. The course covers classroom management and safety, communication processes, reading in the content area and child abuse and neglect recognition and intervention. Students learn the legal requirements and alternative teaching strategies for serving students with special needs. Students visit schools for a 30-hour student observation. PRAXIS II and VCLA are course completion requirements. Prerequisite: admission to an approved teacher education program.

SEPS 409/509. Fashion Forecasting Market Trip. 3 Credits.
This is the study of planning and conducting a fashion buying trip to one of the major fashion markets in the United States like the Las Vegas Magic Trade Show. The students envision themselves as buyers in action and learn how trend forecasting and creative presentations help market fashion products and services to trade customers and consumers. Prerequisite: SEPS 208.

SEPS 410/510. The Foreign Fashion Market Trip. 3 Credits.
Students plan and conduct a fashion buying trip to a foreign market in Europe or Asia, and learn how to buy merchandise in the global marketplace. The course requires students to go on the trip as well as attend the pre- and post-trip classes. Prerequisite: SEPS 208.

SEPS 415. Advanced Merchandising. 3 Credits.
This course is designed for marketing education and fashion students. It includes advanced merchandising math concepts used in the merchandising industry. Topics include pricing and re-pricing merchandise, creating and analyzing six-month plans, maintaining inventory control, and solving problems that are typically experienced in the merchandising field. Prerequisite: SEPS 208.

SEPS 420. Fashion Research. 3 Credits.
This course is designed to apply diverse research methods to explore the complex dynamics in fashion. Utilizing an interdisciplinary approach, students will engage in diverse topics in fashion bridging the gap between theory and practice. Prerequisites: SEPS 208 and SEPS 220.

SEPS 422. Fashion Product Development. 3 Credits.
Students work step-by-step through the preproduction processes of apparel product development: planning, forecasting, fabricating, developing silhouettes and specifications, pricing, and sourcing. The course demonstrates how these processes must be coordinated to get the right product to retail when consumers want it and at a price they are willing to pay. Prerequisites: SEPS 208 and SEPS 220.

SEPS 424/524. Fashion, Textiles, and Construction Analysis. 3 Credits.
This course explores information related to new technological advances in the textile/apparel industry and determines consumer preferences and concepts of fashion product quality. It includes the development of standards for judging qualities of merchandise. Fabrics are examined to determine the value they provide to the apparel and accessories customer. Prerequisite: junior standing or permission of the instructor.

SEPS 427. Fashion Marketing. 3 Credits.
This course explains key concepts of fashion marketing and illustrates how they are applied within the fashion industry. Using examples and case studies, students will examine how marketers develop and apply strategies that meet consumer needs for fashion products. Prerequisites: SEPS 208 and SEPS 220.
SEPS 431/531. Web-Based Organization for Fashion. 3 Credits.
This course provides the basic communications foundations needed to conceive, plan, develop, implement, and maintain a Web-based organization for fashion. Upon completion, students will understand what is required to plan, launch and maintain a successful online venture, limited only by the willingness of the student to explore these technological advances. Prerequisite: STEM 251G.

SEPS 435/335. International Retailing. 3 Credits.
This course examines globalization and the development of an integrated global economy. Primary emphasis is placed on the strategies for successful global business expansion for retailers in international markets. Prerequisites: SEPS 220 or SEPS 208.

SEPS 440/540. Fashion Global Sourcing/Supply Chain Management. 3 Credits.
This course examines the role of global sourcing in the strategic positioning of retailers in the global economy. Emphasis is placed on economic, political, logistical, and ethical factors affecting world trade and global sourcing decisions. Prerequisite: SEPS 220 or SEPS 208.

SEPS 450/550. Assessment, Evaluation and Improvement. 3 Credits.
This course prepares training and educational professionals to plan for and conduct assessments to use in planning instructional programs, evaluate individual learning, monitor student progress, measure program effectiveness and efficiency, and evaluate the return on investments of training courses and programs. Prerequisite: junior standing.

SEPS 456. E-Commerce and Social Media in Fashion. 3 Credits.
This course is designed to understand the expanding fields of e-commerce and social media. It will focus on examining features available in social media and the web/mobile technologies and their ability to improve fashion marketing strategies. Prerequisites: SEPS 208 and SEPS 220.

SEPS 480. Senior Project: Merchandise Retailing. 3 Credits.
A senior capstone course in which fashion and business knowledge and skills are applied to plan and implement a merchandise retailing business. Students must submit a professional quality written report and present results to a panel of consultants. Course to be taken final semester before graduation.

SEPS 481. Occupational Career Transition. 3 Credits.
To provide the senior-level student majoring in occupational and technical studies with the skills and techniques necessary to bridge the gap from college to career. Focus is on the generation of a professional portfolio and experiential learning that will transfer into today's job market. This course should be taken in the final semester before graduation. Prerequisites: Senior standing.

SEPS 484/584. Student Teaching Mentored. 6-12 Credits.
Classroom placement in school systems for students to apply content and methodologies. The student is mentored by a school mentor and university faculty. This course is for newly hired teachers on provisional contracts. Prerequisites: completion of the approved teacher education program in the major area, departmental approval, and permission of the director of teacher education services; passing scores on PRAXIS I or State Board of Education-approved SAT or ACT scores and passing scores on the appropriate PRAXIS II content examination required.

SEPS 485. Student Teaching. 12 Credits.
Five days per week, full semester. Available for pass/fail grading only. Prerequisites: completion of the approved teacher education program in the major area, departmental approval, passing scores on PRAXIS I or State Board of Education-approved SAT or ACT scores, passing scores on the appropriate PRAXIS II content examination, and permission of the director of teacher education services.