



# PTS PATHWAY



# PLANNING



# GUIDES



PTS Pathway Planning Guides have been developed to provide guidance for area, district and school personnel in support of the PTS program. Information for each PTS pathway includes student certification opportunities; teacher certification and knowledge/skills requirements; student required and recommended courses; and equipment, supplies and space requirements. These guides are intended to assist personnel in making decisions about which PTS Pathways to offer at their schools and to provide information for the maintenance of current PTS programs.



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# DESIGN/PRE-CONSTRUCTION PATHWAY

## ARCHITECTURE & CONSTRUCTION CLUSTER

**SIGNIFICANCE:** This cluster covers a wide range of skills in the building industry. Career opportunities in this area continue to grow with competitive salaries available.

**STUDENT CERTIFICATION OPPORTUNITIES:** N/A

**REQUIRED TEACHER CATEGORIES:** No required category. Preferred categories:  
**0366** Teacher, Technology Education or  
**0361** Teacher, Computer Science

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** See Knowledge/Skills

**KNOWLEDGE/SKILLS (software, etc.)** AutoDesk Software - AutoCAD, Architectural Desktop, Revit, Inventor, Mechanical Desktop, 3ds Max

**REQUIRED COURSES:** **PTE305** Architectural Drawing  
**PTE405** Applied Architecture Drawing/CAD

**RECOMMENDED COURSES:** **PTE301** Principles of Engineering  
**PTE603** Engineering Design/Development  
**PTI409** Computer Animation  
**MAD501** Math Analysis  
**SCP501** Physics  
**PTW50\*** Career Practicum (Pathway Related)

| CATEGORY                         | COST AND DESCRIPTION   | RESPONSIBILITY            |
|----------------------------------|--|---------------------------|
| STARTUP EQUIPMENT COSTS:         | N/A  |                           |
| STARTUP/REQUIRED SOFTWARE COSTS: | \$0 – AutoDesk Design Academy and Autodesk Animation Academy software provided by HQ contract.   | HQ                        |
| REQUIRED COMPUTERS:              | \$3,500 per lab computer. Number of computers per lab is school dependent. It is strongly recommended that the best computers possible be made available for this curricular area. | Area, District, or School |
| ANNUAL CONSUMABLES COST:         | \$500—Printing supplies  | District or School        |
| ANNUAL MAINTENANCE COSTS:        | N/A  |                           |
| PROJECTED UPGRADES:              | High-end computer upgrades every 3–5 years   | Area or District          |
| FACILITY/SPACE REQUIREMENTS:     | Adequate space for 1 computer per student.   |                           |

# AUDIO & VIDEO TECHNOLOGY & FILM PATHWAY

## ARTS, A/V TECHNOLOGY & COMMUNICATIONS CLUSTER

**SIGNIFICANCE:** This field appeals to creative individuals and those who are masters of technology. There is a never-ending demand for news, art, and entertainment and with an expanding population; this career field will continue to offer an abundance of career opportunities.

**STUDENT CERTIFICATION OPPORTUNITIES:** N/A

**REQUIRED TEACHER CATEGORIES:** **0301** Teacher, Video Communications

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** N/A

**KNOWLEDGE/SKILLS (software, etc.)** Adobe Premiere, Final Cut Pro

**REQUIRED COURSES:** **PTV301** Video Communications I  
**PTV401** Video Communications II

**RECOMMENDED COURSES:** **PTV501** Video Communications III  
**PTW50\*** Career Practicum  
**PTI310** TLC Technology Leadership Community  
**PTI405** Interactive Multimedia

| CATEGORY                                | COST AND DESCRIPTION   | RESPONSIBILITY             |
|---|--|----------------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | \$30,000+ Includes lights, cameras, tripods, computers, mixer, sound equipment (microphones, sound board, etc.), scaffolding, furniture, props, green screen, stage settings, etc. | Area/School                |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | Adobe Premiere Elements. Adobe Premiere Pro, and/or Final Cut Express (for Macs)   | HQ                         |
| <b>REQUIRED COMPUTERS:</b>              | Computers with firewire, fast USB, and large storage capabilities.   | Area/School                |
| <b>ANNUAL CONSUMABLES COST:</b>         | Includes tapes, digital media, equipment repair & replacement  | School                     |
| <b>ANNUAL MAINTENANCE COSTS:</b>        | Budgeting for cycle of new cameras and other basic equipment would require a yearly expenditure of approximately \$2,000.  | School                     |
| <b>PROJECTED UPGRADES:</b>              | Software Upgrades<br>Equipment as the field advances   | HQ<br>Area/District/School |
| <b>FACILITY/SPACE REQUIREMENTS:</b>     | Classroom that can serve as editing/production space and studio space.   | School                     |

**COMMENTS:** This is an ever-changing field which impacts the entire learning community. Outreach from this program can facilitate community relationships and enable student interaction with deployed troops as well as local communities. The successful integration of video production within a school could enhance and promote distance education in other subject areas.

# JOURNALISM & BROADCASTING PATHWAY

## ARTS, A/V TECHNOLOGY & COMMUNICATIONS CLUSTER

**SIGNIFICANCE:** This field appeals to creative individuals and those who are masters of technology. There is a never-ending demand for news, art, and entertainment and with an expanding population; this career field will continue to offer an abundance of career opportunities.

**STUDENT CERTIFICATION OPPORTUNITIES:** None at this time.

**REQUIRED TEACHER CATEGORIES:** **0301** Teacher, Video Communications  
**0311** Teacher, Speech  
**0312** Teacher, Journalism

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** N/A

**KNOWLEDGE/SKILLS (software, etc.)** Adobe Premiere, Final Cut Pro

**REQUIRED COURSES:** **PTV301** Video Communications I  
**LAS401** Speech or  
**LAJ401** Journalism I

**RECOMMENDED COURSES:** **PTV401** Video Communications II  
**PTV501** Video Communications III  
**DRA301** Drama – Theater  
**LAS401** Speech  
**LAJ401** Journalism I;  
**BCB303** Word Processing Software Applications  
**PTW50\*** Career Practicum

| CATEGORY                                | COST AND DESCRIPTION  | RESPONSIBILITY |
|---|---|----------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | \$30,000+ Includes lights, cameras, tripods, computers, mixer, sound equipment (mics, sound board, etc.), scaffolding, furniture, props, green screen, stage settings, etc. | Area/School    |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | Adobe Premiere Elements. Adobe Premiere Pro, and/or Final Cut Express (for Macs)  | HQ             |
| <b>REQUIRED COMPUTERS:</b>              | Computers with firewire, fast USB, and large storage capabilities.  | Area/School    |
| <b>ANNUAL CONSUMABLES COST:</b>         | Includes tapes, digital media, equipment repair & replacement   | School         |
| <b>ANNUAL MAINTENANCE COSTS:</b>        | Budgeting for cycle of new cameras and other basic equipment would require a yearly expenditure of approximately \$2,000.   | School         |

## JOURNALISM & BROADCASTING (CONT.)

| CATEGORY   | COST AND DESCRIPTION   | RESPONSIBILITY             |
|--|--|----------------------------|
| <b>PROJECTED UPGRADES:</b>   | Software Upgrades<br>Equipment as the field advances                   | HQ<br>Area/District/School |
| <b>FACILITY/SPACE REQUIREMENTS:</b>  | Classroom that can serve as editing/production space and studio space. | School                     |
| <b>COMMENTS:</b> This is an ever-changing field which impacts the entire learning community. Outreach from this program can facilitate community relationships and enable student interaction with deployed troops as well as local communities through journalism and broadcasting. |  |                            |

# ADMINISTRATION & INFORMATION SUPPORT PATHWAY

## BUSINESS, MANAGEMENT & ADMINISTRATION CLUSTER

**SIGNIFICANCE:** Whatever you do in your professional life, the chances are that it will involve some ‘business’. Scientists, engineers, even artists, will inevitably have to understand at least the basics of business, if not more! Students use technology to perform and coordinate the administrative activities of an office and to ensure that information is collected and disseminated to staff and clients. Through 2010, certain jobs in this sector are expected to increase at a greater than average rate, including customer service representatives, paralegals, receptionists and information/records clerks. Job opportunities for computer and data processing services will be excellent for most workers.

**STUDENT CERTIFICATION OPPORTUNITIES:** Microsoft Office Specialist: Word Core & Expert, PowerPoint Core, Excel Core & Expert, Access Core

**REQUIRED TEACHER CATEGORIES:** **0360** Teacher, Business

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** N/A

**KNOWLEDGE/SKILLS (software, etc.)** Microsoft Office – Word, Excel, Access and PowerPoint

**REQUIRED COURSES:** **PTB303** Word Processing Software Applications;  
**PTB304** Presentations Software Applications  
**PTB306** Spreadsheet Software Applications

**RECOMMENDED COURSES:** **PTB305** Database Software Applications  
**PTB307** Imaging Software Applications  
**PTB308** Publications Software Applications  
**PTB401** Management Int’l Business  
**PTB402** Accounting I  
**PTI407** Web Site Development/Management  
**PTW50\*** Career Practicum (Pathway Related )

| CATEGORY                         | COST AND DESCRIPTION                              | RESPONSIBILITY |
|----------------------------------|---|----------------|
| STARTUP EQUIPMENT COSTS:         | N/A   |                |
| STARTUP/REQUIRED SOFTWARE COSTS: | Microsoft Office: Word, Excel, PowerPoint, Access | School/Area    |
| REQUIRED COMPUTERS:              | Standard Computer, 1 per student                  | School/Area    |
| ANNUAL CONSUMABLES COST:         | N/A   |                |
| ANNUAL MAINTENANCE COSTS:        | N/A   |                |

## ADMINISTRATION & INFORMATION SUPPORT (CONT.)

| CATEGORY                     | COST AND DESCRIPTION                       | RESPONSIBILITY |
|------------------------------|--|----------------|
| PROJECTED UPGRADES:          | N/A  |                |
| FACILITY/SPACE REQUIREMENTS: | Adequate space for 1 computer per student. |                |

# BUSINESS FINANCIAL MANAGEMENT & ACCOUNTING PATHWAY

## BUSINESS, MANAGEMENT & ADMINISTRATION CLUSTER

**SIGNIFICANCE:** Employees in the Business Financial Management and accounting pathway help design, install, maintain and use general accounting principals to prepare, analyze and verify financial reports and related economic information to help make important financial decisions for an organization. Employment of accountants and auditors is expected to maintain average growth through 2010.

**STUDENT CERTIFICATION OPPORTUNITIES:** N/A

**REQUIRED TEACHER CATEGORIES:** **0360** Teacher, Business

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** N/A

**KNOWLEDGE/SKILLS (software, etc.)** Peachtree Accounting Software

**REQUIRED COURSES:** **PTB402** Accounting I  
**PTB502** Accounting II

**RECOMMENDED COURSES:** **PTB401** Mgmt International Business  
**PTB503** Business Law  
**PTI303** Word Processing Software Applications  
**PTI304** Presentations Software Applications  
**PTI305** Database Software Applications  
**PTI306** Spreadsheet Software Applications  
**PTW50\*** Career Practicum (Pathway Related )

| CATEGORY                         | COST AND DESCRIPTION   | RESPONSIBILITY                                |
|----------------------------------|--|---|
| STARTUP EQUIPMENT COSTS:         | N/A  |   |
| STARTUP/REQUIRED SOFTWARE COSTS: | Peachtree Accounting Software  | Came with textbook purchase – student edition |
| REQUIRED COMPUTERS:              | Standard Computer, 1 per student   | School/Area                                   |
| ANNUAL CONSUMABLES COST:         | Working Papers<br>Outer Banks Marketplace Inc. Accounting Simulation (Acct. I) | School  |
| ANNUAL MAINTENANCE COSTS:        | N/A  |   |
| PROJECTED UPGRADES:              | N/A  |   |
| FACILITY/SPACE REQUIREMENTS:     | Adequate space for 1 computer per student.                                     |   |

# MANAGEMENT PATHWAY

## BUSINESS, MANAGEMENT & ADMINISTRATION CLUSTER

**SIGNIFICANCE:** Employees working in the management pathway focus on preparation and execution of business activities; supervision of other employees; maintenance of facilities, equipment and supplies; organization of operations and production; utilization of marketing functions to ensure success; performance of financial functions; communication with customers, clients and others; performance of administrative functions; and use of professional services. Wage and salary job in business management and administrative services are expected to grow by 42% through the year 2010. Occupations in this pathway are among the fastest growing in the industry. Projected job growth can be attributed to the increasing complexity of business.

**STUDENT CERTIFICATION OPPORTUNITIES:** N/A

**REQUIRED TEACHER CATEGORIES:** **0360** Teacher, Business

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** N/A

**KNOWLEDGE/SKILLS (software, etc.):** N/A

**REQUIRED COURSES:** **PTB401** Management International Business  
**PTB501** Marketing & Entrepreneurship

**RECOMMENDED COURSES:** **PTB402** Accounting I  
**PTI305** Database Software Applications  
**PTI306** Spreadsheet Software Applications  
**PTI308** Publication Software Applications  
**PTB503** Business Law  
**PTW50\*** Career Practicum (Pathway related)

| CATEGORY                         | COST AND DESCRIPTION                           | RESPONSIBILITY |
|----------------------------------|--|----------------|
| STARTUP EQUIPMENT COSTS:         | N/A  |                |
| STARTUP/REQUIRED SOFTWARE COSTS: | N/A  |                |
| REQUIRED COMPUTERS:              | N/A  |                |
| ANNUAL CONSUMABLES COST:         | N/A  |                |
| ANNUAL MAINTENANCE COSTS:        | N/A  |                |
| PROJECTED UPGRADES:              | N/A  |                |
| FACILITY/SPACE REQUIREMENTS:     | Adequate space for students to work in groups. |                |

# THERAPEUTIC SERVICES PATHWAY

## HEALTH SCIENCE CLUSTER

**SIGNIFICANCE:** Health care services is expected to increase 28 percent through the year 2012, accounting for about 3.5 million jobs. Advancement in medical technology is opening new health care fields every year. In addition to the strictly medical-oriented professions, jobs designed to help people stay healthy and improve their quality of life are also thriving.

**STUDENT CERTIFICATION OPPORTUNITIES:** OSHA Bloodborne Pathogens Certificate  
Cardiopulmonary Resuscitation (CPR) Certificate  
Nurse Aide Certificate

**REQUIRED TEACHER CATEGORIES:** **0478** School Nurse

**SPECIAL STAFFING REQUIREMENTS:** May hire Health Care Technician or other appropriate health care professional to cover school nurse office while nurse is providing instruction.

**REQUIRED TEACHER TRAINING:** Must complete training each year for three years in order for the teacher to become certified. Must complete training each year before teaching students at that level.

**KNOWLEDGE/SKILLS (software, etc.)** N/A

**REQUIRED COURSES:** **PTH402** Health Science I  
**PTH502** Health Science II

**RECOMMENDED COURSES:** **PTZ306** Nutrition Fitness And Wellness  
**SCX401** Human Anatomy And Physiology  
**SSP501** Psychology  
**SSS401** Sociology  
**PTI104** Computer Applications I  
**PTW50\*** Career Practicum

| CATEGORY                         | COST AND DESCRIPTION   | RESPONSIBILITY         |
|----------------------------------|--|------------------------|
| STARTUP EQUIPMENT COSTS:         | \$5,000 for medical supplies. Items such as hospital bed, privacy screens, and blood pressure cuffs, and so on (some medical items may be borrowed from the base hospital or clinic).              | District and/or school |
| STARTUP/REQUIRED SOFTWARE COSTS: | \$2,500 for textbooks  | District and/or school |
| REQUIRED COMPUTERS:              |  |                        |
| ANNUAL CONSUMABLES COST:         | \$1500   | School                 |
| ANNUAL MAINTENANCE COSTS:        | \$0  |                        |
| PROJECTED UPGRADES:              | N/A  |                        |
| FACILITY/SPACE REQUIREMENTS:     | Classroom with space to house medical items (1,500-2,000 Sq. Ft.) Hot and cold water supply. Electrical outlets at counter height where counters are available. Student dressing rooms (optional). | School                 |

# LODGING PATHWAY

## HOSPITALITY & TOURISM CLUSTER

**SIGNIFICANCE:** Jobs in the hospitality and tourism industry are expected to increase by 17% in the next decade.

**STUDENT CERTIFICATION OPPORTUNITIES:** Certified Rooms Division Specialist (CRDS)

**REQUIRED TEACHER CATEGORIES:** **0360** Teacher, Business  
or  
**0365** Teacher, Home Economic

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** Must complete training each year for three years in order for the teacher to become certified. Must complete training each year before teaching students at that level.

**KNOWLEDGE/SKILLS (software, etc.)** Microsoft Office—Word, Excel, Access and PowerPoint

**REQUIRED COURSES:** **PTL401** Lodging I (1 HR) and  
**PTL502** Lodging II (2 HR)  
or  
**PTL402** Lodging I (2 HR) and  
**PTL501** Lodging II (1 HR)

**RECOMMENDED COURSES:** **PTB501** Marketing and Entrepreneurship  
**PTF401** Culinary Arts I  
**PTB401** Management International Business  
**PTZ306** Nutrition Fit and Wellness  
**PTW50\*** Career Practicum—Must work in the lodging facility at least 30 days to obtain certification

| CATEGORY   | COST AND DESCRIPTION                                   | RESPONSIBILITY    |
|--|--|-------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>  | \$500—Materials for classroom                          | School            |
| <b>STARTUP/REQUIRED TEXTBOOKS COSTS:</b>   | Textbooks \$1,500—20 student<br>Teacher resource—\$500 | School            |
| <b>REQUIRED COMPUTERS:</b>   | \$4,000—4 for student use—1 for teacher                | School            |
| <b>ANNUAL CONSUMABLES COST:</b>  | Replacement textbooks/workbooks                        | School            |
| <b>ANNUAL MAINTENANCE COSTS:</b>   | \$0  | School            |
| <b>PROJECTED UPGRADES:</b>   | Once every five years                                  | District and area |
| <b>FACILITY/SPACE REQUIREMENTS:</b>  | N/A  |                   |
| <b>COMMENTS:</b> First and second year expenses are very similar. The biggest cost will be textbooks and workbooks for each student. Certification exams for students are ordered through the Hotel and Motel Association. |  |                   |

# RESTAURANT & FOOD & BEVERAGE SERVICES PATHWAY

## HOSPITALITY & TOURISM CLUSTER

**SIGNIFICANCE:** Jobs in the food and beverage service industry are expected to increase by 16% in the next decade.

**STUDENT CERTIFICATION OPPORTUNITIES:** Prostart Certificate of Achievement

**REQUIRED TEACHER CATEGORIES:** **0365** Teacher, Home Economic

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** Must complete training each year for three years in order for the teacher to become certified. Must complete training each year before teaching students at that level.

**KNOWLEDGE/SKILLS (software, etc.)** N/A

**REQUIRED COURSES:** **PTF401** Culinary Arts I  
**PTF402** Culinary Arts II

**RECOMMENDED COURSES:** **PTF403** Culinary Arts III  
**PTB501** Marketing & Entrepreneurship  
**PTL401** Lodging I (1 HR) or  
**PTL402** Lodging II (1 HR)  
**PTZ306** Nutrition Fit And Wellness  
**PTW50\*** Career Practicum

| CATEGORY  | COST AND DESCRIPTION  | RESPONSIBILITY      |
|---|---|---------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>   | Minimal if family and consumer programs were taught in the school   | Area or district    |
| <b>STARTUP/REQUIRED SOFTWARE/TEXTBOOK COSTS:</b>  | \$5,000 food and equipment<br>\$0 software cost<br>\$2,500 student materials*<br>\$1,500 teacher materials and videos | District and school |
| <b>REQUIRED COMPUTERS:</b>  | 1 per classroom   | N/a                 |
| <b>ANNUAL CONSUMABLES COST:</b>   | \$5,000 food and student workbooks  | School              |
| <b>ANNUAL MAINTENANCE COSTS:</b>  | \$0 (no maintenance contracts necessary)  | N/a                 |
| <b>PROJECTED UPGRADES:</b>  | \$3,000 every 5 years (estimate)  | Area or district    |
| <b>FACILITY/SPACE REQUIREMENTS:</b>   | A home economic classroom   | School              |
| <b>COMMENTS:</b> *Student workbook includes Prostart exam answer sheet and workplace competency checklist—student and teacher materials are ordered through Prostart at the national Culinary Arts Association. |   |                     |

# PERSONAL CARE SERVICES PATHWAY

## HUMAN SERVICES CLUSTER

**SIGNIFICANCE:** Job opportunities generally should be good. Overall employment of barbers, cosmetologists, and other personal appearance workers is projected to grow about as fast as the average over the next decade. Opportunities will be best for those licensed to provide a broad range of services.

**STUDENT CERTIFICATION OPPORTUNITIES:** States allow Pathway credit to be applied toward state licensure requirements. The number of hours that may be applied vary from state to state.

**REQUIRED TEACHER CATEGORIES:** Must be a state certified/licensed cosmetologist.

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** Must maintain a current state certificate/license in order to continue teaching.

**KNOWLEDGE/SKILLS (software, etc.)** Microsoft Office – Word, Excel, Access and PowerPoint

**REQUIRED COURSES:** **PTC301** Cosmetology I  
**PTC401** Cosmetology II

**RECOMMENDED COURSES:** **PTC501** Cosmetology III  
**PTC601** Cosmetology IV  
**PTC303** Fashion Modeling  
**PTB401** Business Management  
**SCX401** Human Anatomy & Phy  
**PTB301** Business And Personal Finance  
**ARH401** Photography I  
**BCT407** Web Site Dev/Man  
**PTB301** Personal Finance  
**PTW50\*** Career Practicum/Salon

| CATEGORY                         | COST AND DESCRIPTION  | RESPONSIBILITY    |
|----------------------------------|---|-------------------|
| STARTUP EQUIPMENT COSTS:         | \$25,000 sinks, workstations and salon supplies   | Area and district |
| STARTUP/REQUIRED SOFTWARE COSTS: | \$2,000 for textbooks   | School            |
| REQUIRED COMPUTERS:              | 1 per classroom   |                   |
| ANNUAL CONSUMABLES COST:         | \$3,000   | School            |
| ANNUAL MAINTENANCE COSTS:        | None  |                   |
| PROJECTED UPGRADES:              | None  |                   |
| FACILITY/SPACE REQUIREMENTS:     | Classroom and a lab setting with sinks and electrical plugs for hair dryers and equipment |                   |

# INFORMATION SUPPORT & SERVICES PATHWAY

## INFORMATION TECHNOLOGY CLUSTER

**SIGNIFICANCE:** The Information Support and Services Pathway provides students an opportunity to learn the skills to enter the Information Technology field as a certified computer technician.

**STUDENT CERTIFICATION OPPORTUNITIES:** CompTIA A+ Certification

**REQUIRED TEACHER CATEGORIES:** No required category. See Required Teacher Training.

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** To teach **PTI309** Computer Service & Support, instructors must successfully complete the IT Essentials I training at an established Cisco Regional Academy.

**KNOWLEDGE/SKILLS (software, etc.):** Basic computer hardware and operating systems.

**REQUIRED COURSES:** **PTI309** Computer Service & Support  
**PTE309** Digital Electronics I or  
**PTP305** Java I or  
**PTP307** Visual BASIC

**RECOMMENDED COURSES:** **PTE309** Digital Electronics I  
**PTE409** Digital Electronics II  
**PTE301** Principles of Engineering  
**PTP305/306** (OT) Java I & II  
**PTP307/308** (OT) Visual BASIC Programming I & II  
**PTI303** Word Processing Software Applications  
**PTI304** Presentation Software Applications  
**PTI305** Database Software Applications  
**PTI306** Spreadsheet Software Applications  
**PTI407** Web-Site Development & Management  
**PTP511/512** AP Computer Science A/AB  
**PTI501** Cisco Networking I  
**PTW50\*** Career Practicum (Pathway Related)

| CATEGORY                                | COST AND DESCRIPTION  | RESPONSIBILITY     |
|---|---|--------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | \$8,000 (for 5 computer kits, operating systems, tools, supplies, printer, router). | Area or District   |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | \$0 (Cisco provided curriculum to qualified teachers)                               |                    |
| <b>REQUIRED COMPUTERS:</b>              | \$5,000 (minimum of 5 low end PCs)  | Area or District   |
| <b>ANNUAL CONSUMABLES COST:</b>         | \$800 (Replacement hardware components and tools, etc.).                            | District or School |

## INFORMATION SUPPORT & SERVICES (CONT.)

| <b>CATEGORY</b>                     | <b>COST AND DESCRIPTION</b>  | <b>RESPONSIBILITY</b> |
|-------------------------------------|--|-----------------------|
| <b>ANNUAL MAINTENANCE COSTS:</b>    | \$0 (No maintenance contracts necessary)                                 | Area or District      |
| <b>PROJECTED UPGRADES:</b>          | \$5,000 every 5 years (estimate)   | Area or District      |
| <b>FACILITY/SPACE REQUIREMENTS:</b> | A standard classroom with space for 1 computer per student and lab work. |                       |

# INTERACTIVE MEDIA PATHWAY

## INFORMATION TECHNOLOGY CLUSTER

**SIGNIFICANCE:** Careers in Interactive Media involve creating, designing and producing interactive multimedia products and services, including the development of digitally-generated or computer-enhanced media used in business, training, entertainment, communications and marketing. Organizations of all types and sizes use digital media (Internet, CD-ROM, DVD) to communicate with existing and potential customers, to track transactions, and to collaborate with colleagues. Interactive media experts can find employment opportunities in organizations of all sizes and types, doing work such as creating e-business auction websites. Over 195,000 jobs in Interactive media are projected immediately; 35,000 in IT companies and 160,000 in IT-reliant companies.

|   |   |
|---|---|
| <b>STUDENT CERTIFICATION OPPORTUNITIES:</b> | Adobe InDesign Certification Exam<br>Adobe PhotoShop Certification Exam   |
| <b>REQUIRED TEACHER CATEGORIES:</b>         | <b>0360</b> Teacher, Business or 0361 Teacher, Computer Science or 0366 Teacher, Technology Education   |
| <b>SPECIAL STAFFING REQUIREMENTS:</b>       | N/A   |
| <b>REQUIRED TEACHER TRAINING:</b>           | N/A   |
| <b>KNOWLEDGE/SKILLS (software, etc.)</b>    | Adobe Premiere Elements, Macromedia Studio, Adobe Photoshop Elements, Adobe InDesign  |
| <b>REQUIRED COURSES:</b>                    | <b>PTI405</b> Interactive Multimedia<br><b>PTI407</b> Website Development/Management<br><b>PTI308</b> Publication Software Applications   |
| <b>RECOMMENDED COURSES:</b>                 | <b>PTI409</b> Computer Animation<br><b>LAJ401</b> Journalism I<br><b>PTV301</b> Video Communications I<br><b>PTB501</b> Marketing & Entrepreneurship<br><b>AAY301</b> Yearbook Production<br><b>ARA301</b> Fundamentals of Art<br><b>PTI307</b> Imaging Software Applications<br><b>PTW50*</b> Career Practicum (Pathway Related) |

| CATEGORY                                | COST AND DESCRIPTION   | RESPONSIBILITY |
|---|--|----------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | Digital Video Recorder; Digital Camera; Associated Media (DV Tapes, etc); Microphone   | School/Area    |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | Adobe Premiere Elements; Adobe Photoshop Elements Studio MX or 8; Adobe Creative Suite CS2   | HQ             |
| <b>REQUIRED COMPUTERS:</b>              | Standard to Upgraded, 1 per student<br>Digital video and image editing require larger amounts of RAM (1 GIG Recommended), processor speed, and HD space. | School/Area    |

## INTERACTIVE MEDIA (CONT.)

| <b>CATEGORY</b>                     | <b>COST AND DESCRIPTION</b>                | <b>RESPONSIBILITY</b> |
|-------------------------------------|--|-----------------------|
| <b>ANNUAL CONSUMABLES COST:</b>     | N/A  |                       |
| <b>ANNUAL MAINTENANCE COSTS:</b>    | Adobe maintenance costs.                   | HQ                    |
| <b>PROJECTED UPGRADES:</b>          | N/A  |                       |
| <b>FACILITY/SPACE REQUIREMENTS:</b> | Adequate space for 1 computer per student. |                       |

# PROGRAMMING/SOFTWARE ENGINEERING PATHWAY

## INFORMATION TECHNOLOGY CLUSTER

**SIGNIFICANCE:** Careers in programming and software development involve the design, development, implementation and maintenance of computer systems and software, requiring knowledge of computer operating systems, programming languages and software development. People with expertise in programming and software development work with cutting edge technologies to develop tomorrow's products for use by businesses and consumers. Over 161,000 jobs in Programming and Software Development are projected immediately; 36,000 in IT companies and 125,000 in IT-reliant companies.

**STUDENT CERTIFICATION OPPORTUNITIES:** Java Programmer Certification

**REQUIRED TEACHER CATEGORIES:** **0361** Teacher, Computer Science

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** N/A

**KNOWLEDGE/SKILLS (software, etc.)** Java, Visual Basic

**REQUIRED COURSES:** **PTP305 & 306** Java I&II or  
**PTP307 & 308** Visual Basic I&II or  
**PTP511 & 512** AP Computer Science A/AB  
**PTP515** Advanced Computer Studies

**RECOMMENDED COURSES:** **PTP305 & 306** Java I & II  
**PTP307 & 308** Visual Basic Programming I & II  
**PTP511 & 512** AP Computer Science A or AB  
**PTI407** Web Site Development/Management  
**MAA401** Algebra II  
**PTW50\*** Career Practicum

| CATEGORY                         | COST AND DESCRIPTION   | RESPONSIBILITY |
|----------------------------------|--|----------------|
| STARTUP EQUIPMENT COSTS:         | N/A  |                |
| STARTUP/REQUIRED SOFTWARE COSTS: | Java I & II - Sun Java 2 SDK version 1.4.2 or later<br>BlueJ version 2.1.3 or later<br>Visual Studio | HQ             |
| REQUIRED COMPUTERS:              | Standard Computer, 1 per student   | School/Area    |
| ANNUAL CONSUMABLES COST:         | N/A  |                |
| ANNUAL MAINTENANCE COSTS:        | N/A  |                |
| PROJECTED UPGRADES:              | N/A  |                |
| FACILITY/SPACE REQUIREMENTS:     | Adequate space for 1 computer per student.   |                |

# NETWORK SYSTEMS PATHWAY

## INFORMATION TECHNOLOGY CLUSTER

**SIGNIFICANCE:** The Network Systems Pathway provides students an opportunity to study industry standard network design, implementation, and troubleshooting in the field of information technology.

**STUDENT CERTIFICATION OPPORTUNITIES:** Cisco Certified Network Associate (CCNA)

**REQUIRED TEACHER CATEGORIES:** No required category. See Required Teacher Training.

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** To teach **PTI501** CISCO Networking I, instructors must successfully complete CCNA1 and CCNA 2 training at an established Cisco Networking Regional Academy.  
To teach **PTI601** CISCO Networking II, instructors must successfully complete CCNA3 and CCNA 4 training at an established Cisco Networking Regional Academy.

**KNOWLEDGE/SKILLS (software, etc.)** Network design

**REQUIRED COURSES:** **PTI501** Cisco Networking I  
**PTI601** Cisco Networking II

**RECOMMENDED COURSES:** **PTI309** Computer Service & Support  
**PTE309** Digital Electronics I  
**PTE409** Digital Electronics II  
**PTP305/306** (OT) Java I & II  
**PTP307/308** (OT) Visual BASIC Programming I & II  
**PTP512** (OT) AP Computer Science AB  
**MAA401** Algebra II  
**PTW50\*** Career Practicum (Pathway Related)

| CATEGORY                         | COST AND DESCRIPTION  | RESPONSIBILITY     |
|----------------------------------|---|--------------------|
| STARTUP EQUIPMENT COSTS:         | \$20,000 (for routers, switches, cable testing equipment, tools, supplies). | Area or District   |
| STARTUP/REQUIRED SOFTWARE COSTS: | \$0 (Cisco provided curriculum to qualified teachers).                      |                    |
| REQUIRED COMPUTERS:              | \$5,000 (minimum of 5 low end PCs)  | Area or District   |
| ANNUAL CONSUMABLES COST:         | \$500 (Cable, jacks, etc.)  | District or School |
| ANNUAL MAINTENANCE COSTS:        | \$1,200 (SmartNet Maintenance Agreement for equipment)                      | Area or District   |
| PROJECTED UPGRADES:              | \$10,000 every 5–7 years (estimate)   | Area or District   |
| FACILITY/SPACE REQUIREMENTS:     | A classroom of approximately 1000 Sq. Ft.                                   |                    |

# MANUFACTURING PRODUCTION PROCESS DEVELOPMENT PATHWAY

## MANUFACTURING CLUSTER

**SIGNIFICANCE:** This pathway allows students to explore the field of engineering. Currently there exists a critical need for engineers in our society and the job outlook for future engineering graduates is excellent. Coursework covers many of the phases of the engineering process such as design, quality control, manufacturing, robotics, and electronics. This pathway provides for two full years of coursework in the pre-engineering curriculum to help students prepare for post secondary engineering study.

**STUDENT CERTIFICATION OPPORTUNITIES:** N/A

**REQUIRED TEACHER CATEGORIES:** No required category. Preferred categories: **0366** Teacher, Technology Education

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** Teachers are strongly encouraged to attend the introductory and advanced summer workshops from Lab-Volt, Inc.

**KNOWLEDGE/SKILLS (software, etc.):** AutoCAD and Electronics

**REQUIRED COURSES:** **PTE501** Engineering Design and Technology I

**RECOMMENDED COURSES:** **PTE601** Engineering Design and Technology II  
**PTE303** Engineering Drawing/CAD  
**PTE603** Engineering Design/Development  
**PTE301** Principles of Engineering  
**PTE309** Digital Electronics I  
**PTE409** Digital Electronics II  
**PTI409** Computer Animation  
**MAD501** Math Analysis  
**SCP501** Physics  
**PTW50\*** Career Practicum (Pathway related)

| CATEGORY                                | COST AND DESCRIPTION  | RESPONSIBILITY            |
|---|---|---------------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | Startup costs depend on the number of cells implemented. Startup cost for all six cells is approximately \$135,000. | Area or District          |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | \$4,000 for course management software. Each cell comes with curricular software.                                   | Area or District          |
| <b>REQUIRED COMPUTERS:</b>              | \$3,000–6,000; One low end computer required for each cell  | Area or District          |
| <b>ANNUAL CONSUMABLES COST:</b>         | \$300   | District or School        |
| <b>ANNUAL MAINTENANCE COSTS:</b>        | No scheduled annual maintenance. Maintenance and repairs as needed.   | Area, District, or School |

## MANUFACTURING PRODUCTION PROCESS DEVELOPMENT (CONT.)

| CATEGORY   | COST AND DESCRIPTION  | RESPONSIBILITY |
|--|---|----------------|
| <b>PROJECTED UPGRADES:</b>   | See Comments  |                |
| <b>FACILITY/SPACE REQUIREMENTS:</b>  | Space required depends on the number of cells implemented. In a school with six cells, a very large room of at least 1,000 square feet would be required. |                |
| <b>COMMENTS:</b> Maintenance and repair on the equipment will be needed on an on-going basis. The equipment should have approximately a ten year life cycle. Long term projected upgrade costs are difficult to predict. |   |                |

# ENGINEERING & TECHNOLOGY PATHWAY

## SCIENCE, TECHNOLOGY, ENGINEERING & MATH CLUSTER

**SIGNIFICANCE:** This pathway allows students to explore the field of engineering. Currently there exists a critical need for engineers in our society and the job outlook for future engineering graduates is excellent. Coursework support for this pathway comes from many of the curricular areas needed in the study of engineering, such as math, science, electronics, and advanced computer studies.

**STUDENT CERTIFICATION OPPORTUNITIES:** N/A

**REQUIRED TEACHER CATEGORIES:** No required category. Preferred categories:  
**0366** Teacher, Technology Education or  
**0361** Teacher, Computer Science

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** See Knowledge/Skills

**KNOWLEDGE/SKILLS (software, etc.)** AutoDesk Software - AutoCAD, Architectural Desktop, Revit, Inventor; Mechanical Desktop, 3ds Max; Knowledge of Electronics desirable.

**REQUIRED COURSES:** **PTE303** Engineering Drawing/CAD

**RECOMMENDED COURSES:** **PTE309** Digital Electronics I  
**PTE409** Digital Electronics II  
**PTE301** Principles of Engineering  
**PTE603** Engineering Design/Development  
**PTE501** Engineering Design and Technology I  
**PTE601** Engineering Design and Technology II  
**PTI409** Computer Animation  
**PTE405** Applied Architectural Design/CAD  
**PTP305/306** (OT) Java I & II  
**PTP307308** (OT) Visual BASIC Programming I & II  
**PTP511/512** AP Computer Science A/AB  
**PTP515** Advanced Computer Studies  
**PTI501/601** Cisco Networking I & II  
**MAD501** Math Analysis  
**SCP501** Physics  
**PTW50\*** Career Practicum (Pathway related)

## ENGINEERING & TECHNOLOGY (CONT.)

| CATEGORY                                | COST AND DESCRIPTION  | RESPONSIBILITY            |
|---|---|---------------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | The primary consideration here is which of the recommended courses will be made available to support the required courses. Costs for program support vary widely among the available choices. For example:<br>Programming—startup cost: \$0<br>Electronics—startup cost: \$3,000 (dependent on number of students)<br>Cisco Networking—startup cost: \$20,000<br>Robotics/CAM—startup cost: \$65–135K<br>Optional high quality printing capability is desirable, such as a plotter or large capacity printer. | Area or District          |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | \$0 – AutoDesk Design Academy software provided by HQ contract  | HQ                        |
| <b>REQUIRED COMPUTERS:</b>              | \$3,500 per lab computer. Number of computers per lab is school dependent. It is strongly recommended that the best computers possible be made available for this curricular area.  | Area, District, or School |
| <b>ANNUAL CONSUMABLES COST:</b>         | \$500 – Printing supplies   | District or School        |
| <b>ANNUAL MAINTENANCE COSTS:</b>        | N/A   |                           |
| <b>PROJECTED UPGRADES:</b>              | \$15,000 every 3–5 years for high end computers (estimate)  | Area or District          |
| <b>FACILITY/SPACE REQUIREMENTS:</b>     | Adequate space for 1 computer per student. Additional space for lab work will be required for Electronics courses.  |                           |

# FACILITY & MOBILE EQUIPMENT MAINTENANCE PATHWAY

## TRANSPORTATION, DISTRIBUTION & LOGISTICS CLUSTER

**SIGNIFICANCE:** Job opportunities in this occupation are expected to be very good for persons with good diagnostic and problem-solving abilities, and whose training includes basic electronics and computer courses. Demand for high-tech automotive technicians continues to increase.

**STUDENT CERTIFICATION OPPORTUNITIES:** Automotive Service Excellence (ASE Certified Technician)

**REQUIRED TEACHER CATEGORIES:** Must be a licensed mechanic

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** Must attend all DoDEA training prior to providing instruction to students.

**KNOWLEDGE/SKILLS (software, etc.)** Must maintain a current state license in order to continue teaching.

**REQUIRED COURSES:** **PTT303** Auto Tech

**RECOMMENDED COURSES:** **PTT301** Welding  
**PTW50\*** Career Practicum (Automobile)

| CATEGORY                                | COST AND DESCRIPTION   | RESPONSIBILITY      |
|---|--|---------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>         | \$75,000 for tools<br>\$375,000 for equipment, lifts, pits, etc.                               | Area and district   |
| <b>STARTUP/REQUIRED SOFTWARE COSTS:</b> | Computer monitors for trouble shooting problems—\$10,000                                       | Area and district   |
| <b>REQUIRED COMPUTERS:</b>              | One for trouble shooting   | District and school |
| <b>ANNUAL CONSUMABLES COST:</b>         | \$2,500–5,000 equipment repair and replacement   | District and school |
| <b>ANNUAL MAINTENANCE COSTS:</b>        | \$1,500 supplies for engine tune-up and oil changes  | District and school |
| <b>PROJECTED UPGRADES:</b>              | None   |                     |
| <b>FACILITY/SPACE REQUIREMENTS:</b>     | Will need a large enclosed area with lifts for cars. Student classroom for instructional needs | School              |

# SALES & SERVICE PATHWAY

## TRANSPORTATION, DISTRIBUTION & LOGISTICS CLUSTER

**SIGNIFICANCE:** Job opportunities in this occupation are expected to be very good for persons with good diagnostic and problem-solving abilities, and whose training includes basic electronics and computer courses. Demand for high-tech automotive technicians continues to increase.

**STUDENT CERTIFICATION OPPORTUNITIES:** Automotive Service Excellence (ASE Certified Technician)

**REQUIRED TEACHER CATEGORIES:** Must be a licensed mechanic

**SPECIAL STAFFING REQUIREMENTS:** N/A

**REQUIRED TEACHER TRAINING:** Must attend all DoDEA training prior to providing instruction to students.

**KNOWLEDGE/SKILLS (software, etc.):** Must maintain a current state license in order to continue teaching.

**REQUIRED COURSES:** **PTT302** Auto Tech—Maintenance

**RECOMMENDED COURSES:** **PTT303** Auto Tech  
**PTT301** Welding  
**PTB401** Management International Business  
**PTB501** Marketing And Entrepreneurship  
**PTW50\*** Career Practicum (Automobile Sales & Service)

| CATEGORY  | COST AND DESCRIPTION   | RESPONSIBILITY      |
|---|--|---------------------|
| <b>STARTUP EQUIPMENT COSTS:</b>                   | \$1,500 hand tools<br>\$75,000 tools<br>\$375,000 for equipment, lifts, pits, etc.             | District and school |
| <b>STARTUP/REQUIRED SOFTWARE/TEXTBOOKS COSTS:</b> | \$2,000 textbooks  | School              |
| <b>REQUIRED COMPUTERS:</b>                        | One for sales training   | School              |
| <b>ANNUAL CONSUMABLES COST:</b>                   | \$2,500–5,000 equipment repair and replacement   | District and school |
| <b>ANNUAL MAINTENANCE COSTS:</b>                  | \$1,500 supplies for engine tune-up, welding materials and oil changes                         | District and school |
| <b>PROJECTED UPGRADES:</b>                        | None   |                     |
| <b>FACILITY/SPACE REQUIREMENTS:</b>               | Will need a large enclosed area with lifts for cars. Student classroom for instructional needs | School              |