# PROFESSIONAL-TECHNICAL PROGRAM APPROVAL REQUEST

| College: Skagit Valley College | | |
|---|---|---|
| **Program Title:** Operations Management | **CIP:** 52.0205 | **EPC:** 622 |
| **Total Credits:** 102 | **Anticipated maximum enrollment:** 25 | **Anticipated yearly completions:** 12 |

Primary ☒     *(if so, initial* ☐ *or final* ☐ *documentation)*  Option ☐    Contract ☐

If **option,** to which primary program _____
If **option,** include curriculum guide for primary program.

Award at completion (type of degree or certificate)  ATA

Brief program description:

The Operations Management Associate in Technical Arts Degree is designed to focus on the business, product development and metrology tools needed in the modern manufacturing environment. Upon completion, students will be equipped with the personnel and project management skills necessary to enter the work force at a supervisory level in the modern manufacturing environment.

| Criteria | Plan Description |
|---|---|
| **PROGRAM NEED** ||
| 1. Potential **career progression**, including job titles and **employment opportunities including wage data. Need studies or indication of need from employers should support new and emerging occupations not covered by standard forecasts or data.** | This ATA degree prepares students to enter the workforce as:<br>• Assemblers and fabricators<br>   o Average hourly wage: $18.99<br>   o Short-term/Long-term trend: Growth<br>   o Average annual growth rate (2011 - 2021): 2.1%<br><br>• First Line Supervisors of Production and Operating Workers<br>   o Average hourly wage: $27.35<br>   o Short-term/Long-term trend: Growth<br>   o Average annual growth rate (2011 - 2021): 1.3%<br>• Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic<br>   o Average hourly wage: $22.29<br>   o Short-term/Long-term trend: Growth<br>   o Average annual growth rate (2011 - 2021): 3.7%<br>• Wholesale and Retail Buyers, Except Farm Products<br>   o Average hourly wage: $25.64<br>   o Short-term/Long-term trend: Stable<br>   o Average annual growth rate (2011 - 2021): 0.4%<br>• Transportation, Storage, and Distribution Managers<br>   o Average hourly wage: $40.25<br>   o Short-term/Long-term trend: Growth<br>   o Average annual growth rate (2011 - 2021): 1.2%<br><br>*Northwest WDA I: Skagit county (March 2013)- **https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupations-in-demand*** |
| 2. Initial assessment of opportunities for **work-based learning/clinical sites** (must be answered if applicable to program) | The current Manufacturing Technology ATA program at Skagit Valley College has an active Advisory Committee that will become a joint committee with the Operations Management ATA. These professionals are dedicated to student success which includes placing student in appropriate internships in the local community.<br><br>**Potential Work-Based Learning Opportunities:**<br><br>• Hexcel Corporation —Burlington, WA<br>• PACCAR—Burlington, WA<br>• Janicki Industries – Sedro Woolley, WA<br>• EDCO, Inc — Mount Vernon, WA<br>• Technical Services, Inc — Oak Harbor, WA<br>• Idex Corporation — Oak Harbor, WA |

| Criteria | Plan Description |
|---|---|
| 3. **Collaboration with other colleges** – Indicate which other colleges have similar programs and what potential conflicts may exist. **Provide evidence of attempts to collaborate with other colleges.** | No known conflicts. None of the colleges in our region have Operations Management degree programs.<br><br>Bellingham Technical has a Certificate in Project Management.<br><br>Everett Community College has a Manufacturing Operations Management Certificate. |
| 4. **Planning/advisory committee** – Provide ADV form located at http://www.sbctc.ctc.edu/college/_e-wkforceproftechprograms.aspx and minutes of the related meeting(s) showing evidence that the committee has determined there is a commitment in the geographic area to employ individuals who have been served by the program.* | Please see ADV form attached. |
| 5. Other supporting documentation | |
| **PROGRAM DESCRIPTION** | |
| 1. **Attach** program description, goals, and learning objectives. | Please see attached. |
| 2. **Attach** program/curriculum guide (list by course number, course title, credit and/or clock hours per course, and total credits). *NOTE: May not be available for a new primary program at initial submission. Is required for final approval.* | Please see attached. |

* If an active Joint Apprenticeship and Training Committee for the occupation exists in the region, at least one labor and one management member from that committee should be invited to serve on the advisory committee. The college shall contact the chairperson or secretary of the JATC and request representation for the specific occupation. In cases where representation is not provided by the JATC, a letter must be on file from the college to the JATC requesting representation for that occupation. JATCs may act as the advisory committee where it has been determined that both the college and the occupation could best be served. "Organized labor" representatives should be used whenever possible to ensure a balance of all points of view, and currency with issues relevant to the development of courses.

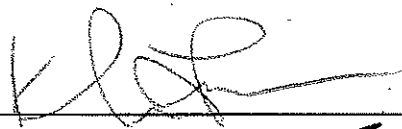| Criteria | Plan Description |
|---|---|
| 3. **Attach** course descriptions, goals, and learning outcomes as they will appear in the catalog (do not include course syllabi).<br><br>    *NOTE: May not be available for a new primary program at initial submission. Is required for final approval.* | Please see attached. |
| 4. Program goals are developed in conjunction with the planning/advisory committee. This joint development is reflected in the minutes of the committee. | Please see attached. |

*Assurances*

By the signatures below, we attest to the fact that the following actions have occurred:

1. The program has been integrated with the strategic planning and budgeting plan of the college.
2. The curriculum of this program has gone through the institution's established approval process.
3. The college will maintain an advisory committee of industry representatives to help the institution keep the program current with employer needs.
4. A continuous improvement plan is in place for this program.

Approvals:

Chief Instructional Officer _____     Date ___4-14-14___

Workforce Education Director _____     Date ___4/14/14___

Endorsements:

Advisory Committee Representative _____     Date ___4/17/14___

# PROFESSIONAL-TECHNICAL ADVISORY/PLANNING COMMITTEE

| Community/Technical College: Skagit Valley College | Date Submitted: 4/17/14 |
|---|---|
| Committee/Program Title: Operations Management | |

Please indicate which type of committee this is:

Meeting dates for previous year:

☒ Program advisory committee

**March 5, 2014**

☐ General advisory committee

☐ Ad hoc/planning committee

☐ Other (specify)

| Check Appropriate Column(s) | | | | Committee Member Information | | | |
|---|---|---|---|---|---|---|---|
| Employer Rep. | Employee Rep. | JATC Rep. | Org. Labor | Name | Job Title | Employer | City of Residence |
| X | | | | Keith Andrews | Director of Operations | Idex Health and Science, LLC | Oak Harbor |
| | | X | | Karl Blom | IAM member | Boeing | Camano Island |
| X | | | | Lou Daley | Facility Operations Manager | Janicki Industries | Concrete |
| X | | | | Mark Hagen | Owner | Express Employment Professionals | Mount Vernon |
| | X | | | Lynne Hill | Human Resources Manager | Hexcel Corp. | Burlington |
| | X | | | Leslie Smith | Facility Operations Manager | EDCO, Inc. | |
| | X | | | Mira Thomas | HR Manager | Technical Services Inc. | Oak Harbor |

College Advisory Committee Procedures - http://sbctc.edu/general/policymanual/_a-policymanual-ch4Append.aspx#appendg

# SKAGIT VALLEY COLLEGE
## Manufacturing Technology & Technical Design
## March 5, 2014

## ADVISORY MINUTES

**Members Present:** Lou Daley, Mark Hagen, Haley Lowry, and Ryan Lundy

**Staff Present:** Hunter Ware (NCTA) and Barry Hendrix (SVC)

**Meeting Called to Order at 4:00 p.m.**

**Welcome and Introduction of New Members and Guests**
Contact forms and Ethics forms and Advisory binders were distributed and collected.

**Read/Approve Previous Minutes**
Minutes were approved with no changes.

**Manufacturing/ Technical Design Overview**
Barry supplied a brief overview of the program and the current offering.

**New Business**
- Approval of the Associates in Technical Arts degrees to be added to the Manufacturing Curriculum. Please see the attached documents for an outline of the degrees.
    o Engineering Technician:
        - Haley: Good cross discipline integration. Barry elaborated on the Material Science curriculum.
        - Lou: This is what is lacking in current applicants: an understanding of manufacturing with technical emphasis.
        - Hunter: Asked for elaboration on the CAD component of the degree. Barry defined the program as a study of CAD software within the context of product development.
        - Ryan: This would be a well-rounded program for educating his younger technicians. Quality inspection and elements of Lean manufacturing are important. Suggestion— troubleshooting/problem solving should be a focus.
        - Mark: Setting the bar higher was a positive step.
        - Leslie Smith (via email): The wage data is unrealistic for the area. This is a strong foundation for growth.
        - Full consensus that these are skills needed currently in industry and will help students gain competitive wage jobs.
    o Operations Management:
        - Mark: questioned the level of computer skill/Excel training. Barry elaborated on the departmental focus on complete computer integration.
        - Ryan: Currently the computer skills are lacking in some of his technicians. He questioned the need for CAD skills at this level. The management and leadership elements were a definite positive. Team utilization was imperative.
        - Lou: Concurred that leadership skills were an element needed for advancement.
        - Haley: Questioned whether this led to more innovation and root cause analysis. Was entrepreneurship a focus? Barry discussed the desire to develop a Small Business/ Entrepreneurship program in the future.

- Leslie Smith (via email): The wage data is unrealistic for the area. Asked for clarification on curriculum of several classes. Needed clarification on the scope of product development. Barry clarified that it was focused on customer driven "job shop" type product development.
- Full consensus that these skills are currently needed in industry and will help students gain competitive wage jobs.
- Review of industry demands for CAD operators:
  - Barry gave an overview of department philosophy: CAD is now a secondary skill. CAD needs to be taught in context in order to be valuable. The focus of the program is teaching CAD software with the context of product development. It is more efficient to train good technicians to use specific software than train a novice with only CAD skills.
  - Mark: Suggested contacting EDCO and Hexcel for more data points.
  - Ryan: Agreed that contextualized CAD was more efficient. Having only CAD skills was a disadvantage.
  - Lou: Concurred that software flexibility was important, but technical skills applied to CAD was preferred.
- Review of industry demand for Welders and requisite skills:
  - Haley: Has seen a steady demand for welders for the last few years (requalification).
  - Lou: Certifications or at least the requisite skills to achieve the certifications are required. Several accrediting bodies are used.
  - Mark: Sees a high demand for welders (especially in Moses Lake area).
- Review of industry demand for Manufacturing Technicians and requisite skills:
  - While all agreed that the Engineering Tech ATA was a move in the right direction, the Operations Management ATA had higher and more immediate demand.
  - Ryan: Missing in current young staff are the people management skills.
- Review CNC curriculum proposal. Review of industry demand for CNC operators and requisite skills:
  - Barry: Postponed the review of CNC curriculum in light of budget reviews. Discussed partnership with BTC and EvCC to provide CNC training. Reticent to purchase expensive equipment. Suggested partnering with local industry for CNC training on site.
  - Ryan: True demand at entry level is load, align and unload parts. Technicians do the program manipulation.
  - Lou: Entry level is machine operation. Feed and speed adjustment at the most.

- **2014-2015 Changes**: What would industry like to see from the SVC Manufacturing, Welding and Technical Design departments over the next 2 years?
  - Lou: More interaction with the students. Plant tours and internships. Barry apologized for lack of student turn out (identification requirements were limiting access for some students).
  - Haley: Related viewing a Janicki presentation that was very inspiring.
  - Ryan: Spoke to the need to change the image of manufacturing. Hoped the college could relay the message of good careers and expand the appeal of the industry. The Operations Management ATA is a great path for advancement via the "Passport" system at IDEX.
  - Hunter: Appreciated the access given by Janicki and Hexcel for tours and job shadow. The tours speak to the fear of the unknown in entering the manufacturing workforce.
  - Mark: There is a need to get young people excited about the career opportunities. Agreed we need to reverse the current image.
- Introduction to the NWCTA Aerospace Manufacturing curriculum:
  - Hunter introduced the curriculum draft.
    - Spoke to the challenges of alignment this far north (of Boeing).
    - Plans to hand this document out at parents' night.
    - Outlined the curriculum goals.
    - Discussed lab fees.
    - Discussed articulation agreement with SVC. Only valid if student:
      - Maintains B average.
      - Has 95% attendance record.
      - Has instructor recommendation.

- ▪ Document is available for all to view via website. Updated daily.
- ▪ Discussed volunteer and student opportunity to build small personal aircraft in lab environment.
  - o Ryan: Is AMT available? Hunter's response: not currently but he is networking to increase funding.
  - o Barry: Discussed desire to create actual function manufacturing line for truly contextualized training. Need to explore competition conflicts with local industry.
  - o Ryan: Discussed attempted partnership with Edmonds for similar project.

## Unfinished Business
- Barry: Reiterated postponed review of CNC curriculum in light of budget reviews. Discussed partnership with BTC and EvCC to provide CNC training. Reticent to purchase expensive equipment. Suggested partnering with local industry for CNC training on site.

## Next Meeting Date: Tentative date 10/28 2014
- Barry: Inquired about the desire to meet via conference call. All agreed that face to face twice a year was not a burden.
- Hunter: Four meetings are required by the high school. Suggested the other 2 via phone conference.

## Adjourned at 6:00 p.m.

## Notes taken by Barry Hendrix

## SKAGIT VALLEY COLLEGE
## OPERATIONS MANAGEMENT ATA
## TYPICAL STUDENT SCHEDULE

|  |  | 14-15 Catalog |  |
|---|---|---|---|

**CIP: 52.0205; EPC: 622**

| Program | Course Number | Title | Credits |
|---|---|---|---|
| **FIRST YEAR - FALL** | | | |
| BMT | 180 | Leadership Development: D | 5 |
| MANF | 103 | Introduction to Quality Assurance | 3 |
| MANF | 110 | Introduction to Manufacturing | 3 |
| TECD | 103 | Introduction to Computer-Aided Design | 3 |
| CSS | 100 | College Success Skills I | 2 |
| | | **Total:** | **16** |
| **FIRST YEAR - WINTER** | | | |
| MANF | 107 | Quality Control Metrics and Applications | 5 |
| MANF | 122 | Material Science in Manufacturing | 2 |
| TECD | 104 | Basic Computer-Aided Design | 3 |
| SOSC | 125 | Employer/Employee Roles & Perspectives | 2 |
| WMATH | 100 | Professional Technical Applied Math | 5 |
| | | **Total:** | **17** |
| **FIRST YEAR - SPRING** | | | |
| MANF | 115 | Intro to Computer Numeric Controlled (CNC) Operations | 5 |
| MANF | 120 | Industrial Safety & CPR | 3 |
| MANF | 125 | Precision Measurement and Tools | 3 |
| MANF | 140 | Print Reading in Manufacturing | 3 |
| TECD | 105 | Computer-Aided Design III | 4 |
| | | **Totals:** | **18** |
| | | | |
| **SECOND YEAR - FALL** | | | |
| BMT | 140 | Management Skills | 5 |
| MANF | 210 | Total Productive Maintenance | 3 |
| MANF | 215 | Advanced Inspection | 5 |
| MANF | 250 | Shop Supervision | 5 |
| | | **Total:** | **18** |
| **SECOND YEAR - WINTER** | | | |
| BMT | 220 | Supply Chain Management | 5 |
| BMT | 221 | Project Management | 5 |
| CMST | 125 | Professional Communication: D | 3 |
| ENGL | 170 | Professional and Technical Communication | 3 |
| SOSC | 113 | Job Search | 1 |
| | | **Total:** | **17** |
| **SECOND YEAR - SPRING** | | | |
| BMT | 280 | Entrepreneurship and Small Business Management | 5 |
| MANF | 199 | Internship Experience | 1 |
| MANF | 230 | Enterprise Resource Planning and Material Requirement Planning | 5 |
| MANF | 256 | Operations Management | 5 |
| | | **Total:** | **16** |
| | | | |
| | | **TOTAL CREDITS:** | **102** |

# SKAGIT VALLEY COLLEGE
# OPERATIONS MANAGEMENT

# OPERATIONS MANAGEMENT
# COURSE DESCRIPTIONS

**BMT 140**        **Management Skills**        **(5)**
Develop skills necessary to become an effective manager including self-awareness and assessment, supportive communication, development of effective team, valuing diversity, priority setting and time management, meeting management, problem-solving, effective oral and written business presentations, stress management and conflict resolution.

**BMT 180**        **Leadership Development: D**        **(5)**
Identify individual strengths and weakness to build strong business leaders. Leading through times of change, innovation and other challenges. Focuses on communication, relationships, teamwork, collaboration, accountability, motivation, influence, problem solving, goal setting and decision making. Prerequisite: CSS 100 or 104 or concurrent enrollment.

**BMT 220**        **Supply Chain Management**        **(5)**
Introduction to supply chain management including key issues, goals and trends, global supply chains, responsibilities of supply chain managers, procurement, technologies, inventory management, logistics, and supplier relationships.

**BMT 221**        **Project Management**        **(5)**
Introduction to project management including behaviors of project management teams, the structure of projects and work breakdown, planning and scheduling, PERT/CPM analysis, risk management, current topics in project management, and project management software.

**BMT 280**        **Entrepreneurship and Small Business Management**        **(5)**
Introduction to developing and starting a business. Develop a business plan which includes marketing, financial, and planning sections of the plan. Use a computer to accomplish the functions involved in a small business including the planning, organizing, and control of a small business.

**MANF 103**        **Introduction to Quality Assurance**        **(3)**
Introduction to the principles and purpose of Quality Assurance Management including an overview and awareness of the history, concepts and theory of quality as it relates to today's industrial/manufacturing environment. Examines issues affecting quality in manufacturing, and provides the statistical methods and the management philosophy which allow problems in production processes to be found and fixed resulting in continuous quality improvement. Gain a basic understanding of the quality control tools used in industry, such as standard deviation, histograms, distribution curves, etc.

**MANF 107**        **Quality Control Metrics and Applications**        **(5)**
Introduction to fundamental quality assurance techniques and applications. Covers measurement techniques and procedures based on industry standards and practices. Introduction to advanced precision measurement devices, methods for inspection, maintenance and care of quality measuring instruments or devices, and writing technical reports. Areas of study include product quality, process quality, subjective quality standards and packing quality. Prerequisite: MANF 103 or instructor permission.

**MANF 110          Introduction to Manufacturing          (3)**
Overview of the manufacturing sector including a historical look at manufacturing systems and organizations. Introduction to materials processing, industry standards, manufacturing methodologies, and different types of technology used in manufacturing (personal computers, data collection & analysis systems, automated equipment).  Also introduces the fundamentals of project development including materials and budgets. Covers concepts of lean manufacturing, quality assurance, Statistical Process Control (SPC), "just in time," and "green" as applied in industry.  Industry speakers, career exploration and industry site visits included.

**MANF 115          Intro to Computer Numeric Controlled (CNC) Operations     (5)**
Introduction to Computer Numeric Controlled (CNC) machine operation theory and practice.  Covers basic G&M codes needed to program and operate CNC machinery.  Course includes an introduction to hands-on CNC machine operations in the shop setting.  Prerequisite: WMATH 100.

**MANF 120          Industrial Safety & CPR          (3)**
Instruction on safety topics and practices specifically related to industrial work environments. Topics include personal protective equipment, safety working with heavy industrial equipment, energy lock-out/tag-out procedures, material handling, electrical safety, machine guarding, working with hazardous materials, fire prevention, hazard identification and control, and safety inspection practices. Instruction in CPR included.

**MANF 122          Material Science in Manufacturing          (2)**
Material Science is a study of the nature, structure, characteristics, and properties of natural and synthetic materials used in contemporary industry.  Introduction to the industrial materials most often found in manufacturing operations and facilities ranging from traditional metals, ceramics, and polymers, to advanced engineering materials and composites.  Emphasis will be placed on understanding how the structure and properties for industrial uses influence the selection of primary materials and their conversion into useful products.

**MANF 125          Precision Measurement and Tools          (3)**
Introduction to the science of metrology (precision measurement and tolerances), and the basic hand and machine tools commonly used in a manufacturing workplace.  Covers the fundamental skills required to perform basic and precision dimensional measurements and an introduction to the concepts of Statistical Process Control (SPC).  Gain proficiency in using rules, scales, tape measures, protractor, calipers, micrometers, dial gage and height gage. Identification and classification of a variety of basic hand and machine tools. Overview of fasteners and methods of fastenings (screws, machine screws, nuts, bolts, etc.)

**MANF 140          Print Reading in Manufacturing          (3)**
Introduction to the fundamentals of blueprint reading emphasizing industrial drawings commonly used in manufacturing. Focuses on line and symbol conventions used in industrial blueprints and visualization of solid objects from orthographic and isometric projections. Students will be given experiential exercises in interpreting technical drawings. Overview of the various sources of information found within technical drawings will also be given. Develop skills in print reading, learn basic ANSI standard sketching techniques, lettering, dimensioning, and makeup of a print as a form of communication.  Read and interpret drawings as well as sketch them. Practice interpreting mechanical, construction, welding, electrical and HVAC blueprints.

**MANF 199          Internship Experience          (1)**
Supervised work experience in the field. Includes a weekly seminar.  Instructor permission required.

**MANF 210          Total Productive Maintenance          (3)**
Introduction to electrical systems, mechanical systems and rigging.  Describes the elements of Total Productive Maintenance (TPM) and explains how TPM helps reduce losses and waste. Explores the fundamentals of facilities layout and process selection. Prerequisite:  MANF 107 or instructor permission.

**MANF 215          Advanced Inspection                                    (5)**
Advanced study of quality tools and metrics. Includes physical inspection methods, statistical metrics for quality assurance and acceptance sampling. Prerequisite: MANF 107 and WMATH 100 or instructor permission.

**MANF 230      Enterprise Resource Planning and Material Requirement Planning      (5)**
The study of systems and planning tools used in manufacturing. Includes enterprise resource planning (ERP), material requirement planning (MRP), and aggregate planning. Prerequisite: MANF 107 or instructor permission.

**MANF 250          Shop Supervision                                      (5)**
The study of personnel and process management in an industrial environment. Includes the supervisor's role in an organization, effective leadership skills, problem-solving applications, effective safety techniques, and successful communication concepts. Prerequisite: MANF 107 or instructor permission.

**MANF 256          Operations Management                                 (5)**
Study the role of operations managers in manufacturing. Includes both strategic issues and practical applications, decision making, process selection, capacity planning, management of quality, supply chain management, and personnel management. Prerequisite: MANF 250 and BMT 221.

**TECD 103          Introduction to Computer-Aided Design          (3)**
Introduction to computer-aided design (CAD) and graphics technology using a variety of software applications. Covers the basic techniques and standard practices of design. Introduces concepts of digital sketches, 3-D modeling and surface modeling. Covers the fundamental concepts of documentation and presentation for CAD. Prerequisite: Prior to entering this course, students should have mastered the following computer fundamentals: basic commands to operate software programs, directory structure, file management, and be able to use icons and keyboard commands.

**TECD 104          Basic Computer-Aided Design                    (3)**
Sequential study of computer-aided design (CAD) and graphics technology using a variety of software applications. Introductory study of 3-D modeling practices. Introduces drafting operations and the procedures used to create and edit CAD models. Covers the fundamental concepts of design and the product development process using, AutoDesk Inventor and AutoCAD. Topics include sketching, basic commands, sketch relations, features, dimensioning, and basic part modeling. Prerequisite: TECD 103 or instructor permission.

**TECD 105          Computer-Aided Design III                      (4)**
Continuation of TECD 104 utilizing intermediate 3-D modeling tools in various software platforms. This study of 3-D modeling practices includes assemblies and Geometric Dimensioning and Tolerances. Topics include materials, derived parts, part patterning, constraints and reference geometry. Advanced topics in product development and manufacturing techniques are also explored. Prerequisite: TECD 104 or instructor permission.

**CSS 100          College Success Skills I                        (2)**
Learning skills necessary to achieve success in college courses. Topics include time management, note taking, reading comprehension, memory enhancement, test taking techniques, and locating resources.

**CMST 125          Professional Communication: D                  (3)**
Stresses theory and practice of interpersonal, group, and public speaking skills for the workplace. Topics include problem-solving, leadership, speech preparation, and analysis of effective language, nonverbal behavior, listening, and conflict styles.

**ENGL 170**     **Professional and Technical Communication**     **(3)**
English 170 is the study of fundamental composition skills and writing strategies commonly used in employment situations. By the end of the quarter, students will have written and revised a number of writing assignments, including but not limited to memoranda, letters of inquiry and response, summaries, technical descriptions, instructions, and business proposals. Prerequisite: Appropriate test score or grade of C or better in ENGL 99.

**SOSC 113**     **Job Search**     **(1)**
Through lecture, small group discussion, and homework assignments, students will develop skills in job search techniques such as identifying common job information sources, conducting effective interviews for information and for hire, completing applications and developing resumes. Students will learn that job search is really an information search and involves the use of investigation, strategizing, and problem-solving skills. Due to the requirements and intended benefits of this course, it is strongly recommended that it be taken toward the end of one's certificate or degree program. Consult with your program advisor if your circumstances warrant taking it early in your training.

**SOSC 125**     **Employer/Employee Roles & Perspectives**     **(2)**
Examination of the employer/employee relationship. Topics include characteristics of work maturity, diversity, leadership, team work and working styles, organizational structure and decision-making, setting work goals and priorities.

**WMATH 100**     **Professional Technical Applied Math**     **(5)**
This course is non-transferable and for professional/technical students only. Basic mathematics used in several occupational clusters. Estimation, effective calculator usage and practical problem solving techniques explored. Opportunities for variable student pacing may be provided. Prerequisite: MATH 96 with a grade of C or better, or appropriate test score.