**CTE Program Narrative**

**NAME OF COLLEGE: Bakersfield College**

**CONTACT:** Robert Stewart

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**DATE:** March 13, 2018

**DIVISION:** Engineering and Industrial Technology

**FACULTY:** Robert Stewart

**PROGRAM NAME:** Metal Fabrication Technology

**REASON FOR APPROVAL REQUEST (Check One):**

New Program Proposal

Program Revision Proposal (Substantial or TOP Code Changes)

Locally Approved

**TYPE OF DEGREE:**

Certificate of Achievement

Associate of Arts

Associate of Science

Associate of Arts for Transfer

Associate of Science for Transfer

Other

**TRANSFER APPLICABILITY:** Yes  No

**ATTACHMENTS/INFORMATION REQUIRED:**

Labor/Job Market Data and Analysis

Advisory Committee Meeting Minutes

List of Advisory Committee Members

Employer Survey, if applicable

1. **Statement of Program Goals and Objectives**

*Identify the goals and objectives of the program. For CTE programs, the statement must include the main competencies students will have achieved that are required for a specific occupation. The statement must, at a minimum, clearly indicate the specific occupations or fields the program will prepare students to enter and the basic occupational competencies students will acquire.*

*If the program is selective, describe relevant entry criteria and the selection process for admission to the program. Specify all mandatory fees that students will incur for the program aside from the ordinary course enrollment fee.*

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| The Metal Fabrication Technology (MFT) program prepares individuals for a career in the metal manufacturing & fabrication profession as well as to provide practicing professionals the educational base required towards pursuit of professional certification. According to the Bureau of Labor Statistics (BLS), employment of manufacturing metal fabricators will increase over the next decade within the agriculture, construction, and mining machinery manufacturing sectors.  Metal manufacturers & fabricators will be needed to support the continually growing food processing, and agriculturally based business sectors of California and specifically within the Central Valley  Over the past two decades, metal manufacturing national labor demand has increased moderately in the category of sheet metal worker due to job replacement projections; at 39.8%, along with fabrication other segments related to cutting, punching, press machine setters, operators, and tenders with replacement projections at nearly 24.3% through 2024. |

1. **Catalog Description**

*Enter exactly as it will appear in the catalog, including program outcomes. The description must also*

* *Convey the certificate’s goals(s) and objectives*
* *Provide an overview of the knowledge and skills that students who complete the requirements must demonstrate (student learning outcomes)*
* *List all prerequisite skills or enrollment limitations*
* *Mention any risks, such as occupations that are inherently competitive or low-salaried and/or occupational areas where inexperienced graduates are not generally hired.*
* *For CTE programs, the description must list the potential careers students may enter upon completion.*
* *Convey what the student may expect as an outcome*

*If applicable, reference accrediting and/or licensing standards. If there is a widely recognized certification provided by a professional association, specify whether the program will fully prepare completers for the recognized professional certification.*

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| The Associate of Science Degree in Metal Fabrication Technology (MMFT) will prepare students for entry level positions within sheet metal trade with specific skills in layout, fabrication, and assembly. The (AS) Degree is designed to provide the student with the type technical competencies required to meet the demands of the metal fabrication industries.  The Core Skills Certificate of Achievement will prepare students for an entry-level position as a trainee in sheet metal layout, fabrication, and assembly.  Program Student Learning Outcomes:  1. Be able to perform sheet metal layout.  2. Be able to perform common fabrication of a project.  3. Be able to perform common metal fabrication using power machinery to produce a fabrication project.  4. Be able to demonstrate the ability to read and interpret construction blueprints. |

1. **Program Requirements**

*The program requirements must be consistent with the catalog description. The number of units, specific course requirements and the sequence of the courses must be coherent, complete and appropriate. Display the program requirements in a table format that includes all courses required for completion of the program (core requirements and required or restricted electives), subtotal of core units, and total program units. For each course, indicate the course department number, course title, and unit value.*

Display of Program Requirements

|  |  |  |
| --- | --- | --- |
| **Core Courses** | **Title** | **Units** |
| INDR B12 | Introduction to Drafting and CAD | 3 |
| INDT B10 | Occupational Readiness | 3 |
| MFGT B1AB | Machine Tool Processes | 3 |
| MFGT B50 | Power Metalworking Machine Operations | 4 |
| MFGT B51 | Advanced Metal Fabrication and Layout Skills | 4 |
| MFGT B52 | CNC Metal Fabrication Systems | 4 |
| OSRM B10 | Occupational Safety | 3 |
| WELD B1B | Introduction to the Welding Processes | 2 |
| WELD B54A | Blueprint Reading for Welders and Machinists | 3 |
| WELD B54B | Template Development and Layout for the Welder | 3 |
| WELD B65AB | Welded Steel Structures | 3 |
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|  | **Total Core Courses** | **35** |

In addition to the core courses, the student must take at least 0 units from the following courses:

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| --- | --- | --- |
| **Elective Courses** | **Title** | **Units** |
|  | **None** |  |
|  | **Total Elective Courses** |  |
|  | | |
| **Total Units Required for Certificate** | | **61** |

Display of Proposed Sequence

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **First Semester** | **Units** |  | **Second Semester** | **Units** |
| OSRM B10 Occupational Safety | 3 | COMM B8 Small Group Communication | 3 |
| MFGT B1AB Machine Tool Processes | 3 | WELD B54B Template Development and Layout for the Welder | 3 |
| WELD B54A Blueprint Reading for Welders and Machinists | 3 | WELD B65AB Welded Steel Structures | 2 |
| WELD B1B Introduction to the Welding ProcessesWeldinProcesses | 2 | ENGL B1A Expository Composition | 3 |
| INDT B10 Occupational Readiness | 3 | ART B1 Art Appreciation | 3 |
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| **Total** | **15** | **Total** | **14** |
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| **Third Semester** | **Units** | **Fourth Semester** | **Units** |
| MATH B22 Elementary Probability and Statistics | 4 | MFGT B56 Advanced Metal Fabrication and Layout Skills | 4 |
| PHSC B12 Physical Science | 4 | MFGT B52 CNC Metal Fabrication Systems | 4 |
| INDR B12 Introduction to Drafting and CAD | 2 | POLS B1 Political Science | 3 |
| MFGT B54 Power Metalworking Machine Operations | 4 | PHED B36 First Aid and CPR | 3 |
| HIST B18 History of California | 3 | PH B6 Physical Education | 1 |
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| **Total** | **17** | **Total** | **15** |

1. **Master Planning** (Background and Rationale)

*Given the stated goals and objectives, address the role the proposed program will fulfill in the college’s mission and curriculum offerings. This discussion may include some history of the program proposal origins, a description of the program purpose, and/or the program’s relevancy for the region and college.*

*The proposal must demonstrate a need for the program that meets the stated goals and objectives in the region the college proposes to serve with the certificate. A proposed new certificate must not cause undue competition with an existing program at another college.*

*If any expenditures for facilities, equipment or library and learning resources are planned, please explain the specific needs in this section.*

*If the program is to be offered in close cooperation with one or more specific employers, a discussion of the relationship must be provided.*

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| The core mission of Bakersfield College is to provide opportunities for students from diverse backgrounds to obtain associate degrees and transfer preparation to baccalaureate programs. The programs and learning environment is intended to foster a student’s ability to think critically, communicate effectively, and demonstrate competency and skills necessary to engage productively in their communities and the world.  The Metal Fabrication Technology program aligns with this mission by meeting an existing local need for skilled laborer in the areas of Computer Numerical Control (CNC) manufacturing, and sheet metal working, and fabricating. The program provides students with the necessary educational base to secure employment after obtaining the AS degree, or career advancement after earning a skills certificate of achievement. No other program in the region offers the opportunity to obtain an AS degree in Metal Fabrication Technology, with specific emphasis in manufacturing for Ag businesses, food processing Industries, and Industrial manufacturers. This structure aligns with the broad practice specialties that exist within the industrial automation and welding disciplines at. Bakersfield College which has an existing array of courses available that pair seamlessly with the new Metal Fabrication Technology core curriculum to meet the goals of providing clear educational pathways. Students who earn an AS in Metal Fabrication Technology will be equipped to pursue careers as food industry maintenance professionals, fabricators, sheet metal workers, or equipment operators in all sectors of fabricated processing. |

1. **Need for Program**
   1. Enrollment and Completer Projections

*Address and justify the number of projected students or “annual completers” to be awarded the certificate each year after the program is fully established.*

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| It is anticipated that approximately 7 students per year will complete the program once all the new courses are fully developed and offered. Many courses currently being offered, align the scope of the Metal Fabrication Technology track, and offer relevant completion data to support enrollment projections this neighboring track. |

* 1. Labor Market Information (LMI)

*Summarize the Labor Market Information (LMI) and employment outlook (Including citation for the source of the data) for students exiting the program.*

*Enter table or chart as a separate attachment.*

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| According to EMSI data, there were 470 total job postings for selected descriptions from July 2013 to July 2017, of which 155 were unique to the specific occupational criteria. These numbers state a posting intensity of 3:1, meaning that for every 3 job postings there is 1 posting that matches the occupation category related. Projected growth / change from 2017 -2022 is +7.9%.  The LMI report is included as a separate attachment. |

* 1. Employer Survey (if applicable)

*When strong LMI data is not available, an employer survey may be submitted. Provide a copy of the survey, including the number of those surveyed, number of responses, and a summary of the results. The survey must address the extent to which the proposed degree or certificate will be valued by employers.*

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1. **Place of Program in Curriculum/Similar Programs**

*Review the college’s existing program inventory, then address the following questions:*

* *Do any active inventory records need to be made inactive or changed in connection with the approval or the proposed program? If yes, please specify.*
* *Does the program replace any existing program(s) on the college’s inventory? Provide relevant details if this program is related to the termination or scaling down of another program(s).*
* *What related programs are offered by the college?*

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| No. |

1. **Similar Programs at Other Colleges in Service Area**

*List similar programs offered at other colleges within the Central/Mother Lode Region that may be adversely impacted. Enter ‘none’ if there are no similar programs.*

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| --- | --- |
| **College** | **Program** |
| None |  |
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**Supporting documentation required**

**Labor Market Information**

*In a separate attachment, provide current Labor Market Information showing that jobs are available for program completers within the local service area. Statewide or national LMI may be included as supplementary support but evidence of need in the specific college service area or region is also necessary.*

**List of Members of Advisory Committee**

*This list must include advisory committee member names, job titles, and affiliations.*

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| **Name** | **Title** | **Affiliation** |
| Robert Stewart | BC Industrial Technologies Instructor | Bakersfield College Faculty |
| Bill Lemme | Arvin High School Instructor | KHSD/BC Dual Enrollment Partner |
| Bill Buzzell | Kern High School ROC Instructor | KHSD/BC Dual Enrollment Partner |
| Scott Trimble | Kern High School ROC Instructor | KHSD/BC Dual Enrollment Partner |
| Robert Stewart | BC Industrial Technologies Instructor | Bakersfield College Faculty |
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**Recommendation of Advisory Committee** (Meeting Minutes)

*In a separate attachment, provide minutes of the advisory committee meetings at which the program was discussed and approved, with relevant areas highlighted, as well as a summary of the advisory committee recommendations.*

Bakersfield College – Manufacturing / Fabrication Advisory Committee Minutes for Oct. 19, 2017

1) Committee Members Present: Bill Lemme, Bill Buzzell, Scott Trimble

Bakersfield College Faculty Present: Robert Stewart

2) Program Goals and Objectives: The group discussed objectives of the committee, and where the areas of focus need to be within a program development preview:

• Provide students with the necessary educational base to secure employment after obtaining the AS degree.

• Meet the minimum educational requirement for individuals pursuing professional certifications.

The committee voiced strong support for the creation of the MMFT program and confirmed the need for such a program locally and regionally. Representatives on the committee represent instructors from our early exposure trades programs at the high school level, who have specific experience in disciplines related to local industry, and agreed on the need for educationally trained fabrication professionals.

3. Core Course Overview: The core courses will be reviewed for content and scope and adjustments in December 2017. Revisions will be made per discussion and course outlines will be updated. Overall, the committee voiced support of the structure and direction.

4. AS Degree and Certificate Offering: The committee supported the scope of a program degree Manufacturing - Fabrication option acknowledges the needs within the profession.

5. Student Education Plan Pathways: The committee briefly discussed the pathway for students with an area of emphasis ensuring that the program offered could bridge from KHSD dual enrollment articulation.

6. Next meeting: Nov. 19, 2017. Each member is to bring an industry partner. Objectives will be to review initial Fabrication Program of Record submission, and evaluate courses under said program.