

INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015

EASTERN IDAHO TECHNICAL COLLEGE

SUBJECT

Approval of AAS Degree and Intermediate Technical Certificate in Machine Tool Technology

APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section III.G. Postsecondary Program Approval and Discontinuance

BACKGROUND/DISCUSSION

Eastern Idaho Technical College (EITC) proposes to create a new program to address the increased need for entry-level technicians in the growing advanced manufacturing industry in eastern Idaho. This program will offer a one year Intermediate Technical Certificate and a two-year Associate of Applied Science degree (AAS).

Graduates will be able to perform machining functions and possess the fundamental skills and knowledge in computer numerically controlled machine tools, lathes, mills, and precision measuring tools. The AAS degree will expand a student's skills to include computer-aided manufacturing, dimensioning, and tolerancing.

A key focus of the Idaho Workforce Development Council is the development of new advanced manufacturing and machine tool technology programs due to the expanding workforce in this area and the number of unfilled jobs. Students completing these programs typically enter employment at a high rate of pay. The program is scheduled to begin in Fall 2015 and will enroll 15 students in the first year. A maximum of 30 students will be enrolled as students work towards the Intermediate Technical Certificate and the AAS Degree.

This program was funded through a line-item request from professional-technical colleges throughout Idaho in response to current and projected needs for advanced manufacturing skills.

IMPACT

Approval of the proposed program will allow EITC to hire faculty, purchase equipment, and market the program for implementation in Fall 2015. The proposed program will require \$300,800 (\$150,000 one-time funds and \$150,800 ongoing funds) to support the first year of the program and \$150,800 for subsequent years.

ATTACHMENTS

Attachment 1 –Machine Tool Technology Program Proposal

Page 3

INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015

STAFF COMMENTS AND RECOMMENDATIONS

ETIC's proposed Machine Tool Technology program has gone through the review process and due to the fiscal impact consistent with Board Policy III.G, staff determined it would require Board approval. While the program is slated to begin in Fall 2015, EITC has time sensitive implementation timelines and therefore needs consideration of their proposal to occur at this time in order to meet those timelines. The first of these is their catalog deadline of March 18, 2015, which will allow EITC to market the program and recruit students.

The proposed program will address the increased need for entry-level technicians in the growing advanced manufacturing industry in eastern Idaho. The Division of Professional-Technical Education has reviewed the request and recommends Board approval.

BOARD ACTION

I move to approve the request by Eastern Idaho Technical College to create a new professional technical program in Machine Tool Technology.

Moved by _____ Seconded by _____ Carried Yes _____ No _____



February 5, 2015

TO: Mike Rush
Executive Director
State Board of Education

FROM: Dwight A. Johnson
Administrator

A handwritten signature in blue ink, appearing to read 'Dwight A. Johnson', written over the printed name.

SUBJECT: Program Proposal

In accordance with State Board policy, the enclosed Program Proposal is forwarded for approval by the State Board for Professional-Technical Education.

Eastern Idaho Technical College has requested to add a new **Machine Tool Technology** program. This program is slated to begin in the Fall of 2015. Students will be able to earn an Intermediate Technical Certificate and/or an AAS Degree upon completion of course requirements. This program will strengthen interaction between secondary and postsecondary educational institutions and meet employer needs for entry-level technicians in the growing manufacturing industry.

The Division has reviewed the request and recommends State Board approval. Please notify the Division office of State Board action when completed.

If you have any questions regarding the enclosed request, please let me know. Thank you.

DJ/sj/ds

Enclosure

MARCH 5, 2015

Institutional Tracking No. _____

Idaho State Board of Education

Proposal for Other Academic Program Activity and Professional-Technical Education

Date of Proposal Submission:	12/10/14
Institution Submitting Proposal:	Eastern Idaho Technical College
Name of College, School, or Division:	Trades and Industry Division
Name of Department(s) or Area(s):	Trades and Industry

Program Identification for Proposed New, Modified, or Discontinued Program:

Title:	Machine Tool Technology		
Degree:	AAS and IG <i>Intermediate Technical Certificate</i>		
Method of Delivery:	Classroom/Laboratory/Supervised Work Experience		
CIP code (consult IR /Registrar)	48.0510		
Proposed Starting Date:	Fall Semester 2015		
Indicate if the program is:	X	Regional Responsibility	Statewide Responsibility

Indicate whether this request is either of the following:

- | | |
|--|---|
| <input checked="" type="checkbox"/> New Program (minor/option/emphasis or certificate) | <input type="checkbox"/> Discontinuance of an Existing Program/Option |
| <input type="checkbox"/> New Off-Campus Instructional Program | <input type="checkbox"/> Consolidation of an Existing Program |
| <input type="checkbox"/> New Instructional/Research Unit | <input type="checkbox"/> Expansion of an Existing Program |
| <input type="checkbox"/> Contract Program/Collaborative | <input type="checkbox"/> Other |

<p><u><i>Shawn Anderson</i></u> <u>12/19/14</u> College Dean (Institution) Date</p>	<p>_____ Vice President for Research (as applicable) Date</p>
<p>_____ Graduate Dean (as applicable) Date</p>	<p><u><i>Deanna Johnson</i></u> <u>2/3/15</u> State Administrator, SDPTE (as applicable) Date</p>
<p><u><i>John Gure</i></u> <u>12/19/14</u> Chief Fiscal Officer (Institution) Date</p>	<p>_____ Academic Affairs Program Manager Date</p>
<p><u><i>Shawn Anderson</i></u> <u>12/19/14</u> Chief Academic Officer (Institution) Date</p>	<p>_____ Chief Academic Officer, OSBE Date</p>
<p><u><i>Steve Albert</i></u> <u>12-22-14</u> President Date</p>	<p>_____ SBOE/OSBE Approval Date</p>

March 16, 2012

Page 1

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

Before completing this form, refer to Board Policy Section III.G., Program Approval and Discontinuance. This proposal form must be completed for the creation of each new program and each program discontinuance. All questions must be answered.

- 1. Describe the nature of the request.** Will this program/option be related or tied to other programs on campus? Please identify any existing program, option that this program will replace. *If this is request to discontinue an existing program, provide the rationale for the discontinuance. Indicate the year and semester in which the last cohort of students was admitted and the final term the college will offer the program. Describe the teach-out plans for continuing students.*

The Machine Tool Technology Program will be housed within Eastern Idaho Technical College's (EITC) Trades & Industry Division and be tied closely to its existing Welding Technology program. One FTE instructor will be employed beginning in Spring 2015 to design program curriculum, strengthen and formalize existing partnerships with area high schools who deliver professional-technical education programs, universities, and the Region 6 manufacturing sector.

After the program has been fully vetted with the above-mentioned entities, formal classroom and laboratory instruction will begin in the Fall 2015 semester. The College will enroll 15 students in the first year of the program.

- 2. List the objectives of the program.** The objectives should address specific needs (industry) the program will meet. They should also identify the expected student learning outcomes and achievements. *This question is not applicable to requests for discontinuance.*

This program will strengthen interaction between secondary and postsecondary educational institutions and meet employer needs for entry-level technicians in the growing manufacturing industry. Graduates of this program will possess the fundamental skills and knowledge for employment in the wide ranging and diverse sector of advanced manufacturing employers seeking employees with skills in computer numerically controlled (CNC) machine tools, lathes, mills, precision measuring tools, related attachments and accessories.

Students who successfully complete this program will also be able to perform machining functions such as cutting, drilling, shaping, and finishing products and component parts. Instruction will include CNC terminology, setup, programming, operations and troubleshooting, blueprint reading, machining, lathe and mill operations, technical mathematics, computer literacy, and CAD/CAM systems. The technical certificate will result in entry level skills and blueprint reading. The AAS degree will expand on skills and instruduce computer aided manufacturing and dimensioning and Tolerancing.

A primary objective of this program will be to reduce duplication between high school and two-year colleges of applied technology, eliminate gaps and overlaps in instruction, and enable students to shorten the time it takes to enter the workforce.

- 3. Briefly describe how the institution will ensure the quality of the program** (i.e., program review). Will the program require specialized accreditation (it is not necessary to address regional accreditation)? If so, please identify the agency and explain why you do or do not plan to seek accreditation. *This question is not applicable to requests for discontinuance.*

EITC is accredited by the Northwest Commission on Colleges and Universities. All entry-level training programs are reviewed annually by advisory committees composed of subject matter experts from within the industry. The advisory committee will assist the College and its faculty in ensuring that curriculum is up-to-date, make recommendations for the purchase of appropriate training equipment, address future industry training needs, provide supervised work experience opportunities for students, and employee graduates. EITC will also work with the National Institute

March 16, 2012

Page 2

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

of Metallurgy Skills Accreditation (NIMS)

4. **List new courses that will be added to curriculum specific for this program.** Indicate number, title, and credit hour value for each course. Please include course descriptions for new and/or changes to courses. **Attach a Scope and Sequence, SDPTE Form Attachment B, for professional-technical education requests.** This question is not applicable to requests for discontinuance.

Please see attached.

5. **Please provide the program completion requirements and attach to this proposal as Appendix A.** This question is not applicable to requests for discontinuance.

Credit hours required in major:	52
Credit hours required in minor:	
Credit hours in institutional general education or core curriculum:	16
Credit hours in required electives:	
Total credit hours required for completion:	68

6. **Identify similar programs offered within Idaho or in the region by other colleges/universities.** If the proposed request is similar to another state program, provide a rationale for the duplication. Institutions do not need to complete this section for PTE programs. This question is not applicable to requests for discontinuance.

Degrees/Certificates offered by school/college or program(s) within disciplinary area under review

Institution and Degree name	Level	Specializations within the discipline (to reflect a national perspective)	Specializations offered within the degree at the institution
BSU	Minor	Industrial Engineering	
CSI	TC & AAS	Manufacturing technology	
CWI	TC & AAS	Machine Tool Technology	
EITC	TC & AAS	Machine Tool Technology	
ISU	TC & AAS	Machining Technology	
LCSC	TC & AAS	Automated Manufacturing Technology	
NIC	TC & AAS	Machining & CNC Technology	
UI	BS	Industrial Technology	

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

7. Describe the methodology for determining enrollment projections. If a survey of student interest was conducted, attach a copy of the survey instrument with a summary of results as **Appendix B**. *This question is not applicable to requests for discontinuance.*

Enrollment projections are based on the continuing waiting list in the College's Welding Technology Program and from input from the local and regional manufacturing industry. EITC has met with the majority of large-scale manufacturers in eastern Idaho with the majority reporting they have unfilled jobs in Machine tool Technology. In addition, the development of new advanced manufacturing and machine tool technology associate of applied science degree programs is a key focus of the Idaho Workforce Development Council. The Council's Draft Minutes from its March 6, 2014 meeting reference **Advanced Manufacturing Task Force (Transmittal #7)** in which Idaho Department of Labor Director Ken Edmunds proposed the creation of a task force to focus on the Advanced Manufacturing industry sector. The purpose of the task force would be to align the efforts of the council, Idaho Department of Labor business outreach specialists and Idaho's educational institutions with the needs of manufacturing employers in Idaho. During the research for the viability of the program, an advisory committee was formed from manufactures in the local region. They all expressed interest in this program due to their intentions of expanding their workforce.

8. Enrollment and Graduates. Provide a realistic estimate of enrollment at the time of program implementation and over three year period based on availability of students meeting the criteria referenced above. Include part-time and full-time (i.e., number of majors or other relevant data) by institution for the proposed program, last three years beginning with the current year and the previous two years. Also, indicate the number of graduates and graduation rates.

EITC projects the enrollment of 16 full-time students in year one of the Machine Tool Technology Program beginning August 2015. The College anticipates that the majority of first year graduates will enter the second year of the program in fall 2016. EITC has had a historically high placement rate of graduates in similar programs such as Welding Technology. In addition to the enrollment of full-time certificate and degree seeking students, the College's Workforce Training Program will promote customized training opportunities in blueprint reading, machine shop mathematics, CNC machine operation and other courses designed to upgrade the occupational skills of incumbent workers.

Discontinuations. Using the chart below include part-time and full-time (i.e., number of majors or other relevant data) by institution for the proposed discontinuation, last three years beginning with the current year and previous two years. Indicate how many students are currently enrolled in the program for the previous two years to include number of graduates and graduation rates.

Institution	Relevant Enrollment Data			Number of Graduates			Graduate Rate
	Current	Year 1 Previous	Year 2 Previous	Current	Year 1 Previous	Year 2 Previous	
BSU							
CSI							
CWI							
EITC							
ISU							
LCSC							
NIC							

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

UI							
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9. **Will this program reduce enrollments in other programs at your institution?** If so, please explain. A decrease in enrollment is not expected in the welding program due to the demand in industry. This program will expand the skills needed for advanced positions in industry. The local industries have expressed their intention to expand manufacturing and increase their workforce.

No

10. **Provide verification of state workforce needs such as job titles requiring this degree.** Include State and National Department of Labor research on employment potential. *This question is not applicable to requests for discontinuance.* The workforce needs in region VI have recently been projected to increase in the number of openings for QCEW, non-QCEW and self employed workers during 2015-2017 timeframe. This increase was projected by local employers in region VI. The counties in region VI include Butte, Fremont, Madison, Clark, Jefferson, Teton, Custer and Lemhi.

The following workforce needs information was provided by the Idaho Department of Labor Region VI Regional Economist.

Multiple Machining, Tool Setters, Operators, and Tenders, Metal and Plastic

	Idaho	Eastern Idaho	Idaho Falls MSA
Median Hourly Earnings	\$15.76	\$17.06	\$17.19
2014 Jobs	320	20	17
2012-2022 Change	53	7	6
2012-2022 Estimated Annual Openings	11	1	1

Using the chart below, indicate the total projected job openings (including growth and replacement demands in your regional area, the state, and nation. Job openings should represent positions which require graduation from a program such as the one proposed. Data should be derived from a source that can be validated and must be no more than two years old. *This question is not applicable to requests for discontinuance.*

	Year 1	Year 2	Year 3	Total
Region VI	<u>15</u>	<u>15</u>	<u>15</u>	<u>45</u>
State				
Nation				

a. Describe the methodology used to determine the projected job openings. If a survey of employment needs was used, please attach a copy of the survey instrument with a summary of results as Appendix C.

Representatives from the local and regional manufacturing sector have been interviewed individually by representatives of EITC, Idaho Department of Labor, and Idaho Department of Commerce. On November 6, 2013, the College and its partners listed above conducted an Eastern Idaho Manufacturing meeting at the Center for Advanced Energy Studies (CAES) to

March 16, 2012

Page 5

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

discuss the formation of a regional Manufacturing Association and to assess need for training in this job sector.

- b. Describe how the proposed change will act to stimulate the state economy by advancing the field, providing research results, etc.

Students entering jobs in the advanced manufacturing typically enter employment at a high pay scale. According to the U.S. Department of Labor Bureau of Statistics, "In May 2012, the median hourly wage for machinists was \$18.99. The median hourly wage for tool and die makers was \$22.60 in May 2012.

- c. Is the program primarily intended to meet needs other than employment needs, if so, please provide a brief rationale.

N/A

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

- 11. Will any type of distance education technology be utilized in the delivery of the program on your main campus or to remote sites? Please describe.** *This question is not applicable to requests for discontinuance.*

This program will not be delivered via distance education or to remote sites. All courses will be taught at Eastern Idaho Technical College in Idaho Falls.

- 12. Describe how this request is consistent with the State Board of Education's strategic plan and institution's role and mission.**

The 60% goal that the State Board of Education has challenged all of the Idaho institutions to meet will be supported by this new program. EITC's mission is to provide superior educational services to prepare students to be successful in the regional workforce. The training provided by this new program will increase opportunities for students to enter a workforce with good wages and benefits.

- 13. Describe how this request fits with the institution's vision and/or strategic plan.** *This question is not applicable to requests for discontinuance.* EITC's vision is to be a superior professional technical college and to grow with industry needs. Our advisory committee, composed of industry representatives, such as, Idaho Steel, AMET, Spudnik Equipment, Diversified Metals, CIVES and Ox Industries have all participated in designing and supporting our Tool Technology Program..

Goals of Institution Strategic Mission	Proposed Program Plans to Achieve the Goal
Provide superior technical education	Students enter industry jobs ready to work
Meet the needs of local Workforce	High employment rates at the end of the program

- 14. Is the proposed program in your institution's Five-Year plan? Indicate below.** *This question is not applicable to requests for discontinuance.*

Yes X No

If not on your institution's Five-Year plan, provide a justification for adding the program.

- 15. Explain how students are going to learn about this program and where students are going to be recruited from (i.e., within institution, out-of-state, internationally).**

Students will learn about this program from the EITC website and recruitment conducted at secondary schools throughout eastern Idaho. Industry representatives have also agreed to attend high school job fairs and student orientations to promote the Machine Tool Technology Program.

- 16. Program Resource Requirements.** Using the Excel spreadsheet provided by the Office of the State Board of Education, provide a realistic estimate of costs needed for the overall program. This should only include the additional costs that will be incurred and not current costs. Include both the reallocation of existing resources and anticipated or requested new resources. Second and third year estimates should be in constant dollars. If the program is contract related, explain the fiscal sources and the year-to-year commitment from the contracting agency(ies) or party(ies). Provide an explanation of the fiscal impact of the proposed discontinuance to include impacts to faculty (i.e., salary savings, re-assignments).

Please see attached.

March 16, 2012

Page 7



Revised 7/13

**PTE ATTACHMENT B
(Program Profile)**

Indicate the nature of this submission

X	New Program (option, certificate, or degree)		Non-Substantive Change(s)
	Expansion of an Existing Program (An addition of a certificate or degree to an existing program)		Other (please list)

Please submit a separate PTE Attachment B for each new program, expansion, or non-substantive change.

Date Submitted 11/21/14

Effective Date _____

Institution Eastern Idaho Technical College

Program/Option Title Machine Tool Technology

Insert Program Name/Option Title (i.e. Business Technologies/Marketing and Management)

Degree/Certificate Intermediate
Technical Certificate

If a Certificate, indicate type (i.e. Technical, Advanced Technical or Postsecondary Technical)

CIP Code Number 48.0501

CIP Code Title Machine Tool Technology/Machinist

SOC Code Examples* 49-9043 Maintenance Workers, Machinery; 51-4011 Computer-Controlled Machine Tool Operators, Metal and Plastic

TSA National Institute of metallurgy Skills Accreditation (NIMS)

*The list of SOC codes does not need to be comprehensive but should provide meaningful examples of occupations related to the program.

STUDENT LEARNING OUTCOMES

List the student learning outcomes for the program:

- Machinists set up and operate a variety of computer-controlled and mechanically-controlled machine tools to produce precision metal parts, instruments, and tools.
- Work from blueprints, sketches or computer-aided design (CAD), and computer-aided manufacturing (CAM) files
- Turn, mill, drill, shape, and grind machine parts to specifications
- Graduates will exhibit desirable work habits, ideals, and attitudes essential to successful job performance.
- Graduates will communicate effectively with industry peers in the vernacular of professional tradespersons.

Answer the following questions in the category that applies for either "New Program or Option" or "Non-Substantive Change"

NEW PROGRAM OR OPTION

1. Describe how this request is consistent with the Division of Professional-Technical Education's strategic plan.
The Intermediate Technical Certificate will allow students to exit the program with skills and a certification that will meet entry level training for industry. This meets with the PTE Strategic Plan for 2013-17. Goal 1/3. Student completion rate and concentrators who complete a program. Goal 2. Ensure that PTE Programs are meeting industry needs of the area. PTE Strategic Plan for 2014-18. Goal1. Positive placement for students who complete a program.
2. Describe the discussion with PTE and the TCLC regarding this request.
The Machine Tool Technology Program was part of a PTE line item request by all of the PTE colleges in Idaho. This was discussed at PTE meetings and TCLC meeting several times to determine the unique programs that would be offer to meet local industry needs.
3. Provide advisory committee/industry input supporting this request.
The following industries have helped to develop the curriculum and will serve on the advising committee with a representative:
 AMET
 CIVES
 American Fabrication
 Batelle Energy Alliance
 Idahoan Foods
4. What is your plan to mitigate the impact this request will have on similar secondary and postsecondary programs (e.g. advanced learning opportunity, early college, distributed/hybrid)?
EITC does not anticipate that there will be a significant impact on other programs in the local areas. ISU is developing a program for Advanced Manufacturing but will not compete with this program. This program may integrate into an early college program in the future.

NON-SUBSTANTIVE CHANGE

Changes to a program name or title changes (e.g., programs, degrees, certificates, departments, divisions, colleges, or centers), Course number/prefix change, Course title change, Credit/lab/contact hour change, Semester offered change, Catalog description change, Co-/Prerequisite change, Create new Course(s), Delete existing course(s).

1. Describe the impact this change will have on students currently enrolled in the existing program.

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

Revised 7/13

2. Provide advisory committee/industry input supporting this change.
3. What is your plan to mitigate the impact this change will have on similar secondary and postsecondary programs (e.g. advanced learning opportunity, early college, distributed/hybrid)?

COURSE SEQUENCE

FALL SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
MACH 103	Machine Shop Laboratory	6	Technical
MACH 126	Related Blueprint Reading	2	Technical
MACH 143	Related Machine Shop Mathematics	3	Technical
MACH 153	Machine Shop Theory	3	Technical
COMM 101	Fundamentals of Oral Communication	3	GenED
Total		17	

SPRING SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
MACH 104	Machine Shop Laboratory	6	Technical
MACH 127	Related Blueprint Reading	2	Technical
MACH 154	Machine Shop Theory	3	Technical
MATH GE	General-education math course	3	GenEd
ENG 101	General-education English course	3	GenEd
Total		17	
Total			

SUMMER SEMESTER (XX Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical

SPRING SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
Total			

Summary (XX Weeks)	
General (Academic) Education	9
Technical Credits	25
Grand Total	34

COURSE TITLES, DESCRIPTIONS AND CREDITS

List all technical course titles, descriptions, and credits for this program.

MACH — MACHINE TOOL TECHNOLOGY

MACH 103 MACHINE SHOP LABORATORY (6 Credits, fall) Lab to support MACH 153. **PREREQ:** Machine Tool Technology Orientation **COREQ:** MACH 153.

MACH 104 MACHINE SHOP LABORATORY (6 Credits, spring) Lab to support MACH 154. **PREREQ:** MACH 103. **COREQ:** MACH 154.

MACH 126 RELATED BLUEPRINT READING (2 Credits, fall) Basic principles and techniques of reading orthographic projection drawings and technical sketching as applied to machine shop practice.

MACH 127 RELATED BLUEPRINT READING (2 Credits, Spring) Advanced principles to interpret more complicated machine shop detail and assembly drawings with emphasis on machining specifications and materials. Introduction to the use of the Machinery's Handbook in interpreting blueprint specifications and associated machining processes. **PREREQ:** MACH 126.

MACH 143 RELATED MACHINE SHOP MATHEMATICS (3 Credits, Fall) Applied mathematics relating to machine tool technology including fundamentals of algebra, principles of plane geometry, trigonometry, and compound angles. **PREREQ:** Placement into MATH 108 or MATH 143 or successful completion of MATH 025 with a B or better.

MACH 153 MACHINE SHOP THEORY (3 Credits, Fall) machining processes and their applications as practiced in the laboratory course. Safety and sound work habits are emphasized in all phases of instruction. Care, use, and maintenance of layout and inspection tools, the use of hand tools and minor power tools, as well as the setup, operation and maintenance of manual engine lathes, drill presses, and power saws. **COREQ:** MACH 103.

MACH 154 MACHINE SHOP THEORY (3 Credits, spring) Machining processes and their applications as practiced in the laboratory course. Safety and sound work habits are emphasized in all phases of instruction. Setup, operation, and maintenance of manual milling machines, advanced manual engine lathe set-up techniques and operations, precision surface grinding and measuring techniques. **PREREQ:** MACH 153. **COREQ:** MACH 104.

MACH 203 ADVANCED MACHINE SHOP LABORATORY (6 Credits fall) Lab to support MACH 253. **PREREQ:** MACH 104. **COREQ:** MACH 253.

MACH 204 ADVANCED MACHINE SHOP LABORATORY (6 Credits, spring) Lab to support MACH 254. **PREREQ:** MACH 203. **COREQ:** MACH 254.

MACH 211 FUNDAMENTALS OF COMPUTER-AIDED DRAFTING AND DESIGN (2 Credits, fall) Introduction to computer-aided drafting and design systems to prepare students for keyboarding, operating the systems, and understanding the applications of computer graphics to machine standards. Students will use an interactive computer graphics system to prepare drawings on a CRT.

MACH 212 COMPUTER-AIDED MANUFACTURING (3 Credits, spring) Writing computer numerical control (CNC) machine tool programs using computer-assisted techniques to generate G-Code and M-Function programs. Tooling concepts, machining methods, definition of part geometry, writing of tool motion statements, use of the computer to process program inputs, analysis, and debugging of computer outputs to develop a functional program. **PREREQ:** MACH 253.

MACH 224 TOOL DESIGN FOR MANUFACTURING (2 Credits, Spring) Advanced setup techniques, tool and hardware selection, and process planning for manufacturing, as well as jig and fixture design for production machining. PREREQ: MACH 154.

MACH 225 GEOMETRIC DIMENSIONING AND TOLERANCING (2 Credits, fall) basic geometric dimensioning and tolerancing (GD&T) methods as interpreted in ASME Y14.5M. The student will learn to read and use geometric tolerancing symbolism and terms. PREREQ: MACH 127.

MACH 253 ADVANCED MACHINE SHOP THEORY (3 Credits, fall) introduces basic programming skills and operation of computer numerical control (CNC) machining centers. Emphasis on manually writing (G&M compatible) programs, debugging programs, setups and fixturing, tooling, offset calculations, and operating CNC machining centers. COREQ: MACH 203.

MACH 254 ADVANCED MACHINE SHOP THEORY (3 Credits, spring) introduces basic programming skills and operation of computer numerical control (CNC) turning centers. Emphasis on manually writing (G&M compatible) programs, debugging programs, setups and fixturing, tooling, offset calculations, and operating CNC turning centers. COREQ: MACH 204.



**PTE ATTACHMENT B
(Program Profile)**

Indicate the nature of this submission

X	New Program (option, certificate, or degree)		Non-Substantive Change(s)
	Expansion of an Existing Program (An addition of a certificate or degree to an existing program)		Other (please list)

Please submit a separate PTE Attachment B for each new program, expansion, or non-substantive change.

Date Submitted 11/21/14

Effective Date _____

Institution Eastern Idaho Technical College

Program/Option Title Machine Tool Technology

Insert Program Name/Option Title (i.e. Business Technologies/Marketing and Management)

Degree/Certificate AAS Degree

If a Certificate, indicate type (i.e. Technical, Advanced Technical or Postsecondary Technical)

CIP Code Number 48.0501

CIP Code Title Machine Tool Technology

SOC Code Examples* 49-9043 Maintenance Workers, Machinery; 51-4011 Computer-Controlled Machine Tool Operators, Metal and Plastic

TSA National Institute of metallurgy Skills Accreditation (NIMS)

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STUDENT LEARNING OUTCOMES

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- Work from blueprints, sketches or computer-aided design (CAD), and computer-aided manufacturing (CAM) files
- Turn, mill, drill, shape, and grind machine parts to specifications
- Graduates will exhibit desirable work habits, ideals, and attitudes essential to successful job performance.
- Graduates will communicate effectively with industry peers in the vernacular of professional tradespersons.

Answer the following questions in the category that applies for either "New Program or Option" or "Non-Substantive Change"

NEW PROGRAM OR OPTION

1. Describe how this request is consistent with the Division of Professional-Technical Education's strategic plan.
The Intermediate Technical Certificate will allow students to exit the program with skills and a certification that will meet entry level training for industry. This meets with the PTE Strategic Plan for 2013-17. Goal 1/3. Student completion rate and concentrators who complete a program. Goal 2. Ensure that PTE Programs are meeting industry needs of the area. PTE Strategic Plan for 2014-18. Goal1. Positive placement for students who complete a program.
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3. Provide advisory committee/industry input supporting this request.
The following industries have helped to develop the curriculum and will serve on the advising committee with a representative:
 - AMET
 - CIVES
 - American Fabrication
 - Batelle Energy Alliance
 - Idahoan Foods
4. What is your plan to mitigate the impact this request will have on similar secondary and postsecondary programs (e.g. advanced learning opportunity, early college, distributed/hybrid)?
EITC does not anticipate that there will be a significant impact on other programs in the local areas. ISU is developing a program for Advanced Manufacturing but will not compete with this program. This program may integrate into an early college program in the future.

NON-SUBSTANTIVE CHANGE

Changes to a program name or title changes (e.g., programs, degrees, certificates, departments, divisions, colleges, or centers), Course number/prefix change, Course title change, Credit/lab/contact hour change, Semester offered change, Catalog description change, Co-/Prerequisite change, Create new Course(s), Delete existing course(s).

1. Describe the impact this change will have on students currently enrolled in the existing program.

2. Provide advisory committee/industry input supporting this change.
3. What is your plan to mitigate the impact this change will have on similar secondary and postsecondary programs (e.g. advanced learning opportunity, early college, distributed/hybrid)?

COURSE SEQUENCE

FALL SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
MACH 103	Machine Shop Laboratory	6	Technical
MACH 126	Related Blueprint Reading	2	Technical
MACH 143	Related Machine Shop Mathematics	3	Technical
MACH 153	Machine Shop Theory	3	Technical
COMM 101	Fundamentals of Oral Communication	3	GenED
Total		17	

SPRING SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
MACH 104	Machine Shop Laboratory	6	Technical
MACH 127	Related Blueprint Reading	2	Technical
MACH 154	Machine Shop Theory	3	Technical
MATH GE	General-education math course	3	GenEd
ENG 101	General-education English course	3	GenEd
Total		17	
Total			

SUMMER SEMESTER (XX Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

Revised 7/13

Total			
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FALL SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
MACH 203	Advanced Machine Shop Laboratory	6	Technical
MACH 211	Fundamentals of Computer-Aided Drafting and Design	2	Technical
MACH 224	Tool Design for Manufacturing	2	Technical
MACH 253	Advanced Machine Shop Theory	3	Technical
ENGL 101	English Composition I	3	GenEd
Total		16	
Total			

SPRING SEMESTER (15 Weeks)			
Course Prefix & Number	Course Title	Credits	Gen Ed/ Technical
MACH 204	Advanced Machine Shop Laboratory	6	Technical
MACH 212	Computer-Aided Manufacturing	3	Technical
MACH 225	Geometric Dimensioning and Tolerancing	2	Technical
MACH 254	Advanced Machine Shop Theory	3	Technical
ELEC GE	Any additional general-education elective from approved list (science or language course recommended)	4	GenEd
Total		18	

Summary (XX Weeks)	
General (Academic) Education	16
Technical Credits	52
Grand Total	68

COURSE TITLES, DESCRIPTIONS AND CREDITS

List all technical course titles, descriptions, and credits for this program.

MACH — MACHINE TOOL TECHNOLOGY

MACH 103 MACHINE SHOP LABORATORY (6 Credits, fall) Lab to support MACH 153. **PREREQ:** Machine Tool Technology Orientation **COREQ:** MACH 153.

MACH 104 MACHINE SHOP LABORATORY (6 Credits, spring) Lab to support MACH 154. **PREREQ:** MACH 103. **COREQ:** MACH 154.

MACH 126 RELATED BLUEPRINT READING (2 Credits, fall) Basic principles and techniques of reading orthographic projection drawings and technical sketching as applied to machine shop practice.

MACH 127 RELATED BLUEPRINT READING (2 Credits, Spring) Advanced principles to interpret more complicated machine shop detail and assembly drawings with emphasis on machining specifications and materials. Introduction to the use of the Machinery's Handbook in interpreting blueprint specifications and associated machining processes. **PREREQ:** MACH 126.

MACH 143 RELATED MACHINE SHOP MATHEMATICS (3 Credits, Fall) Applied mathematics relating to machine tool technology including fundamentals of algebra, principles of plane geometry, trigonometry, and compound angles. **PREREQ:** Placement into MATH 108 or MATH 143 or successful completion of MATH 025 with a B or better.

MACH 153 MACHINE SHOP THEORY (3 Credits, Fall) machining processes and their applications as practiced in the laboratory course. Safety and sound work habits are emphasized in all phases of instruction. Care, use, and maintenance of layout and inspection tools, the use of hand tools and minor power tools, as well as the setup, operation and maintenance of manual engine lathes, drill presses, and power saws. **COREQ:** MACH 103.

MACH 154 MACHINE SHOP THEORY (3 Credits, spring) Machining processes and their applications as practiced in the laboratory course. Safety and sound work habits are emphasized in all phases of instruction. Setup, operation, and maintenance of manual milling machines, advanced manual engine lathe set-up techniques and operations, precision surface grinding and measuring techniques. **PREREQ:** MACH 153. **COREQ:** MACH 104.

MACH 203 ADVANCED MACHINE SHOP LABORATORY (6 Credits fall) Lab to support MACH 253. **PREREQ:** MACH 104. **COREQ:** MACH 253.

MACH 204 ADVANCED MACHINE SHOP LABORATORY (6 Credits, spring) Lab to support MACH 254. **PREREQ:** MACH 203. **COREQ:** MACH 254.

MACH 211 FUNDAMENTALS OF COMPUTER-AIDED DRAFTING AND DESIGN (2 Credits, fall) Introduction to computer-aided drafting and design systems to prepare students for keyboarding, operating the systems, and understanding the applications of computer graphics to machine standards. Students will use an interactive computer graphics system to prepare drawings on a CRT.

MACH 212 COMPUTER-AIDED MANUFACTURING (3 Credits, spring) Writing computer numerical control (CNC) machine tool programs using computer-assisted techniques to generate G-Code and M-Function programs. Tooling concepts, machining methods, definition of part geometry, writing of tool motion statements, use of the computer to process program inputs, analysis, and debugging of computer outputs to develop a functional program. **PREREQ:** MACH 253.

MACH 224 TOOL DESIGN FOR MANUFACTURING (2 Credits, Spring) Advanced setup techniques, tool and hardware selection, and process planning for manufacturing, as well as jig and fixture design for production machining. PREREQ: MACH 154.

MACH 225 GEOMETRIC DIMENSIONING AND TOLERANCING (2 Credits, fall) basic geometric dimensioning and tolerancing (GD&T) methods as interpreted in ASME Y14.5M. The student will learn to read and use geometric tolerancing symbolism and terms. PREREQ: MACH 127.

MACH 253 ADVANCED MACHINE SHOP THEORY (3 Credits, fall) introduces basic programming skills and operation of computer numerical control (CNC) machining centers. Emphasis on manually writing (G&M compatible) programs, debugging programs, setups and fixturing, tooling, offset calculations, and operating CNC machining centers. COREQ: MACH 203.

MACH 254 ADVANCED MACHINE SHOP THEORY (3 Credits, spring) introduces basic programming skills and operation of computer numerical control (CNC) turning centers. Emphasis on manually writing (G&M compatible) programs, debugging programs, setups and fixturing, tooling, offset calculations, and operating CNC turning centers. COREQ: MACH 204.

**INSTRUCTION, RESEARCH AND STUDENT AFFAIRS
MARCH 5, 2015**

Program Resource Requirements. Provide a realistic estimate of costs needed for the overall program. This should only include the additional costs that will be incurred and not current costs. Include both the reallocation of existing resources and anticipated or requested new resources. Second and third year estimates should be in constant dollars. If the program is contract related, explain the fiscal sources and the year-to-year commitment from the contracting agency(ies) or party(ies). Provide an explanation of the fiscal impact of the proposed discontinuance to include impacts to faculty (i.e., salary savings, re-assignments).

A. REVENUE

	FY 15		2014-15		FY 16		2015-16		FY 17		2016017		Cumulative Total	
	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time
1. Appropriated (Reallocation)													\$0.00	\$0.00
2. Appropriated (New)	\$150,800.00	\$150,000.00	\$150,800.00		\$150,800.00		\$150,800.00		\$150,800.00				\$452,400.00	\$150,000.00
3. Federal													\$0.00	\$0.00
4. Tuition														\$0.00
5. Student Fees														\$0.00
6. Other (Specify) <u>line item</u>													\$0.00	\$0.00
Total Revenue	\$150,800.00	\$150,000.00	\$150,800.00	\$0.00	\$150,800.00	\$0.00	\$150,800.00	\$0.00	\$150,800.00	\$0.00	\$0.00	\$0.00	\$452,400.00	\$150,000.00

B. EXPENDITURES

	FY 15		FY16		FY17		Cumulative Total	
	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time
1. Personnel	\$80,800.00		\$80,800.00		\$80,800.00		\$242,400.00	\$0.00
2. Operating	\$70,000.00		\$70,000.00		\$70,000.00		\$210,000.00	\$0.00
3. Equipment		\$150,000.00					\$150,000.00	
4. Facilities							\$0.00	\$0.00
5. Other (Specify)							\$0.00	\$0.00
Total Expenditures	\$150,800.00	\$150,000.00	\$150,800.00	\$0.00	\$150,800.00	\$0.00	\$452,400.00	\$150,000.00
Net Income (Deficit)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

*Ongoing is defined as ongoing operating budget for the program which will become part of the base.
One-time is defined as one-time funding in a fiscal year and not part of the base.*

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