Missouri Department of Higher Education

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NEW PROGRAM PROPOSAL FORM

Sponsoring Institution(s): Ozarks Technical Community College

Program Title: Chemical Laboratory Technology

Degree/Certificate: Associate of Applied Science Degree (2 yr – A.A.S.) / Certificate (C1 - >=1 year but <2 yr)

Options: Click here to enter text.

Delivery Site(s): Ozarks Technical Community College, Springfield Campus

CIP Classification: 41.0301

*CIP code can be cross-referenced with programs offered in your region on MDHE's program inventory highered.mo.gov/ProgramInventory/search.jsp

Implementation Date: May, 2015

Cooperative Partners: Click here to enter text.

*If this is a collaborative program, form CL must be included with this proposal

AUTHORIZATION:

Dr. Steve Bishop, Provost		11-20-14
Name/Title of Institutional Officer	Signature	Date

Renee Graves	417-447-8115
Person to Contact for More Information	Telephone

MDHE
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STUDENT ENROLLMENT PROJECTIONS

Year	1	2	3	4	5
Full Time	**36**	**36**	**36**	**40**	**46**
Part Time	**0**	**0**	**12**	**15**	**20**
Total	**36**	**36**	**48**	**55**	**66**

Please provide a rationale regarding how student enrollment projections were calculated:

There will be two full-time cohorts per academic year for the first 3 years, and each cohort will have 18 students. Part-time students may begin in year 3 and both groups will increase through years 4 and 5.

Provide a **rationale** for proposing this program, including **evidence of market demand and societal need supported by research**

Currently, there is a need for more technically trained employees in the workforce to stay competitive in the global economy. The U.S. Department of Commerce notes that job growth in STEM fields is projected to be almost two-times greater than in non-STEM fields.[1] In Missouri, workers in STEM sectors earn 32.4 percent more with an associate's degree than non-STEM workers and the 2022 projected job growth for STEM occupations is higher than the combined growth of all other occupations.[2] Chemical laboratory technology programs prepare technicians for work within the scientific field as an important asset to industry. The technicians should have a high level of understanding of various aspects of a chemistry lab including: research and development, quality control and assurance, processing, hazardous material guidelines, analytical techniques, and instrumentation. These skills will allow employment within industrial, healthcare, and governmental labs with the confidence that their knowledge is sufficient. There

are many different programs available throughout the country, but not in Southwest Missouri, making it a valuable degree in an area with growth in the STEM workforce.

1. U.S. Department of Commerce. The Competitiveness and Innovation Capacity of the United States. January 2012
2. Missouri Economic Research and Information Center. "Missouri's STEM Occupations and Education." October 2014
http://www.missourieconomy.org/pdfs/stem_ed_booklet.pdf

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PROGRAM STRUCTURE

A. Total credits required for graduation: 62

B. Residency requirements, if any: N

C. General education: Total credits: 18

Courses (specific courses OR distribution area and credits):

Course Number	Credits	Course Title
MTH 110	3	Intermediate Algebra
ENG 101	3	Composition I
ENG 150	3	Technical Writing
PSY 110	3	Introduction to Psychology
PLS 101	3	American Government and Politics
PSY 210	3	Research Methods for Behavioral Science

D. Major requirements: Total credits: 44

Course Number	Credits	Course Title
ATS 100	1	Introduction to Scientific Research
ATS 101	1	Scientific Math
ATS 105	3	Applied Biology
ATS 110	4	Applied Physics for Scientists
ATS 112	3	Applied Environmental Science
ATS 115	5	Applied General Chemistry
ATS 120	5	Applied Organic Chemistry
ATS 200	6	Internship/Research
CLT 100	2	Introduction to Analytical Lab Techniques
CLT 105	2	Advanced Analytical Techniques
CLT 110	2	Organic Lab Techniques
CLT 115	2	Advanced Organic Lab Techniques
CLT 120	2	Introduction to Microbiology Lab
CLT 125	2	Hazardous Waste Management
CLT 130	2	Food Science Techniques
CLT 135	2	Biochemical Lab Techniques

E. Free elective credits:
There are no free electives.
(Sum of C, D, and E should equal A.)

F. Requirements for thesis, internship or other capstone experience:
The program requires a 6 credit hour internship or research project. The program director will work with industry partners to place students during their final semester of the program.

G. Any unique features such as interdepartmental cooperation:
The English courses are taught in a unique manner that will emphasize writing for the sciences. The students will gain valuable knowledge about technical writing and presentations. This form of discipline-targeted education will give the technician a strong foundation to enter the workforce with the skills necessary.

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PROGRAM CHARACTERISTICS AND PERFORMANCE GOALS

Institution Name Ozarks Technical Community College
Program Name Chemical Laboratory Technician
Date November 18, 2014

(Although all of the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below. Quantification of performance goals should be included wherever possible.)

1. Student Preparation

- Any special admissions procedures or student qualifications required for this program which exceed regular university admissions, standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.
  There are no special preparations and qualifications for the Chemical Laboratory Technology.

- Characteristics of a specific population to be served, if applicable.
  Potential students will be recruited from various segments of the population including; veterans, displaced workers, underrepresented minorities, chemistry majors, and students seeking technical training.

2. Faculty Characteristics

- Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.
  Faculty instructing courses within the program will meet or exceed the requirements of Ozarks Technical Community College. Instructors will be recruited from industry to maximize the technical training received by students in the program.

- Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.
  It is estimated that 50% of the courses in the Chemical Laboratory Technology program will be taught by full-time faculty. The estimation is based upon projected courses for the cohorts.

- Expectations for professional activities, special student contact, teaching/learning innovation.
  This program was designed to be delivered using hybrid courses. Students will come to campus once a week for intensive lab training. The instructors will be available online

and during campus meetings for assistance with the course material. The instructors will work with industry to ensure the most current applications of technology are being taught to the students. The program director will attend professional development meetings to gain valuable insight into the role of a chemical lab technician.

3. Enrollment Projections

- Student FTE majoring in program by the end of five years.
  Enrollment projections would be 241by the end of five years. The projection is based on two full-time cohorts a year for the first three years, with eighteen students per cohort. Part-time students may begin the year 3 and both groups will increase through years 4 and 5.

- Percent of full time and part time enrollment by the end of five years.
  The enrollment numbers projected for full-time is 81% for a total of 194 students and projected enrollment numbers for part-time is 19% for a total of is for 47 students.

4. Student and Program Outcomes

- Number of graduates per annum at three and five years after implementation.
  At the end of three years, there will be an estimated 96 graduates. At the end of five years there will be estimated 193 graduates. The estimated graduates is using an 80% retention value.

- Special skills specific to the program.
  Graduates of the program will be trained in various analytical lab techniques. They will have the skills necessary to contribute to a scientific lab including analytical, design, production and hazardous material management.

- Proportion of students who will achieve licensing, certification, or registration.

Click here to enter text.

- Performance on national and/or local assessments, e.g., percent of students scoring above the 50th percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.
  The American Chemical Society's standardized assessment tools for chemistry will be administered at the completion of the general chemistry and analytical chemistry.

- Placement rates in related fields, in other fields, unemployed.
  Job placement within a related field is expected to be 95%.

- Transfer rates, continuous study.
  Graduates will be able to transfer many of the courses to other science programs at 4-year institutions. There will be an effort to have articulation agreements in place with regional universities.

5. Program Accreditation

- Institutional plans for accreditation, if applicable, including accrediting agency and timeline. **If there are no plans to seek specialized accreditation, please provide a rationale.**
  The American Chemical Society does not give accreditation on associate degrees, but the program will follow the ACS best practices for chemical laboratory technology programs.

6. Alumni and Employer Survey

- Expected satisfaction rates for alumni, *including timing and method of surveys.*
  Graduate satisfaction will be monitored using surveys. There will be an advisory panel that will have oversight of the program's direction based on surveys and job placement.

- Expected satisfaction rates for employers, including timing and method of surveys.
  Employers are key to the program. The curriculum will be developed with input from local employers and the advisory panel will monitor results.

7. Institutional Characteristics

- Characteristics demonstrating why your institution is particularly well-equipped to support the program.
  Ozarks Technical Community College is well-suited for a chemical laboratory technology program. The college already has a strong AS in Chemistry degree that is designed for transfer students. This program will give students more options regarding technical education. Our classrooms and laboratories are well equipped to support this program.