APPLICATION GUIDELINES APPENDIX A
2008 I-BEST

College:	Lake Washington Technical College		
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Brief Program Summary(including program length and number of college-level credits):	The I-BEST Industrial/Laboratory Certificate of Completion prepares high level ESL and ABE students for employment opportunities in laboratory settings such as healthcare, agriculture, or the environment. Students take a total of 25 credits over two quarters while continuing their progress in Basic Skills. This I-BEST certificate is intended to be an articulation option to the Bio-Energy Certificate of Completion and the Energy and Science Technician Associate of Applied Science Degree.		
Professional-Technical Program (P-T) Title:	Industrial/Laboratory Certificate of Completion		
CIP Code:	03.0198		
EPC Code:	177		
I-BEST Instruction Start Date:	Winter 2010		

Number of students expected to be served	5-10
Minimum Entry Criteria including ABE & ESL Levels	Eligible for high-intermediate ESL (ESL 5 NRS/CASAS; EASL 050 at LWTC) who place in Math 080 (COMPASS 39-59) or above
Professional/Technical Entrance Requirements for the next level (GED, Asset/Compass scores, etc.)	COMPASS score higher than 36 in writing, higher than 44 in reading, and above 59 in math
Job Title(s) for I-BEST program completers	Life and Physical Science Technician; QA/QC Technician; Biological Technician; Environmental Science and Protection Technician; Hazardous Waste Removal Technician; Chemical Technician; Agricultural and Food Science Technician
Median salary for I-BEST program completers	$17-$20/hr with high school diploma + certificate

Signature of Workforce Administrator

Signature of Adult Basic Education Administrator

FOR SBCTC USE ONLY: **Approved** ☒ **Denied** ☐ **Date Approved** 12-30-09

Please complete column 2 with responses to criteria in column 1.

Criteria	College's response to essential elements.	Reviewers' Comments
1. Program has an identified educational pathway(s) linked to a career pathway.	***Essential elements to meet criteria.*** Proposal provides evidence that the program is part of an educational pathway, linked to a career pathway, which begins with adult basic education ABE/ESL and continues to a one-year certificate and beyond. Proposal clearly articulates how each level of attainment in the educational pathway prepares students to readily engage in the next level. Proposal includes a pathway diagram (see attached example).	
	College's response. The 25-credit I-BEST Industrial/Laboratory certificate targets high-intermediate and advanced ESL students with a science background from their native countries as well as students who are considering jobs in laboratory settings. This I-BEST option is based on the existing 19-credit Industrial/Laboratory certificate under the Energy and Science Technician program at Lake Washington Technical College. Thus, the I-BEST students are offered a total of 19 professional-technical credits and 6 credits in ESL classes that support the language and content taught in the professional-technical courses. Program scheduling in Science and Basic Skills take into account I-BEST students' need to progress through Basic Skills while pursuing the Industrial/Laboratory certificate: the science classes with I-BEST sections are scheduled in the afternoon, while Basic Skills classes are available both in the morning and in the evening. This I-BEST Industrial/Laboratory certificate prepares students for entry into the Bio-Energy certificate of completion and the Energy and Science Technician AAS degree. Upon I-BEST completion, students will be able to transfer (see Appendix B): ➢ 9 credits into the 19-credit Bio-Energy certificate of completion ➢ 19 credits into the 91-credit Energy and Science Technician AAS degree. Students who choose to pursue both the Industrial/Laboratory certificate	

	and the Bio-Energy certificate can transfer 29 credits into the 91-credit AAS degree. The I-BEST options reflect the current offerings in the parent program (Energy and Science Technician). As more options (such as longer certificates) become available in the Energy and Science Technician Program, additional I-BEST programs will be considered.	
2. Proposal demonstrates at the completion of the program, completers will have the opportunity to fill job openings and/or are provided with preferential status for next program level.	***Essential elements to meet criteria.*** Proposal (1) provides labor market data that shows evidence of available jobs for I-BEST program completers at a minimum of $13 per hour ($15/hr for King County) (with the exception of Early Childhood Education); and/or (2) provides a description of how preferential status will be given to I-BEST program completers for entry into the next program level of an educational pathway that ends in available jobs with earnings of $13 per hour ($15 for King County.	
	College's response. The following labor market data on job openings in King County was compiled based on the data sources: ▪ Washington State Department of Community, Trade and Economic Development. ▪ Washington State Employment Security Department. ▪ WorkforceExplorer.com ▪ Career One Stop O*Net ▪ According to the sources above, all of the job sectors addressed by this proposal will experience above-average job growth over the next ten years. Life and physical science technicians (17% projected growth), Biological technicians (16% growth), Environmental Technicians (23% growth), and Hazardous material removal workers (16% growth), all appear as demand occupations in the Seattle/King County Workforce Development area. Because about 1/3 of employees in these fields are listed as having had some college (with an additional 15-20% having only a high school diploma), graduates of this focused program will be extremely competitive	

	for jobs and should have excellent career opportunities, especially if they continue their education through completion of the college's Bio-energy certificate or the full Energy and Science Technician program. The median hourly wage for employees in these fields ranges between $17.09 hourly (agricultural and food science technicians) and $27.61/hr. (hazardous material removal workers.) An October 2008 Clean Edge study identified five clean-energy sectors that provide the best opportunities for Washington to take the lead in clean-energy capital and job creation. They are: ▪ Solar photovoltaic manufacturing, projected to provide up to 14,182 new jobs in the region by 2025. ▪ Wind-power development, expected to reach up to 4,507 new jobs. ▪ Green-building design services, creator of up to 12,937 new jobs. ▪ Sustainable Bio-energy, which could account for 6,946 new jobs. ▪ Smart-grid technologies, which could create up to 2,669 new jobs. Students who earn an Industrial/Laboratory certificate and gain employment will earn median annual earnings of $30,000 to $38,000. Occupations requiring little preparation represent around 26 percent of employment among the leading 25 occupations. Short preparation of up to 12 months is required of a range of construction and production jobs, and typically combines limited coursework with On the Job Training (OJT). Upon completion of the I-BEST Industrial/Laboratory certificate, students will have earned credits towards different certificates and degrees as shown in point one above. Advising staff, lead professional-technical faculty, and the I-BEST Coordinator will work together to ensure I-BEST completers are assisted to further enroll in pathway classes.	
3. Proposal shows evidence that program graduates will fill high demand jobs and that there is a skills gap between the number of positions and program graduates.	***Essential elements to meet criteria.*** Proposal provides evidence of local and regional labor market demand for program graduates who will fill high demand jobs. Labor market data may include a variety of resources such as transitional labor market data, industry data, trade association data, and other transactional data. Labor market demand must demonstrate a gap between the number of program graduates/completers in the region versus the number of job openings locally and regionally (list the number of available positions locally and the	

	number of programs graduates locally).	
	College's response. Percentage gap (e.g., unmet demand) between 2005-06 supply and projected 2009-14 demand for mid-level skilled workers: ▪ Science technicians – 76 percent A 2007 survey of Washington employers found that 50 percent of all Washington employers had difficulty finding qualified applicants for job openings. Finding applicants with occupation-specific skills was the most common problem for these employers. The state's current supply of workers who have completed mid-level preparation – more than one year but less than four years of postsecondary training or education – will meet only 77 percent of the expected employer demand during 2009-2014 (a 23 percent gap). Employment numbers from the sources above indicate that between 300-400 positions are open in these fields annually (Life and physical science technicians—85 openings; Biological technicians—99; Chemical technicians—46; Agricultural and food science technicians—20; Hazardous material removal—80; and Environmental science technicians—50). A review of the State Board's professional-technical program inventory as well as of its 2008 report on student graduations indicates the system currently certifies too few students to meet this need. In 2008, public two-year colleges in King/Pierce/Snohomish counties (including Everett CC, Edmonds CC, Shoreline CC, the Seattle District, Highline CC, Bates TC, Clover Park TC, Renton TC, Green River CC, Bellevue College, and Cascadia TC) graduated about 65 students in industrial laboratory-related programs. Specific programs researched to obtain these figures include chemical technician, physical science technician, biological laboratory technician, environmental technician, and water quality/wastewater management. Although new programs have come on line recently in response to the green technology movements, these additions are insufficient to fill a supply gap of several hundred employees annually in growing, high-demand fields.	

4. Proposal describes integrated professional-technical and adult basic education learning outcomes.	***Essential elements to meet criteria.*** Proposal provides (1) targeted integrated learning outcomes that include WA Adult Learning Standards and relevant professional-technical skills standards; and (2) requirements for employment at the conclusion of the I-BEST; and (3) the next level of training specifying academic entry levels, tests and/or certifications, other skills or experience.	
	College's response. Integrated learning outcomes address the WA Adult Learning Standards and professional-technical skills that apply to the Industrial/Laboratory field. Upon completion of the Industrial/Laboratory I-BEST certificate students will be able to: • Read with understanding/select reading strategies appropriate to the purpose and interpret legal guidelines • Meet the 40-hour HAZWOPER certification requirements • Interpret customer specifications and relate these to a process control chart; create industry acceptable documentation • Understand and use correctly specialized vocabulary to perform various tasks pertaining to hazardous waste regulations, routine laboratory experiments, and the product development cycle • Convey ideas orally and in writing to communicate effectively with co-workers and customers; explain the hazardous waste site characterization process including quality assurance measures. • Apply scientific theory and linguistic knowledge and strategies (such as comparing, integrating, and categorizing) to analyze information, identify and solve problems • Demonstrate ability to gather technical information, and convey the information through oral and written communication Except for the second outcome, all the other apply to multiple courses in the certificate. To be accepted into the next level of the pathway (the 91-credit Energy and Science Technician AAS degree), students will need to have completed ABED 046 (or a get a COMPASS score higher than 36/Writing and 44/Reading) and MATH 080 (or get a COMPASS score higher than 59).	

	Given the I-BEST entry level of EASL 050/065 and Math 080 and considering the I-BEST length (two quarters), students will have two quarters to progress towards reaching the entry requirements of the 91-credit Energy and Science Technician AAS degree as follows: **I-BEST entry** — Quarter 1 — EASL 050/065 — MATH 080 Quarter 2 — ABED 045/046 — MATH 090 **next level entry** — Quarter 3 — ENGL 093 — MATH 099	
5. Proposal describes integrated assessment development and/or use.	***Essential elements to meet criteria.*** Proposal describes specific tools that have been integrated to assess student learning in both basic education and professional-technical competencies. Proposal describes the development and use of the tools by both instructors. ***College's response.*** Standardized assessment is coordinated with the Basic Skills Program: CASAS will be administered both pre- and post-training and results will be reported through WABERS. Along with CASAS, classroom assessment for the learning outcomes will be jointly planned and evaluated, with a focus on performance-based assessment that integrates professional-technical and basic skills. I-BEST students will be evaluated through specific assignments, projects, and tests that will incorporate the professional-technical content and the language skills addressed during each quarter. Students will also be engaged in self-assessment (such as journaling, individual interviews, etc.) to enhance reflection and student buy-in into their own learning process.	
6. Proposal describes integrated teaching strategies.	***Essential elements to meet criteria.*** Proposal specifically describes the team teaching model that includes joint course planning and at least an instructional overlap of 50% of the class time. ***College's response.*** Classroom instruction is planned jointly for half of the instruction that is provided jointly. The professional-technical faculty and Basic Skills faculty will each be compensated for 10 hours of planning/curriculum development prior to the beginning of each quarter. During the quarter, the two faculty members will meet weekly to coordinate lessons, and assess the students'	

	performance. Instructors will be paid to overlap 50% of each scheduled class. The 50% overlap will equally apply to lab and lecture in all professional-technical courses as outlined in Appendix B: STEC 200, STEC 220, STEC 221, and STEC 225. Both instructors will actively deliv instruction during lecture classes. When the Science teacher is lecturing, the ESL teacher makes sure ESL/ABED* students understand by helping them clarify information, ask questions, and express themselves; s/he takes notes on the board on vocabulary and language concepts that seem to be new and/or confusing to the students and provides supplemental explanations to help students comprehend the material. Also, the two instructors take turns introducing new topics and making sure students are on task. As regarding the 50% overlap occurring during lab time, students will be divided into two groups, with one group practicing with the professional-technical instructor and the other group being in the care of the ESL instructor working on a project or preparing for the practice with the professional-technical instructor when groups switch. *****At LWTC, ESL students who exit ESL level 6 continue in ABED classes. Native speakers who place below Developmental Education also take the ABED class (ABED 045 Reading or ABED 046 Writing). Thus ABED classes accommodate both populations. Also, both populations are served in I-BEST.	
7. Proposal describes strategies for student success.	***Essential elements to meet criteria.*** Proposal describes specific strategies that are effective with traditionally underserved and academically challenged populations. Strategies must address innovative efforts for (1) recruitment/screening, (2) retention, and (3) program completion. Student support strategies (include college resources and systems navigation, financial aid assistance, career/educational planning, and barrier identification and mitigation).	
	College's response. The recruitment and retention efforts will be coordinated by the I-BEST coordinator and advising staff as follows:	

	Upper ESL and ABED classes will be invited to attend an I-BEST Orientation featuring all LWTC I-BEST programs, including Industrial/Laboratory. Handouts with all the necessary information will be distributed along with I-BEST applications. Applicants will be screened, referred to appropriate campus services, and assisted to enroll and apply for financial aid. To be eligible for I-BEST, students need to be CASAS-placed in EASL 050/065 or ABE 045/046; they also need to be familiar with Elements of Arithmetic (a COMPASS score higher than 38). Designated Advising/Student Services staff will be continue to be involved in the process as follows: In group and individual sessions, I-BEST students will work with the Advising/Student Services staff at the beginning, during, and upon completion of the I-BEST certificate. Upon entrance to the I-BEST program, students will be encouraged to set short and long-term career goals; visuals will be used of pathways showing entrance considerations, the coursework/credentials associated with various entry/exit points, and potential lateral and vertical movement associated with specific jobs; each student will develop an individualized educational plan with the help of the Advising/Student Services staff. Quarterly meetings will be scheduled to discuss progress, address challenges, and arrange for supplemental support such as tutoring; the I-BEST coordinator and the designated Advising/Student Services staff will also be available for individual appointments upon student request. Upon completion of the I-BEST, students will be assisted to apply for jobs and/or enroll in further classes towards pursuing the 91-credit Energy and Science Technician AAS degree. Tutoring and other support services are available all along the pathway. Towards completion of I-BEST, students will be assisted with the job search process and will be guided to write resumes. Designated Advising staff will assist I-BEST students to navigate the Financial Aid system through group and individual sessions. Depending on individual needs, students will be guided through the on-line FAFSA process and Opportunity Grant application and/or receive partial tuition assistance through Lake Washington College Foundation scholarships.	

	When students are admitted into I-BEST, they will familiarize with campus resources available to all students (such as the childcare center, disability support, and counseling) as well as with specific community resources for refugees and immigrants. The quarterly group meetings mentioned above are meant to facilitate discussions on student progress, address challenges, and arrange for additional support such as tutoring. Students will be guided to use the library and computer lab and to access the Employment Resource Center. The I-BEST coordinator will also be available for individual appointments upon student request.	
8. Proposal describes strategies to promote transition into and success within the next step of the pathway.	***Essential elements to meet criteria.*** Proposal describes specific strategies for student transition to the next program level including pathway planning, financial aid assistance and on-going academic support.	
	College's response. Towards the end of the second quarter I-BEST, students will revisit the career and educational goals set at the beginning of the program as mentioned in section 6 above, and designated Advising staff will schedule student conferences to review educational plans and progress/completion of general education requirements (math and English). All the support services mentioned in 7 above will be enlisted to ensure student transition to the next program level, and designated Advising staff will assist students to enroll in the 91-credit Energy and Science Technician AAS degree. Students will also be connected directly to other college advisors, financial aid staff, and Science faculty and will be taught how to communicate and function effectively as regular college students.	
9. Proposal describes partner involvement in the development program.	***Essential elements to meet criteria.*** Proposal shows evidence that local and regional businesses, labor, WDC, and community based organizations are active in supporting the college's effort to begin or expand this program (please list your partners here).	
	College's response. When the Basic Skills coordinator presented the concept of I-BEST to the Advisory Committee of the Energy and Science Technician program, members were very supportive of developing I-BEST based on existing	

	certificates and degrees in this program (meeting minutes are available upon request). This committee is composed of representatives from the industry. Through the college's Workfirst and Limited English Pathway programs, this I-BEST program is positioned to work with an existing network of DSHS, Employment Security, and community partners. It is anticipated to also serve our Literacy Consortium partners (Cascadia Community College, Bellevue Community College, Renton Technical College, and Hopelink), who will support the recruitment/referral efforts through their own Basic Skills programs. The Energy and Science Technician program and the Basic Skills program jointly developed this I-BEST, which was directly supported by the Dean overseeing the two programs and the Energy and Science Technician Advisory Committee. The Director of Workforce Development, Work First staff, and Advising and Financial Aid staff were also informed about the current I-BEST developments. The college partners enlisted in the planning phase will continue to collaborate to ensure access, retention, and program completion. They represent multiple areas of expertise and different decision-making levels. An on-going work group made up of the I-BEST coordinator and faculty will continue working with Student Services for successful program implementation.	
10. Optional: Is there any additional information that you choose to share, for instance connection to other initiatives, and support from other entities like the local workforce development council, economic development council, cultural and/or social service organizations, etc.	***College's response.*** The program will gain further business and industry support through the Energy and Science Technician Advisory Committee and the Lake Washington College Foundation.	

Assurances	Check box that the college provides assurance for each of the following:	
1.	X☐ The college provides assurance that **local and regional labor market demand in the industry has been verified** *(a variety of resources can be used including traditional labor market data, industry data, trade association data, and other transactional data).*	
2.	X☐ The college provides assurance that **there has been active involvement by employers and community partners in the development and in providing ongoing support for the I-BEST program.**	
3.	X☐ The college provides assurance **I-BEST completers will have all the requisite education and skills (including required academic levels, skills and experience, and passage of tests or certifications, etc.) to move into employment and the next level of the pathway.**	
4.	X☐ The college provides assurance that **there is no duplication in courses within the pathway.**	
5.	X☐ The college provides assurance that **I-BEST students will have individualized education and career plans to aid in the continuation of their skill and wage progression.**	

Please complete information for EACH of the I-BEST program's courses in the formats listed below.

Format 1—*complete for integrated courses with at least a 50% overlap of instruction*:

P-T course name: Good Lab Practice	Credits: 4	Dept. and Course Number students use to register for course: STEC 200 (Energy and Science Technician)	
P-T course quarterly hours: 55	credit equivalency *(total credits x 1.75)*: 7	ABE/ESL quarterly hours: 27.5	Class size: 10-15

P-T course name: Environmental Technology	Credits: 5	Dept. and Course Number students use to register for course: STEC 220 (Energy and Science Technician)	
P-T course quarterly hours: 55	credit equivalency *(total credits x 1.75)*: 8.75	ABE/ESL quarterly hours: 27.5	Class size: 10-15

P-T course name: Hazardous Waste Management	Credits: 5	Dept. and Course Number students use to register for course: STEC 221 (Energy and Science Technician)	
P-T course quarterly hours: 66	credit equivalency *(total credits x 1.75)*: 8.75	ABE/ESL quarterly hours: 33	Class size: 10-15

P-T course name: Quality/Statistical Process Control	Credits: 5	Dept. and Course Number students use to register for course: STEC 225 (Energy and Science Technician)	
P-T course quarterly hours: 55	credit equivalency *(total credits x 1.75)*: 8.75	ABE/ESL quarterly hours: 27.5	Class size: 10-15

Format 2 —*complete for non-integrated courses that directly support the I-BEST program (not eligible for enhanced or high funded FTE*):

ABE/ESL course name: ESL Energy Technology Applications II	Credits 3	Dept. and Course Number students use to register for course: EASL 086 (General Education/Basic Skills)
ABE/ESL quarterly hours: 33	Class size: 5-10	

ABE/ESL course name: ESL Energy Technology Applications III	Credits 3	Dept. and Course Number students use to register for course: EASL 087 (General Education/Basic Skills)
ABE/ESL quarterly hours: 33	Class size: 5-10	

APPENDIX B

ENERGY AND SCIENCE TECHNICIAN (EST) PATHWAY for BASIC SKILLS STUDENTS

Entrance Considerations

Location: Lake Washington Technical College

Placement into: EASL 050 or higher
MATH 080

Career Pathways Training
I-BEST INDUSTRIAL/LABORATORY
CERTIFICATE OF COMPLETION
19 prof-tech credits

EMPLOYMENT OPPORTUNITIES
Life and Physical Science Technician, , QA/QC Technician, Biological Technician **,** Environmental Science and Protection Technician, Hazardous Waste Removal Technician, Chemical Technician, Agricultural and Food Science Technician

Career Pathways Training
BIO-ENERGY
CERTIFICATE OF COMPLETION
19 prof-tech credits

EMPLOYMENT OPPORTUNITIES
Landfill Gas System Technician, Forestry Conservation Worker, Battery Testing Technician, Biofuel Plant Field Technician, Recycling Center Driver/Operator

ENERGY AND SCIENCE TECHNICIAN
ASSOCIATE OF APPLIED SCIENCE DEGREE
91 credits