PROFESSIONAL-TECHNICAL PROGRAM APPROVAL REQUEST

College: Skagit Valley College

Program Title: Craft Beer and Spirits Trade

| Total Credits: 40 | Anticipated maximum enrollment: 15-20 | Anticipated yearly completions: 12-15 |

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

CIP NOTE: currently there is no CIP code designated for Malt Beverage Manufacturing. The NAICS code for Breweries is 3121.20 / the industry SIC for Malt Beverages is 2082.

Award at completion (type of degree or certificate) Certificate

Brief program description:
With continued growth of the brewing industry nationwide and world-wide, owners and managers of major breweries, microbreweries, and brew pubs are seeking professionals who have been trained in the science and engineering of running a brewery operation, as well as those who know and understand the demands of the brewing industry. Not only are brewers needed, but also graduates from other academic disciplines who understand the craft beer and distilling industries. In response to the demand for condensed technical training programs in brewing/distilling science, Skagit Valley College has collaborated with regional craft brewing/distilling industry professionals to create a multi-disciplinary program that will provide education and training for those interested in working in this industry. The Craft Beer and Spirits Trade Certificate program is unique in Washington State. The program provides an overview of the craft brewery/distillery business—from farm to glass. The certificate program is structured to help students learn brew science theory through hands-on experience in the brew laboratory and at local breweries/distilleries. The program includes industry professionals in the classroom, industry tours and several internship experiences at local breweries/distilleries. The purpose of this program is to teach a variety of skills that have been identified by industry professionals as required for successful employment in the brewing industry. The program will provide:
- Skill enhancements/upgrades for those currently employed in the beer industry
- Education/training for those seeking future employment in the beer industry

Working in the commercial craft brewing/distilling industry requires diverse knowledge about the process of creating craft beer and distilled spirits. Students who are looking to master the art and science of brewing/distilling need to start with a solid foundation of understanding in the most critical areas of the brewing/distilling process. This is an ideal program for those considering entry into the brewing/distilling industry, as well as those pursuing wider knowledge of the business in order to improve their skills and advance in their career goals. Students will gain a level of industry knowledge that will benefit them in any area of responsibility in the brewery/distillery.

Students who successfully complete the program modules are eligible to earn one or more of the following certificate options:
- Craft Brewing/Distilling Fundamentals Micro-Certificate (13 credits)
- Craft Brewery/Distillery Operations Micro-Certificate (14 credits)

Students who complete the full sequence of courses may earn the
- Craft Beer and Spirits Trade Certificate (40 credits)
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<tr>
<th>Criteria</th>
<th>PROGRAM NEED</th>
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<td>1. Potential career progression, including job titles and employment opportunities including wage data. Need studies or indication of need from employers to support new and emerging occupations not covered by standard forecasts or data.</td>
<td>In WA State the craft beer industry is providing 13,148 jobs with an average wage of $33,737. According to the WA State 2013 Employment Security data the “brewing” occupation is considered a “green” job. Employment for this occupation in the Northwest WDA (Skagit, Whatcom and Island/San Juan counties) is reported to be “balanced” (job opportunities expected to remain about the same). The short and long-term trend indicates growth in this occupation. Washington data reports this occupation is showing 1.7% growth across the state. It is interesting to note that CareerOneStop data reports Washington will see an 11% growth rate for this occupation between 2012 – 2022, projecting 60 annual job openings. The Northwest WDA report indicates for brewers an average hourly wage of $20.68 and annual wage of $43,009 for our region (2013 data). The WA State Beer Commission reports there are 17 “permitted” breweries (not including distilleries) in Skagit, Whatcom and Island counties. There are an additional 24 breweries located in neighboring Snohomish county (plus 73 more in Seattle/King County). Additionally, in 2007 there were 0 distilleries in this state; in 2014 there are now 94 licensed distilleries. According to our regional industry partners, craft brewing/distilling is on the edge of exponential growth in this state. WA State has a very unique regional perspective in this business. This state no longer has “factory” breweries (Olympia, Rainier, etc.) – the business growth is in development of small craft breweries and distilleries. Data shows WA currently has 251 craft breweries producing 333,175 barrels of beer per year (ranked 11th nationally for beer production). Many jobs in the craft brewing/distilling industry cross employment categories making it difficult to find specific employment data related to the brewing/distilling industry. People working in the brewing/distilling industry can often be found working in management positions, sales/marketing, graphic design, accountant/bookkeepers, service technicians, lab technicians, bartenders, and food service employees associated with restaurants or brew pubs. The one job title that did appear in national &amp; state employment data is “brewer” (SOC 519012) with the official job title of: Separating, Filtering, Clarifying, Precipitating, &amp; Still Machine Setters, Operators, &amp; Tenders. According to our local industry partners, job titles specific to brewing/distilling are brewers/distillers, cellermen, bottling line workers, keg monkeys, draught line technicians/cleaners, vat/equipment technicians, and fermentation lab technicians. Industry professionals in our region, say there is a shortage of trained people for positions in Quality Assurance, Fermentation Lab Technicians, and Assistant Brewers/ Distillers. According to the Federal Bureau of Labor Statistics (BLS), the typical level of education most workers need to enter this occupation (brewer) is High school diploma or equivalent. Additional training, experience, licenses or credentials may be required to advance in the industry. NOTE: Our local employers indicated they (and most brewery/distillery owners) would prefer job applicants have more technical training beyond high school. Due to age restrictions associated with this line of work, applicants must often be at least 21. October 2013 the Washington State Department of Commerce designated the Skagit Valley as an Innovation Partnership Zone (IPZ) focused on value-added agriculture. SVC is working closely with the IPZ project to support development of a trained workforce for new enterprises resulting from this project. For example, the brewing-distilling certificate will support Skagit Valley Malting which developed a specialty malting facility that will supply craft breweries and distilleries with specialty malts, multiplying flavor profiles available in beer &amp; whiskey. Malt farmers from around the region &amp; across the country are lining up to experiment with some of the company’s first products.</td>
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<td>2. Initial assessment of opportunities for work-based learning/clinical sites (must be answered if applicable to program)</td>
<td>Students will be expected to complete several internship/work experience rotations in a craft brewery and/or distillery business. In the 2nd quarter, students will complete 2-3 short rotations to learn about different styles of craft brewing/distilling. In the 3rd quarter, students will complete 1 or 2 longer internships based on their career goal. Based on input from Advisory Committee members, we do not anticipate having any trouble finding sufficient work experience sites for students enrolled in this program.</td>
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<td>3. Collaboration with other colleges — Indicate which other colleges have similar programs and what potential conflicts may exist. Provide evidence of attempts to collaborate with other colleges.</td>
<td>At this time, the only formal brewing science-related education/training program in Washington State is offered at Central Washington University through the continuing education department. Students completing the 3 quarter/16 credit program earn a Craft Beer Trade “certificate of completion.” SVC administration has been in conversation with Whatcom Community College about possible collaborative efforts. A meeting has been scheduled. Based on our program research, we do not anticipate any program conflicts with our northwest regional college partners.</td>
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<td>4. Planning/advisory committee — Provide ADV form located at <a href="http://www.sbctc.ctc.edu/college/ewkforceproftechprograms.aspx">http://www.sbctc.ctc.edu/college/ewkforceproftechprograms.aspx</a> and minutes of the related meeting(s) showing evidence that the committee has determined there is a commitment in the geographic area to employ individuals who have been served by the program.</td>
<td>A Focus Group of 17 craft brewery/distillery industry professionals held its first planning/discussion meeting at SVC in early October. The group represents 16 breweries/distilleries from Whatcom, Skagit, Island, and King Counties ranging in size from a one person operation to 130 employees. Members represent owners, brewers and assistant brewers. Over several meeting discussions, a proposed program format, certificate options, and curriculum structure was developed and endorsed by committee members. Focus Group members/industry professionals indicted that with continued growth of the brewing industry nationwide and world-wide, owners and managers of major breweries, microbreweries, and brew pubs are seeking professionals who have been trained in the science and engineering of running a brewery operation, as well as those who know and understand the demands of the brewing industry. Not only are brewers needed, but also graduates from other academic disciplines who understand the craft beer and distilling business. A roster of participants and minutes from several meetings are attached.</td>
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*If an active Joint Apprenticeship and Training Committee for the occupation exists in the region, at least one labor and one management member from that committee should be invited to serve on the advisory committee. The college shall contact the chairperson or secretary of the JATC and request representation for the specific occupation. In cases where representation is not provided by the JATC, a letter must be on file from the college to the JATC requesting representation for that occupation. JATCs may act as the advisory committee where it has been determined that both the college and the occupation could best be served. “Organized labor” representatives should be used whenever possible to ensure a balance of all points of view, and currency with issues relevant to the development of courses.
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<td>5. Other supporting documentation</td>
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<td><strong>1. Attach</strong> program description, goals, and learning objectives.</td>
<td>Please see attached course descriptions.</td>
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| **2. Attach** program/curriculum guide (list by course number, course title, credit and/or clock hours per course, and total credits).  
  *NOTE: May not be available for a new primary program at initial submission. Is required for final approval.* | Please see attached curriculum guides. |
| **3. Attach** course descriptions, goals, and learning outcomes as they will appear in the catalog (do not include course syllabi).  
  *NOTE: May not be available for a new primary program at initial submission. Is required for final approval.* | Please see attached course descriptions. |
| Criteria | Minutes from two focus meetings are attached
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<td>4. Program goals are developed in conjunction with the planning/advisory committee. This joint development is reflected in the minutes of the committee.</td>
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**Assurances**

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

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

**Approvals:**

Chief Instructional Officer  

Workforce Education Director  

**Endorsements:**

Advisory Committee Representative  

Skagit Valley College Craft Beer and Spirits Trade Certificate PAR (11/12/14)
PROFESSIONAL-TECHNICAL ADVISORY/PLANNING COMMITTEE

Community/Technical College: Skagit Valley College  Date Submitted: 11/19/14
Committee/Program Title: Craft Beer and Spirits Trade Certificate

Please indicate which type of committee this is:
- Program advisory committee
- General advisory committee
- Ad hoc/planning committee
- Other (specify)

Meeting dates for previous year:
- 10/9/14
- 11/4/14

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College Advisory Committee Procedures - http://sbctc.edu/general/policymanual/ a-policymanual-ch4Append.aspx#appendg
Craft Beer and Spirits Trade Certificate - SBCTC ADV (2/10/12)
Craft Brewing Focus Group Meeting
Skagit Valley College – Board Room October 9, 2014 4pm – 6:00pm
Meeting Coordinators: Dr. Kenneth Lawson, Dr. Laura Cailloux, and Linda Cowan

The following industry representatives attended this meeting:
- Charles Finkel, Owner - The Pike Brewing Company (Seattle)
- Bob Rock, Co-Owner - Skagit Valley Malting & Brewing Company (Burlington)
- Allen Rhoades, President/Brewer - Rockfish Grill & Anacortes Brewery (Anacortes)
- Susan Welch, Consultant - Malteurop North America, Inc. (Seattle)
- Mike Armstrong, Vice President - Skagit River Brewery (Mt. Vernon)
- Emerson Lamb, President - Westland Distillery (Seattle)
- Will Kemper, Owner - Chuckanut Brewery & Kitchen (Bellingham)
- Mari Kemper, Owner – Chuckanut Brewery & Kitchen (Bellingham)
- Tony Savoy, Owner/Brewer - Flyers Restaurant and Brewery (Oak Harbor)
- Rob Kent, Head Brewer - North Sound Brewery (Mt. Vernon)
- Chris Sheehan, Lead Brewer - Hale’s Ales (Seattle)
- Bryan Cardwell, Head Brewer - Chuckanut Brewery & Kitchen (Bellingham)
- Bob Stilnovich, Owner - Golden Distillery (Samish Island)
- Bryan Krueger, Director of Quality Assurance - Boundary Bay Brewery (Bellingham)

Industry representatives unable to attend:
- Aaron Gibbs, Assistant Brewer - Chuckanut Brewery & Kitchen (Bellingham)
- Jim Parker, Co-Owner - Island Hoppin Brewery (Orcas Island)
- Matt Howell, Head Distiller - Chuckanut Bay Distillery (Bellingham)

Introductions were given:
- Skagit Valley College President, Tom Keegan welcomed everyone to campus.
- SVC Vice President for Instruction, Kenny Lawson described the role of focus group members and their importance in helping the college create strong, relevant programs that support workforce development initiatives in the Northwest region. He discussed the Craft Brewing program link to the Innovation Partnership Zone project (i.e.: Skagit Valley Malting & Brewing; WSU Bread Lab).

SVC Program Coordinator, Linda Cowan reviewed the goals for this meeting:
- Seek input from industry professionals in regards to employment needs for craft brewing/distilling industry in our region (employment data, skill requirements, training needs, etc.).
- Help determine whether or not it will be feasible for the college to pursue a state approved certificate program that will provide the training/skills needed for employment in the craft brewery/distilling businesses in the NW Workforce Development Area (NW-WDA).

The following topics were discussed /industry professionals provided input; key ideas shared are summarized:

Local employment issues/Regional need:
Currently, Central Washington University is the only college in WA State offering a beer-related training certificate: Craft Beer Trade Certificate; 16 credits/4 courses offered over 3 quarters through CWU’s Continuing Education Department. Walla Walla and Yakima Valley Community Colleges offer degrees in Viticulture and Enology (wine). NEED to RESEARCH enrollment & employment data for CWU graduates who have earned the Craft Beer Trade certificate. It was reported there are 3 brewing programs in British Columbia - 1 exists and two in planning

Focus group members emphasized the importance of maintaining the CRAFT identity. The craft brewing/distilling industry is on the edge of exponential growth in this state. WA State has a unique regional perspective in this business. This state no longer has “factory” breweries (Rainier, Olympia, etc.) – the business growth is in development of craft breweries and distilleries. Data shows WA currently has 251 craft breweries producing
333,175 barrels of beer per year (ranked 11th in the nation for beer production) – across the nation, WA has the most brewers per barrel made. Additionally, in 2007 there were 0 distilleries in the state; in 2014 there are now 94 licensed distilleries. Craft beer consumption in Washington State is very high compared to national figures: national is 6%, Washington 40% (Charles Finkel and Emerson Lamb). According to the WA State Beer Commission, there are currently 17 “permitted” breweries operating in Whatcom, Skagit and Island counties. There are an additional 24 breweries in neighboring Snohomish County.

Regionally we should focus on the growing industries of both craft brewing and distilling. Employers indicated there are many transferable skills between the two types of beverage manufacturing. We can expand employment opportunities for students by including both types of beverage manufacturing in our curriculum and providing internships in both types of facilities.

Education and Training Needed:
Many of the nationally recognized beer industry training programs (UC Davis, Siebel Institute, Doemens Academy) are focused on those who want to open their own brewing facility and/or seek management-level employment in a large “factory” brewery or beverage-related business. These training programs are considered the “gold” standard – like attending Harvard! The tuition for 3-6 months of training is very expensive ($10,000 to $18,000 not including room/board).

There are also a wide variety of online/webinar certification programs – most are sponsored by trade association organizations (Brewers Association, Master Brewers Association of the Americas, etc.). Examples are: Beer Judge Certification, Cicerone Certification, Beer Steward, Beer 101, Home Brewing 101. These programs provide a quick and easy way for people currently employed in the business to upgrade their skills or receive a specific type of certification (i.e.: Cicerone, Beer Judge, etc.).

Employers indicated they don’t need “Harvard” (gold standard) graduates for the jobs available in our regional area. Small, local craft breweries/distilleries can’t pay at the level required for this type of training and applicants for the jobs aren’t interested in doing the entry level work required. Regionally, the small craft breweries/distilleries require that everybody does every operation. Workers must be passionate about the work, multidisciplinary, a jack-of-all-trades brewer/distiller.

It was noted in the discussion that local employers are looking for potential employees who are educated and have some training and experience in the brewing/distilling business (referred to as the “bronze” standard). In some respects, experience trumps education in this business! The brewing/distilling business has been “romanticized” – when there are job openings employers have no trouble finding fairly well-educated people willing to do simple jobs because they want to be a part of this industry. Even though the applicants are “educated” they often lack the specific skills needed for employment in this industry. And, many have false expectations about the work environment and the wages they think they should be making. The problem then becomes retention…once the “romance bubble” bursts, and the hard work of brewing/distilling takes over, the newly trained employees have a tendency to quit. Or…they leave to open their own brewery! Due to the high rate of turnover in entry-level positions, employers said they are seeing a real shortage in quantity of applicants for these positions. Owners used to have time to brew/distill, but now find they must manage the business & are finding that they need to hire brewers & assistant brewers.
For brewers, hiring qualified employees and then maintaining engagement and enthusiasm is a significant employment factor.

Note: a high school diploma is often identified in labor market studies as the level of education needed for entry-level employment in the brewing/distilling industry. Local employers indicated they would prefer job applicants have more training beyond high school. They prefer candidates with “life” experiences (a little older; maybe home brewing experience) that shows employer you have an aptitude for learning. Employers indicated they appreciate job candidates who have some general education and technical training beyond high school.

Emerson Lamb, owner of Westland Distillery, shared that he just hired 5 production workers from Scotland because he was unable to find any qualified applicants from WA State.
Employers indicated the following are typical jobs held in their facilities:
- brewer, master brewer, lead brewer; distiller
- assistant brewer (highest demand is for this position)
- lab technician/quality assurance (2nd level of demand)
- production manager / distillery manager
- distribution - salesman/marketing specialists with an understanding of brewing/distilling business
- packaging technician/line operator
- bottling line workers
- cellerman
- quality assurance manager
- procurement (raw materials)
- keg monkey
- equipment technician/vat maintenance – ideally, a degree in mechanical engineering (brewers typically have to fix their own equipment – difficult to find equipment repair/maintenance technicians)

Currently there is a shortage of trained people for positions in Quality Assurance, Assistant Brewers/Distillers, and Fermentation Lab Techs.

Wages: The WA State beer industry is providing 13,148 jobs with an average wage of $33,737. WA State Employment Security data indicates “brewers” in our region (NW-WDA) are being paid an average wage of $20.68 with an annual wage of $43,009.

Who is Target Audience?
Employers indicated we should focus on developing a curriculum for entry-level workers who want to enter the brewing/distilling business at the assistant brewer level, or in distribution/sales, or lab technician. These positions require a level of technical skill/training beyond a high school diploma...but do not require 4 year degrees.

Age of student will be a factor we need to consider in this program. While students can be under age 21 to tour the brewing/distilling facility or work the restaurant side of a brew pub, most employers indicated they would not hire someone under age 21 to work on the floor of their brewery/distillery. They understand that some jobs in their facility do not require tasting/serving the product...but the fact that the business is about creating (tasting/quality control) and selling alcoholic beverages creates a work environment where it is too risky to hire someone under age 21. This would include student interns working in a brewery/distillery.

Recommend we design a program geared for “full-time” students. Due to the age issue associated with this program, we should target students 21 or older coming to campus for worker retraining, skill upgrade, or students who went directly to work after high school and are now seeking a college certificate or degree program.

The last hour of the meeting was devoted to discussing what should be included in a high quality craft brewing/distilling college-level, education/training program. The industry representatives recommended the following topics and program structure would be valuable to include in the curriculum:

Develop a core curriculum module (maybe 15-18 credits) that provides students with a solid overview and introduction to the craft brewing & distilling industries. Students could earn a Brewing/Distilling Fundamentals Micro-certificate for completing this module and may decide to go no further in the program.

Develop a broad, introductory, overview course (i.e.: Brewing/Distilling Culture?) that includes concepts such as: perceptions of alcohol, gastronomy, culture of alcohol, alcohol and health, history of brewing/distilling, etc. This course would be open to any student (no age restriction) interested in learning more about the brewing/distilling industry in WA State. The course would include lots of industry tours and guest speakers to help students determine whether or not this is the right career path option for them. This course could help “recruit” students to the full program by creating awareness about the needs of the industry and employment opportunities.
Start with **entry-level curriculum**, establish program legitimacy, then over time let the program grow. When timing is right, add higher level training program for incumbent workers.

**Modularize the curriculum; versatility is important** – can develop some specialty certificate programs that branch from the main certificate program, such as: Brewing/Distilling Operations; Business of Beer & Distillation; Fermentation Lab Technician; Machine Repair Technician; Food Service for Pubs, etc.

**Suggest the following topics be included in the curriculum:**
- Sales and marketing information; distribution of the final product - shelf space is an issue – need to know "How do you get beer into grocery stores"; how to expand market size; authority in the marketplace comes from product knowledge.
- Knowledge of how to run a profitable brewing/distilling business operation; different business models; costing formulas; how to work with wholesalers; how much to charge for a keg/barrel; practical day to day operations of running a brewery/distillery.
- Procurement of raw materials – how it’s done
- Brewing/distilling raw products – how grown, processed, criteria for quality, fermentation process
- Need to know about taste and nature of the product; how to determine quality
- Brewing / distilling – the process
- Brewing/distilling industry regulations
- Food/product safety
- Equipment maintenance issues

**Overall program goal:** to help students see/understand the “big picture” of the craft brewing/distilling industry. The day to day tasks required to run the business.

**Practical Experiences:**
- Important for students to have practical, hands-on learning experiences as part of the curriculum.
- Suggest lots of industry/workplace tours and brewing/distilling professionals as guest speakers during the first quarter/ instructional module of the program.
- The 2nd quarter, students should have several short internship experiences at several different types of brewing/distilling operations (broad exposure to the business).
- The last quarter students might have 1 or 2 job specific internships that focus on their particular area of career interest (i.e.: sales/marketing, brewing/distilling, operations, procurement, lab technician, etc.).

**Employers in attendance at this meeting indicated endorsement for a strong internship program, and their willingness to host student interns.** However, they did discuss concern about the possibility of so many internships being difficult to manage at their workplace...especially those with very small operations. Craft Brewery/distillery owners in the Seattle/King County area are also interested in hosting student interns. If we can setup internships along the I-5 corridor between Whatcom and King Counties (plus the Islands), we will have a larger and more diverse pool of workplaces to partner with.

**Employers indicated there should be some prerequisite courses required for this program.** Other college or trade association programs either require or strongly recommend students complete the following academic prerequisites:
- College level reading and comprehension
- Workplace Communications
- Algebra or Calculus (a solid math foundation is essential)
- Chemistry – basic college level
- Physics (basic)
- Chemical/Mechanical Engineering

**Classroom environment – Brew Lab**
What should the classroom space include to provide students with practical industry-related training experiences? Will need to explore further with Focus Group at our November meeting.
**Hiring Faculty:**
Employers recommend any faculty hired should come from brewing/distilling business; needs practical work experience; comprehensive working knowledge of the craft brewing/distilling business environment. Program legitimacy will come from faculty experience in industry.

**Other topics that came up in our discussion...will need to revisit and discuss further:**
**Lab technicians are needed:** there is a need for a local lab facility that can conduct product testing/analysis (currently sending samples on a weekly basis to test facilities outside WA State). A local facility would save employers a lot of time and money by streamlining the testing/analysis process and keeping it all local. It was suggested we might consider developing a BREW LAB...similar to WSU’s Bread Lab at Port of Skagit Valley facility (part of the IPZ project). A lab would provide a training site for students interested in Fermentation Science/lab technician positions in brewing/distilling facilities.

**An agricultural link** — with the Innovation Partnership Zone project, the Skagit Valley Malting and Brewing Company (Bob Rock, owner) is on the cutting edge of developing craft malts and hops for brewing and distilling companies all over the world. Washington State is an industry leader in this regard. Need to explore a “specialty” link (short certificate option) with Environmental Sustainable Agricultural science program or connection to food science.

**Employers indicated there is a constant/ongoing need for brewing equipment/machine repair** — this includes vat maintenance, electrical systems, and plumbing issues. Need to explore a possible “specialty” short certificate option for students interested in equipment maintenance and repair.

**Many breweries are also connected to restaurants and brew pubs** — some contract with food trucks that “camp out” at their facility during peak hours of business. Need to explore a possible short certificate link to the Culinary Arts program — a connection to gastronomy and food service curriculum (how to run a successful pub or restaurant, selecting a menu, etc.). There is also a link here with Food Science — yeast and fermentation process; developing bread/pastry products with craft grains and malts.

"Clean-in-Place" - Best Practices

**Farm Hack** - lower cost equipment for small breweries - anything that saves labor or makes quality or product consistency better.

**Master Brewers Association has a set of Learning Outcomes**, faculty credentials information, lab services information; Susan Welch (Malteurop North American, Inc.) will follow up with Linda to make sure she gets copies of these documents.
Craft Brewing-Distilling Focus Group Meeting
Skagit Valley College – Board Room November 4, 2014 4pm – 6:00pm
Meeting Coordinators: Dr. Kenneth Lawson, Dr. Laura Cailloux, and Linda Cowan

The following industry representatives attended this meeting:
- Bob Rock, Co-Owner - Skagit Valley Malting & Brewing Company (Burlington)
- Allen Rhoades, President/Brewer - Rockfish Grill & Anacortes Brewery (Anacortes)
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- Chris Sheehan, Lead Brewer - Hale’s Ales (Seattle)
- Bryan Cardwell, Head Brewer - Chuckanut Brewery & Kitchen (Bellingham)
- Bob Stilnovich, Owner - Golden Distillery (Samish Island)
- Bryan Krueger, Director of Quality Assurance - Boundary Bay Brewery (Bellingham)
- Steven Jones, WSU Research and Extension

Industry representatives unable to attend:
- Charles Finkel, Owner - The Pike Brewing Company (Seattle)
- Susan Welch, Consultant - Malteurop North America, Inc. (Seattle)
- Emerson Lamb, President - Westland Distillery (Seattle)
- Rob Kent, Head Brewer - North Sound Brewery (Mt. Vernon)
- Aaron Gibbs, Assistant Brewer - Chuckanut Brewery & Kitchen (Bellingham)
- Jim Parker, Co-Owner - Island Hoppin Brewery (Orcas Island)
- Matt Howell, Head Distiller - Chuckanut Bay Distillery (Bellingham)

SVC Program Coordinator, Linda Cowan reviewed the 4 key goals/discussion items for this meeting:
1. Review/approval of program structure (modules, sequence, courses)
2. Discuss the proposed instructional “Academy” Model
3. Discussion/recommendations for needed facility/instructional space and equipment; ballpark cost
4. Revisit discussion about internship experiences; age 21 and over issue

Review/comments/suggestions/approval of program structure (modules, sequence, courses).
Note: the Focus Group/Advisory Committee needs to officially endorse the program plan before it can be submitted to SBCTC.
- Official title for this program will be: Craft Beer and Spirits Trade (Academy?)
- Title of 40 credit certificate will be: Craft Beer and Spirits Trade Certificate
- It was noted in discussion that our program is ambitious, but clearly represents what a person needs to know and be able to do to work in the craft brewing/distilling business. The program offers a nice mix of technical skills and business skills. Programs such as offered through Seibell & UC Davis are “pure science” and focused toward employment in large industrial breweries.
- The program learning outcomes represent the skills needed for craft brewing/distilling market rather than the big brewery operations....the industry is shifting to the CRAFT market where all the employment growth is happening – especially in this state.
- Need to make sure we use the word CRAFT in title of program and with all certificate options.
- Need to rewrite/clarify Recommended Prerequisites section. Math should be a required pre-req; however, other courses (sciences/engineering) may be listed as strongly recommended for program success. Should add options from Manufacturing, Welding, Automotive, Diesel, etc. as good background experience for this program.
- The 3 program “module/microcertificate” sequence is good – the program focus is Fundamentals, Operations, and Business.
Currently the program is set up for students to successfully complete the modules in sequence. Once the program is established, we should explore possibly offering each module/microcertificate as a “stand alone” training option. The certificates would offer “advanced” training for people already employed in the industry who want to expand/enhance their skills.

We reviewed the course descriptions. Following discussion, it was recommended that we eliminate the “Grain Handling and Malting” course as a stand-alone and divide the Raw Materials and Wort Production into 2 separate courses...integrating the Grain Handling info into the Raw Materials course. It was also noted that along with grains/malts we also need to emphasize hops. WA State is ranked #1 in the nation in hops production...and growing hops in the Skagit Valley is happening. Important to emphasize the agricultural side of the raw materials used...locally sourced, “farm to glass” concept. Encourage class farm visits to see hops and barley being grown/harvested (harvest takes place August-October).

Based on discussion and with verbiage help from Bob Rock and Allen Rhoades, the two revised/new course descriptions will be (credits were adjusted between the two courses):

**BRW 105  Raw Materials (2 credits)**
Course covers the basic ingredients used in brewing and distilling: malted barley (and other adjunct grains), hops, yeast and water. Students learn about the role various raw materials play in the production of beer, spirits, and other food products and the importance of these ingredients in the flavor profiles imparted. Topics of discussion will include hop varieties, barley types, breeding & selection, growing, harvesting, drying and malting of grains, yeast types, and water properties. Students will learn about the “farm to glass” philosophy and how local brewers/distillers are incorporating locally sourced raw materials into their craft beverage products.

**BRW 107  Wort Production (4 credits)**
Course provides training in the technology/science of wort creation and the brewing skills required to create the final product. Each critical factor in wort production, from barley choices to mashing, sparging, wort boiling and cooling is explained in detail. Topics covered will be barley, malt, hops, water analysis, brewing adjuncts, milling & mashing, sensory evaluation and how each aspect of the production process impacts the final product. Industry tours to observe the production process are included.

- Recommended we remove word “brew” from Packaging and Brew-Process Technology.
- In Brewery/Distillery Operations course description, need to add “cleaning and sanitation” issues (CIP procedures)……done.

**Revisit discussion about internship experiences; age 21 and over issue**

- *Will your business be able to offer one or more industry experiences/internships for students enrolled in this program?*
- *Will there be any age restrictions (i.e.: 21 or older) for students interning in your business?*

Industry partners indicated they are willing to take one or more student interns in support of this program. However, having someone under the age of 21 interning/working in the brewery is too risky for them. Under state law, they cannot hire anyone under the age of 21 to work in the brewery...so don’t feel comfortable having an intern under age of 21. They recommend that as part of the program application process, we require students be age 21 prior to beginning their internship experience – internships begin in the 2nd module (Operations).

**Discuss the proposed instructional “Academy” Model --- pros and cons of using this model.**
SVC administration is recommending we consider offering this program in an “academy” model format. Laura Cailloux explained the program would be run once per year (serving approximately 15-20 students) for an “intensive” quarter/12 weeks. Students would attend class Monday – Friday, 6-8 hours per day. All three micro-certificate modules would be covered during the 12 week period. SVC has experience running academy model programs that have been very successful. This instructional model will appeal to students who want to work in the industry but can’t take a full year (9 months) to complete what is a relatively “short” 40 credit certificate program. The Academy model will also be conducive to future “spin-off” programs, such as 1 or 2 week specialty training workshops, or seminars on current training needs of the industry. The short training
workshops will appeal to people already employed in the industry who are looking to advance their skills and future employment opportunities.

Focus Group members indicated support for the academy model. It was noted that we might want to consider offering the Academy during Fall Quarter so students can observe the growing/harvest of hops, barley, etc. taking place in the Skagit Valley beginning in August and culminating in October (approx.).

**Discussion/recommendations for needed facility/instructional space & equipment; ballpark cost.**

- A regular classroom setting will work fine for most instruction associated with this program.
- Will need access to chemistry lab and typical lab equipment. The lab environment would be similar to one used for an entry-level college chemistry course.
- Testing equipment will be needed: microscopes, testing slides, sampling tubes, growing cultures, etc.
- Students will be learning how to test for a variety of micro-organisms that impact the flavor of beer and distilled spirits and can lead to spoilage problems. Common tests are yeast cell counts and pitch rate calculations using a microscope and haemocytometer (as well as staining cells with methylene blue for viability), sterile plating for purity, cell consistency, and other sanitary concerns.
- Graduates of this program should be familiar with testing for dissolved oxygen, yeast cell counting, rogue yeasts, micro-plating organisms, microbiological contaminants/spoilage organisms, diacetyl control, and IBUs, as well as alcohol, calories, color, etc.

During the discussion, it was noted that there are no facilities/services in WA State that can perform the tests required for beer or distilled spirits. The local craft breweries are using testing services located in California, Oregon, or Colorado (Wyeast or White Labs). There is a growing need for testing services in Washington State. During the discussion, it was suggested we might want to join forces with WSU's Bread Lab project and develop a cooperative testing lab that could provide testing services for “Brew and Bread”. The lab could serve as a training site for students interested in becoming a Fermentation Science Lab Techs. The lab could provide testing services for local craft breweries and distilleries at a reduced or no cost fee for those businesses providing internship experiences for students. There are hundreds of breweries and distilleries across Washington State that might be interested in using the services of a “local” testing lab. A lot of great ideas were shared....further discussion about this issue will need to take place at a later date.

As a result of the discussion about a testing lab, Steve Jones, WSU / Director of the Bread Lab project who was in attendance at our meeting, **asked the group for some feedback.** Steve asked...if a cooperative lab was to be built to serve the craft breweries/distilleries in our region:

- What types of tests would need to be done? (are there different testing requirements for breweries versus distilleries?)
- What type of equipment is needed to do these tests?

**Linda will send out an email asking Focus Group members to submit their ideas.**

Bryan Krueger (Boundary Bay) suggested contacting Wyeast and/or White Labs for some expert advice about the type of testing equipment that might be needed to handle the tests for small craft breweries/distilleries. Many local, craft breweries are using White Labs’ (Yeastman) testing services. The lab offers good deals on general lab service “packages” to allow small breweries to do semi-regular tests that the brewer may not have the equipment/knowledge to perform. **As a followup to the meeting discussion,** Bryan sent the following contact information for the two labs:

- **White Labs:** [http://www.whitelabs.com/lab-services-and-supplies](http://www.whitelabs.com/lab-services-and-supplies)
- **Wyeast Labs:** [http://www.wyeastlab.com/com_b_labanalysis.cfm](http://www.wyeastlab.com/com_b_labanalysis.cfm)

In general- most breweries want assurance that their beer is microbiologically stable (free from overwhelming bacteria/ wild yeast colonies); and also that yeast is healthy and viable, as well as other info of value such as
bittering units (BUs), alcohol by volume, extract, and attenuation, as well as pH (if the brewery does not have a meter). It is useful to know about dissolved O2 as well, especially if the brewery is packaging (cans or bottles). A sample listing of some of the required equipment would be found here http://www.whitelabs.com/white-labs-lab-supplies.

Recommend contacting the American Society of Brewing Chemists (ASBC) for more professional advice http://www.asbenet.org/Pages/default.aspx

Chris Sheehan (Hale’s Ales) indicated the cost for setting up a typical testing lab for a craft brewery sized operation might run in the neighborhood $2,500.

Linda asked if students should have access to a small “classroom size” brewing system for some hands-on practical instruction. Central WU program uses a MoreBeer B3 flat brew sculpture. A Brew Magic system was mentioned as an option – but cost would be in neighborhood of $10,000. Industry folks indicated we should consider asking SVC’s Welding program students to design and construct a brewing vat system for the program – a very practical, applied learning experience for the students!

As a culminating project or part of an internship experience...Allen Rhoades suggested breweries/distilleries might want to partner with a small group of students to formulate a brew/spirit recipe, then brew/distill/produce the final product. A small batch (how much is a small batch?) can be made and if good...sold! This sort of project provides an opportunity for students to experience the “real world” of brewing/distilling and demonstrate/apply the skills they have learned in the program. We recommend the instructor for this program consider this culminating project option.

Next Steps...
- Linda will finalize documents for submission to SBCTC; Kenny & Laura will take care of submission details
- An Advisory Committee representative will need to sign the final document
- SVC’s Instruction Committee will review the proposed program

Next Meeting
We do not anticipate another group meeting until we’ve heard back from SBCTC. We will continue to communicate via email to keep everyone updated or if other questions arise that need your input.

Linda will be following up with Focus Group members to determine if they want to continue serving on this committee as it transitions from a Focus Group to a Program Advisory Committee. The Focus Groups role has been to guide and assist SVC through the program design/development phase of this project. Once the program is approved by SBCTC, the role will shift to an advising capacity in regards to employment trends, curriculum, facilities and equipment, instructional quality (instructor qualifications, curriculum standards, current training/skill needs of the industry, etc.).
## SKAGIT VALLEY COLLEGE
### CRAFT BEER and SPIRITS TRADE CERTIFICATE

### TYPICAL STUDENT SCHEDULE

15-16 Catalog

**CIP: 01.1001; EPC:**

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**SKAGIT VALLEY COLLEGE**  
**CRAFT BEER and SPIRITS TRADE**  
15-16 Catalog

**Craft Brewing/Distilling Fundamentals Micro-Certificate**

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**Craft Brewery/Distillery Operations Micro-Certificate**

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**TOTALS:** 14 88 154 = 242
CRAFT BEER AND SPIRITS TRADE CERTIFICATE

COURSE DESCRIPTIONS

CIP: 01.1001; EPC:

BRW 101  Culture of Craft Brewing/Distilling  (3 credits)
Introduction to sensory perception (taste & smell) as it relates to beer/spirits identification and quality, and considerations for food and beverage pairings. Topics include the history of brewing/distilling; craft vs. factory industrial models; alcohol & health; overview of brewing/distilling process; ingredients used; and beer styles. Includes industry tours and presentations from industry professionals.

BRW 103  Beverage Biochemistry  (4 credits)
Covers general microbiology and chemistry as it pertains to the production of alcoholic beverages and the brewing of beer and spirits. Raw materials/ingredients used in the brewing/distilling process will be discussed along with the properties of water, pH, enzymes, proteins, carbohydrates, and other microorganisms in the brewery regarding their role in brewing. Develop an understanding of the ingredient interactions of biological molecules, particularly as they pertain to fermentation (yeast biology, wild yeasts, yeast production), identification of wort/beer spoilage organisms using microscopy, staining and differential media.

BRW 105  Raw Materials  (2 credits)
Covers the basic ingredients used in brewing and distilling: malted barley (and other adjunct grains), hops, yeast and water and the role various raw materials play in the production of beer, spirits, and other food products and the importance of these ingredients in the flavor profiles imparted. Topics include hop varieties, barley types, breeding & selection, growing, harvesting, drying and malting of grains, yeast types, and water properties. Learn about the “farm to glass” philosophy and how local brewers/distillers are incorporating locally sourced raw materials into their craft beverage products.

BRW 107  Wort Production  (4 credits)
Provides training in the technology/science of wort creation and the brewing skills required to create the final product. Covers each critical factor in wort production from barley choices to mashing, sparging, wort boiling and cooling. Topics include barley, malt, hops, water analysis, brewing adjuncts, milling & mashing, sensory evaluation and how each aspect of the production process impacts the final product. Industry tours to observe the production process are included.

BRW 110  Brewery/Distillery Operations  (4 credits)
Covers essential topics of brewery/distillery operations. Topics include brewery equipment (insulation systems, pumps, valves, refrigeration, computer controls, remote measurement systems, etc.) & supplies, tasks required in the brewing/distilling process, design/layout of brewery/distillery production areas, supply & product control, safety (production lines under pressure), cleaning & sanitation issues (CIP procedures), disposal of liquid & solid brewery/distillery waste by-products, storage & distribution systems. Best management practices for energy use will be discussed.
BRW 112  Packaging and Process Technology  (2 credits)
Covers the processing and packaging of finished beer/spirits. Topics include packaging line design, packaging quality management, fluid flow principles, pasteurization principles, gas laws/control of gases, keg filling, bottle/can filling, wort transfer, cleaning, bottle washing, and packaging materials and techniques. Includes information about mobile bottling/canning units commonly found in craft brewery/distillery operations. Topics also include the most recent developments in alternative materials (such as plastic bottles) and super-high-speed bottling systems. Engineering & process instruction includes topics such as properties of metals & other materials, fluid and pump dynamics, & other areas critical to improving brewery/distillery performance.

BRW 115  Brewery Maintenance  (2 credits)
Employees working in small, craft breweries need to be prepared to handle small equipment problems as they arise (pumps, valves, lights, motors, etc.) Topics cover common equipment maintenance issues, how to fix/maintain the equipment typically found in a brewery/distillery operation, and the circumstances where professional repair intervention is needed. Learn how to use basic repair tools such as wrenches, pumps, volt meters, etc.

BRW 120  Essentials of Quality Assurance/Quality Control  (2 credits)
Learn the tools and procedures used by breweries worldwide to evaluate beer/spirits at every important phase of production. Covers a full range of topics related to Quality Assurance/Quality Control (QA/QC) tools required to create beers/spirits of the highest quality and consistency. Differentiate between the principles of QA & QC and the essential components of a quality production system within a brewery. Topics include sensory evaluation, analytical testing, microbiological testing, lab safety and standard practice, practical and usable analytical methods, sampling techniques, QC methods for fermentation and packaged products, and taste panel design and management. Learn how to use PH meters, CO2 volume meters, thermometers, and calibration techniques to maintain temperature consistency.

BRW 125  Flavor Production and Control  (2 credits)
Introduction to samples of flavor and aromatic compounds associated with the raw materials and brewing process. Analyze the origins of those compounds, and provides foundational knowledge required to effectively control them. Topics include fermentation characteristics, malting effects, carbonation, flavor production, and beer freshness qualities. Includes training the palates to make informed decisions during the production process for beer or spirits. Learn about beer’s quality attributes such as foam, stability, color, aroma, attenuation, and ability to interpret the reasons why a product deviates from expected performance.

BRW 128  Industry Experience  (2 credits)
To gain first-hand experience in brewing/distilling operations, each student will complete two observation-based industry experiences. Observations will be structured to ensure students have learning experiences in the following areas: Brewery/Distillery Operations, Packaging & Process Technology, Equipment Maintenance, Quality Assurance/Quality Control, and Flavor Production. The internship will augment classroom learning by applying skills and knowledge learned in a craft brewery/distillery business operation. Includes a classroom seminar component. Prerequisite: Instructor permission required.
BRW 130  The Business of Craft Brewing/Distilling  (5 credits)
Overview of small business start-ups and basic business practices as applied in the brewing/distilling industry. Topics include the economics of running a brewery/distillery, overhead control & pricing, cash management, the selling and distribution process, inventory control, marketing the business, insurance considerations, and hiring/managing employees.

BRW 132  Essentials of Brewery/Distillery Compliance  (1 credit)
Introduction to brewery/distillery compliance covering application processes, licensing and permits, label approval process, taxes, recordkeeping and reporting requirements for the Washington State Liquor Control Board (WSLCB), the Alcohol and Tobacco Tax and Trade Bureau (TTB), and the Washington State Department of Revenue (DOR).

BRW 135  Tradition and Innovation in Beer Styles  (2 credits)
Overview of the techniques and technologies used to design and brew the full range of established and emerging beer styles. Topics include styles and sub-categories of beer with emphasis on methodology used to brew beer that matches the style parameters, while retaining the brewer’s own artistic interpretation. Learn about the technical side of the development of recipe formulation and creating a style.

BRW 199  Brewery/Distillery Internship  (5 credits)
Supervised work experience in the field. The internship will augment classroom learning by applying skills and knowledge learned in a craft brewery/distillery business operation. Depending on their career goal, students can choose to intern in either a craft brewery or craft distillery operation. Students will be mentored by professionals who are experienced practitioners in the industry. In partnership with the instructor and the mentor, learning objectives will be determined by the student’s capstone specialty project and internship/work experience placement. Course includes a weekly classroom seminar. Prerequisite: Instructor permission required.