SVC | Skagit Valley College

Bachelor of Applied Science – Application Development

Prepared for the Washington State Board of Community and Technical Colleges

May 2021 State Board Meeting

Contents

COVER SHEET
NEW DEGREE PROGRAM PROPOSAL

Program Information

Institution Name: **Skagit Valley College**

Degree: **Application Development** CIP Code: 11.0202

Name(s) of the existing technical associate degree(s) that will serve as the foundation for this program:

Degree: Multimedia & Interactive Technology CIP Code: 11.0801 Year Began: 2001

Degree: Computer Information Systems CIP Code: 11.0301 Year Began: 1991

Degree: Information Management & Data Science CIP Code: 30.7101 Year Began: 2021

Degree: Computer Science AS-T CIP Code: 14.1001 Year Began: 2009

Planned Implementation Date (i.e. Fall 2014): **Fall 2022**

Proposal Criteria: *Please respond to all eight (8) areas listed in proposal criteria FORM D.*
Page Limit: 30 pages

Contact Information

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Chief Academic Officer — April 12, 2021 Date

CRITERIA	STANDARD
1. Curriculum demonstrates baccalaureate level rigor.	Describe curriculum including (1) program learning outcomes (2) program evaluation criteria and process (3) course preparation needed by students transferring with technical associate degree (4) general education component (5) course work needed at junior and senior levels in the BAS.

Skagit Valley College's (SVC) Bachelor of Applied Science in Application Development is a forward-looking technology degree concentrating on theoretical, programming, analytical, and complex problem-solving skills needed to develop computer, web, and mobile applications. The Application Development program will focus on preparing students to create, develop and adapt computer and device applications, including generating software solutions for optimization and efficiency for end users. Students will learn how to determine user needs, design and test solutions, develop applications to meet those needs, and ensure continued functioning and maintenance.

The curriculum gives students a solid and practical foundation of front and back end application development. The program will have a unique focus on immediate application of knowledge and skills learned within courses through group projects and cooperative experiences with regional businesses. Students will learn to identify needs, problem solve solutions, and practice the entire lifecycle of application development projects. The program will also include project and personnel management skills such as infrastructure, innovation, leadership, problem solving, and integration. This program will be offered in a hybrid format to accommodate working professionals.

Program Learning Outcomes
Upon completion of the SVC BAS-Application Development program, students will be able to:

1. Develop and deploy applications to be safe, reliable, maintainable, and performant.
2. Analyze users' needs and design applications to meet those needs.
3. Accurately perform application testing principles and quality assurance techniques.
4. Manage application development project activities and deliverables in a timely and efficient manner.
5. Appropriately store and analyze data to solve issues in application development.
6. Research new trends and emerging technologies to integrate new concepts into application development.
7. Conform to legal and regulatory standards and apply appropriate ethical considerations.
8. Effectively write and communicate complex technical concepts to both technical and non-technical stakeholders.
9. Effectively collaborate with professionals and clients using strategies that support in person and online formats
10. Define the opportunities, challenges, and nuances of operating in an increasingly diverse, interconnected, and complex global community

Program Evaluation Criteria and Process

Skagit Valley College (SVC) is committed to the educational, personal, and economic success of students and promotes equitable and thriving communities. Program Review assesses and provides data to determine if we are fulfilling our commitment to students. It is a tool for faculty to make informed, data-driven decisions to meet the needs of our disciplines, students, and community. SVC Program Review is a four-year process that includes three years of program data collection followed by a fourth year of data analysis and planning. SVC Program Review process collects, analyzes, and measures data annually on the following categories:

1. *Student Access*
2. *Student Achievement*
3. *Student Feedback*
4. *Student Learning*

In alignment with the standard SVC Program Review, we will develop BAS-Application Development (BAS-AD) program specific evaluation tools to gauge the effectiveness of the program. The annual cycle begins with each department chair reviewing the Program Review data related to dimensions of program quality which include:

1. *Access*: Office of Institutional Research provides disaggregated data on enrollment, demographics, feeder programs
2. *Achievement*: Office of Institutional Research provides disaggregated data on pass rates, Fall to Winter retention, Fall to Fall retention and completion
3. *Student Feedback*: Office of Institutional Research provides CCSSE and Noel Levitz student satisfaction survey data on perceptions of program learning, quality, resources, and equity. Additionally, BAS-AD will develop a program survey based on criteria shared with the existing BAS programs that are specific to BAS student and program feedback.
4. *Student Learning*: Learning Outcomes are mapped to specific courses and assessment data is collected in the appropriate course using rubrics. These rubrics should be attached to assignments that reflects most, if not all, the program level outcomes. These typically occur in capstone project courses. Experiential learning experiences or courses offered at the end of the degree sequence. Faculty are responsible for collecting data on student learning by assessing program learning outcomes each time the relevant course is taught. Every four years, faculty engage in program review and analyze the program review data. All program learning outcomes are mapped to specific courses within a program and are listed along with the course learning outcomes in the course catalog and on syllabi. Although faculty will assess these outcomes each time the course is taught, outcomes are officially assessed and data collected once every four years as part of the Program Review Process. The assessment will guide an action plan for possible changes. Program Review is also embedded in the college's strategic and annual planning process to ensure that needed resources for program improvement are requested.

Additional methods of quality review and improvement:

- *Faculty development*- Faculty are required to maintain a professional development plan and to document completion of professional development and industry certifications. Faculty teaching in the BAS program will be required to participate in SVC's Inclusive Pedagogy Instructional training. Faculty will also be required to attend training in the

design and the instruction of hybrid classes, which combine classroom time with student-driven online learning.

- *Advisory committee makeup and involvement*- Advisory committee composition is monitored to assure state guidelines are met and that committee membership is reflective of the area's economic needs. Attendance is monitored. The program was reviewed first by the SVC Multimedia & Interactive Technology Advisory Committee and then by an Ad Hoc Committee specific to Application Development. Their recommendations have been incorporated into the final proposal.
- *Learning outcomes and curriculum revision*- As outlined above, student learning is assessed at various levels, including both course outcomes and program outcomes. In order to assure that baccalaureate students graduate with appropriate professional competencies, students are required to complete a capstone project and an internship placement. As stated above, program learning outcomes are assessed in these courses. With faculty guidance and direction, the students design the project, complete it, and reflectively assess their work. Faculty members will collect data on student performance in the capstone project to identify program strengths and weaknesses in producing required student learning. Faculty and supervisor input will be gathered and analyzed on a two-year cycle. To close the loop, core faculty and the program Advisory Committee will continuously use the student data to modify and adjust course curriculum to ensure that it provides the current skills and knowledge needed by industry.
- *Articulation and pathways*- Articulations and transfer agreements to/from other colleges and universities are created, reviewed, and maintained.
- *Efficiency*- The student/faculty ratio and cost per FTE data is reviewed and strategies developed in response to trends in efficiency.
- *Employment results and wages of graduates*- After the graduation of the first cohort of students, a survey will be developed to gauge employer satisfaction with program graduates to see where curriculum can be improved and to track average wages for matriculated students.
- *Labor market data*- SVC staff will also monitor sector-specific economic trends and labor market analyses to ensure that there are internship and employment opportunities for students and graduates and report their findings to the Program Advisory Committee.
- *Innovation/program development*- The program advisory committee and professional development activities completed by faculty will inform qualitative assessment of curriculum and pedagogy for continued program development and innovation.

In addition to these standard data elements, programs may request assessment data for any goal stated in the annual planning process. The BAS faculty and dean meet to identify goals and activities to address college core themes and strategic priorities and address any concerns or new opportunities identified in data analysis.

Course Preparation

To ensure that the BAS-AD program is accessible, affordable, and inclusive, entry requirements have been kept to the minimum needed for adequate preparation and future success. Any student who has earned an associate degree (AAS-T, AAS, ATA, AA, AS) in a technology-related field, which includes the following courses is eligible for seamless entry into the BAS-AD program:

- ENGL&101 or equivalent Composition course
- CMST&210 or CMST&220 or equivalent Communication Studies course

- MATH& 146 or equivalent Statistics course
- ENGL& 235 or equivalent Technical Writing course
- 5 credits of SQL
- 10 credits of Programming

A bridge program will be established for any students who have completed an associate's degree without the necessary 5 credits of SQL, 10 credits of Programming, or the required level of math to facilitate a seamless transition to the BAS-AD program. For students interested in further education, it is highly recommended to take MATH&151 and MATH&152, or equivalent, Calculus series.

The courses will be offered in a hybrid format, which combines in-class time with self-directed, online study. Given the geographic spread of the district and the high number of students in the district who work or care for dependents, this format allows the greatest flexibility for students enrolled into the BAS-AD. Hybrid courses take advantage of face-to face instruction and student group work combined with on-line activities. Students are also able to participate in other interactions including fieldtrips and guest speaker sessions. In line with our program outcomes, in-class time gives students an opportunity to develop their professional presence and poise while the online component will build students' digital literacy comfort and capabilities. It will also give them an opportunity to develop time management skills and to establish agency over their learning and professional development.

General Education

The BAS-AD degree will provide students with the needed knowledge and skills in general education as well as an applied emphasis on topics such as web and mobile applications architecture and development, information security, and project management. The curriculum contains applied, general education courses specifically geared towards students in the computer and technology field. A capstone and internship are also required to provide practical knowledge and hands-on experience in the field. Students graduating with a BAS-AD degree at SVC will complete a minimum of 60 general education credits in distribution areas that include the social sciences, humanities, communications, natural sciences, and quantitative studies.

Consistent with new state guidance, students will have met the general education requirements (basic and distribution areas) for an applied baccalaureate degree from a Washington State community or technical college if they have earned a baccalaureate degree from an institution accredited by one of the following agencies:

- Accrediting Commission for Community and Junior Colleges, Western Association of Schools and Colleges (ACCJC)
- Higher Learning Commission (HLC)
- Middle States Commission on Secondary Schools (MSA-CESS)
- Northwest Commission on Colleges and Universities (NWCCU)
- Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)
- Middle States Commission on Higher Education (MSCHE)
- New England Commission of Higher Education (NECHE)
- WASC Senior College and University Commission (WSCUC)

Students must still complete program-specific general education degree requirements if not otherwise satisfied.

1. Basic Requirements *(15 credits)*
    a. Communication Skills
        i. ENGL& 101 (5 cr)
        ii. CMST& 210 or 220 (5 cr)
    b. Quantitative/Symbolic Reasoning Skills
        i. MATH& 146 (5 cr)

2. Distribution requirements *(30 credits)*
    a. Humanities (10 credits)
    b. Social Sciences (10 credits)
    c. Natural Sciences (10 credits)

3. Additional general education courses (*15 credits*)
    a. ENGL& 235- Technical Writing (5 cr)
    b. CMST 315- Communications in IT (5 cr)
    c. PHIL 430- Ethics in IT (5 cr)

In addition to general education courses, students will also be exposed to general education outcomes embedded throughout the program. All classes will emphasize diversity, professional behavior, technology and digital literacy, and assimilation and synthesis of information.

Junior & Senior Level Coursework
SVC has undergone institution-wide changes that promote inclusivity and a reshape of our approach to equitable learning, access, and outcomes. Inclusivity practices will be embedded in every aspect of the SVC BAS-AD program design from the student selection process and faculty development to course content and outcomes. Faculty teaching in the BAS-AD program will be required to participate in SVC's Inclusive Pedagogy Instructional training as part of the year-long faculty community of practice for new instructors. Faculty will also be required to attend training in the design and the instruction of hybrid classes, which combine classroom time with student-driven online learning. Consistent with the successful model used by our BAS in Applied Management, SVC will integrate co-teaching into the Applications Development program to ensure contextualization of concepts and promote real-world examples and projects.

The BAS-AD curriculum gives students a solid and practical foundation of front and back end application development. With a focus on immediate application of knowledge and skills learned within courses and with regional businesses in capstone experiences. Students will learn to identify needs, problem solve solutions, and practice the entire lifecycle of applications development projects. The curriculum will also integrate concepts of communication, professionalism, and social justice concepts to equip students with the acumen, skills, awareness, and knowledge necessary for equitable and meaningful workplace participation. At initial implementation, all courses will be required core courses and there will be no elective options.

The program has been designed and integrated in a way that requires students to complete each quarter sequentially. In other words, each quarter is a pre-requisite to the next. SVC will be providing support mechanisms such as learning labs and co-instruction to facilitate student success and educational attainment. SVC will also emphasize building the student cohort in the

first quarter of the program so, in addition to the support resources provided by the college, students form a peer network for support and empowerment.

- Instruction includes a **grounding** in Data Structure & Algorithms (IT 310) in the junior year and Database Modelling & Design (IT 410) in senior year.
- Students learn other **back-end** principles and infrastructure in Operating Systems (IT 350), Information Security (IT 420), Server Development (IT 440), and Cloud Basics (IT 460).
- Principles of **front-end design** and application use are covered in Design Patterns & Techniques (IT 320), Application Architecture (IT 330), and User Interface & Experience (IT 450).
- Integration of skills and **workplace concepts** are presented in contextualized courses in Project Management (IT 340), Communications in IT (CMST 315), and Ethics & Law in IT (PHIL 430).
- Key to the program are multiple opportunities to **practice and apply** skills in applications development over throughout the program in Testing Concepts (IT 360), App Development Fundamentals (IT 430), Mobile App Development (IT 435), Full Stack Web Development (IT 470), and in Capstone I & II (IT 399 & 499). The Capstone class is an important applied component of the degree and provides additional breadth to the knowledge and skills to be attained by the students. It is also an opportunity for students to provide tangible evidence of their academic and professional development to prospective employers.

Course Descriptions

IT 310 Data Structure & Algorithms- 5 credits
Introduction to fundamental data structures and the algorithms and applications important to problem solving in application development. Includes linked lists, stacks, queues, binary and multi-way trees, directed graphs, hash tables, heaps, internal and external sorting, logic, sets and set operations, and functions.

IT 320 Design Patterns & Techniques- 5 credits
Explore how to use principles of design to guide decisions when developing applications. Including design notations, design patterns, refactoring, design for change, design communication, design integrity and design trade-offs.

IT 330 Application Architecture- 5 credits
Continuation of application structure and design principles focused on advanced object-oriented techniques, service-oriented architectures and cloud services.

IT 340 Project Management- 5 credits
Explore both traditional project management with modern approaches adopted by lean and agile methods. Including determining the timeline, tasks, roles of the developer and other stakeholders, resources needed, cost calculations, risk analysis and mitigation, progress monitoring and quality assurance required to plan a project.

IT 350 Operating Systems- 5 credits
Introduction of the main functional components of a modern, general purpose operating system. Including the process management, memory management, threads, event driven programming, and I/O subsystems.

IT 360 Testing Concepts- 5 credits
Provide practical techniques and strategies to use in unit testing, integration testing, and testing frameworks. Students will be exploring testing concepts and learn how to design, develop and document different kinds of tests.

IT 399 Capstone I- 5 credits
One of two capstone project courses to apply knowledge and skills in a real-world setting. Students will identify a specific, original project for research or implementation related to some aspect of application development. Students will define their project, evaluate the outcomes, and present their results to appropriate internal and/or external audiences.

IT 410 Database Modelling & Design- 5 credits
Explore how to operate a relational database, understand key value stores, and use simple database programming using real world data examples.

IT 420 Information Security- 5 credits
Introduction of concepts and issues related to securing information systems and developing policies to implement information security controls. Including identifying security vulnerabilities, threats and defense measures as well as developing protocols and controls in application development to mitigate threats.

IT 430 App Development Fundamentals- 5 credits
Design and develop interactive and dynamic web applications based on current web development standards. Students will work in teams to explore a variety of tools, techniques, and patterns to design, develop, and deploy a web application such as Representational State Transfer (REST) endpoints for creating, reading, updating and deleting data within applications. Including client/server programming, web forms and input validation, authentication/authorization, security, scalability, caching, integration with databases using object-relational mapping, testing, and deployment.

IT 435 Mobile App Development- 5 credits
Design and develop mobile applications for either based on current mobile application standards for iOS or Android. Students will work in teams design and implement app features utilizing input from stakeholders, evolving requirements, frequent review, integrated testing, and structured team collaboration.

IT 440 Server Development- 5 credits
Topics include server design such as data streaming, fault tolerance, replications, and distributed objects. Introduction to Apache software tools such as MapReduce, Spark, Casandra, and Hazelcast.

IT 450 User Interface & Experience- 5 credits
Explore design stages on a variety of applications from concept to design completion using storyboards, feature requirements, rapid prototyping, and user testing techniques. Determine the importance of working with designers and solving front-end issues.

IT 460 Cloud Basics- 5 credits
Introduction to the basic use of cloud tools such as Amazon Web Services, Azure, or OpenStack. Includes fundamentals & strategies for moving & developing apps & data storage in the cloud. Students will analyze cloud-based offerings and learn to deploy apps to the cloud, utilize cloud-based services, develop cloud specific apps.

IT 470 Full Stack Web Development- 5 credits
Continuation of web development concepts including design, integration, debugging, and testing of the full web development stack including client side (HTML, CSS, JavaScript), server side (ASP.NET), database layer (MSSQL), using frameworks (MVC).

IT 499 Capstone II- 5 credits
Second of two capstone project courses to apply knowledge and skills in a real-world setting. Students will partner with a business to identify, develop, and present an application that fulfills a business need for clients.

CMST 315 Communications in IT- 5 credits
Develop effective written and verbal communication skills to effectively work with clients and colleagues contextualized to the IT field. Includes working with diverse teams, adapting technical content for non-technical clients, and improving employability.

PHIL 430 Ethics & Law in IT- 5 credits
Explore legal and ethical concepts in the information technology field. Including data privacy, handling and storing data, licensing, third party requirements, anonymize, Open Source, copyright, intellectual property rights, hacking and fraud. Students will study the difference between laws and ethics and examine ethical issues encountered in IT to arrive to appropriate ethical choices.

Course Sequence

Year 1-2
Associates Degree- 90 credits

Year 3
Quarter 1- 15 credits

IT 310 Data Structure & Algorithms (5cr)
IT 320 Design Patterns & Techniques (5cr)
CMST 315 Communication in IT (5cr)

Quarter 2- 15 credits

IT 330 Application Architecture (5cr)
IT 340 Project Management (5cr)
PHIL 430 Ethics & Law in IT (5cr)

Quarter 3- Spring- 15 credits

IT 350 Operating Systems (5cr)
IT 360 Testing Concepts (5cr)
IT 399 Capstone I (5cr)

Year 4
Quarter 1- 15 credits

IT 410 Database Modelling & Design (5cr)
IT 420 Information Security (5cr)
IT 430 App Development Fundamentals (5cr)

Quarter 2- 15 credits

IT 435 Mobile App Development (5cr)
IT 440 Server Development (5cr)
IT 450 User Interface & Experience (5cr)

Quarter 3- 15 credits

IT 460 Cloud Basics (5cr)
IT 470 Full Stack Web Development (5cr)
IT 499 Capstone II (5cr)

Degree Total: 180 credits

CRITERIA	STANDARD
2. Qualified faculty	Provide a profile, including education credentials, of anticipated faculty (full-time, part-time, regular, and continuing) that will support the program for each year (junior and senior). Include faculty needed to cover the technical course work, general education courses and electives. In addition, provide the total faculty FTE allocated to the program. Faculty and administrators responsible for technical courses must meet certification requirements for professional and technical administrators and instructors in the Washington Administrative Code.

Skagit Valley College (SVC) will be hiring one full-time position to start the program and add instructional capacity as needed in subsequent years through associate faculty and additional full-time positions. This full-time position will be hired approximately six to nine months prior to program launch to develop curriculum, establish industry connections, recruit students, and teach courses once the program begins. SVC is looking for an applicant with the appropriate combination of education and industry experience to both lead the vision for the department as well as teach in the classroom. Consistent with the SVC Faculty Collective Bargaining agreement, beyond teaching, this position is responsible for the management of resources used by the program including planning, purchasing, and maintaining software and supplies. Consistent with the SVC Faculty Collective Bargaining agreement, this position will also be responsible for developing course schedules, syllabi, assessing student outcomes, building curriculum, seeking additional resources for the department, and establishing innovative partnerships with industry to ensure that graduates have both the practical and soft skills to thrive in the tech market. The preferred level of education will be a doctorate in a related field, with a minimum requirement of a Master's degree. This is an effort to maintain access to a deep and diverse pool of applicants.

Per the SVCFT Negotiated Agreement, a full-time faculty contract is for 35 hours per week and 172 days per academic year. A full-time faculty teaching load is 45 FCU's which equates to approximately three courses per quarter. Beyond teaching, full-time faculty expectations also include advising and participation in college meetings and shared governance committees.

Knowledge, Skills, and Abilities
The ideal candidate will be able to:

- Provide leadership in developing the Bachelor of Applied Science- Application Development (BAS-AD) program, developing innovative programming, curricula, and inclusive pedagogy that incorporate program learning outcomes;
- Provide classroom and/or online instruction in data structures and algorithms, front-end and back-end web and mobile applications development, database modelling and design, and testing;
- Demonstrate awareness and competency in current topics and trends in Application Development;
- Understand, differentiate, and formulate problem-solving techniques for Application Development concepts;

- Demonstrate a solid working knowledge of programming such C#, and/or Java; JavaScript, C++ or Python;
- Adapt to a variety of teaching situations, including interdisciplinary learning communities, and online and hybrid modalities;
- Provide leadership to market and recruit for the program through participation in outreach and admissions activities;
- Initiate new interagency agreements and develop partnerships with regional agencies for student projects, resource sharing, and collaboration;
- Advise and mentor BAS-AD students including those from underrepresented and underserved groups;
- Assist students in locating internships and job placements;
- Conduct ongoing development, assessment, and revision of curriculum that reflects innovative and inclusive pedagogy and advances in the field of Application Development;
- Identify and pursue grants and other resources for the program to maintain industry standards;
- Recruit, screen, hire, and train part-time, associate faculty teaching similar disciplines;
- Assist in developing, assessing, and analyzing program outcomes for the purpose of program improvement and enhanced student learning;
- Engage in scholarly activities that complement and inform teaching;
- Maintain confidentiality, think critically and exercise independent judgment;
- Communicate effectively in writing and orally;
- Use tact, discretion and courtesy while interacting with all persons;
- Demonstrate attention to detail required as well as previous experience maintaining accurate records, managing multiple tasks, and planning and organizing work in order to meet changing priorities and deadlines;
- Participate department and other college activities, including college governance;
- Fulfill full-time faculty responsibilities in accordance with the negotiated agreement and Skagit Valley College policies;
- Perform other related duties and special projects as assigned.

Minimum Qualifications

- Master's degree in computer science, applications development, computer engineering, software engineering, or closely related field.
- Teaching experience in computer science or applications development in industry or higher education (traditional classroom, online education, collaborative hands-on activities) is preferred.
- Five (5) years of applications/software development or computer science experience including two (2) years of leadership or project management;
- Active involvement with the local IT community.
- Demonstrated commitment to inclusivity and respect for a diverse community college environment comprised of students, faculty, and staff of varying social, economic, cultural, ideological and ethnic backgrounds.

  OR
- Equivalent combination of education, training, and field experience totaling seven (7) years.

Desired Qualifications

- Doctorate in computer science, applications development, computer engineering, software engineering, or closely related field.
- Higher education teaching experience, especially in a community and technical college setting.
- Demonstrated instructional experience with online learning management systems, such as Canvas or Blackboard, and skills that support student use of eLearning technologies.
- Demonstrated experience forming active industry partnerships that support program development, recruitment and collaboration to provide internship and student employment opportunities.
- Ten (10) years of application/software development experience including five (5) years of leadership or project management.
- Demonstrated expertise through applied academic research in an area related to IT, preferably related to application development, software development, or a closely related field.
- Relevant certifications and training application/software development topics.

Current Faculty

The following current SVC faculty will contribute to the program:

Sunaina Virendra, MEd, MBA

- Tenured faculty- BAS Applied Management
- BAS Director

Calleen Coorough, PhD

- Tenured Faculty/ Department Chair- Multimedia & Interactive Design

Farhana Loonat, PhD

- Tenured Philosophy Faculty

We will complement these faculty with appropriately qualified associate instructors. We will also recruit a cadre of guest speakers from a variety computer science and technology backgrounds

CRITERIA	STANDARD
3. Selective admissions process, if used for the program, consistent with an open door institution.	Describe the selection and admission process. Explain effort that will be used to assure the program serves as diverse a population as possible. Include specific detail for selecting and students for admittance when there are more applicants than available seats in the program.

Skagit Valley College (SVC) will make a concerted effort to assure that the BAS-AD program serves a diverse population of students. Grounded in equity, the vision statement for Skagit Valley College commits to equity and one way this is measured is through core themes for "Equity in Access" and "Equity in Achievement" both of which set a target of student body composition mirroring the demographics of our service area. To support equity and social justice, an Associate Vice President of Equity and Inclusion has been established, and plans for increasing enrollment, engagement, and achievement of Latino students have been created and funded. Additionally, the college has created the Office of Multicultural Student Services with a full-time director, with the specific mission to create programming and opportunities for student, faculty, and staff engagement and conversations around equity and diversity. The college is focusing on recruitment and retention from area high schools with high percentages of Latino students. The college district also has five Native American tribes within its region. The President is personally establishing relationships with each tribal government and beginning to build plans for increasing the number of Native American students in college programs.

Many of the potential BAS-AD students are place bound and have little or no opportunity for attending a four-year university. Rural students graduating from high school who are place-bound for economic or social reasons will be afforded an opportunity for a baccalaureate degree. Since many students will come from the SVC service district, it is important to note the diversity of the three-county area. The SVC service district is diverse, and the College actively recruits at local high schools that include significant numbers of students of color. These include Mount Vernon High School (52% Latino), Burlington-Edison High School (33% Latino), Sedro-Woolley High School (16% Latino), and Oak Harbor High School (13% Latino). The Latino population is even higher in lower grades, indicating that the number of Latino students in the high schools will continue to increase, and, therefore, the number of Latino students at SVC will increase.

Students interested in the BAS program will be required to attend an orientation at SVC, Mount Vernon Campus. Topics covered in the orientation include: entry requirements, the admission process, costs, application deadlines and services available to students accepted into the program. For students who are unable to come to campus, a phone/Zoom meeting will be arranged.

Outreach

Outreach and recruitment will be done by the SVC Enrollment Services department with faculty facilitated program specific briefings. BAS information is available in all print and online college materials. There is a tab on SVC Home Page to show that highlights BAS offerings. Additionally, each BAS Program has a dedicated webpage, which complement the common associate degree pages but cover FAQ about BAS degrees, selective admission application requirements, upper division course expectations and program briefing session requirements.

Admissions Process
Skagit Valley College (SVC) is currently standardizing the admissions process across our BAS programs to ensure all BAS students are prepared academically to be successful at the baccalaureate level. The standard admissions process has been intentionally designed to encourage access and eliminate barriers to program entry, while accounting for academic preparation and space available. SVC Enrollment Services, Financial Aid, and Advising offices include bilingual staff to answer questions and service and support our Latinx population. BAS admissions at SVC will be selective entry, all programs will follow a common timeline and have a standard application. However, individual program pre-requisite degrees and courses will be determined by each program as appropriate.

1. Admission date is a Fall Quarter start due to course sequencing requirements and the importance of building the cohort. Students will be notified of acceptance in July.
2. Applications are due by June; applications arriving later will be considered if space is available.
3. Prospective BAS students must have a minimum of 90 credits (or an Associate's Degree) with a minimum cumulative GPA of 2.50. Applicants will submit:
    a. Official transcript
    b. State application (if not already SVC student)
    c. Personal statement
    d. Program application (Online Target X form)
4. Applications will be reviewed to ensure that minimum requirements and prerequisites have been met, requests will be sent for any missing information.
5. Complete applications will be reviewed and selected by the Program Admissions Committee.

When applications exceed the number of spots available in the program, student applications will be scored using a standard rubric. The rubric will be developed based on the following steps: determining eligibility; assessing academic readiness; assessing motivation; and then prioritizing selection. Final selection will be based on space in the program and the applicant's score. All applicants who met the June priority deadline will be notified of their status at the same time. Program faculty will approve applications for admissions with consult with Program Admissions Committee and Instructional Dean on cases where there is question whether or not minimum requirement were met. Students selected to participate will be provided with next steps in the program.

Waitlist Process
Applicants not selected will be placed on the BAS-AD waiting list, managed by the BAS-AD faculty. The BAS-AD faculty will work with waitlisted students and their advisers to support them with an application to the next program.

Program Prerequisites
To ensure that the BAS-AD program is accessible, affordable, and inclusive, entry requirements have been kept to the minimum needed for adequate preparation and future success. Any student who has earned an associate degree (AAS-T, AAS, ATA, AA, AS) in a technology-related field, which includes the following courses is eligible for seamless entry into the BAS-AD program:

- ENG&101 or equivalent Composition course
- CMST&210 or CMST&220 or equivalent Communication Studies course
- MATH& 146 or equivalent Statistics course
- ENGL& 235 or equivalent Technical Writing course
- 5 credits of SQL
- 10 credits of Programming

Any students who have completed a 2-year degree without the necessary technology or math requirements, will take a bridge program containing the 5 credits of SQL, 10 credits of Programming, or the required level of math to facilitate a seamless transition to the BAS-AD program.

Students applying from other colleges
Students graduating from other community colleges with an associate's degree (AAS-T, AAS, ATA, AA, AS) in a technology-related field will be encouraged to apply. Most CTCs in the Washington State system offer 2-year degrees in these areas, so SVC will collaborate with all interested institutions in developing articulations agreements, but our primary partners in the Northwest region will be Bellingham Technical College and Whatcom Community College, where we will work to establish clear pathways for computer and technology students to enter the BAS-AD program. To facilitate student articulation to SVC, we will provide our peer institutions clear guidelines for core course requirements for entry into the BAS-AD program. This will ensure that students who wish to transfer are well prepared and they can transfer without delay due to additional course requirements.

CRITERIA	STANDARD
4. Appropriate student services plan.	Describe services that will be needed by the students admitted to the degree program and college plan for providing those services for baccalaureate level students. Include a description of financial aid services and academic advising for student admitted into the program.

SVC's Guiding Principles, Core Themes, and Objectives emphasize the importance of student success and effective student support services. Conceptually, our student services plan is shaped around an institutional commitment to integrate our BAS programming fully into our existing governance structures, services, and academic department roles. As part of the network of coordinated services that the department chair will facilitate for BAS-AD students, the college has enlisted help from a variety of campus resources to support BAS-AD student success. We anticipate that, at capacity, the BAS-AD program will have at least 45 students. SVC currently has two BAS programs, if approved Application Development will be the third. With this addition, we will add a dedicated Student Services personnel that has training and experience specific to the needs of BAS students. This position will be the lead staff for the admissions, enrollment, and tuition procedures unique to BAS students. This position will establish procedures and processes for BAS students as well as communicate those to enrollment services, financial aid, and advising staff. SVC currently offers a wide range of services in support of student success including bilingual staff in Enrollment Services, Financial Aid, and Advising offices to answer questions and provide services and support for our Latinx population:

- Admissions: An efficient online admissions process supports students getting started.
- Placement Assessment: Multiple measures of assessment are used to determine readiness for college-level work in mathematics and English, including traditional placement tests like AccuPlacer, transcripts, and Smarter Balanced Assessment. BAS-AD students will submit transcripts to determine academic readiness.
- New Student Advising/Orientation: New degree- and certificate-seeking students learn about College programs, resources, and policies through a mandatory small-group advising session and a new student orientation. BAS-AD students will attend a BAS specific orientation session.
- Financial Aid: Financial support including Federal Title IV, state, and institutional need-based aid, including work study opportunities, and private scholarships are available to eligible students. Information is also provided on private student loans.
- Campus Housing: Campus View Village, a contemporary dorm for students, is available for all students, including international and domestic students.
- Counseling and Advising Services: Students receive support deciding on a career, choosing an area of study, creating quarterly schedules, making an educational plan, accessing online advising, and finding resources to solve personal conflicts. Academic advisors assist students with accurate information of College policies, course, and program requirements. BAS students meet with their program advisor.
- Disability Access Services: Students receive counseling and reasonable accommodations to support their learning.
- Multicultural Student Services: Traditionally under-represented students achieve academic success support through counseling and programming activities.

With the introduction of remote operations due to COVID-19, all student support services have been transitioned to online. As we transition back to on-campus operations in the coming months, those online services will be maintained to support online, hybrid, and homebound students, offering additional support. With the hybrid nature of the proposed BAS, students will have more options to access needed support services.

Academic Advising
Advising availability and accuracy are critical to BAS-AD student success. During the academic year, there will be information sessions for prospective BAS-AD students. These sessions will cover the admissions requirements for the program, application deadlines, learning format, funding sources, and other pertinent program information. They will be cohosted by the department chair and an advisor.

- All instructional departments at SVC are organized into Areas of Study (meta-majors), the BAS in Application Development will be a part of the STEM Area of Study. Each Area of Study has dedicated Counselor and/or Navigators to help support and advise students within a given industry cluster.
- Drawing from what has proven to be a successful strategy with our two-year professional technical programs and existing BAS in Applied Management, students will remain with their associate degree advisor until they start the BAS program and they are transitioned to a BAS faculty advisor. BAS-AD students will be assigned a faculty advisor within the BAS-AD program. With a faculty advisor, BAS-AD students will consistently receive the most complete, accurate and current information not only on graduation requirements, but also on industry trends and connections. Further, this faculty-driven advising model leverages classroom relationships between students and their instructors, providing yet another avenue for engagement and retention. The college uses a high-touch advising model where faculty typically meets at least once per quarter with each student, and more often if indicated by Early Alert system (see below). Faculty teaching in the BAS-AD degree advises those students; this will be an ongoing model.
- Our BAS-AD students will also have the seamless support made possible by SVC Counseling and Advising Services. While faculty will handle in-program student advising, Counseling and Advising Services will work closely with the instructional department in order to offer advising to students when faculty are away from campus as well as support students who are seeking admission into the program.

Career Advising
BAS-AD students will gain valuable work experience through our capstone program. Students will meet with BAS-AD faculty teaching IT 399 and 499, the capstone internship classes, to review the requirements and process. Students will employ their networking skills and participate in securing the internship, with instructional staff and the Director providing the framework for the experience and support for the student and their site supervisor. In order to facilitate networking for students, the program will maintain a list of possible sites as well as internship solicitations that the program receives. In cooperation with the site supervisor, students will develop learning objectives as well as design, implement, and present a product related to applications development. These will be approved by the faculty, monitored throughout the quarter, and evaluated by the internship team. In the event a student is not able to secure a capstone site, the BAS-AD director will work with SVC staff and faculty to develop a relevant and appropriate experience within SVC.

Skagit Valley College is prepared to serve BAS-AD students with resources and guidance to support their transition:

- The program will identify appropriate resources for BAS-AD candidates whose intentions are to continue further on their academic path, including bridges to Master's level programs. Career Services will provide GRE and GMAT preparation workshops and specific help in choosing graduate programs and assembling application materials.
- SVC's BAS-AD faculty will develop articulation agreements with specific graduate programs and communicate this to students during advising sessions. As with all of our transfers, the faculty advisors will guide the students in what classes they need to focus on for their chosen career path.
- To successfully assist program graduates with job placement, Counseling, and Advising Services and BAS-AD faculty will acquire resources about placement opportunities relevant to these new career pathways. These resources will be available in individual sessions and in curriculum for career exploration courses. The program will collaborate with advisory councils and industry internship site hosts to stay current on new career pathways and job opportunities for graduates. The program will also identify opportunities for students to establish mentoring relationships within the technology community.

Professional technical and applied baccalaureate students tend to be older with more challenges and needs than traditional student populations. Along with the general services for BAS-AD support, we will provide care for students in the BAS-AD program who are struggling and for special populations that might need additional attention. Toward this end, the BAS-AD chair will meet one-on-one with students who need special consideration. If needed, the chair will set follow-up appointments with faculty, counseling, disability access services, and/or veteran's services. Along with our department chair's response to students in need, we have designated several services to address retention and success for our BAS-AD cohorts such as academic early alert services, Veteran's services, and the academic support center with general and specialized tutoring services.

Academic Early Alert Service

Our program design emphasizes close contact between the students and their lead instructors, who will act as the students' academic advisors. Throughout the quarter, students missing class will get a phone call to check on the reason they are missing school. They will be advised on any resource that may be available to resolve their issues. At the midterm of the first quarter, a grade check will go to each student and primary faculty advisor. Students who have earned below a 2.50 in any of their core classes will be required to meet with their advisor. An appropriate plan for additional support will be developed between student and advisor. In addition, regardless of their GPA, all students will also be required to meet with their advisor at the end of their first quarter, as well as at their 45-credit threshold, to assess their progress. Generally, students are advised to check in with their advisor at least once every quarter.

Library Services
For library services to students and faculty in the BAS-AD program, the SVC librarians are tenured faculty with advanced degrees and the practice and skills to work with BAS-AD students on high-level research projects. In addition to working with individual students and providing classes in information literacy, librarians routinely assist faculty members on research projects or in their studies for advanced degrees. The SVC Library has a reference librarian on duty whenever it is open as well as a librarian on-line. In addition to the usual services, the Library provides study rooms, interlibrary loan, and a quiet study area. It has over 40 computers available to students, with full search capabilities and Microsoft Office software (Word, Excel, PowerPoint, etc.). Regarding information resources, the library is using additional collection development institutional funds to actively select and acquire monographs directly related to the BAS-AD program, with the intent to build a collection to support study and research at the undergraduate level. A reference librarian will be appointed to act as a liaison to the BAS-AD program faculty, collaborating with them to select relevant titles. These selections are based on the curriculum that has been developed for the degree. With the introduction of remote operations due to COVID-19, library services have increased their systems and services to accommodate an online platform. Moving forward, librarians and library services will be more accessible to online and hybrid students.

Information Technology Services
The Information Technology department provides and maintains the technology infrastructure to support all instructional and administrative operations at all Skagit Valley College campuses as well as for remote learning. The Information Technology (IT) department provides a Help Desk on both campuses and sends IT staff to offices and labs to troubleshoot hardware and software problems. IT staff members are knowledgeable and experienced in campus software programs and provide service to faculty and staff. Student interns from the computer science instructional program help supplement IT department support and provide excellent student learning experiences in a complex network and computing environment. All issues and incidents are tracked using a ticket system. All students can get help using computers and technology from the IT Helpdesk, available in person or online via email, text, or chat from 8:00 a.m. to 8:00 p.m., Monday through Thursday, and 8:00 a.m. to 5:00 p.m. on Fridays. Issues involving coursework and Canvas are escalated to eLearning specialists.

Writing & Math Centers
SVC's English Department has developed a Writing Center to support writing assignments at all levels in the college. Students can drop in or make appointments. Tutors and faculty will assist students in crafting their writing assignments. Similarly, the Math Department offers math tutoring from developmental math courses to advanced calculus and statistics. This level of math tutoring will be appropriate for the BAS-AD students to succeed in their math assignments. These services available both on-campus and online.

Veteran's Services
In Enrollment Services, Veterans Services is the liaison between the federal Veterans Affairs (VA) and veterans and dependents, helping veterans use their VA benefits for their education at SVC. This office connects students with on- and off-campus resources to meet needs that may be affecting their academic performance. Students can also access one-on-one counseling or

support in a group setting through informal gatherings of veterans, dependents, and allies to discuss anything of concern or interest to the students. A veteran's club through Student Leadership provides more opportunities for advocacy and community buildings. Counseling and Advising Services supports veterans by providing ongoing counseling for issues related to adjustment to college, stress management, and PTSD symptom management. Counseling also provides referrals to appropriate long-term services such as VA, counseling for disability accommodations, and other specialized support.

Financial Aid
SVC will provide a comprehensive financial aid package to all admitted and eligible BAS-AD students. The Financial Aid Office will work to ensure that students have access to as wide a variety of funding options as possible and will consider the unique needs of special populations, such as veterans. Required documents and deadlines will be consistent for all SVC students. Aid will be packaged based on eligibility and availability of funds. Financial Aid staff will be present at BAS-AD orientations.

The Dean of Financial Aid and her staff are committed to helping students understand the financial aid application process and guidelines. Our Financial Aid office is preparing for the unique needs, experiences, and situations of the BAS student. The Financial Aid Office has already gone through the processes with the Department of Education and Department of Veterans' Affairs to offer financial aid to BAS students for the BAS in Environmental Conservation program and the Applied Management program. As such, the college is ready to offer financial aid to BAS-AD students.

Campus Community
The college supports many student organizations and program specific clubs. A BAS-AD specific club would integrate program students, as well as other campus students, creating a social fabric that reinforces support for students, thereby increasing student success. Clubs meet weekly where they organize fieldtrips, guest speakers, and develop fundraisers for significant fieldtrips, such as attendance at regional or national conferences.

Access Services
The BAS-AD department chair will work with the college's Disability Access Services to provide students with counseling and reasonable accommodations to support their learning.

CRITERIA	STANDARD
5. Commitment to build and sustain a high-quality program.	Provide a financial plan for the first five years of program operation. This plan should include (1) types of funds to be used to support the program; (2) projected program expenses; (3) appropriate facilities to be (4) equipment, technology, and instructional resources needed for the program; and (4) anticipated revenue. Document the college's ability to sustain the program over time.

Program Funding
The BAS-AD Program is designed as a self-supporting program sustained by BAS level tuition from Application Development students and student fees. Skagit Valley College has also committed to fund the costs associated with program launch through funding from College local funds.

Anticipated Program Revenue
Per Table 1, program revenue will include an initial investment from SVC local funds for the first two years. Beyond that, the program will be funded from tuition revenue. Revenue assumptions include:

- Initial enrollment will be at 15 FTEs and will grow to 37 FTEs by Year 5. The program will have anticipated attrition rate of approximately 15-20% between the first and second years, as well as anticipated growth in cohort size for first year students as the program becomes established.
- A new cohort of students will start every fall, with full-time students only. "Full-time" students are defined as taking 45 credits per year.
- SVC will provide additional support for the first two years of program funding from college local funds reserves as shown in the Projected Program Expenses table under "College Support"
- The operating fee portion of tuition and fees is assumed as revenue support to the program and is based on 2020-21 Upper Division rates as published by the SBCTC. Revenue is calculated at $2,533.38 in tuition and fees per 15-credit student per quarter. Minimal future tuition increases are currently factored into expected revenues at 1.024 percent annually.
- This budget assumes a revenue capture rate of 94 percent.
- The College is committed to divert the BAS tuition revenue in order to provide necessary support to the BAS degree program.

Projected Program Expenses
Per Table 1, in year one, program expenses are limited to a full-time faculty member, with instructional, student support, and program support increasing as enrollment grows over the course of five years. The financial plan assumes the following:

- Pre-program launch costs include a full-time faculty that leads curriculum development and expert evaluators. After program launch, duties related to curriculum development, industry relationships, advising, and managing program resources are included within the full-time faculty role as outlined in the SVC Faculty Collective Bargaining Agreement.
- No additional equipment is anticipated for this program.

- Beginning in Year 2 (2022-23), a dedicated BAS Director and a dedicated BAS Student Services Coordinator will be added to support all SVC BAS programs. Additionally, in Year 3 (2023-24) a Program Coordinator will be added to provide additional support to the Director and faculty as BAS programming grows.
- Faculty and staff fringe benefits have been separately calculated for each position on the same bases as are used in the college budget. All positions are assumed to be benefited.
- No dean oversight will be charged to the program. The Executive Dean of Instruction, Dr. Gabriel Mast, will supervise the BAS-AD program.
- No overhead or indirect changes will be assessed against the program. The Executive Dean's office organizes and schedules faculty evaluations, manages the program's review, and collaborates with the BAS-AD department chair to maintain the program budget, professional development, and curriculum development.
- The program will not require any additional facilities or specialized equipment beyond a classroom and office space. Computer labs will provide necessary technological support for students enrolled in classroom and hybrid courses. The college's learning management system, CANVAS, will be utilized by program faculty and supported by SVC's eLearning department. Resources to facilitate online learning, such as Panopto, will be integrated in course shells and utilized to provide additional support for program students.

Table 1: BAS-Application Development Budget 2021-2026

FTE Projections	**2021-22 Development Year**	**2022-23 FTE**	**2023-24 FTE**	**2024-25 FTE**	**2025-26 FTE**
Course Sections Offered Per Year	0	6	13	13	13
Est. enrollment Per Course by type*	0	15	30	35	37
Credits Per Course by type	0	5	5	5	5
Total Credits taken	0	45	45	45	45
AFTE	0	15	30	35	37

Revenue Projections	**2021-22 Development Year**	**2022-23 Revenue**	**2023-24 Revenue**	**2024-25 Revenue**	**2025-26 Revenue**
Tuition Revenue	$0	$112,367	$230,129	$274,927	$297,612
College Support - One Time	$94,500	$50,000	$0	$0	$0
Total Revenue	**$94,500**	**$162,367**	**$230,129**	**$274,927**	**$297,612**

Cost Projections	**2021-22 Development Year**	**2022-23 Budget**	**2023-24 Budget**	**2024-25 Budget**	**2025-26 Budget**
Admin: BAS Director faculty release time (.3 FTE) Student Services Coordinator (1.0 FTE) (*shared across all BAS programs*)	$0	$28,050	$41,250	$41,250	$41,250
Classified: BAS Program Coordinator (split across all BAS Programs)			$20,000	$35,000	$35,000
Full-Time Faculty**	$70,000	$70,000	$70,000	$70,000	$70,000

Associate (PT) Faculty			$30,000	$33,000	$33,000
Salary Total	**$70,000**	**$98,050**	**$161,250**	**$179,250**	**$179,250**
Exempt Benefits	$0	$9,818	$14,438	$14,438	$14,438
Classified/PT Benefits		$0	$7,000	$12,250	$12,250
FT Benefits	$24,500	$24,500	$24,500	$24,500	$24,500
PT Benefits			$6,000	$6,600	$6,600
Benefits Total	**$24,500**	**$34,318**	**$51,938**	**$57,788**	**$57,788**
Meetings			$250	$250	$250
Chair Stipends		$5,000	$5,000	$5,000	$5,000
Stipends Total	**$0**	**$5,000**	**$5,250**	**$5,250**	**$5,250**
Department Travel		$500	$500	$500	$500
Department G&S		$250	$500	$500	$500
Lab/Student Expenses		unknown	unknown	unknown	unknown
Library		$10,000	$10,000	$10,000	$10,000
Marketing		$2,500	$1,000	$1,000	$1,000
Other Total	**$0**	**$13,250**	**$12,000**	**$12,000**	**$12,000**
GRAND TOTAL	**$94,500**	**$150,618**	**$230,438**	**$254,288**	**$254,288**

Net Revenue/Cost Projections	**2021-22 Development Year**	**2022-23 Budget**	**2023-24 Budget**	**2024-25 Budget**	**2025-26 Budget**
Total Revenue (line 17) - Total Cost (line 44)	**$0**	**$11,750**	**-$309**	**$20,639**	**$43,325**

**Enrollment estimates include anticipated attrition in the second year, as well as anticipated growth in cohort size for first year students. 2023-24 includes 18 new students and 12/15 returning; 2024-25 includes 20 new students and 15/18 returning; and 2025-26 includes 20 new students and 17/20 returning.*

***Full-time faculty rate is an estimated average. Per the faculty negotiated agreement, all faculty are initially placed on the salary schedule that ranges from $60,000 to $80,000. The first full-time faculty position that is hired will also serve as the Department Chair, receiving an additional $5,000 per year. Additionally, this position will likely qualify for a high demand salary differential in accordance with House Bill 2158.*

CRITERIA	STANDARD
6. Program specific accreditation.	Indicate whether the institution will seek specialized program accreditation. If so, describe plans for accreditation and identify appropriate accreditation body. Include a statement of college's plan to seek accreditation through NWCCU and/or current status of college's standing to offer applied baccalaureate degrees.

Program-specific accreditation is not required for BAS-AD graduates to be employed. The college currently has the authority to offer BAS degrees, demonstrated through the approval and offering of the BAS Environmental Conservation degree as well as the BAS in Applied Management. Upon SBCTC approval of the BAS in Application Development degree, SVC will apply to the Northwest Commission on Colleges and Universities (NWCCU) outlining the major substantive change. The application will be submitted to NWCCU in Spring 2021 with an expected response during Summer Quarter. This will allow the 2021-2022 academic year for securing faculty, curriculum development, marketing and recruitment. The college will await a response from NWCCU prior to any marketing or recruitment efforts for the BAS-AD.

CRITERIA	STANDARD
7. Pathway options beyond baccalaureate degree.	Describe opportunities and articulation agreements for the place bound BAS graduate to continue their education onto a graduate (Master's) degree program. Detail specific discussions with public and private baccalaureate institutions (when applicable) regarding post-baccalaureate pathways for graduates.

Upon full program approval, one of the objectives of the new BAS-AD faculty department chair will be to explore transfer opportunities and work with their Dean to begin articulation discussions. There are two regional Master's program options for BAS-AD students: Western Washington University's (WWU) Master in Computer Science program housed in the college of Sciences & Technology and University of Washington-Bothell, Master of Science in Computer Science and Software Engineering. WWU's program is offered full-time during the day while UW-Bothell's program is available full-time or part-time with evening courses to accommodate working professionals. In addition, SVC will continue to explore graduate program options with other Washington State institutions, as well as online programs, such as Western Governor's University to provide students access to Master's level educational opportunities to further their upward career mobility and increase their earnings potential.

CRITERIA	STANDARD
8. External expert evaluation of program	The institution will select two external experts to review the program. External experts should come from a university level institution, i.e. departmental professor, academic dean or department head. The expert should be a practitioner/instructor from within the content area of the proposal. In a separate document, provide copies of external evaluators' report or letters. Summarize the institution's responses and subsequent modification to the proposal based on evaluator's recommendations. Attach a short bio of the evaluators.

This program was designed with input from several industry stakeholders. Initial concept was discussed at the SVC Multimedia & Interactive Technology Advisory Committee meeting on February 26, 2020. The committee provided feedback on the general direction of Application Development (rather than a sole focus on a software, web, or mobile specific degree). With additional market research, SBCTC Statement of Need approval, and concept refinement, a first draft of the program was shared with an Application Development Ad Hoc Advisory Committee composed of 6 industry representatives from medium and large regional employers. Additionally, the content and outcomes were sent out in a survey to 12 industry representatives to provide feedback. The Ad Hoc Committee helped to refine the program learning outcomes as well as narrow the scope of the content eventually leading to distinct courses. The second draft of the program proposal was then reviewed by two external evaluators, Dr. Fukuda of the University of Washington and Dr. Banerjee of Western Governors University. Please refer to Attachment A for biographies of each evaluator, and Attachment B for their full evaluation reports.

Response to Evaluation
Recommendations for Criteria 1

Distinguish core and elective courses as well as clarify the number of credits given to each course. (Dr. Fukuda)

- There will be no elective courses at initial implementation and all IT courses are considered core at this time, this was added into the narrative.
- Each course is 5 credits this was added into the narrative.

Consider Calculus I as a general education requirement/ include some calculus topics (Dr. Fukuda & Dr. Banerjee)

- In the survey to industry members, it was explicitly asked what math should be taken, and only one respondent suggested Calculus while the rest recommended Statistics. Additionally, in the Ad Hoc Advisory Committee, we asked about Math requirements and again, it was reiterated that Calculus is not necessary to do the job.
- In an effort to reduce barriers to admission as well as teach to industry expectations, we are maintaining that the Math requirement be MATH&146, however we will note in our advising materials that Calculus will be required if students plan to continue their education. This note was included in the General Education section: For students interested in further education, it is highly recommended to take MATH&151 and MATH&152 or equivalent Calculus series.

Consider emphasizing more server design in IT 440 API Development and include OOP in IT 330 Application Architecture title. (Dr. Fukuda)

- IT 330 was left as is in an effort to keep the title in layman's terms. We find it sufficient to keep OOP included in the course description.
- IT 440 was retitled to "Server Development" and the recommended reorganization of concepts was redistributed between IT 440 and IT 430 (App Development Fundamentals). The change is reflected in the course descriptions and titles.

Suggest teaching student's application development for both iOS and Android platforms. (Dr. Banerjee)

The intent was for both iOS and Android platforms to be taught, so this was explicitly added to the course description for IT 435- Mobile App Development.

Recommendations for Criteria 2

Rebalance teaching and service loads if a full-time faculty needs to teach 9 courses/year or clarify in the proposal about how many courses s/he will teach. (Dr. Fukuda)

The following language was added into the narrative in Standard 2: Per the SVCFT Negotiated Agreement, a full-time faculty contract is for 35 hours per week and 172 days per academic year. A full-time faculty teaching load is 45 FCU's which equates to approximately three courses per quarter.

Recommendations for Criteria 3

None

Recommendations for Criteria 4

Include computing services in resources (Dr. Fukuda)

The following language was added into Standard 4: The Information Technology department provides and maintains the technology infrastructure to support all instructional and administrative operations at all Skagit Valley College campuses as well as for remote learning. The Information Technology (IT) department provides a Help Desk on both campuses and sends IT staff to offices and labs to troubleshoot hardware and software problems. IT staff members are knowledgeable and experienced in campus software programs and provide service to faculty and staff. Student interns from the computer science instructional program help supplement IT department support and provide excellent student learning experiences in a complex network and computing environment. All issues and incidents are tracked using a ticket system. All students can get help using computers and technology from the IT Helpdesk, available in person or online via email, text, or chat from 8:00 a.m. to 8:00 p.m., Monday through Thursday, and 8:00 a.m. to 5:00 p.m. on Fridays. Issues involving coursework and Canvas are escalated to eLearning specialists.

Recommendations for Criteria 5

Faculty salary is low. (Dr. Fukuda)

The following language was added as a note after the budget in Standard 5: Full-time faculty rate is an estimated average. Per the faculty negotiated agreement, all faculty are initially placed on the salary schedule that ranges from $60,000 to $80,000. The first full-time faculty position that is hired will also serve as the Department Chair, receiving an additional $5,000 per year. Additionally, this position will likely qualify for a high demand salary differential in accordance with House Bill 2158.

Recommendations for Criteria 6

None

Recommendations for Criteria 7

None

Related Attachments
Attachment A: Evaluator Biographies
Attachment B: Evaluation 1- Dr. Munehiro Fukuda; Evaluation 2-Dr. Pubali Banerjee
Attachment C: Suggested Course Sequence- Dr. Fukuda

Conclusion
Skagit Valley College's Bachelor of Applied Science in Application Development is a forward-looking technology degree providing a solid and practical foundation of front and back end application development. The program is supported by significant industry demand as demonstrated in the Statement of Need, as well as by regional employers. The BAS-Application Development was designed with extensive input from our Advisory Committee, a panel of industry representatives, SVC faculty and staff, and well as external subject-matter experts. Consistent with our mission, this degree path is a commitment to provide high-wage, high-demand programming to our students that will lead to educational, personal, and economic success in the technology industry.

ATTACHMENT A: External Evaluator Biographies

Dr. Munehiro Fukuda
Computing and Software Systems Professor
University of Washington- Bothell

Bio: Munehiro Fukuda received a B.S. from the College of Information Sciences and an M.S. from the Master's Program in Science and Engineering at the University of Tsukuba in 1986 and 1988. He received his M.S. and Ph.D. in Information and Computer Science at the University of California at Irvine in 1995 and 1997, respectively. He has worked in the hardware development of shared-memory multiprocessors at IBM Tokyo Research Laboratory from 1998 to 1993. During his Ph.D. and Post Doc study at UC Irvine from 1993 to 1997, he has focused on software technologies to coordinate parallel and distributed computations, using a navigational autonomy approach. During 1998-2001, he was an Assistant Professor in the Institute of Information Sciences and Electronics at the University of Tsukuba, where he has worked on self-migrating threads to realize parallel execution of multi-agent applications. Dr. Fukuda joined Computing and Software Systems (CSS), University of Washington Bothell in 2001 and initiated an agent-based grid-computing research with NSF's support in 2005-07. He was promoted to Associate Professor with Tenure in 2007 and Full Professor in 2014. He served as the CSS Division Chair in 2014-2017. Dr. Fukuda is currently working on multi-agent spatial simulation and agent-based data analysis. His research interests include mobile agents, multi-threading, cluster computing, grid computing and distributed simulations. The courses he is teaching include CSS342: Data Structures, Algorithms, and Discrete Mathematics I, CSS422: Hardware and Computer Organization, CSS430: Operating Systems, CSS533: Distributed Computing and CS534: Parallel Programming in Grid and Cloud.

Dr. Pubali Banerjee
Program Chair for Software Development
Western Governor’s University

Bio: Pubali Banerjee currently works as Program Chair for Software Development at Western Governor’s University. She earned her PhD and MS in Computer Engineering from Iowa State University and BEng in Electronics Engineering from Oxford Brookes University, UK. She has taught several undergraduate and graduate computer science and information technology classes at Western Governors University, Texas A and M and Iowa State and at a few other online universities. Pubali has over 15 years of experience working in the IT field in software development, databases, and network security. She has developed gaming software for big name companies like Disney and Pixar.

Applied Baccalaureate External Review Rubric

ATTACHMENT B: External Evaluation Reports

Evaluation 1

College Name:	Skagit Valley College	**BAS Degree Title:**	Applications Development
Reviewer Name/ Team Name:	Munehiro Fukuda	**Institutional or Professional Affiliation:**	Division of CSS, School of STEM University of Washington Bothell
Professional License or Qualification, if any:	Professor	**Relationship to Program, if any:**	N/A
Please evaluate the following Specific Elements			
a) Concept and overview	Is the overall concept of the degree program relevant and appropriate to current employer demands as well as to accepted academic standards? Will the program lead to job placement?		
	Comment While the proposed degree program covers general applications development, it emphasizes front and back-end applications development, practice of the application development lifecycle (covering software engineering in general), and project/personnel management skills. These focuses respond to demands in IT, particularly the need of future employees in cloud management, network architect, full-stack engineering, mobile applications, and cyber-security analysis. BAS in AD addresses the importance of project/personnel management skills in IT by providing two related courses, each given in the junior and senior year respectively. Although IT industry as a whole also needs specialists in data analysis, machine/deep learning engineering, IoT, and VR/AR, these job domains need additional academic and professional experiences definitely at the graduate level. Therefore, as the BAS level, the proposed degree program targets appropriate job domains in IT and leads to job placement. The proposed degree program is strongly based on computer science and software engineering disciplines and satisfies academic standards.		
b) Degree Learning Outcomes	Do the degree learning outcomes demonstrate appropriate baccalaureate degree rigor?		
	Comment		

Applied Baccalaureate External Review Rubric

	The proposed BAS-AD program defines 10 learning outcomes. They are matching one or more of the BAS-AD's degree concepts: (1) development of computer, web, and mobile applications, (2) software engineering skills, and (3) project/personnel management. The degree proposal shows that these outcomes will be rigorously implemented by five areas of study: grounding, back-end, front-end, workplace, and practice & apply courses. Student learning is assessed from the viewpoints of not only program outcomes but also course outcomes. Notable is that BAS-AD students are required to take two capstone projects, each at the junior and the senior level respectively, which will prepare students for professional competencies as baccalaureate graduates.
c) Curriculum Alignment	Does the curriculum align with the program's Statement of Needs Document?
	Comment Since the BAS-AD new degree program proposal (SVC BAS Program Proposal-AppDev.docx) I am reviewing does not have an independent section of "statement of needs", I read through all the statements that described "needs" from industry, "needs" from students, and academic "needs" or "requirements". Alignment with industry needs: The curriculum aligns with industry needs in computer, web, and mobile applications from the end-user perspective. The program intends to develop project and personnel management skills which are essential for graduates to work in IT industry. It offers courses and training necessary for analyzing user needs and application needs. Alignment with student needs: The program will be offered in a hybrid format to accommodate working professionals. Since prospective BAS-AD students tend to be older with more challenges and needs than traditional student populations, the program chair will meet one-on-one with students and set up follow-up appointments. The program will also respond to veteran's needs by facilitating on- and off-campus resources, providing one-on-one counselling, and preparing financial aid. Alignment with academic needs: The general education requirement is competitive to what the UW requires and what our BS in CSSE at UW Bothell requires. The courses to be offered in junior and senior years cover the study from grounding to practice & application as well as from theoretical, programming, analytical, to complex problem-solving skills.
d) Academic Relevance and Rigor	Do the core and elective courses align with employer needs and demands? Are the upper level courses, in particular, relevant to industry? Do the upper level courses demonstrate standard academic rigor for baccalaureate degrees?

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	Comment I assume that the BAS-AD program will get started with all core courses including sixteen 5-cr regular courses and two 5-cr capstones, thus bringing the total to 90 credits. If not, please distinguish core and elective courses as well as clarify the number of credits given to each course. Based on my assumption, all 16 regular courses are lined up well (except one suggestion I would like to give below) from the viewpoint of applications development in client-server, cluster, mobile, and cloud computing which, I believe, most employers are looking at. These 16 courses are categorized in five areas of study: grounding, back-end, front-end, workplace, and practice & apply. I agree that the two grounding courses (data structure & algorithms and databased modelling & design) are the basis of applications design. The next back-end and front-end courses teach not only the basis but also advanced topics of client-server, cluster, and cloud computing. These courses are what UW Bothell gives in the 400 and 500 levels: operating systems, cloud computing, user interface, distributed computing, and parallel programming. I am sure that, after completing these courses, future BAS-AD students would have high potential to receive a competitive job from the IT industry. The workplace courses are necessary for students to engage in group work in IT, and the last practice & apply category covers the wide range of application-design subjects. Among the 16 regular courses, data structure & algorithm, operating systems, design patterns & techniques, project management, communication in IT and testing concepts are matching all core courses BSCSSE at UW Bothell is giving. Students will be well-prepared for a job by taking a capstone twice, (i.e., BASAD 399 and 499) over junior and senior years. Notable in the BAS-AD program is its focus on information security and ethics & law. While UW Bothell offers similar courses as the grade option, BAS-AD give these two courses as core. One suggestion is: Please re-consider the course contents of BASAD 4** API Development. The proposal indicates REST and ORM as the course topics. However, I have two questions: (1) do REST and ORG really need 5 credits? and (2) won't BASAD 3** Application Development Fundamentals repeat mentioning about REST and ORG as part of client-server and web programming? From this viewpoint, API Development can include more topics in server design such as data streaming, fault tolerance, replications, and distributed objects. Since this is a 400-level course, the course can pick up some Apache software tools such as MapReduce, Spark, Casandra, and Hazelcast. Also, since this course is categorized in the back-end design, it can be renamed "Server Development" rather than "API Development".
	Are the general educations requirements suitable for a baccalaureate level program? Do the general education courses meet breadth and depth requirements?
	Comment

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e) General Education Requirements	The level and volume of the BAS-AD degree's general education is similar to what the UW requires and what our BS in CSSE at UW Bothell requires: 1. Basic Requirements (15cr): the same as UW Bothell except Calculus I/II 2. Distribution requirements (30cr): the same as UW Bothell except how to interpret Natural Sciences (10 credits) 3. Additional general education courses (15cr): stronger than UW Bothell (regarding an explicit requirement of 3.c PHIL 4**-Ethics in IT) The proposed general education does not explicitly require Calculus while 2.c Natural Sciences (10cr) can include Calculus I/II. Please note that UW Seattle's CSE requires Calculus I, II, and III, whereas UW Bothell's CSSE requires Calculus I and II. Our MS in CSSE invites applicants who are planning on their career change but we require them to take Calculus I. Our BS in CSSE admission has observed the importance of Calculus I when students study algorithms, in particular recursions and mathematical inductions. If 5 credits out of 10 credits in 2.C Natural Sciences can serve as Calculus I, students in BAS-AD degree program could complete BASAD 3** Data Structure & Algorithms without any struggles and would be competitive to advance to graduate study. Other than Calculus I, all general education courses meet breadth and depth requirements. In particular, BUS 4** - Business & Technology and PHIL 4**-Ethics in IT are plus to BAS-AD students to grow up as ethical IT engineers and business people.
f) Preparation for Graduate Program Acceptance	Do the degree concept, learning outcomes and curriculum prepare graduates to enter and undertake suitable graduate degree programs?
	Comment While the proposed program aims at a BAS degree, it is designed to give as strong basis as BS in Computer Science and Software Engineering (CSSE). The following courses are exactly matching what MS in CSSE at UW Bothell is requiring applicants to study as prerequisites: BASAD3** Data Structure & Algorithms BASAD4** Application Architecture BASAD4** Operating Systems BASAD3** Project Management

	Among them, Data Structure/algorithms and object-oriented programming (OOP) are the most important basis toward graduate study in CSSE. For the purpose of a little more clarification, I would suggest that the course of Application Architecture could include OOP in its course title, because the course description on page 9 emphasizes that this course looks into OOP techniques. Besides these fundamentals, the new program at SVC also emphasizes cybersecurity elements in IT by requiring students to take BASAD 3** Information Security, CMST 4** Communications in IT, and PHIL 4** Ethics & Law in IT. This is a strong advantage of SVC graduates who want to advance to MS in Cybersecurity Engineering at UW Bothell.
g) Faculty	Do program faculty qualifications appear adequate to teach and continuously improve the curriculum?
	Comment A prospective full-time faculty member's knowledge, skills, and abilities described on page 10 are quite ideal to carry out this program. Among these 22 items in the list, I read that items 7-22 correspond to the faculty service. One little concern is how much time this full-time faculty member can allocate for these service tasks. The work load of UW Bothell's teaching faculty includes 8-course teaching and 1-course equivalent service. If this program faculty will teach 6 course sections as indicated in the first row of FTE Projections in Table 1: BAS-Applications Development Budget 2022-23 on page 22, s/he will be able to use 3-course equivalent time for focusing on items 7-22, which I feel is sufficient. However, Table 1 can be also interpreted as 9 courses may be given from 45 credits in total divided by 5 credits per course, in which case there may be little time to carry out items 7-22. Therefore, the faculty's annual teaching load should be clarified either on page 10 or 22. The faculty's minimum qualifications define a good balance between pedagogical and industry experiences as well as cover development of inclusive culture in the program. Since use of eLearning technologies is common in any institutions, a faculty candidate with teaching experiences must be already familiar with them. Therefore, the third item of the faculty's desired qualifications could be also applied to the minimum qualifications. If the faculty's desired qualifications include doctorate in computer science or closely related field, I have to say that $70,000 as the faculty salary indicated in Table 1 on page 22 is not attractive. Even a part-time faculty at UW Bothell earns $8,000 per course if s/he obtained a Ph.D. in computer science, which would theoretically bring up the total to $72,000 if s/he were to teach 9 courses.

	In summary, while all the qualifications defined on pages 10-12 appear very adequate, the teaching load, service load, and faculty salary would need to be re-estimated.
h) Resources	Does the college demonstrate adequate resources to sustain and advance the program, including those necessary to support student and library services as well as facilities?
	Comment The degree proposal describes that the BAS-AD program is planning on all the necessary resources for students to complete the degree in success: admissions, orientations, financial aid, housing, counseling, disability access, diversity services, library, learning-support centers (in writing and math), and veterans services. Beyond them, the BAS-AD program allocates a faculty advisor to each student. This is quite unique as compared to UW where faculty advising in general focuses on undergraduate research, individual study, and internship while all the other general advising is offered by academic advising stuff. BAS-AD's academic early alert service will maintain the high retention rate. Furthermore, it is very effective to graduate students in success that the BAS-AD chair will meet one-on-one with students who need special consideration. One little suggestion is that the proposal should also describe how the BAS-AD program will implement computing services. Some proposed courses require students to access server computers (in application development and probably sandbox networks (in information security). If the SVC library and media services also carry out this IT and computing services, I would recommend to extend the paragraph of Library Services on page 18 and to describe computing services in it.
i) Membership and Advisory Committee	Has the program received approval from an Advisory Committee? Has the program responded appropriately to it Advisory Committee's recommendations?
	Comment From the proposal description on page 26, I understand that the program was designed through two steps: (1) the SVC Multimedia & Interactive Technology Advisory Committee discussed the initial concept of the proposed program and provided the feedback on the general direction, which I read, the committee has given a "go sign"; and (2) the first draft was created based on the feedback from step 1 and additional market research, and was shared with the an Applications Development Ad Hoc Advisor Committee that was tightly involved in the second draft creation. As compared to our degree program designs at CSS, UW Bothell (including MS in Computer Science and Software Engineering as well as MS in Cyber-Security Engineering), SVC's BAS in Applications Development

	rigorously went through repetitive proposal refinements in support from its advisory committees as well as based on broader market research.
j) Overall assessment and recommendations	Please summarize your overall assessment of the program.
	Comment SVC's BAS in Applications Development is designed to respond to demands from IT industry, particularly in cloud management, network architect, full-stack engineering, mobile applications, and cyber-security analysis. Its learning outcomes cover applications development, software engineering, and project/personnel management broadly but appropriately at the baccalaureate level. The curriculum is aligned with industry, student, and academic needs. 16 regular courses are designed in five areas of study: grounding, back-end, front-end, workplace, and practice & apply to develop students' theoretical to complex problem-solving skills. The BAS-AD program will offer as rigorous computer science and software engineering (CSSE) courses as our BS in CSSE at UW Bothell. Furthermore, BAS-AD offers computer security courses. Therefore, BAS-AD students are quite competitive if they hope to advance to graduate study. Page 26 describes that the BAS-AD program has been developed in tight collaboration with the advisory committee. Four suggestions I made include: (1) consider Calculus I as a general education requirement, (2) consider emphasizing more server design in BASAD 4** API Development, (3) rebalance teaching and service loads if a full-time faculty needs to teach 9 courses/year or clarify in the proposal about how many courses s/he will teach, and (4) include computing services in resources.

Reviewer Bio or Resume
Evaluator, please insert a short bio here

Munehiro Fukuda received a B.S. from the College of Information Sciences and an M.S. from the Master's Program in Science and Engineering at the University of Tsukuba in 1986 and 1988. He received his M.S. and Ph.D. in Information and Computer Science at the University of California at Irvine in 1995 and 1997, respectively. He has worked in the hardware development of shared-memory multiprocessors at IBM Tokyo Research Laboratory from 1998 to 1993. During his Ph.D. and Post Doc study at UC Irvine from 1993 to 1997, he has focused on software technologies to coordinate parallel and distributed computations, using a navigational autonomy approach. During 1998-2001, he was an Assistant Professor in the Institute of Information Sciences and Electronics at the University of Tsukuba, where he has worked on self-migrating threads to realize parallel execution of multi-agent applications. Dr. Fukuda joined Computing and Software Systems (CSS), University of Washington Bothell in 2001 and initiated an agent-based grid-computing research with NSF's support in 2005-07. He was promoted to Associate Professor with Tenure in 2007 and Full Professor in 2014. He

served as the CSS Division Chair in 2014-2017. Dr. Fukuda is currently working on multi-agent spatial simulation and agent-based data analysis. His research interests include mobile agents, multi-threading, cluster computing, grid computing and distributed simulations. The courses he is teaching include CSS342: Data Structures, Algorithms, and Discrete Mathematics I, CSS422: Hardware and Computer Organization, CSS430: Operating Systems, CSS533: Distributed Computing and CS534: Parallel Programming in Grid and Cloud.

Evaluation 2

College Name:	Skagit Valley College	**BAS Degree Title:**	Bachelor of Applied Science – Applications Development
Reviewer Name/ Team Name:	Pubali Banerjee	**Institutional or Professional Affiliation:**	Program Chair, Software Programs, Western Governors University
Professional License or Qualification, if any:	PhD	**Relationship to Program, if any:**	
Please evaluate the following Specific Elements			
k) Concept and overview	Is the overall concept of the degree program relevant and appropriate to current employer demands as well as to accepted academic standards? Will the program lead to job placement?		
	Comment This baccalaureate degree has a modern and up to date curriculum. The lower-level classes will lay down the groundwork and prepare students with many skills including analytical, problem solving, communication and creativity; while the upper-level classes will teach students current topics and technologies which are of demand in the job market. Students pursuing this degree will be proficient in application development with ample exposure to data structures, design patterns, secure programming, cloud computing and will learn to develop mobile, web and full stack applications.		
l) Degree Learning Outcomes	Do the degree learning outcomes demonstrate appropriate baccalaureate degree rigor?		
	Comment		

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	Most of the upper-level classes require not only acquisition and application but also assimilation and adaptation of knowledge. The learning outcomes listed also indicate the need for assimilation and adaptation of knowledge which is indicative of appropriate baccalaureate degree rigor.
m) Curriculum Alignment	Does the curriculum align with the program's Statement of Needs Document?
	Comment As stated in the Statement of Need, there is a significant supply gap between Software and Applications Development jobs the local job market and graduates in the field. This has created the unique opportunity for local community colleges to offer baccalaureate degrees which will target this gap. The curriculum includes current technology trends like full-stack development, services and frame-oriented programming architecture, cloud computing, mobile apps and software testing. At the same time there is enough focus on soft skills like project management and communications. This makes the curriculum align well with the needs of the job market in application development.
n) Academic Relevance and Rigor	Do the core and elective courses align with employer needs and demands? Are the upper level courses, in particular, relevant to industry? Do the upper level courses demonstrate standard academic rigor for baccalaureate degrees?
	Comment The Junior and Senior level courses are relevant to the current needs of the industry. The inclusion of Cloud Basics is backend development is a very good idea. Full-stack development is in good demand in the job market and including the workplace concept courses in the Software Degree is excellent and in accordance with the current trends in the industry. The mobile computing class will also be very helpful. I would suggest teaching students application development for both iOS and Android platforms.
o) General Education Requirements	Are the general educations requirements suitable for a baccalaureate level program? Do the general education courses meet breadth and depth requirements?
	Comment The general education requirements seem adequate. The curriculum emphasizes on communication, creativity and public speaking which is very practical. The precalculus class will provide students with most of the math background that will be required in the upper-level classes. I would suggest Including some calculus topics in this class and going a little beyond precalculus. This will be most helpful for students who will pursue graduate

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	degrees in engineering or similar fields. Students might benefit from some basic probability knowledge which I didn't see in the curriculum.
p) Preparation for Graduate Program Acceptance	Do the degree concept, learning outcomes and curriculum prepare graduates to enter and undertake suitable graduate degree programs?
	Comment The proposed curriculum will adequately prepare students for graduate studies. Students intending to pursue advanced degrees in computer science or engineering later may need to take more math and statistics classes.
q) Faculty	Do program faculty qualifications appear adequate to teach and continuously improve the curriculum?
	Comment All of the existing faculty members at Skagit Valley College at least hold master's degrees in their teaching areas. As mentioned in the plan, the college will be hiring one full-time position to start the program and add instructional capacity as needed in subsequent years through associate faculty and additional full-time positions. This is adequate for teaching and continuously improving the curriculum.
r) Resources	Does the college demonstrate adequate resources to sustain and advance the program, including those necessary to support student and library services as well as facilities?
	Comment As demonstrated in the document, the estimated projected revenue from tuition exceeds the estimated expenses without taking into account any state funding. This implies that the program will be well funded
s) Membership and Advisory Committee	Has the program received approval from an Advisory Committee? Has the program responded appropriately to it Advisory Committee's recommendations?
	Comment From the Minutes provided, it seems that the recommendations in the meetings have been implemented.
	Please summarize your overall assessment of the program.

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t) Overall assessment and recommendations	**Comment** This is a very practical degree plan, and it targets current opportunities in the job market. It provides an opportunity for students with associate degrees and prior job experience to obtain baccalaureate degrees in the computer tech field. The curriculum includes trending technologies and emphasizes on teaching students web and mobile and full-stack application development which makes this degree quite marketable. I have recommended adding basic probability and statistics content to the curriculum which will help students succeed in graduate studies. Overall, this degree plan will help fill the gap in the job market and help many students obtain undergraduate degrees.

Reviewer Bio or Resume Pubali Banerjee currently works as Program Chair for Software Development at Western Governor's University. She earned her PhD and MS in Computer Engineering from Iowa State University and BEng in Electronics Engineering from Oxford Brookes University, UK. She has taught several undergraduate and graduate computer science and information technology classes at Western Governors University, Texas A and M and Iowa State and at a few other online universities. Pubali has over 15 years of experience working in the IT field in software development, databases, and network security. She has developed gaming software for big name companies like Disney and Pixar.

UNIVERSITY of WASHINGTON | BOTHELL
SCHOOL OF SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

Prof. Kenneth Lawson
Dean of Instruction – Program Development
2405 E. College Way, Mount Vernon, WA 98273
Re: Preferred Order of BAS-AD courses at Skagit Valley College

Dear Prof. Lawson and Ms. Bennett,

Below, I mapped the proposed 16 regular courses and 2 capstones to our BS CSSE courses, from which I generated a preferred order of the course offering. Please note that our BSCSSE course numbers in red are core.

Year 1: Autumn
BS CSSE at UW Bothell has our students take technical writing, the first programming, and the first software engineering/project management courses.
CMST 4** Communication in IT = CSS301, CSS350
BASAD 3** Data Structure & Algorithms = CSS342
BASAD 3** Design Patterns & Techniques = CSS360, CSS370

Year 1: Winter
Our students continuously take the 2nd programming and the 2nd software engineering/project management.
BASAD 3** Application Architecture (Advanced OOP) = CSS343, CSS434
BASAD 3** Project Management = CSS360, CSS461
PHIL 4** Ethics & Law in IT = CSS221, CSS411

Year 1: Spring
Our students take OS and the 3rd software engineering/project management.
BASAD 3** Operating Systems = CSS430
BASAD 3** Testing Concepts = CSS360, CSS370
BASAD 399 Capstone I = CSS397

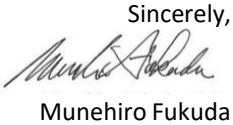
Year 2: Autumn
Many students at UW Bothell take DB in year 1's spring or year 2's autumn quarter. Before taking mobile app and API development, students should take app development fundamentals.
BASAD 4** Database Modelling & Design = CSS475
BASAD 4** Principles and Infrastructure in Information Security = CSS310, CSS337
BASAD 4** App Development Fundamentals (Clt-Svr, Web, Sec) = CSS434, CSS533, CSS545

Year 2: Winter
Before taking full stack web development, students should take mobile app and API development.
BASAD 4** Mobile App Development = CSS545
BASAD 4** API Development (REST ORB) = portion of CSS434 and 533
BASAD 4** User Interface & Experience = CSS480, CSS478

Year 2: Spring
BASAD 4** Cloud Basics = CSS436
BASAD 4** Full Stack Web Development = CSS481
BASAD 499 Capstone II = CSS497

If you have any questions, please feel free to email me at mfukuda@uw.edu.

Sincerely,



Munehiro Fukuda

Cc: Ms. Bennett