

## **PROPOSAL**

### **School of Engineering & Computer Science @ Washington State University Vancouver**

**Proposal:** To create a School of Engineering & Computer Science at WSU Vancouver effective fall 2004

#### **Summary Statement**

Because of the distinctive nature of a branch campus, special opportunities often face traditional organizational challenges. This School will enable Vancouver to capture one-of-a-kind synergies as the programs intersect with a wide array of external organizations, businesses, colleges, and political forces. WSU becomes the beneficiary of these very positive developments as all locations of WSU can attach to various initiatives. It is essential to the success of the Vancouver campus that it is able to provide a single face and entry point for the varied projects and ideas related to Engineering and Computer Science. The proposal for the School has the full support of the faculty in Vancouver from both Computer Science and Engineering. Joining the Engineering and Computer Science units into a new School affords the Vancouver campus an opportunity to do something unique within WSU as a way of responding to a significant set of expectations from local businesses and industries. As the campus continues to grow and expand its palette of degree offerings it will be advantageous to have an academic unit that can coherently add and manage the degrees and the curricula as they're developed.

#### **Definition and Requirements for the Formation of a School**

The Educational Policies and Procedures Manual defines a school as a “combination of two or more departments, programs, or curricula that functions as an alternative to an academic department.” The individual units lose their identities, and the school becomes the fundamental teaching and administrative unit. The faculty members of the school function in a manner similar to the faculty in the previous units.

The proposed School of Engineering and Computer Science (SECS) is a combination of two units which will function as a single academic unit. The SECS initially will offer four undergraduate degrees: (BS-Mechanical Engineering; BS Manufacturing Engineering; BS Computer Science; BA-Computer Science) and one graduate degree: (MS-Mechanical Engineering). A BS and MS in Electrical Engineering are planned along with the MS in Computer Science. Students will be admitted to the SECS with the option of several degree paths.

The following steps will be taken to satisfy the four requirements for creation of a school:  
1) The existing budgets for the two units will collapse into one budget for the SECS.

2) The Chancellor of WSU Vancouver and Dean of CEA, in consultation with the faculty, will appoint a Director for the SECS. 3) The faculty of the existing units will form the authorized faculty of the SECS. 4) New prefixes will be developed in some cases, old prefixes will remain for some courses, and others will become cross listed.

### **Cost Impact to WSU**

There is no increased cost to WSU. Special funding from the legislature supports the development and growth at this point. Increased enrollments will add additional support in the future.

### **Space Impact**

Current space allocations will be unaffected by the formation of SECS. As new degrees are added in the future space issues will need to be considered.

### **Resource Issues**

Resources will be unchanged by this consolidation.

## **THE CASE FOR SCHOOL DESIGNATION**

### **Context, History, and Rationale**

From the beginning ‘one university geographically dispersed’ has worked better in the abstract than on the ground. While conceived with the expectation that it would be possible for a central campus to reach across the miles to the distant branches to create a single university, in practice this goal has proved less than achievable in many respects. The local communities set the stage for and often direct the development of the campuses. The interaction with the local communities provides opportunities for the university to develop and implement different pedagogical models. These interactions dictate some of the faculty activities. The limitation of programs at these campuses to upper division and graduate levels has major implications for the curriculum that constrain faculty responsibilities on one hand and demand collaboration with community colleges on the other.

Although some departments or schools have been able to manage curriculum in two modes (four year for Pullman and two plus two elsewhere) and function as a collegial unit, others have not. The differences seem to relate in part to the nature of the curriculum. In some disciplines the curriculum is largely dictated with few options for substitution or modification. In some disciplines the lower division curriculum is left largely to electives and GERs while others need to program pre-requisites and unit courses at the lower division level which are not controlled by the upper division campuses. The differences also seem to relate to the amount of interaction that occurs between the university curriculum as well as faculty and elements in the local community. Some disciplines require little (and benefit little from) interaction. Others benefit greatly from internships, industry/university research alliances etc. Some of the difference may relate to the distance among campuses.

The academic department is not merely a mechanical administrative unit. It is a unit that relies upon collegial and social processes to function as a department and to do the shared work of a department or school. That is problematic for units that are distributed across great distances with only episodic opportunities for interaction even in units that do not have the constraints of a highly impacted curriculum or required community engagement. The combination can may create more stress than a collegial unit can manage.

The Principles for Newer Campuses of Washington State University document, which served as the background for the Board of Regents’ decision to create the WSU system of four campuses, acknowledged these issues of departmental functioning and responsiveness to local communities. For example, it states that “Academic units, including programs, departments, schools and colleges may be established and centered on any of the campuses in the WSU system. Proposals to establish these units should follow approval processes outlined in the Faculty Manual...” (section II, part A. Academic Programs)

In part B the principles state that “Academic program administrators may reside on any campus and have responsibility for programs on other campuses. More than one lead administrator may be appointed in the same discipline. Multiple departments or colleges in the same general area may be established on different campuses when the circumstances suggest this would be an effective structure.”

**School Description:**

The new School will be an Academic Unit. Its programs and research activities are intended to carry on the WSU CEA tradition of excellence while maximizing responsiveness to local needs and partnering with local industries. These industries have been extremely active on behalf of the Engineering programs in Vancouver and see the College’s activities as a centerpiece of regional work force and economic development needs.

Its main elements include:

1. The School will house the existing degrees in Computer Science and Engineering available at WSU Vancouver. These include:

- BS Manufacturing Engineering
- MS Mechanical Engineering
- BA and BS Computer Science
- BS Mechanical Engineering (proposed)
- BS and MS Electrical Engineering (in the future)
- MS Computer Science (in the future)

2. The curriculum for the School will be separately administered and accredited. New prefixes will be created as necessary.

Distinguishing pieces include:

1. Cross-disciplinary fertilization will allow Vancouver to move forward with curriculum development in new ways—thus overcoming some of the barriers posed by the community college circumstance.
2. Creation of new and specialized internships for students, capitalizing on the rich array of intern sites with local enterprises.
3. New opportunities for faculty to partner on research ventures tied to real world problems with high technology firms.
4. New opportunities for faculty and students across the WSU campuses to join in these activities.

5. Joint curriculum development and co-admission with the community colleges. A striking feature of the branch campus situation that sets it apart markedly from its Pullman counterpart is the Community College connection. This factor also represents the greatest challenge to the branch because the 2+2 model does not mirror the four-year program and curriculum. The branch has no direct control over the lower division and is forced to accept the AA/AS transfer degree. While the AA largely meets the lower division requirements for general education, it does not provide essential pre-requisites in the various majors. The 2+2 model coupled with increasing expectations from local industries requires that WSU Vancouver become increasingly nimble and flexible in its response capabilities. Nowhere is the problem greater than in engineering. In order to address this dilemma and serve the needs of both students and the region, several important changes are in process. They include:

- a. The curriculum for ME and CS is being developed jointly between faculty at WSU Vancouver and the local Community Colleges. The CC's have seized upon this opportunity to completely revamp the entire lower division curriculum. The lower division, for the first time ever, is being built according to WSU curricular requirements and ABET outcome requirements. While this is especially significant in relation to Engineering and Computer Science, an additional major accomplishment is that the CC's are agreed to a lower division configuration that will not require Vancouver students to take additional and unnecessary course work, thus making it possible to complete the degree in four years.

A very important aspect to this arrangement is that it enables Vancouver to face the challenges of the 2 + 2, while simultaneously enabling Pullman to avoid any need to reconfigure any elements of its programs or CEA requirements in efforts to assist with this long standing problem.

- b. Another central aspect of the partnerships is that the degree is termed as 'blended.' Unlike the traditional 2+2 model where each institution has its own curriculum (and in which WSU has no say related to the lower division), this curriculum is not only jointly developed it also allows students to matriculate simultaneously at the CC and WSU Vancouver. In other words the artificial line between lower division and upper division—something unknown to students in Pullman, for instance, will no longer be the barrier it has been in the past. A significant part of this is that the Legislature provided direct funding to the CC's to assure a pipeline of new students for the current and proposed programs. A total of 168 new FTE is their responsibility.
- c. A third and vital component of the partnership is the Co-Admission agreement between the CC's and WSU Vancouver. Under Co-Admission, students will be admitted as entering first year students to both WSU Vancouver and their respective Community College providing students meet all entry requirements of WSU. For other students, the completion of 40-quarter credits at the CC will entitle them to Co-Admission. The advantages to this innovation include earlier

WSU advising (an absolutely vital component to success under the challenges of a transfer arrangement), the ability to complete the necessary pre-requisites at no more than 90 quarter credits at the CC, and the promise of admission to the desired degree program at WSU Vancouver assuming all requirements are met.

The Community Colleges have embraced this agreement enthusiastically and it marks a significant departure from the restraints of the past.

As an Administrative Unit, the School's main elements are:

- The School Director will report to the Dean of the College and Chancellor of WSU Vancouver.
- Primary responsibility for degrees and courses will reside with the new School as part of the College of Engineering and Architecture.
- The Director of the WSU Vancouver School of Computer Science and Engineering will work collaboratively with the directors of the Schools of MME & EECS in Pullman.
- The tenure and promotion unit will be the new School.

There have been new academic units created on WSU campuses other than Pullman. Health Administration in Spokane is an example. This proposal, however, is the first to propose a unit within the same general area as units on the Pullman campus. Consequently it raises questions about the nature of tenure within the WSU system. A fundamental point of this proposal, however, is that the creation of the SECS in Vancouver will in no way affect or alter existing tenure rights for faculty at WSU or practices of awarding tenure as it applies across the WSU system.

In April 1991 the WSU administration, including the Council of Academic Deans, published a document entitled "Interpretation of Faculty Personnel Policies and Procedures Within a Multicampus System." That document reads, in part, as follows:

"GUIDING PRINCIPLE: Faculty members will receive specific campus appointments but will be promoted and tenured by the academic unit without respect to location. All faculty members will be expected to meet minimum requirements of the academic department and the University for promotion and tenure. However, it is recognized that variations in job assignments and opportunities among campuses will require flexibility on a case-by-case basis in the weighting of promotion and tenure criteria.

Administrative Interpretation:

Each faculty member will be hired into a systemwide academic department but each appointment will be limited to a specific campus. Such an appointment does not

automatically entitle the faculty member to transfer to another campus, except through normal application processes for openings or, in special circumstances, with the approval of the appropriate campus dean, the dean of the college, and the director of affirmative action. . . . Transfers of faculty from one campus to another require specific written approval of the Provost, after consultation with the appropriate campus and academic deans.”

The current proposal does not modify these policies or faculty rights.

### **New School’s Contributions/Advantages**

- By providing WSU Vancouver the means to respond to the local community, the image and presence of WSU in southwest Washington will be strengthened and enhanced.
- New opportunities for cross-campus collaboration and partnerships can develop, increasing educational opportunities for WSU students at all campuses. Relations with local industry, which represent a cornerstone of political support for WSU and WSU Vancouver in Clark County, can be built in ways that have been restricted previously.
- The integration of MME & EECS creates innovative possibilities in curriculum development but also affords a level of flexibility that facilitates responsiveness.
- Additionally, this ties to workforce and more general economic development in the region, which have set their sights on WSU Vancouver and its potential with these degrees and programs.
- The School creates a mechanism through which WSU Vancouver can navigate the challenges posed by the existing 2+2 transfer system, by creating an additional track.

### **Transition**

The legislature recently funded the local community colleges for an effort aimed at increasing the number of students who will transfer to computer science and engineering programs at WSU Vancouver. That effort began Fall 2003. It is anticipated that students from these transfer programs will be ready to transfer to WSU Vancouver beginning in Fall 2004. The initiation of the new School as of that date will enable us to roll out the new degrees under a new administrative structure. Most of the new faculty appointments will be in place by fall 2004, with the few remaining hires to be in place fall 2005.

Issues of tenure, promotion and annual review will need to be addressed during an interim period. The faculty members of the new School currently and for the immediate future will lack the critical mass of senior faculty to oversee or participate in the tenure and promotion decisions or act as a graduate faculty. Consequently, there is need for a group of senior faculty from other WSU campuses who can serve in those capacities: a tenure and promotion committee.

The Academic Dean and the Chancellor will jointly conduct annual monitoring of the program’s quality and success.

**Faculty**

The current CEA faculty at WSU Vancouver who are anticipated to be part of the School:

1. Hakan Gurocak, Associate Professor, (MME)
2. Dave Kim, Assistant Professor, (MME)
3. Daniel Chiang, Assistant Professor, (MME)
4. Tim McLaren, Assistant Professor, (MME)
5. Rattikorn Hewett, Associate Professor, (EECS)
6. Dick Lang, Associate Professor, (EECS)
7. Wayne Cochran, Assistant Professor, (EECS)

Additional faculty who will be hired to staff the expansion of computer science and engineering (positions funded via high demand enrollment funding beginning 2004):

1. New position\*, Assistant or Associate Professor (2004)
2. New position\*, Assistant or Associate Professor (2004)
3. New position\*, Assistant Professor (2004)
4. New position\*, Assistant Professor (2004)
5. New position, Assistant or Associate Professor (2005)
6. New position, Assistant or Associate Professor (2005)

Approvals (original signatures on file in the Provost's office)

\_\_\_\_\_ Date: \_\_\_\_\_  
Dr. Anjan Bose  
Dean, College of Engineering and Architecture

\_\_\_\_\_ Date: \_\_\_\_\_  
Dr. Hal Dengerink  
Chancellor, WSU Vancouver

Dr. Hakan Gurocak \_\_\_\_\_ Date: \_\_\_\_\_

Dr. David Kim \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Daniel Chiang \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Tim McLaren \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Rattikorn Hewett \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Dick Lang \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Wayne Cochran \_\_\_\_\_ Date: \_\_\_\_\_