

## 2.0 INTRODUCTION

### 2.1 University of California Riverside

The University of California, Riverside [UCR] is a 1,106 acre campus located three miles east of downtown Riverside in southern California's rapidly growing "Inland Empire" region, the one-time center of the citrus growing industry. This region has become one of the fastest growing areas of California. This growth has brought an increasingly diverse and multi-cultural population to the region, with concomitant diversity in business and industry development in the surrounding communities. UC Riverside serves as one of the most important major educational and cultural resources for this area. Most academic activities occur within the 576 acre campus area east of I-215/SR-60 freeway, with the remaining 525 acres west of the freeway used for agricultural research and support programs.



UCR has experienced significant growth since the mid 1980's. Since the fall of 1984, student enrollment at UCR has grown from 4,805 to 10,662 FTE students today (Spring 2000). Current projections indicate a significant additional increase to 19,900 FTE students by the year 2010-2011. This number of students will require significant changes in teaching and research, development of services and programs for students, and the facilities to support these programs in a 21<sup>st</sup> century learning environment. UCR's academic programs are structured around three colleges and two professional schools: the Bourns College of Engineering, the College of Natural and Agricultural Sciences, the College of Humanities, Arts and Social Sciences, the Anderson Graduate School of Management, and the School of Education.

### 2.2 Bourns College of Engineering

The Bourns College of Engineering (BCOE) currently consists of four departments: Computer Science and Engineering, Electrical Engineering, Mechanical Engineering, and Chemical and Environmental Engineering. Within the four departments, instruction and research are pursued in the areas of air and water pollution control, biotechnology, automation and intelligent systems, smart materials, and communication networks. In all programs, design and implementation methods are emphasized in teaching. Interaction with leaders in related industries is encouraged.



The College places significant emphasis on laboratory instruction. The capability to have the students connect theories learned in the classroom with hands-on experience in the laboratory is considered pivotal in the learning process. Similarly, design is an integral part of the curricula for all programs. Specifically, the senior design project courses for undergraduates are structured to provide the students with experience in developing solutions to “real world” engineering problems.

The Computer Science (CS) program at UCR focuses on the basic principles of computation and design of computer systems. The program emphasizes problem solving and hands-on experience related to hardware and software. Students are exposed to the latest programming methods and languages; some featured topics include principles in programming, commercial software development, computer graphics, artificial intelligence, operating systems, and data management.

The Electrical Engineering (EE) program covers traditional and leading edge topics, using the most modern equipment available. Students may pursue opportunities to specialize in circuits, signals and communication; in control, robotics, and manufacturing; or in intelligent systems.

There are several centers for research identified for the Engineering Building Unit 2 (EBU2). These centers, which focus on developing research emphases in Computer Science and Engineering, and Electrical Engineering, are:

- *Center for Research in Intelligent Systems (CRIS)*
- *Center for Computational Science and Engineering (CCSE)*
- *Center for Communications Networks (CCN)*

The College currently shares a single facility, Bourns Hall, completed in 1995. BCOE faces several challenges related to rapid growth due to current enrollment projections indicating an increase of 152% in College programs by 2006-07, and steady increases beyond that date. At the same time, most of the existing instructional and research laboratories in the College are either already equipped or possess the infrastructure to be equipped as “wet” laboratories. While these facilities are well suited to support ongoing development of the Mechanical, Chemical and Environmental Engineering programs, they do not provide the type of flexible and highly adaptive “dry” office and research space needed by the most rapidly growing areas of the College: Computer Science, Electrical Engineering and Computer Engineering.

## 2.3 Long Range Development Plan



A Long Range Development Plan (LRDP) is a comprehensive plan that guides the development of future facilities in the University of California system. The LRDP for the University of California, Riverside, dated 1990, identifies the physical development needed to achieve the academic goals of the campus through the year 2005-06 for a student population which was then projected at 18,050.

The LRDP presents a detailed account of past planning, existing conditions and land uses, the proposed land uses, and mitigation recommendations. The proposed site for EBU2 is located in Parking Lot 16 adjacent to Bourns Hall on the east. This site is consistent with the LRDP approved in 1990.

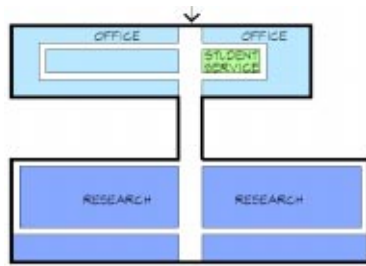
## 2.4 Planning and Design Guidelines

In addition to the LRDP, the building and site designs must be responsive to the campus standards. These design and planning standards are set forth in the following documents:

1. Campus Design Guidelines (1996)
2. Campus Landscape Master Plan (1996)

## 2.5 Planning Process

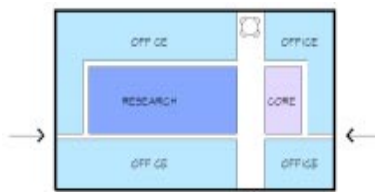
The DPP process began in late June, 2000. The DPP Committee toured the Gates Computer Science Building at Stanford University and Soda Hall (Computer Science Division of the College of Engineering) at the University of California Berkeley. The tours provided an opportunity for the DPP Committee to view and comment on design and technology in recently constructed computer science research and teaching facilities.



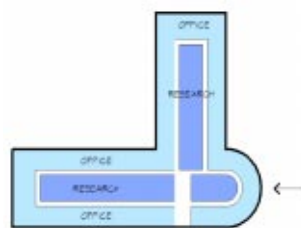
UC Riverside - Bourns Hall

Various building types and models were studied for computer science facilities as well as industry models for research facilities. The DPP Committee provided valuable insight in recommending facilities where it had prior experiences, and where the relationships between research and office spaces were successful. This continued analysis and comparison of facilities allowed the DPP Committee to test new ideas of how research and offices can relate and determine the best solution for their specific needs.

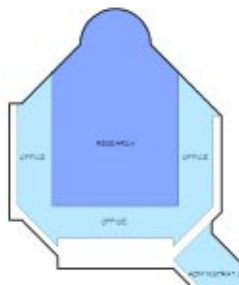
Once a program was developed and tested, studies of site and building design concepts were presented to the DPP committee. Updates and presentations were made to the DPP Committee weekly. User work groups, composed of College of Engineering faculty, were established to review and provide input for program and design concepts. This group met weekly throughout the DPP process. A draft DPP document was reviewed by the DPP Committee, Campus Workgroups, The Office of Academic Planning and Budget and The Office of Design and Construction.



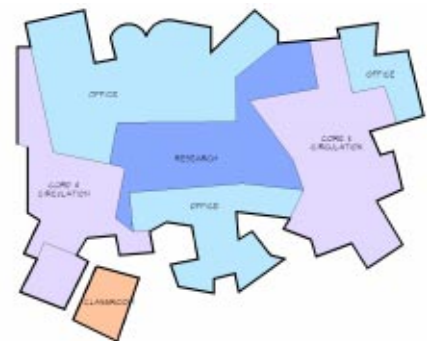
UC Berkeley - Soda Hall



Stanford - Gates



University of Michigan - Media Union



MIT - Stata Center

## 2.6 Key Program Assumptions

The EBU2 has an assignable square foot requirement of 89,686 asf. This is a maximum area based on the budget. The efficiency is projected at 59% which allows for a gross area of 152,010 gsf. The program includes BCOE Department of Computer Science and Engineering and the Department of Electrical Engineering as well as general assignment instructional space.

The site for EBU2 is in the existing Parking Lot 16, which is located east of Bourns Hall. This location is strongly influenced by pedestrian circulation and service traffic, which is described in more detail in Section 5.0. The site area has been defined as 55,000 sf.

## 2.7 Project Goals and Objectives

In the process of developing a comprehensive program that will permit Bourns College of Engineering to meet enrollment and research objectives through the 10-year planning horizon ending 2010-2011, the following goals and objectives have been adopted for EBU2:

### CSE/EE Departments

- Establish an image and identity for the CSE and EE departments and for the research centers.
- Support the unique environments for research and instruction.
- Facilitate the ability for the building to evolve, change, and adapt to future needs.
- Provide capability and flexibility of technology within the infrastructure of the building.
- Develop a creative, fostering, and nurturing environment for research.
- Create an environment for contemplation.
- Encourage interaction between graduates, faculty, and visiting scholars.
- Facilitate collaboration between departments, disciplines, and industry.
- Provide insulation from disruption of research by non-research activities.

### Bourns College of Engineering (BCOE)

- Strengthen a front door identity for BCOE, both functional and ceremonial.
- Create the feeling of the BCOE as a "home" for the faculty, graduates, and undergraduate students.
- Promote student activities on all levels: social, recreational, professional organizations, and learning.
- Encourage interaction between undergraduates, graduates, and faculty.
- Provide seminar, conference and event spaces.
- Encourage industry collaboration and support.
- Provide for future growth and expansion of facilities for the College.
- Promote the college to non-BCOE students.

### University of California, Riverside (UCR)

- Create a building identity that reflects and supports the campus goals.
- Transition toward a higher campus density and scale.
- Maintain architectural continuity with materials, massing, and quality on craftsmanship.
- Create a cohesive configuration within the campus, using scale, height, and orientation.
- Integrate campus services and infrastructure with utilities and emergency access systems.
- Encourage pedestrian circulation and integration with a campus system of plazas and entries.
- Facilitate access, identity, technology, and flexibility in the UCR assigned classrooms.
- Creatively use the landscape and open spaces to support the campus goals and unique qualities.