### **Chairs' & Center Directors' Meeting Minutes**

**Date:** October 12, 2009 (12:00 to 2:00 pm)

**Location:** EBU II – Room 443 Attendees: Abbaschian, Reza

Aguilar, Guillermo (for Shankar Mahalingam)

Balandin, Alex Barth, Matt Bhanu, Bir Bhuyan, Laxmi Boretz, Mitch

Chen, Wilfred (for Yushan Yan)

Haddon, Robert Hartney, Pat Lake, Roger Matsumoto, Mark Parker, Linda Payne, Tom Schultz, Jerry

**Absent:** Mahalingam, Shankar

Norbeck, Joe

Ravi

Yan, Yushan

The agenda for the meeting is shown in Appendix 1.

### 1. Welcome and call for agenda items - Reza

No new items were added to the agenda.

### 2. Approval of Minutes - Pat

The minutes of the September 28<sup>th</sup> Chairs/Directors meeting were unanimously approved.

### 3. On-line MS Program - Tom

Tom stated that BCOE's proposal to offer an On-line MS Program is being reviewed by four Academic Senate Committees (Planning and Budget, Education Policy, Graduate Council and Library & Scholarly Communication). BCOE's proposal is for an On-Line MS in Bioengineering but other specializations can be added later. The proposal's budget is based on five new MS students per year (with one dropping out each year). At this enrollment level, the Program loses money the first year but generates positive funds starting year two. The budget includes \$5,000 to transfer each course to an on-line format and

\$1,000/year for continuing course development. BCOE provided responses to questions submitted by the Planning and Budget Committee (copies attached to the agenda) and Mark and Tom had a very positive meeting with this Committee last week. It was noted that all On-line courses will need to go through the Committee on Courses. Reza stated that On-line courses may be based on recorded versions of existing classroom courses. The On-line MS Program will be self-supporting and all funds go to faculty, TAs and departments (to support grad students). Reza noted that UCLA admits about 90 new On-line MS students per year. He stated that BCOE's Program is unique and different from UCLA's Program since BCOE's specializations will be in more narrowly defined areas and will include business courses. Reza noted the 2007 corporate survey attached to the agenda. This survey indicates that there are about 1-2 employees in local companies that would be interested in enrolling in appropriate On-line MS programs. Reza noted that the financial details of the On-line MS Program can (and probably will) be changed by departments. There is no need to add specialization areas to the proposal at this time but other examples of specialization areas may be needed in response to requests from the Academic Senate Committees reviewing the proposal. Tom stated that UCR has not previously approved any on-line courses. Also, he noted that BCOE has already obtained some studio equipment and software to record BCOE on-line courses. Reza asked that BCOE faculty be encouraged to try out this equipment. Also, he stated that the Naval Surface Weapons Center (NSWC) is interested in an On-line MS program in ME. Lastly, it was noted that the UCR Catalog will obtain the required information for the On-line MS Program after Academic Senate approval.

### 4. WASC Accreditation Visit - Reza

Reza pointed out the WASC Accreditation Visit schedule attached to the agenda. The Visit will take place from October 27-29, 2009. BCOE's involvement in this Visit is limited since the College already goes through the ABET accreditation process. However, Reza noted that Venky is scheduled to make a presentation on examples of ME learning outcomes to the WASC visitors on 10/28. UCR expects that WASC will probably need to revisit the campus. One possible issue is that CHASS has established assessment practices but these are not tied to outcomes.

### 5. Solar Summit and Ribbon Cutting - Matt

Matt stated that there is a two-hour summit meeting tentatively scheduled on Thursday, November 5th with representatives of UCR, the City of Riverside and local solar companies. Matt expects about 20-30 attendees at this summit. Afterwards, a Solar Center ribbon cutting ceremony will be held at CE-CERT around 4pm. This ceremony will be open to a larger audience.

### 6. Opportunity with Press Enterprise - Reza

The Chancellor and the CEO of the Press Enterprise recently met and discussed a program to highlight current UCR research activities. Strategic Communications will write the articles and the Press Enterprise will edit the final versions. These articles would appear periodically in the Press Enterprise. Possible BCOE topics should be sent to Reza. Appropriate topics should have potential economic and other positive impacts to the Inland Empire, California and nation including job creation.

### 7. Graduate Education/Recruitment - Mark

Mark stated that we're in the midst of the grad student recruiting season and that applications are increasing rapidly. He indicated that BCOE has about 485 grad students (including those on filing fee status). Mark noted that it's important for Grad Assistants to contact every student that has contacted the

department. Reza stated that the College will pay for domestic student applications fees again this year and (up to \$500) for domestic grad student candidate visits to campus.

### 8. Undergraduate Education - Ravi

Ravi was unavailable for this meeting but Mark stated that incoming freshmen totaled about 560 and the total number of BCOE undergraduate students is about 1,770. Reza reminded participants that only about  $1/3^{rd}$  of incoming BCOE undergrads graduate in BCOE. As such, he is proposing that the lower end of admitted students be put into an "Undeclared" category for their first year. If these students do well academically, they will be accepted into a BCOE department. This proposal will allow BCOE to offer more help to these "Undeclared" students.

### 9. Other Matters

Tom noted the proposal to increase fees to UC upper-division engineering and business undergrad students. Reza noted that 9 out of 12 of UC's peer institutions charge differential fees to undergrads.

APPENDIX I



## Chairs' & Center Directors' Meeting

### October 12, 2009 Agenda

Engineering Building Unit II – Room 443

| 1. | Welcome - Request for Agenda Items from the Floor   | Reza |
|----|---|------|
| 2. | Approval of Minutes from September 28, 2009 Meeting | Pat  |
| 3. | On-line MS Program                                  | Tom  |
| 4. | WASC Accreditation Visit                            | Reza |
| 5. | Solar Summit/Ribbon Cutting                         | Matt |
| 6. | Opportunity with Press Enterprise                   | Reza |
| 7. | Graduate Education/Recruitment                      | Mark |
| 8. | Undergraduate Education                             | Ravi |
| 9  | Other Matters                                       |      |

The next scheduled meeting will be

Monday, November 9, 2009

Please note: Meetings will be held in EBU II - Room 443

October 3, 2009

TO: Akula Venkatram - Mechanical Engineering

FROM: Carol Lovatt, Chair Planning & Budget

RE: Proposal for the On-line Engineering MS Program

For our meeting on October 9, 2009, could you please assist with the following items and provide answers to the following questions.

1) Walk us through the budget in Table 2, page 15.

Here is a top-down prose version of Table 2, which is a model of the expected revenue and expenses associated with a single specialization within the online MS in Engineering. We will add specializations as supply and demand dictate, but hope to add on the order of one new specialization per year.

The total fee for the nine-course program is \$30,000 or \$3,333.33 per course. Each student is expected to take an average of 4.5 courses per year (\$15,000 per year) plus a one-time application fee of \$70.

Each course is expected, on average, to incur \$5,000 in one-time development costs for converting it to an online format, plus another \$1,000 per offering in maintenance costs, plus another \$500 cost per student per offering in delivery costs. Those costs are exclusive of instructor and TA/reader compensation, which we estimate to be \$400 per student per offering in instructor compensation and TA/reader costs per offering of \$2,772 in salary plus \$3,255 in grad student fees. The following table lays out the cost/revenue breakdown for a course.

### 5 students per course

|                  | # of     | Course Cost                | Course Cost      |
|------------------|----------|----------------------------|------------------|
|                  | students | (1 <sup>st</sup> offering) | (>1st' offering) |
| Development cost |          | \$5,000                    | \$0              |
| Maintenance cost |          | \$0                        | \$1,000          |
| Delivery cost    | 5        | \$2,500                    | \$2,500          |
| Marketing        |          | \$3,000                    | \$3,000          |
| Inst Comp.       | 5        | \$2,000                    | \$2,000          |
| TA cost          |          | \$6,027                    | \$6,027          |
| Total cost       |          | \$18,527                   | \$14,527         |
| Revenue          | 5        | \$16,667                   | \$16,667         |

We expect to recruit an average of five students per year into a specialization and that on average one of them will drop out after the first year. The program will involve a total of nine courses, implying that on average a student will enroll in 4.5

courses per year, most likely five the first year and four the second. So, the first year we expect five students each taking five courses, for an average enrollment of five per course. In subsequent years, we expect five new students plus four continuing students for a total of nine students. And we expect to offer roughly nine courses with an average per-course enrollment of 4.5.

The revenue implied by this enrollment projection is \$75,000 for the first year and \$135,000 for each subsequent year.

In terms of one-time costs to convert courses to an online format, it would cost \$25,000 to convert five courses the first year, \$20,000 to convert four more the second year, and no further conversion costs would be necessary in subsequent years. Those would include at most five of the MGT and XRC courses from the list of course examples on page 9.

In terms of annual on-going costs there would be a \$15,000 per year marketing cost in additional to the costs, discussed above, associated with the delivery of the online courses.

The bottom line is that, for a single specialization, there would be a modest loss in the first year followed by a modest gain in the second. But the overall investment is fully recouped in the third year. Thereafter, annual cash flow is projected to be positive by about \$20,000, which can be used to fund the development of additional courses for that specialization and/or the development of additional specializations. In general, the proceeds of this program go to support the program and to fund Ph.D. students through TAships, readerships, and faculty internal-allocation accounts.

2) The budget in Table 2 does not seem to cover development of the significant number of course listed on page 8 as part of the MS program.

All of the courses listed on page 9 — there are none on page 8 — are existing courses. So, what needs to be done in terms of development is translating the current course content to an online format. Specifically, the BIEN and MGT courses are Senate-approved UCR graduate courses. The XRC courses are existing UNEX courses that are possible candidates for cross-listing, which would require course-by-course Academic Senate approval.

In Table 2, initial costs for such development of each course are projected as \$5,000 per course and another \$1,000 for updating the course each subsequent year. As mentioned above, in terms of one-time costs to convert courses to an online format, it would cost \$25,000 to convert five courses the first year, \$20,000 to convert four more the second year, and no further conversion costs would be necessary in subsequent years. Those courses would include at most five of the MGT and XRC courses from the list of course examples on page 9.

3) What is the proposed source of funds to develop the first set of on-line courses for year 1 of the program?

As mentioned above, development is projected to cost \$25,000 much of which will come from the \$75,000 first-year revenue. Overall, we are projecting a first-year deficit of roughly \$18,000, which we will seek to cover by donations or contracts from local employers such as the Naval Surface Warfare Center at Norco. Otherwise, it will be covered by BCoE discretionary funds.

4) Will the required additional staff (Programmer, Student Affairs AA) be funded from the revenue generated from the program? Please see the last sentence on page 16.

Yes, specifically they would be funded via the "instructional services fee" mentioned in Table 2.

5) Likewise, will the additional computer server equipment be purchased from the proceeds of the program?

Yes, that is the intention. Initially, this server load can be serviced from spare capacity on existing BCoE servers. Also, last year BCoE established an Instructional Media Development Studio that will be used in developing the online version of these and other BCoE courses.

6) The justification for establishing the On-line Engineering MS program is student demand. No supporting documentation is provided. What is the estimated number of students who would enroll in UCR's program? How will the UCR program compete with the UCLA on-line Engineering MS Program? Please provide information about the UCLA on-line Engineering MS Program. How successful is it? Is its enrollment capped, creating a need for a program at UCR? Will there be overlap in specializations offered or will UCR's offerings be distinct from those of UCLA?

UCLA's program, which was initiated in 2006, has had an average of 86 new enrollees per year. We estimate that the UCR program enrollment will reach about 80 students in various specializations in about 5 years. We believe this is a reasonable estimate based on the results of the attached survey of 751 "Southern California Engineering Firms", conducted by UCR Survey Research Center. However, it should be noted that the program should be self supporting even at low enrollment of 5 new enrollees per year.

Because of its distinctive features, the UCR program will be as good if not better than the UCLA program. The UCR program includes a combination of in-depth specialization that is geared to specific industries and cohorts, and professional engineering components. In contrast, the UCLA program has more technical coverage and no professional engineering components. Specifically, the UCR program includes engineering management and professional development courses,

which UCLA's program does not (see attachment). As such, the UCR program will be distinctive from that of UCLA. Therefore, not much difficulty is envisioned in the competition provided that the program is marketed appropriately. Appropriate marketing allocation of \$15k per year has been made for each specialization. Obviously, the marketing cost per specialization will decrease as the program matures and more specializations are established.

From the program-profile web site for UCLA's program, which is to be found at <a href="http://www.gdnet.ucla.edu/asis/progprofile/result.asp?selectmajor=00A5">http://www.gdnet.ucla.edu/asis/progprofile/result.asp?selectmajor=00A5</a>, it appears that their program has been quite successful in a short period. It has acceptance rate of 72%, and enrolls 21% women and 17% underrepresented minorities, and with only 4% international students. These numbers are very good for an MS program in engineering.

The UCR program will not overlap or duplicate the UCLA program. Moreover, each specialization will be established only after detailed market and demand analysis. The industries surveyed indicated that a relevant curriculum will increase the likelihood of enrollment by their employees.

7) Have BCOE faculty agreed to teach on-line courses for which they will not receive teaching credit? Is the proposed \$400/student/course payment to the faculty teaching on-line courses within University policies and approved by the appropriate committees?

UCLA charges the same \$15,000 per year per student and about 10% of that goes to the faculty who serve as instructors for their courses. We plan to give the faculty \$400 per enrollee for an average of 4.5 courses per student per year, which works out to 12%, which is in the same range. It should be noted that, depending on the faculty's choice, parts or all of the online lectures may be recorded during regularly scheduled lecture classes, or recorded separately from regular classes. However, the online courses will have different section numbers.

That money goes to the faculty member's BCOE Internal-Allocation Account, which are funds that can be carried forward and have the usual strings attached. Mostly these funds will be spent in support of graduate research assistants.

We have not yet recruited individual faculty to cover specific courses. However, the Bioengineering faculty and Chair of the department have conceptually approved the proposed specialization in Bioengineering. Future specializations will similarly require faculty and departmental approvals.

8) How can the inclusion of such a large number of UNEX courses in a UCR program awarding an advanced degree be justified? Please address the issue of reducing the quality of an UCR advanced degree.

The seven MGT courses are already on-the-books AGSM courses, and there are a sufficient number of them to run the program. The seven XRC courses would not and could not be included until and unless they are approved for UCR credit (via cross-listing) by the relevant Academic Senate committees: the Committee on Courses and the Graduate Council. It should be noted, however, that such cross-listing is common practice at other UC campuses.

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## Survey of Southern California Engineering Firms Assessment of Interest in Masters of Science in Engineering Programs October 31, 2007

Michael M. Harrod Graduate Fellow UCR Survey Research Center

Prepared for
Reza Abbaschian, Dean
Joe DiGregorio, Director of Industrial Relations
Bourns College of Engineering
University of California, Riverside

### **Executive Summary**

This report summarizes findings from a survey of southern California engineering firms concerning their interest in potential graduate degree programs at the UCR Bourns College of Engineering (BCOE).

Respondents indicated that their employees would be most interested in earning a graduate degree on-line (61.4%). Most respondents reported that the schedule and location of any graduate program is an important or very important consideration. When these quantitative results are coupled with responses to several open-ended survey questions, respondents indicate that their employees need or prefer the flexibility of an on-line education because of work and home life pressures. Employers identify a limited number of potential students interested in pursuing a graduate program.

Three proposed degree programs received substantial support from respondents. Respondents preferred engineering innovation and entrepreneurship, management principles for engineers, and construction management in that order.

Finally, respondents emphasized the importance of making programs applicable to them. For example, 70% or more of respondents reported that employees will consider program content, applicability, and possible career advancement when selecting a graduate program. Just under 60% of respondents also report that the reputation of faculty is an important consideration for their employees. Approximately 30% of respondents indicated that they believe their employees would be interested in taking non-credit courses.

Three of the most important challenges employeers believed employees face – schedule, location and amount of time – can likely be addressed by offering any new degree program on-line. In addition to being the favored delivery method, on-line instruction also removes many concerns potential students may have about where and when the classes would be offered. Respondents further felt that making the curriculum relevant to their employees would increase their chances of enrolling in a Master's degree program.

### **Brief Overview of the Research Strategy**

Working from lists provided by BCOE and career reference resources, UCR Survey Research Center (SRC) compiled a list of 751 engineering firms in southern California, focusing on 5 counties: Los Angeles, Riverside, San Bernardino, San Diego, and Orange. The sample was constructed using several sources: the BCoE's TechHorizons project, engineering companies from connectory.com, biocom.com, a list of companies that have hired engineering students from UCR's career center, and a search of ReferenceUSA's database for engineering companies within these five counties.

After combining information from these various sources, the companies were sorted by size in decending order. Telephone interviewers next contacted each company and asked for the name, title and email address of the person within the organization responsible for engineering within their company. Interviewers input this information into a database. We then sent an e-mail to each of these firms, requesting the contact to complete a web based survey.

Approximately one week following the initial email requesting participation, individuals who had not activated the survey were sent a reminder email to encourage their participation. A week after the first reminder email, another, second reminder email was sent to those who had not yet activated the link. A total of three reminder emails were sent to persons who had not completed the survey encouraging their participation in the survey.

This report includes all data collected. As of the conclusion of data collection on 9/26/2007, 184 respondents activated the link to the survey. There are 101 completed web surveys. <sup>1</sup>

<sup>&</sup>lt;sup>1</sup> We define a completed response to the survey as any respondent who has completed at least two-thirds of the questions on the survey.

### **Scheduling Considerations**

Table 1. Location R Thinks MA Should be Offered

|         |                           | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------|-----------|---------|---------------|-----------------------|
| Valid   | 1.00 UCR Campus           | 28        | 15.2    | 19.3          | 19.3                  |
|         | 2.00 R's Company Location | 28        | 15.2    | 19.3          | 38.6                  |
|         | 3.00 On-Line              | 89        | 48.4    | 61.4          | 100.0                 |
|         | Total                     | 145       | 78.8    | 100.0         |                       |
| Missing | System                    | 39        | 21.2    |               |                       |
| Total   |                           | 184       | 100.0   |               |                       |

In the first table we can see that over half (61.4%) of respondents indicated that they feel that an MS program offered should be done on-line. Almost 20% (19.3%) of respondents feel the best location for a degree program would be at their facility. Almost 20% (19.3%) of respondents reported that they would be interested in a MS degree program that is offered on the UCR campus.

Table 2. Schedule R Thinks Program Should be Offered

|         |                                      | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|--------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | 1.00 Friday, Saturday,<br>and Sunday | 30        | 16.3    | 22.2          | 22.2                  |
|         | 2.00 Friday and Saturday             | 27        | 14.7    | 20.0          | 42.2                  |
|         | 3.00 Weekday Evenings                | 78        | 42.4    | 57.8          | 100.0                 |
|         | Total                                | 135       | 73.4    | 100.0         |                       |
| Missing | System                               | 49        | 26.6    |               |                       |
| Total   |                                      | 184       | 100.0   |               |                       |

Table 2 shows that over half of respondents (57.8%) feel that the best possible schedule for their employees to earn an MS is weekday evenings. Nearly an additional quarter (22.2%) of respondents feel that most of their employees would be most interested in taking classes Friday, Saturdays, and Sundays. A fifth of respondents (20%) feel that courses held (Friday and Saturday) would work best for their employees.

### **Levels of Interest for Programs**

Table 3. Interest Level for Biomedical Devices and Diagnostics

|         |                              | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Low Level of Interest    | 95        | 51.6    | 78.5          | 78.5                  |
|         | 1.00                         | 10        | 5.4     | 8.3           | 86.8                  |
|         | 2.00                         | 4         | 2.2     | 3.3           | 90.1                  |
|         | 3.00                         | 4         | 2.2     | 3.3           | 93.4                  |
|         | 4.00                         | 4         | 2.2     | 3.3           | 96.7                  |
|         | 5.00 High Degree of Interest | 4         | 2.2     | 3.3           | 100.0                 |
|         | Total                        | 121       | 65.8    | 100.0         |                       |
| Missing | System                       | 63        | 34.2    |               |                       |
| Total   |                              | 184       | 100.0   |               |                       |

Overwhelmingly, most respondents (78.5%) feel that their employees would not be interested in a Master's degree focusing on biomedical devices and diagnostics. Just less than seven percent of respondents felt their employees would have a relatively high degree of interest in pursuing a MS degree in biomedical devices and diagnostics.

Table 4. Interest Level for Construction Management

|         |                             | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|-----------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Low Degree of Interest  | 32        | 17.4    | 26.4          | 26.4                  |
|         | 1.00                        | 9         | 4.9     | 7.4           | 33.9                  |
|         | 2.00                        | 10        | 5.4     | 8.3           | 42.1                  |
|         | 3.00                        | 17        | 9.2     | 14.0          | 56.2                  |
|         | 4.00                        | 28        | 15.2    | 23.1          | 79.3                  |
|         | 5.00 High Level of Interest | 25        | 13.6    | 20.7          | 100.0                 |
|         | Total                       | 121       | 65.8    | 100.0         |                       |
| Missing | System                      | 63        | 34.2    |               |                       |
| Total   |                             | 184       | 100.0   |               |                       |

Just over 40 percent of respondents (43.8%) felt that their employees would have at least a moderate amount of interest in earning a MS degree in construction management. Approximately 20 (20.7%) percent of the respondents felt that their employees would have a "high degree of interest" of earning such a degree in construction management.

Table 5. Interest Level for Engineering Innovation and Entrepreneurship

|         |                             | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|-----------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Low Degree of Interest  | 19        | 10.3    | 15.7          | 15.7                  |
|         | 1.00                        | 14        | 7.6     | 11.6          | 27.3                  |
|         | 2.00                        | 20        | 10.9    | 16.5          | 43.8                  |
|         | 3.00                        | 30        | 16.3    | 24.8          | 68.6                  |
|         | 4.00                        | 24        | 13.0    | 19.8          | 88.4                  |
|         | 5.00 High Level of Interest | 14        | 7.6     | 11.6          | 100.0                 |
|         | Total                       | 121       | 65.8    | 100.0         |                       |
| Missing | System                      | 63        | 34.2    |               |                       |
| Total   |                             | 184       | 100.0   |               |                       |

Table 5 shows that just over half of the respondents (56.2%) of respondents indicated that their employees would have at least a moderate level<sup>2</sup> of interest in earning a degree in engineering innovation and entrepreneurship. With just greater than 11% of respondents reporting that their employees would have a "high level of interest" in this sort of degree.

Table 6. Interest Level for Global Engineering Management

|        |                              | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|--------|------------------------------|-----------|---------|---------------|-----------------------|
| Valid  | .00 Low Level of Interest    | 37        | 20.1    | 30.6          | 30.6                  |
|        | 1.00                         | 18        | 9.8     | 14.9          | 45.5                  |
|        | 2.00                         | 22        | 12.0    | 18.2          | 63.6                  |
|        | 3.00                         | 25        | 13.6    | 20.7          | 84.3                  |
|        | 4.00                         | 14        | 7.6     | 11.6          | 95.9                  |
|        | 5.00 High Degree of Interest | 5         | 2.7     | 4.1           | 100.0                 |
|        | Total                        | 121       | 65.8    | 100.0         |                       |
| Mssing | System                       | 63        | 34.2    |               |                       |
| Total  |                              | 184       | 100.0   |               |                       |

The majority of respondents (63.7%) reported that their employees would have limited interest in earning a Master's degree in global engineering management. Moreover, less than five percent (4.1%) of respondents felt that their employees would have a high degree of interest in such a program.

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<sup>&</sup>lt;sup>2</sup> By "moderate level" we mean those individuals who have indicated a three or higher.

Table 7. Interest Level for Management Principles for Engineers

|        |                              | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|--------|------------------------------|-----------|---------|---------------|-----------------------|
| Valid  | .00 Low Degree of Interest   | 13        | 7.1     | 10.7          | 10.7                  |
|        | 1.00                         | 6         | 3.3     | 5.0           | 15.7                  |
|        | 2.00                         | 9         | 4.9     | 7.4           | 23.1                  |
|        | 3.00                         | 32        | 17.4    | 26.4          | 49.6                  |
|        | 4.00                         | 35        | 19.0    | 28.9          | 78.5                  |
|        | 5.00 High Degree of Interest | 26        | 14.1    | 21.5          | 100.0                 |
|        | Total                        | 121       | 65.8    | 100.0         |                       |
| Mssing | System                       | 63        | 34.2    |               |                       |
| Total  |                              | 184       | 100.0   |               |                       |

Here in Table 7 we see that just under half of all respondents (47.2%) of respondent's report that their employees would be quite interested in earning a degree in management principles for engineers. Conversely, just less than fifteen percent of respondents feel that their employees would not be interested in earning this form of a graduate degree.

Table & Interest Level for Systems Engineering

|         |                              | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Low Level of Interest    | 41        | 22.3    | 33.9          | 33.9                  |
|         | 1.00                         | 21        | 11.4    | 17.4          | 51.2                  |
|         | 2.00                         | 10        | 5.4     | 8.3           | 59.5                  |
|         | 3.00                         | 21        | 11.4    | 17.4          | 76.9                  |
|         | 4.00                         | 13        | 7.1     | 10.7          | 87.6                  |
|         | 5.00 High Degree of Interest | 15        | 8.2     | 12.4          | 100.0                 |
|         | Total                        | 121       | 65.8    | 100.0         |                       |
| Missing | System                       | 63        | 34.2    |               |                       |
| Total   |                              | 184       | 100.0   |               |                       |

Within Table 8 we can see the majority of respondents (59.6%) do not feel that their employees would be interested in earning a degree in systems engineering. Although approximately 25 percent (23.1%) of the respondents feel their employees would have a relatively high level of interest in systems engineering.

### Possible Enrollment by Degree Area

Table 9. Num of R's Earning MS in Biomedical Devices and Diagnostics

|         |        | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|--------|-----------|---------|---------------|-----------------------|
| Valid   | .00    | 103       | 56.0    | 92.8          | 92.8                  |
|         | 1.00   | 4         | 2.2     | 3.6           | 96.4                  |
|         | 2.00   | 1         | .5      | .9            | 97.3                  |
|         | 3.00   | 1         | .5      | .9            | 98.2                  |
|         | 4.00   | 1         | .5      | .9            | 99.1                  |
|         | 5.00   | 1         | .5      | .9            | 100.0                 |
|         | Total  | 111       | 60.3    | 100.0         |                       |
| Missing | System | 73        | 39.7    |               |                       |
| Total   |        | 184       | 100.0   |               |                       |

Table 9 shows the number of employees the respondent felt would be interested in pursuing a Master's degree in biomedical devices and diagnostics. For respondents indicating a response greater than 0, the median response is 1.5 employees are interested in earning a Master's degree in biomedical devices and diagnostics.

Table 10. Num of R's Earning MS in Construction Management

|         |        | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|--------|-----------|---------|---------------|-----------------------|
| Valid   | .00    | 55        | 29.9    | 49.5          | 49.5                  |
|         | 1.00   | 20        | 10.9    | 18.0          | 67.6                  |
|         | 2.00   | 20        | 10.9    | 18.0          | 85.6                  |
|         | 3.00   | 5         | 2.7     | 4.5           | 90.1                  |
|         | 4.00   | 3         | 1.6     | 2.7           | 92.8                  |
|         | 5.00   | 5         | 2.7     | 4.5           | 97.3                  |
|         | 6.00   | 1         | .5      | .9            | 98.2                  |
|         | 10.00  | 1         | .5      | .9            | 99.1                  |
|         | 20.00  | 1         | .5      | .9            | 100.0                 |
|         | Total  | 111       | 60.3    | 100.0         |                       |
| Missing | System | 73        | 39.7    |               |                       |
| Total   |        | 184       | 100.0   |               |                       |

Table 10 shows the number of employees the respondent felt would be interested in pursuing a Master's degree in construction management. After excluding respondents reporting that none of their employees would be interested in earning a degree in construction management, the median response is two.

Table 11. Num of R's Earning MS in Engineering Innovation and Entrepreneurship

|         |        |           |         | V-1/4 D       | Cumulative |
|---------|--------|-----------|---------|---------------|------------|
|         |        | Frequency | Percent | Valid Percent | Percent    |
| Valid   | .00    | 67        | 36.4    | 60.4          | 60.4       |
|         | 1.00   | 20        | 10.9    | 18.0          | 78.4       |
|         | 2.00   | 13        | 7.1     | 11.7          | 90.1       |
|         | 3.00   | 5         | 2.7     | 4.5           | 94.6       |
|         | 4.00   | 2         | 1.1     | 1.8           | 96.4       |
|         | 5.00   | 3         | 1.6     | 2.7           | 99.1       |
|         | 6.00   | 1         | .5      | .9            | 100.0      |
|         | Total  | •111      | 60.3    | 100.0         |            |
| Missing | System | 73        | 39.7    |               |            |
| Total   |        | 184       | 100.0   |               |            |

Table 11 shows the respondent's impression of the number of their employees interested in earning a degree in engineering innovation and entrepreneurship. After excluding respondents reporting that none of their employees are interested in engineering innovation and entrepreneurship, the median number of potential students for this degree is two.

Table 12. Num of R's Employees Interested in Earning MS in Global Engin eering Management

|         |        | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|--------|-----------|---------|---------------|-----------------------|
| Valid   | .00    | 77        | 41.8    | 69.4          | 69.4                  |
|         | 1.00   | 20        | 10.9    | 18.0          | 87.4                  |
|         | 2.00   | 6         | 3.3     | 5.4           | 92.8                  |
|         | 3.00   | 2         | 1.1     | 1.8           | 94.6                  |
|         | 4.00   | 3         | 1.6     | 2.7           | 97.3                  |
|         | 5.00   | 1         | .5      | .9            | 98.2                  |
|         | 10.00  | 1         | .5      | .9            | 99.1                  |
|         | 45.00  | 1         | .5      | .9            | 100.0                 |
|         | Total  | 111       | 60.3    | 100.0         |                       |
| Missing | System | 73        | 39.7    |               |                       |
| Total   |        | 184       | 100.0   |               |                       |

Table 12 shows the number of employees at the respondent company who would be interested in pursuing a Master's degree global engineering and management. When we exclude respondents that believe none of their employees are interested in global engineering management, the median number of students is three.

Table 13. Num of R's Earning MS in Management Principles for Engineers

|         |        | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|--------|-----------|---------|---------------|-----------------------|
| Valid   | .00    | 42        | 22.8    | 37.8          | 37.8                  |
|         | 1.00   | 30        | 16.3    | 27.0          | 64.9                  |
|         | 2.00   | 19        | 10.3    | 17.1          | 82.0                  |
|         | 3.00   | 5         | 2.7     | 4.5           | 86.5                  |
|         | 4.00   | 3         | 1.6     | 2.7           | 89.2                  |
|         | 5.00   | 4         | 2.2     | 3.6           | 92.8                  |
|         | 6.00   | 2         | 1.1     | 1.8           | 94.6                  |
|         | 8.00   | 1         | .5      | .9            | 95.5                  |
|         | 10.00  | 4         | 2.2     | 3.6           | 99.1                  |
|         | 45.00  | 1         | .5      | .9            | 100.0                 |
|         | Total  | 111       | 60.3    | 100.0         |                       |
| Missing | System | 73        | 39.7    |               |                       |
| Total   |        | 184       | 100.0   |               |                       |

In Table 13 we see the number of employees the respondent feels would be interested in pursuing a MS degree in management principles for engineers. The median number of employees that might be interested in earning a graduate degree in management principles for engineers is two once those who feel that none of their employees would be interested are controlled for.

Table 14. Num of R's Employees Interested in Earning MS in Systems Engineering

|         |        | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|--------|-----------|---------|---------------|-----------------------|
| Valid   | .00    | 77        | 41.8    | 69.4          | 69.4                  |
|         | 1.00   | 20        | 10.9    | 18.0          | 87.4                  |
|         | 2.00   | 6         | 3.3     | 5.4           | 92.8                  |
|         | 4.00   | 2         | 1.1     | 1.8           | 94.6                  |
|         | 5.00   | 2         | 1.1     | 1.8           | 96.4                  |
|         | 10.00  | 1         | .5      | .9            | 97.3                  |
|         | 15.00  | 2         | 1.1     | 1.8           | 99.1                  |
|         | 454.00 | 1         | .5      | .9            | 100.0                 |
|         | Total  | 111       | 60.3    | 100.0         |                       |
| Missing | System | 73        | 39.7    |               |                       |
| Total   |        | . 184     | 100.0   |               |                       |

Table 14 shows the number of employees who the respondent feels would be interested in earning a graduate degree in systems engineering from their company.<sup>3</sup> After controlling for those respondents reporting that none of their employees are interested in a graduate degree in systems engineering, the median number of employees interested in such a degree is one.

### **Factors Perceived to Influence Enrollment**

Table 15. Consideration of Cost for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 5         | 2.7     | 5.0           | 5.0                   |
|         | 1.00                                  | 2         | 1.1     | 2.0           | 6.9                   |
|         | 2.00                                  | 8         | 4.3     | 7.9           | 14.9                  |
|         | 3.00                                  | 29        | 15.8    | 28.7          | 43.6                  |
|         | 4.00                                  | 24        | 13.0    | 23.8          | 67.3                  |
|         | 5.00 Very Important<br>Consideration  | 33        | 17.9    | 32.7          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

In Table 15 we see that the majority employers (56.5%) feel that cost is relatively major concern of their employees when considering any graduate program.

Table 16. Consideration of Schedule for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 3         | 1.6     | 3.0           | 3.0                   |
|         | 1.00                                  | 2         | 1.1     | 2.0           | 5.0                   |
|         | 2.00                                  | 1         | .5      | 1.0           | 5.9                   |
|         | 3.00                                  | 12        | 6.5     | 11.9          | 17.8                  |
|         | 4.00                                  | 33        | 17.9    | 32.7          | 50.5                  |
|         | 5.00 Very important<br>Consideration  | 50        | 27.2    | 49.5          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

<sup>&</sup>lt;sup>3</sup> Please note that the number "454" indicated in Table 14 is likely a typo on the part of the respondent. This same respondent is the same person who indicated that there are 45 people in their organization interested in pursuing MS degrees.

Table 16 we can see that vast majority of respondents (82.2%) reported that the schedule of classes is a significant consideration of their employees when deciding about enrolling in a graduate program. Conversely, only three percent of respondents reported that the schedule would not be an important consideration of their employees.

Table 17. Consideration of Location for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 3         | 1.6     | 3.0           | 3.0                   |
|         | 2.00                                  | 3         | 1.6     | 3.0           | 5.9                   |
|         | 3.00                                  | 14        | 7.6     | 13.9          | 19.8                  |
|         | 4.00                                  | 37        | 20.1    | 36.6          | 56.4                  |
|         | 5.00 Very Important<br>Consideration  | 44        | 23.9    | 43.6          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

Here in Table 17 we can see that 80 percent (80.2%) of respondents report that their employees feel the location where classes would be held is an important or very important consideration. Conversely, only three percent feel their employees feel that their employees would not feel that cost is an important consideration for them.

Table 18. Consideration of Time for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 4         | 2.2     | 4.0           | 4.0                   |
|         | 2.00                                  | 4         | 2.2     | 4.0           | 7.9                   |
|         | 3.00                                  | 23        | 12.5    | 22.8          | 30.7                  |
|         | 4.00                                  | 40        | 21.7    | 39.6          | 70.3                  |
|         | 5.00 Very Important<br>Consideration  | 30        | 16.3    | 29.7          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

Table 18 shows that the majority of respondents (69.3%) feel that the amount of time that their employees would need to spend on program requirements as a significant consideration regarding enrolling in a graduate program.

Table 19. Consideration of Career Advancement for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 3         | 1.6     | 3.0           | 3.0                   |
|         | 1.00                                  | 1         | .5      | 1.0           | 4.0                   |
|         | 2.00                                  | 2         | 1.1     | 2.0           | 5.9                   |
|         | 3.00                                  | 23        | 12.5    | 22.8          | 28.7                  |
|         | 4.00                                  | 39        | 21.2    | 38.6          | 67.3                  |
|         | 5.00 Very Important<br>Consideration  | 33        | 17.9    | 32.7          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

The majority of respondents (71.3%) report that career advancement is a significant consideration for their employees' pursual of a graduate degree.

Table 20. Consideration of Faculty Reputation for MS Program

|        |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|--------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid  | .00 Not an Important<br>Consideration | 2         | 1.1     | 2.0           | 2.0                   |
|        | 1.00                                  | 1         | .5      | 1.0           | 3.0                   |
|        | 2.00                                  | 10        | 5.4     | 9.9           | 12.9                  |
|        | 3.00                                  | 32        | 17.4    | 31.7          | 44.6                  |
|        | 4.00                                  | 32        | 17.4    | 31.7          | 76.2                  |
|        | 5.00 Very Important<br>Consideration  | 24        | 13.0    | 23.8          | 100.0                 |
|        | Total                                 | 101       | 54.9    | 100.0         |                       |
| Mssing | System                                | 83        | 45.1    |               |                       |
| Total  |                                       | 184       | 100.0   |               |                       |

Table 20 highlights the fact that most respondents (55.5%) feel that the reputation of the faculty is a significant consideration of their employees' when considering whether or not to pursue a graduate degree.

Table 21. Considertation of Program Content for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 2         | 1.1     | 2.0           | 2.0                   |
|         | 1.00                                  | 1         | .5      | 1.0           | 3.0                   |
|         | 2.00                                  | 3         | 1.6     | 3.0           | 5.9                   |
|         | 3.00                                  | 20        | 10.9    | 19.8          | 25.7                  |
|         | 4.00                                  | 42        | 22.8    | 41.6          | 67.3                  |
|         | 5.00 Very Important<br>Consideration  | 33        | 17.9    | 32.7          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

Table 21 shows the majority of respondents (74.3%) feel that their employees will take program content into consideration when considering a graduate program.

Table 22. Consideration of Applicability to Current Job for MS Program

|        |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|--------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid  | .00 Not an Important<br>Consideration | 4         | 2.2     | 4.0           | 4.0                   |
|        | 2.00                                  | 2         | 1.1     | 2.0           | 5.9                   |
|        | 3.00                                  | 17        | 9.2     | 16.8          | 22.8                  |
|        | 4.00                                  | 41        | 22.3    | 40.6          | 63.4                  |
|        | 5.00 Very Important<br>Consideration  | 37        | 20.1    | 36.6          | 100.0                 |
|        | Total                                 | 101       | 54.9    | 100.0         |                       |
| Mssing | System                                | 83        | 45.1    |               |                       |
| Total  |                                       | 184       | 100.0   |               |                       |

Table 22 shows that an overwhelming majority (77.2%) of respondents report their employees will take the applicability of a graduate program to their current job into consideration before enrolling.

Table 23. Consideration of Industry-Specific Topics for MS Program

|        |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|--------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid  | .00 Not an Important<br>Consideration | 2         | 1.1     | 2.0           | 2.0                   |
|        | 1.00                                  | 2         | 1.1     | 2.0           | 4.0                   |
|        | 2.00                                  | 7         | 3.8     | 6.9           | 10.9                  |
|        | 3.00                                  | 18        | 9.8     | 17.8          | 28.7                  |
|        | 4.00                                  | 47        | 25.5    | 46.5          | 75.2                  |
|        | 5.00 Very Important<br>Consideration  | 25        | 13.6    | 24.8          | 100.0                 |
|        | Total                                 | 101       | 54.9    | 100.0         |                       |
| Mssing | System                                | 83        | 45.1    |               |                       |
| Total  |                                       | 184       | 100.0   |               |                       |

We can see in Table 23 that the majority of respondents (71.3%) report their employees will consider industry-specific topics important or very important for a MS program.

Table 24. Consideration of Supervisor Support for MS Program

|         |                                       | Frequency | Percent | Valid Percent | Cumulative<br>Percent |
|---------|---------------------------------------|-----------|---------|---------------|-----------------------|
| Valid   | .00 Not an Important<br>Consideration | 6         | 3.3     | 5.9           | 5.9                   |
|         | 1.00                                  | 4         | 2.2     | 4.0           | 9.9                   |
|         | 2.00                                  | 8         | 4.3     | 7.9           | 17.8                  |
|         | 3.00                                  | 33        | 17.9    | 32.7          | 50.5                  |
|         | 4.00                                  | 30        | 16.3    | 29.7          | 80.2                  |
|         | 5.00 Very Important<br>Consideration  | 20        | 10.9    | 19.8          | 100.0                 |
|         | Total                                 | 101       | 54.9    | 100.0         |                       |
| Missing | System                                | 83        | 45.1    |               |                       |
| Total   |                                       | 184       | 100.0   |               |                       |

Here in Table 24 we see that almost half of respondents (49.5%) feel that having the support of their supervisor for pursuing a graduate degree is an important or very important consideration of their employees.

Overall, the results suggest that respondents believe that the decision of pursuing a graduate degree is complicated. Three factors are challenges to employees' decision to enroll: schedule, location and amount of time. The first two are address by other questions answered by respondents. As stated earlier, most respondents feel that employees are interested in earning a Master's degree on-line as well as during the evenings of weekdays. The third challenge mentioned is the amount of time that employees will have to devote to earning a degree.

Respondent's assessments of these challenges can likely be reduced by addressing these concerns.

It also appears that there are two interrelated positive factors that also appear important for employees from their employer's perspective. Many respondents felt that employees feel that the content of the degree program as well as the applicability of a degree to their current position are both important factors. Perhaps the development of curriculum that employees see as directly related to their interests and jobs would help ameliorate the three concerns listed above.

### Perceived Interest in Non-Credit Courses

Cumulative Valid Percent Frequency Percent Percent Valid .00 R Not Interested 71 38.6 69.6 69.6 in Non-Credit Courses 1.00 R Interested in 100.0 31 16.8 30.4 Non-Credit Courses 100.0 Total 102 55.4 System 82 44.6 Missina 184 100.0 Total

Table 25. Interest in Short Non-Credit Courses

Here in Table 25 we can see that just less than a third of respondents (30.4%) feel that their employees would be interested in some form of a short, non-credit course that the Bourns College of Engineering might offer.

### **Program Type by Delivery Format**

In this section of the report we highlight the three programs—Construction Management, Engineering and Entrepreneurship, and Management Principles for Engineers—respondents felt their employees would be most interested in by the preferred delivery method.

Table 26. Interest in Construction Management by Delivery

|                           | Method   |   |   |    |    |          |  |  |  |  |  |
|---------------------------|----------|---|---|----|----|----------|--|--|--|--|--|
|                           | 0        |   |   |    |    | 5        |  |  |  |  |  |
|                           | Low      |   |   |    |    | High     |  |  |  |  |  |
|                           | Interest | 1 | 2 | 3  | 4  | Interest |  |  |  |  |  |
| 1. UCR                    | 9        | 1 | 2 | 4  | 4  | 4        |  |  |  |  |  |
| <ol><li>Company</li></ol> | 5        | 3 | 2 | 3  | 5  | 5        |  |  |  |  |  |
| 3. On-Line                | 18       | 5 | 6 | 10 | 19 | 16       |  |  |  |  |  |

Within Table 26, it is clear that of the respondents interested in construction management, most would like to see it administered on-line.

Table 27. Interest in Innovation and Entrepreneurship by

|            | Deliv    | very M | lethod |    |    |          |
|------------|----------|--------|--------|----|----|----------|
|            | 0        |        |        |    |    | 5        |
|            | Low      |        |        |    |    | High     |
|            | Interest | 1      | 2      | 3  | 4  | Interest |
| 1. UCR     | 4        | 5      | 6      | 5  | 3  | 1        |
| 2. Company | 4        | 0      | 2      | 11 | 4  | 2        |
| 3. On-Line | 11       | 9      | 12     | 14 | 17 | 11       |

Within Table 27, we can see that most of the respondents who believe that their employees have an interest in earning a degree in innovation and entrepreneurship believe that delivering the education on-line is the best strategy.

Table 28. Interest in Management Principles for Engineers by Delivery Method

| Engineers by Delivery Method |     |   |   |    |    |          |  |  |  |
|------------------------------|-----|---|---|----|----|----------|--|--|--|
|                              | 0   |   |   |    |    | 5        |  |  |  |
|                              | Low |   |   |    |    | High     |  |  |  |
| Interest 1 2 3 4             |     |   |   |    |    | Interest |  |  |  |
| 1. UCR                       | 3   | 2 | 3 | 10 | 2  | 4        |  |  |  |
| 2. Company                   | 2   | 1 | 3 | 7  | 6  | 4        |  |  |  |
| 3. On-Line                   | 8   | 3 | 3 | 15 | 27 | 18       |  |  |  |

In Table 28, we can see quite clearly that respondents who feel their employees who are interested in management principles for engineers are most likely to feel that their employees would take it on-line.

### **Program Type by Company Characteristics**

In this section of the report, we present tables that illustrate the relationship between the type of potential Master's program by the company's distance from UCR, and the size of the company. But before presenting the cross-classifications we first present the frequency distributions of the variables.

Table 29. Number of Miles from UCR

|                  |           |         | Cumulative |
|------------------|-----------|---------|------------|
|                  | Frequency | Percent | Frequency  |
| 1. 30 or fewer   | 105       | 16.59   | 16.59      |
| 2. 31 - 60 mi.   | 254       | 40.13   | 56.71      |
| 3. 61 - 90 mi.   | 237       | 37.44   | 94.15      |
| 4. 91 or greater | 37        | 5.85    | 100.00     |

Table 29 shows that over half (56.7%) of respondent's firms are within 60 of fewer miles of UCR.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup> This was calculated by determining the distance from the respondent's office and the UCR campus.

Table 30. Number of Employees

|                            |           |         | Cumulative |
|----------------------------|-----------|---------|------------|
|                            | Frequency | Percent | Frequency  |
| 1. Fewer than 50 Employees | 410       | 64.57   | 64.57      |
| 2. 50-99                   | 134       | 21.10   | 85.67      |
| 3. 100-299                 | 60        | 9.45    | 95.12      |
| 4. 300+ Employees          | 31        | 4.88    | 100.00     |

Table 30 shows that the majority of companies within the sample (64.6%) are small businesses employing fewer than 50 employees.

Table 31. Distance from UCR by Interest in Construction

Management

|                      | 0 - Low<br>Interest | 1 | 2 | 3 | 4  | 5 - High<br>Interest |
|----------------------|---------------------|---|---|---|----|----------------------|
| 1. Fewer than 30 mi. | 1                   | 0 | 1 | 1 | 3  | 1                    |
| 2. 31-60 mi.         | 4                   | 2 | 2 | 4 | 10 | 5                    |
| 3. 61-90 mi.         | 10                  | 2 | 3 | 4 | 4  | 7                    |
| 4. More than 90 mi.  | 0                   | 1 | 0 | 0 | 1  | 0                    |

Table 31 shows the cross-tabulation of the respondent's distance from UCR and their interest level in a Master's degree in construction management. It appears that respondents whose companies are within an hour's drive of UCR feel their employees are quite interested in earning a Master's degree in construction management.

Table 32. Distance from UCR by Interest in Innovation and

Entrepreneurship

| Lineepreneurship     | 0 - Low  |   |   |   |   | 5 - High |
|----------------------|----------|---|---|---|---|----------|
|                      | Interest | 1 | 2 | 3 | 4 | Interest |
| 1. Fewer than 30 mi. | 0        | 4 | 2 | 0 | 0 | 1        |
| 2. 31-60 mi.         | 5        | 2 | 3 | 8 | 6 | 3        |
| 3. 61-90 mi.         | 4        | 5 | 5 | 6 | 6 | 4        |
| 4. More than 90 mi.  | 1        | 0 | 0 | 0 | 0 | 1        |

Table 32 presents the cross-tabulation of the respondent's distance from UCR and their interest level in a Master's degree in innovation and entrepreneurship. There does not appear to be a clear relationship between the respondent's distance from UCR and their perception of their employee's interest in earning a graduate degree in innovation and entrepreneurship.

Table 33. Distance from UCR by Interest in Management Principles for Engineers

|                      | 0 - Low  |   |   |   |   | 5 - High |
|----------------------|----------|---|---|---|---|----------|
|                      | Interest | 1 | 2 | 3 | 4 | Interest |
| 1. Fewer than 30 mi. | 0        | 1 | 1 | 2 | 2 | 1        |
| 2. 31-60 mi.         | 2        | 1 | 3 | 7 | 7 | 7        |
| 3. 61-90 mi.         | 5        | 3 | 2 | 6 | 9 | 5        |
| 4. More than 90 mi.  | 0        | 0 | 0 | 1 | 1 | 0        |

Table 33 presents the cross-tabulation of the respondent's distance from UCR and their interest level in a Master's degree in management principles for engineers. From Table 33 we can see that respondents from companies with an hour to an hour and a half's drive from UCR believe their employees would be interested in earning a Master's degree in management principles for engineers.

Table 34. Company Size by Interest in Construction Management

|                            | 0 - Low  |   |   | M |   | 5 - High |
|----------------------------|----------|---|---|---|---|----------|
|                            | Interest | 1 | 2 | 3 | 4 | Interest |
| 1. Fewer than 50 Employees | 1        | 0 | 3 | 2 | 4 | 3        |
| 2. 50-99                   | 3        | 0 | 2 | 8 | 6 | 7        |
| 3. 100-299                 | 1        | 3 | 0 | 4 | 7 | 2        |
| 4. 300+ Employees          | 2        | 2 | 1 | 3 | 2 | 1        |

Table 34 presents the cross-tabulation of the company size by respondent's estimate of employee's interest in earning a Master's degree in construction management. The results suggest that respondents from all but the largest companies feel their employees have a moderate to high level of interest in earning a graduate degree in construction management.

Table 35. Company Size by Interest in Innovation and

|                            | 0 - Low<br>Interest | 1 | 2 | 3 | 4 | 5 - High<br>Interest |
|----------------------------|---------------------|---|---|---|---|----------------------|
| 1. Fewer than 50 Employees | 2                   | 2 | 3 | 0 | 3 | 3                    |
| 2. 50-99                   | 4                   | 3 | 3 | 8 | 5 | 3                    |
| 3. 100-299                 | 1                   | 4 | 2 | 4 | 3 | 3                    |
| 4. 300+ Employees          | 4                   | 2 | 2 | 2 | 1 | 0                    |

Table 35 presents the cross-tabulation of company size by the respondent's sense of the employee's interest in earning a Master's degree in innovation and entrepreneurship. There does not appear to be a clear-cut relationship between company size and perceived interest in a graduate degree in innovation and entrepreneurship.

Table 36. Company Size by Interest in Management Principles for

|                            | 0 - Low<br>Interest | 1 | 2 | 3 | 4 | 5 - High<br>Interest |
|----------------------------|---------------------|---|---|---|---|----------------------|
| 1. Fewer than 50 Employees | 1                   | 0 | 3 | 2 | 4 | 3                    |
| 2. 50-99                   | 3                   | 0 | 2 | 8 | 6 | 7                    |
| 3. 100-299                 | 1                   | 3 | 0 | 4 | 7 | 2                    |
| 4. 300+ Employees          | 2                   | 2 | 1 | 3 | 2 | 1                    |

Table 36 presents the cross-tabulation of company size by respondent's sense of the interest level of earning a Master's degree in management principles for engineers. We can see that moderate to large companies feel their employees are likely to desire earning a graduate degree in management principles for engineers.

### **Program Type by NAICS Classification**

In this section of the report, we present respondent's answers regarding the three most popular potential Master's programs by the NAICS classification of the respondent's company. We first present the frequency distribution of the NAICS codes within the sample.

Table 37. NAICS Classifications

|                                 | Frequency | Percent | Cumulative<br>Frequency |
|---------------------------------|-----------|---------|-------------------------|
| 1. Construction                 | 21        | 18.75   | 18.75                   |
| <ol><li>Manufacturing</li></ol> | 38        | 33.93   | 52.68                   |
| 3. General Engineering          | 53        | 47.32   | 100.00                  |

Within Table 37 we can see that over 80% (81.3%) of the sample is in either manufacturing or general engineering.

Table 38. NAICS Classification by Interest in Construction Management

|                                 | 0 - Low  |    |   |   |   | 5 - High |
|---------------------------------|----------|----|---|---|---|----------|
|                                 | Interest | 1_ | 2 | 3 | 4 | Interest |
| 1. Construction                 | 1        | 1  | 0 | 1 | 0 | 0        |
| <ol><li>Manufacturing</li></ol> | 1        | 1  | 3 | 3 | 2 | 0        |
| 3. General Engineering          | 2        | 1  | 0 | 3 | 1 | 1        |

Table 38 presents the cross-tabulation of NAICS classification by respondent's interest in construction management. We can see that respondents who work within manufacturing and general engineering are most likely to report their employees are likely to be interested in earning a graduate degree in construction management.

Table 39. NAICS Classification by Interest in Innovation and Entrepreneurship

|                        | 0 - Low  |    |   |   | <u>'</u> | 5 - High |
|------------------------|----------|----|---|---|----------|----------|
|                        | Interest | 1_ | 2 | 3 | 4        | Interest |
| 1. Construction        | 1        | 1  | 0 | 1 | 0        | 0        |
| 2. Manufacturing       | 2        | 1  | 3 | 0 | 4        | 0        |
| 3. General Engineering | 2        | 1  | 0 | 3 | 0        | 1        |

Table 39 presents the cross-tabulation of NAICS classification with the respondent's belief of their employee's interest level in earning a Master's degree in innovation and entrepreneurship. Unfortunately, there is not a clear relationship between NAICS classification and the respondent's sense of his/her employee's interest in earning a graduate degree in innovation and entrepreneurship.

Table 40. NAICS Classification by Interest in Management Principles for Engineers

|                        | 0 - Low<br>Interest | 1 | 2 | 3 | 4 | 5 - High<br>Interest |
|------------------------|---------------------|---|---|---|---|----------------------|
| 1. Construction        | 0                   | 0 | 0 | 2 | 1 | 0                    |
| 2. Manufacturing       | 1                   | 0 | 1 | 3 | 2 | 3                    |
| 3. General Engineering | 2                   | 1 | 0 | 2 | 1 | _1                   |

Table 40 presents the cross-tabulation of NAICS classification and respondent's belief in their employee's interest in earning a Master's degree in management principles for engineers. It appear that respondents in each of the three NAICS classifications believe that employees at their firm are at least moderately interested in earning such a degree.

### Conclusion

This report presents the thoughts and impressions of a diverse group of respondents engaged in engineering activities within Southern California. The results suggest that there is an untapped group of professional engineers who would likely be interested in earning a Master's degree. Of the programs offered to respondents, three stood out: engineering innovation and entrepreneurship, management principles for engineers, and construction management. In addition the open-ended, unsolicited answers, suggest that a degree in civil engineering might also be a fruitful avenue for the Bourns College of Engineering to possibly pursue.

What does seem clear from these results is that there are some important considerations that potential students will likely be weighing before enrolling in any graduate program. Among the most salient issues having the program administered on-line, having curriculm that appeals to the students, particularly courses that will help them advance in their careers. Finally, the amount of time required to complete a program is another important issue the respondents felt their employees would likely face when making the decision to continue their education.



# EDUCATIONAL EFFECTIVENESS REVIEW for the UNIVERSITY OF CALIFORNIA, RIVERSIDE Schedule Overview for Campus Briefings (as of 10.9.09)

FIRST DAY: TUESDAY, OCTOBER 27, 2009

| TIME          | Chair   | Assistant Chair  | Team Member  | Team Member  | Team Member  | MASO SALM                 |        |
|---------------|---|--|--|--|--|---------------------------|--------|
|               | Gretchen Bataille   | Jerome Garris  | David Conn   | Maryann Gray   | Patricia Turner  | WASC Staff<br>Teri Cannon |        |
| 7:30-7:45 am  |   | JCR van picks up team mer  | nbers at hotel valet parking a   | irea, leaving hotel at 7:45an  | UCR van picks up team members at hotel valet parking area, leaving hotel at 7:45am to transport team to campus |                           |        |
| 8:00-8:30 am  | Team meets with   | Team meets with the ALO David Fairris and                                      | ALO support staff, Bob Gill a  | nd Patsy Oppenheim, for O  | ALO support staff, Bob Gill and Patsy Oppenheim, for <i>Orientation to Team Room</i> and tech resources        | tech resources            |        |
| 8:30-9:50 am  |   | Teal   | Team holds executive session in team room to review documents  | team room to review docur  | nents  |                           |        |
| 10:00-10:30am | Team n  | Team meets with WASC Steering  | Committee and EER Subco  | mmittee (Johnson Board E   | Committee and EER Subcommittee (Johnson Roard Room, Second Floor, Alimai Carres)                               | (10)                      |        |
| 10:30-11:15am |   | ~  | Strategic Planning and Campus Budgeting (Johnson Board Room, Second Floor, Alimni Center)  | hnson Board Room Second  | Floor Alimni Center  | siner)                    |        |
| 11:15-11:30am | Team m  | Team meets with Executive Vice C   | hancellor/Provost Dallas B   | abenstein (Johnson Board   | Chancellor/Provost Dallas Rahenstein (Johnson Roard Boom Socond Eloss Alimei Cellist)                          |                           |        |
| 11:30-12:30pm |   | Team lunches with Chance   | Team lunches with <i>Chancellor's Cabinet</i> without Chancellor (Meeting Room One First Floor Alumni Carter)  | cellor (Meeting Boom One   | First Floor Alumni Center  | enter)                    |        |
| 12:30-1:00pm  |   | Break, te  | Break, team walks from Alumni Center to Highlander Union Building (HUB)  | r to Highlander Union Build  | ina (HUB)  |                           |        |
| 1:00-2:00 pm  | Graduate Theme<br>Improving Programs<br>Professional Programs | Undergraduate Theme<br>Student Success<br>Campus Vitality<br>General Education | Undergraduate Theme<br>Student Success<br>Campus Vitality<br>General Education   | Graduate Theme<br>Improving Programs<br>Professional Programs          | Undergraduate Theme Student Success Campus Vitality General Education  |                           |        |
|               | (Room 367, HUB)   | (Room 379, HUB)  | (Room 379, HUB)  | (Room 367, HUB)  | (Room 379, HUB)  |                           |        |
| 2:15-3:00 pm  |   | Progra<br>P  | Program Learning Outcomes and Assessment: Process Overview and Sustainability (Room 355, HUB)  | / Assessment:<br>ainability  |  |                           |        |
| 3:00-3:30 pm  |   | Tea  | Team debriefs in executive session in team room (367 Surge.)   | ion in team room (367 Surc   | (e)  |                           |        |
| 3:30-4:15 pm  |   | Campus Comm  | mittees Working on Student Success and Diversity (Room 355 HIIB)   | Success and Diversity (R   | 00m/355 HIIB)  |                           |        |
| 4:30-5:00 pm  | Open Forum<br>Community                                       | Open Forum<br>Students   | Open Forum<br>Students   |  | Open Forum<br>Community  |                           |        |
|               | (Room 367, HUB)   | (Room 379, HUB)  | (Room 379, HUB)  |  | (Room 367, HUB)  |                           |        |
| 5:00-6:00 pm  |   |  | Team debriefs in executive session in team room  | e session in team room   |  |                           |        |
| 6:00 pm       | >   | WASC Steering Committee s  | Reception with Campus Representatives  ng Committee and EER Subcommittee, Senior Management, Academic Senate Executive Council, Staff Assembly President, ASUCR President, GSA President, and Selected Students  (First Floor, Student Academic Services Building) | us Representatives ior Management, Academic t, GSA President, and Sele | Senate Executive Council, cted Students  |                           |        |
| 7:00 pm       |   |  | UCR van transports team to hotel   | is team to hotel   |  |                           | $\top$ |
| 7:30 pm       |   |  | Team dinner, executive session   | cutive session   |  |                           | $\neg$ |
|               |   |  |  |  |  |                           | _      |

## SECOND DAY: WEDNESDAY, OCTOBER 28, 2009

| er WASC Staff<br>ler Teri Cannon |  | me<br>sity<br>ention                                     | JB)             | - A.W. C  |   | 2 ( )  |   |                 |   |   |   | nt review   |   |                                |
|----------------------------------|--|--|-----------------|---|---|--|---|-----------------|---|---|---|---|---|--------------------------------|
| Team Member<br>Patricia Turner   |  | Diversity Theme Campus Diversity Recruitment / Retention | (Room 379, HUB) | ent ALE   | * ACT   | Hall)  |   |                 | 55, HUB)  |   |   | entations or docume   |   |                                |
| Team Member<br>Maryann Gray      | s (private cars or UCR van)                            | Open Forum<br>Staff<br>8:15-8:45 am                      | (Room 367, HUB) | Program Learning Outcomes:<br>Intmental Discussion, Examples of PLO and Assessment<br>(Room 355, HUB) | session in team room                            | Meet with Chancellor, Timothy White (Room 4127, Hinderaker Hall) | Program Review Process Undergraduate Graduate | (Room 379, HUB) | ies with Academic Senate Executive Council, (Room 355, HUB) | CR, (Room 379, HUB)                         | session in team room                            | Team works in team room and Room 308 Surge is available if needed for additional presentations or document review | n (private cars or UCR van)                               | cutive session                 |
| Team Member<br>David Conn        | eam is transported to campus (private cars or UCR van) | Diversity Theme Campus Diversity Recruitment / Retention | (Room 379, HUB) | Program Learning Outcomes:<br>tmental Discussion, Examples of PLO a<br>(Room 355, HUB)                | Team debriefs in executive session in team room | th Chancellor, Timothy Wh  | Program Review Process Undergraduate Graduate | (Room 379, HUB) | es with Academic Senate E                                   | Culture of Evidence at UCR, (Room 379, HUB) | Team debriefs in executive session in team room | oom 308 Surge is available  | Team transported to Mission Inn (private cars or UCR van) | Team dinner, executive session |
| Assistant Chair<br>Jerome Garris | Te   | <i>Open Forum</i><br><b>Staff</b><br>8:15-8:45 am        | (Room 367, HUB) | Depar   |   | Meetwi   | Open Forum<br>Faculty<br>11:30-12 noon        | (Room 367, HUB) | Team lunche   |   |   | works in team room and R  | Te  |                                |
| Chair<br>Gretchen Bataille       |  |  |                 |   |   |  | Open Forum<br>Faculty<br>11:30-12 noon        | (Room 367, HUB) |   |   |   | Team  |   |                                |
| TIME                             | 8:00 am  | 8:15-9:00 am   |                 | 9:00-9:45 am  | 9:45-10:15 am                                   | 10:30-11:15am  | 11:30-12 noon                                 |                 | 12:15-1:15 pm   | 1:30-3:00 pm                                | 3:00-3:30 pm                                    | 3:30-5:30 pm  | 5:30 pm   | 6:00 pm                        |

# THIRD DAY: MORNING, THURSDAY, OCTOBER 29, 2009

| TIME         | Chair Assistant Chair Team Member Team Member Team Member Team Member Staff Gretchen Bataille Jerome Garris David Conn Maryann Gray Patricia Turner Teri Cannon |
|--------------|---|
| 7:30 am      | s (private cars or UCR van)   |
| 7:30-8:30 am | Team chair meets with Chancellor privately regarding team recommendations   |
| 8:00-9:00am  | ス・ネ Exit Interview with team, senior management and WASC committee members (Room 355, HUB) ギウス  |
| Morning      | Team members finish in team room; transported to airport as needed  |