



**Committee for the Evaluation of Civil Engineering Study Programs**

**Ariel University Center of Samaria**

**Department of Civil Engineering Studies**

**Evaluation Report**

**September 2011**

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## **Chapter 1- Background**

At its meeting on July 14, 2009, the Council for Higher Education (CHE) decided to evaluate study programs in the field of Civil Engineering during the academic year 2010 – 2011.

Following the decision of the CHE, the Minister of Education, who serves ex officio as a Chairperson of the CHE, appointed a Committee consisting of:

- **Prof. Mirosław Skibniewski**, Department of Civil & Environmental Engineering, University of Maryland, USA– Committee Chair
- **Prof. Jacob Fish**, Department of Civil Engineering and Engineering Mechanics, Columbia University, USA
- **Prof. Laurence J. Jacobs**, School of Civil & Environmental Engineering, Georgia Institute of Technology, USA
- **Prof. Gayle Mitchell**, Department of Civil Engineering, Ohio University, USA\*\*
- **Prof Jeffrey Packer**, Department of Civil Engineering, University of Toronto, Canada\*\*
- **Prof. Rodrigo Salgado**, School of Civil Engineering, Purdue University, USA.

*Ms. Yael Franks* - Coordinator of the Committee on behalf of the CHE.

Within the framework of its activity, the Committee was requested to:<sup>1</sup>

1. Examine the self-evaluation reports, submitted by the institutions that provide study programs in Civil Engineering, and to conduct on-site visits at those institutions.
2. Submit to the CHE an individual report on each of the evaluated academic units and study programs, including the Committee's findings and recommendations.
3. Submit to the CHE a general report regarding the examined field of study within the Israeli system of higher education including recommendations for standards in the evaluated field of study.

The entire process was conducted in accordance with the CHE's Guidelines for Self-Evaluation (of October 2009).

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<sup>1</sup> The Committee's letter of appointment is attached as **Appendix 1**.

\* \*\*Prof. Gayle Mitchell and Prof Jeffrey Packer did not take part in the evaluation of AUC

## **Chapter 2-Committee Procedures**

The Committee held its first meetings on March 13, 2011 during which it discussed fundamental issues concerning higher education in Israel, the quality assessment activity, as well as Civil Engineering Study programs.

In March 2011, the Committee held its first cycle of evaluation, and visited the Sami Shamoon College of Engineering and the Technion. In May 2011 the Committee conducted its second evaluation cycle, and visited Ariel University Center of Samaria and Ben-Gurion University of the Negev. During the visits, the Committee met with various stakeholders at the institutions, including management, faculty, staff, and students.

This report deals with the Faculty of **Civil Engineering at the Ariel University Center of Samaria (AUC)**.

The Committee's visit to AUC took place on May 23-24, 2011.

The schedule of the visit is attached as **Appendix 2**.

The Committee thanks the management of AUC and the Department of Civil Engineering for their self-evaluation report and for their hospitality towards the Committee during its visit at the institution.

### **Chapter 3: Evaluation of Building Engineering Studies Program at Ariel University Center of Samaria**

- *This Report relates to the situation current at the time of the visit to the institution, and does not take account of any subsequent changes. The Report records the conclusions reached by the Evaluation Committee based on the documentation provided by the institution, information gained through interviews, discussion and observation as well as other information available to the Committee.*

#### ***Background***

Ariel University Center (AUC) opened a program in Civil Engineering in 1995 and grants a B.Tech degree. The program is directed at two specialization tracks in the field of structures: Construction Design; Management.

AUC offers five undergraduate degree programs in the field of Engineering: Electronics & Electricity, Chemical & Biotechnology/Materials, Industrial & Management, Mechanical & Mechatronics, Civil Engineering.

As noted in the SER, all programs offered at AUC, except Civil Engineering, lead to the degree of Bachelor of Science (B.Sc), while the Civil Engineering program leads to the degree of Bachelor of Technology (B.Tech.).

In 2010, the department had a total of 339 students and 9 core faculty members that have a full time position at AUC with at least 50% of their teaching load in the Department of Civil Engineering.

#### **Mission and Goals**

Ariel University Center states that it is dedicated to teaching in fields relevant to the Israeli economy and society, including the teaching of Civil Engineering. It also declares its desire to administer applied research activities leading to the development of new products and processes focused on high-tech industries. The Department of Civil Engineering is dedicated to producing quality undergraduate civil engineers with up-to-date expertise in structural engineering and construction management, the two specialties that are vital to further expansion and continuous modernization of Israel's built infrastructure.

#### **Study Program**

The Department of Civil Engineering has a single degree, Bachelor of Technology in Civil Engineering. This is a focused degree program with a specialization in Structural Engineering, and, to a lesser extent, in Construction Engineering. The study program has a number of laboratory classes, and a limited scope of classes related to other related specialties, such as Environmental Engineering, that are mainly taught by adjunct faculty. This heavy reliance on adjunct faculty seems to be due to the fact that the Civil Engineering Department does not have a sufficient number of full time faculty. Another concern is that many of the full time faculty are close to retirement age.

AUC's mission statement as mentioned in the Self Evaluation Report (SER) includes "providing access to higher education to broad sectors of the population," but the visiting committee saw little evidence of this in the Civil Engineering program. The self evaluation

report submitted by the Department of Civil Engineering mentions among the Department's future plans of expansion into additional specialties of Civil Engineering, but the visiting committee would be concerned about such an initiative given the insufficient size of the full time faculty and the already high demand for the graduates of the current two specialties, Structural and Construction Engineering. However, when and if the Department reaches a critical mass of full-time faculty numbers in the two specialty areas currently offered, such an expansion may be called for and would not require a change in the degree name, as it is currently designated as Civil Engineering.

The Department's self evaluation report discusses the ongoing preparation to activate a program of study towards a graduate degree. Given the shortage of faculty in the existing undergraduate program, this would make little sense until the number of full-time faculty increases. Such an addition in faculty members will strengthen the Department and allow academic staff members to devote more time and energy to the development of future research agendas, as well as the expansion of existing and commencement of new research efforts necessary for the introduction of the graduate degree program of study.

During the visit to the Department, the committee learned that there is no external advisory board serving the Department. The committee believes that such a board is needed in order to provide external advice aimed at improving the Department's future development. This kind of board could include members from the industry and thus could help in placement of students and contribute to the academic direction of the Department and its programs.

The Civil Engineering faculty at AUC has made it clear to the visiting committee that they would like to change the current designation of the degree name from Bachelor of Technology to Bachelor of Science in Civil Engineering. The committee believes that this is a reasonable request given the apparent compatibility of the degree coursework with corresponding coursework in Bachelor of Science in Civil Engineering programs at the two Israeli universities that offer such programs.

For reasons described above, the visiting committee does not recommend the development of an M.Sc. study program in the near future. The committee instead recommends that the Department's faculty focus their efforts on strengthening the current B. Tech. program through the approach described above, and possibly re-designating it to a B.Sc. in Civil Engineering degree.

Recommendation with Respect to the Study Program:

Intermediate:

- Allow for the formation of an external industry advisory board to help placing students and providing guidance on the academic direction of the Department and its programs.

### **Teaching and Learning Outcomes**

The visiting committee feels that the teaching and learning outcomes are well stated and the teaching quality and outcomes of the teaching assessment process in place is outstanding. For example, the reporting of the placement of graduates in jobs or graduate school is very well done. This type of assessment data will pay dividends in the future if new Civil Engineering specialty programs are developed. Likewise, the Department does very well in tracking the performance of individual students throughout their study program.

### **Human resources**

AUC is not budgeted by the CHE as a research institution. Given that the CHE resources are provided for the teaching mission only, the visiting committee feels that the institutional focus should remain on teaching and on educational research aimed at perfecting the teaching activities assigned to the Department.

The lack of sufficient number of younger faculty members is a concern. The current faculty to student ratio is approximately 1:40. Given the fact that five of twelve current faculty members are close to retirement, this will make the student to faculty ratio unacceptable by any standards. The only full time professor in the Department is among those who are close to retirement. AUC should commence recruitment of new academic staff in some of the emerging areas of building and construction automation, computational mechanics, risk and uncertainty mitigation, natural disaster response, and structural health monitoring.

The committee is aware of the importance of research in academic institutions; however, given the size and situation of faculty ranks, the main criterion for faculty promotion should be based on excellence in teaching. The visiting committee feels that, under the existing circumstances for institutions such as AUC, there should be an alternative track for academic promotion based on excellence and a proven track of accomplishment in high quality teaching. In the current situation, those on the academic staff that excel in classroom teaching should be awarded and/or maintained in their lecturer rank as opposed to being relegated to 'teaching faculty' status in the absence of substantial amount of scholarly research.

The process of recruiting academic faculty members should be substantially upgraded and broadened to include new partnerships in this effort, perhaps by approaching various external organizations overseas with direct access to graduate students on major university campuses, such as the Hillel Foundation in North America.

Recommendations with Respect to Human Resources:

Immediate:

- Increase the number of full-time academic faculty members in the program. In doing so, strive to create a relative balance between the four subject areas of

teaching in the Department, as currently the Structures area has 9 faculty members, while Civil Engineering Materials, Construction Management, and Soils and Foundations areas have only one faculty member each. In doing so, add a minimum of 1 faculty member for each of the specialties other than Structural Engineering, i.e. a minimum of 4 new recruitments.

Immediate to intermediate:

- Initiate new efforts to hire additional faculty members to reduce teaching loads of the existing staff and reduce reliance on adjunct faculty.

Intermediate:

- Initiate policies and procedures aimed at rewarding and promoting faculty focused on the quality of teaching and related scholarly activities aimed at teaching improvement

### **Research**

The current expertise of the Civil Engineering program faculty is in Building Engineering, comprising Structural Engineering (with limited representation of Civil Engineering Materials and Geotechnical Engineering) and Construction Engineering & Management, with either insufficient or no representation from the remaining specialties of Civil Engineering. Given the high teaching loads seemingly mandated by the institution, research activity of most faculty is understandably limited. The committee feels that a reduced teaching load should be available to faculty who make successful research and mentoring links with industry, perhaps by buying out teaching hours through the support of external entities engaging the academic staff members in research or mentorship on behalf of such entities.

Given the number of faculty members and the number of students, expanding research to other Civil Engineering disciplines is not realistic and may dilute from research in the core areas of the current program. Furthermore, expansion of research to other areas of Civil Engineering would require significant financial investment in new facilities and laboratories.

The committee believes that one possible way to increase the visibility and relevance of the current research of the Department's faculty would be to plan and organize a periodically held national or international conference or workshop on those specialties in Civil Engineering in which the academic staff is currently active or in which it desires to excel further in the future. Such an event should be open to both academics active in teaching and research, as well as to the practitioners from industry that are interested in upgrading their knowledge and skills in the selected specialties.

With some notable exceptions, the overall publication record and research funding of the academic staff in the Department is rather low, but it is consistent with the institutional core mission of a focus on teaching in the undergraduate program.

Recommendations with Respect to Research:

Immediate:

- Increase collaborations with research-intensive universities in Israel and abroad as an opportunity to provide a major venue for future research and scholarly partnerships.

Intermediate:

- Initiate planning to host national and international Civil Engineering conferences and workshops at AUC that would promote the visibility of the College and attract new research active academic staff.

**Infrastructure**

The committee notes that some of the building facilities on campus utilized by the Department's students and academic staff do not have wheelchair access. This deficiency should be corrected to allow access to students, staff and visitors with physical disabilities.

Recommendations with Respect to Infrastructure:

Immediate:

- Build wheelchair access ramps at all entrances to buildings used by Program's students, staff and visitors. Provide similar access to classroom and laboratory facilities, elevators, if any, as well as restroom facilities for both genders.

**Signed by:**



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Prof. Miroslaw Skibniewski,  
Chair



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Prof. Jacob Fish



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Prof. Laurence J. Jacobs



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Prof. Rodrigo Salgado

## Appendix 1: Letter of Appointment



May, 2011

שר החינוך  
**Minister of Education**

وزير التربية والتعليم

Prof. Miroslaw J. Skibniewski  
Department of Civil & Environmental Engineering  
A. James Clark School of Engineering  
University of Maryland, College Park  
USA

Dear Professor Skibniewski,

The State of Israel undertook an ambitious project when the Israeli Council for Higher Education (CHE) established a quality assessment and assurance system for Israeli higher education. Its stated goals are: to enhance and ensure the quality of academic studies; to provide the public with information regarding the quality of study programs in institutions of higher education throughout Israel; and to ensure the continued integration of the Israeli system of higher education in the international academic arena. Involvement of world-renowned academicians in this process is essential.

This most important initiative reaches out to scientists in the international arena in a national effort to meet the critical challenges that confront the Israeli higher educational system today. The formulation of international evaluation committees represents an opportunity to express our common sense of concern and to assess the current and future status of education in the 21<sup>st</sup> century and beyond. It also establishes a structure for an ongoing consultative process among scientists around the globe on common academic dilemmas and prospects.

I therefore deeply appreciate your willingness to join us in this crucial endeavor.

It is with great pleasure that I hereby appoint you to serve as the chair of the Council for Higher Education's Committee for the Evaluation of Civil Engineering Studies.

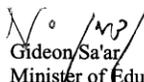
The composition of the Committee will be as follows: Prof. Miroslaw J. Skibniewski (Chair), Prof. Jacob Fish, Prof. Laurence J. Jacobs, Prof. Gayle Mitchell, Prof. Jeffrey Packer and Prof. Rodrigo Salgado.

Ms. Yael Franks will coordinate the Committee's activities.

In your capacity as the chair of the Evaluation Committee, you will be requested to function in accordance with the enclosed appendix.

I wish you much success in your role as chair of this most important committee.

Sincerely,

  
Gideon Sa'ar  
Minister of Education,  
Chairperson, The Council for Higher Education

*Enclosures:* Appendix to the Appointment Letter of Evaluation Committees

cc: Ms. Michal Neumann, The Quality Assessment Division  
Ms. Yael Franks, Committee Coordinator

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November 2009

## **Appendix to the Letter of Appointment for Evaluation Committees (Study Programs)**

### **1. General**

On June 3, 2003 the Council for Higher Education (CHE) decided to establish a system for quality assessment and assurance in Israeli higher education, which came into effect in the academic year of 2004-2005. Within this framework, study-programs are to be evaluated approximately every six

The main objectives of the quality assessment activity are:

- To enhance the quality of higher education in Israel;
- To create an awareness within institutions of higher education in Israel to the importance of quality evaluation and to develop an internal culture of self-evaluation, as well as the required mechanisms;
- To provide the public with information regarding the quality of study programs in institutions of higher education throughout Israel;
- To ensure the continued integration of the Israeli system of higher education in the international academic arena.

**It is not the CHE's intention to rank the institutions of higher education according to the results of the quality assessment processes. The evaluation Committee (hereinafter "Committee") should refrain from formal comparisons.**

### **2. The Work of the Evaluation Committee**

- 2.1 The Committee shall hold meetings, as needed, before visiting the institution, in order to evaluate the material received.
- 2.2 The Committee shall visit the institutions and the academic units being evaluated – if possible - within 4-6 months of receiving the self-evaluation reports. The purpose of the visit is to verify and update the information submitted in the self-evaluation report, clarify matters where necessary, inspect the educational environment and facilities first hand, etc. During the visit, the Committee will meet with the heads of the institution, faculty members, students, alumni, administrative staff, and any other persons it considers necessary.
- 2.3 The duration of the visits (at least one full day) will be coordinated with the chairperson of the Committee.

- 2.4 Following the visit, the Committee will submit the CHE with:
1. A final report on each of the evaluated departments,
  2. A general reports on the state of the discipline in the Israeli higher education system. The general report will include recommendations to the CHE for standards and potential state-wide changes in the evaluated field of study.
- 2.5 The reports will be sent to the institutions and the academic units for their response.
- 2.6 The reports and Committee's findings will be submitted to the CHE and discussed within its various forums.

### **3. Conflict of Interest Policy**

- 3.1 In order to avoid situations that may question the credibility and integrity of the evaluation process, and in order to maintain its ethical, professional and impartial manner, before issuing their Letter of Appointment members and chairperson of the evaluation Committee will sign a Declaration on Conflict of Interest and Confidentiality.
- 3.2 In the event that a member of the Committee is also a current or former faculty member at an institution being evaluated, he/she will not take part in any visits or discussions regarding that institution.

### **4. The Individual Reports**

- 4.1 The final reports of the evaluation Committee shall address every institution separately.
- 4.2 The final reports shall include recommendations on topics listed in the guidelines for self-evaluation, including:
- The goals, aims and mission statement of the evaluated academic unit and study programs
  - The study program
  - The academic faculty
  - The students
  - The organizational structure
  - Research
  - The broader organizational structure (school/faculty) in which the academic unit and study program operate
  - The infrastructure (both physical and administrative) available to the study program
  - Internal mechanisms for quality assessment
  - Other topics to be decided upon by the evaluation Committee

### **5. The Recommended Structure of the Reports**

#### ***Part A – General background and executive summary:***

- 5.1 General background concerning the evaluation process; the names of the members of the Committee and its coordinator; and a short overview of the Committee's procedures.
- 5.2 A general description of the institution and the academic unit being evaluated.
- 5.3 An executive summary that will include a brief description of the strengths and weaknesses of the academic unit and program being evaluated.

**Part B – In-depth description of subjects examined:**

5.4 This section will be based on evidence gathered from the self-evaluation report and the topics examined by the Committee during the site visit.

5.5 For each topic examined, the report will present a summary of the Committee's findings, the relevant information, and their analysis.

**Part C – Recommendations:**

5.6 This section will include comprehensive conclusions and recommendations regarding the evaluated academic unit and the study program according to the topics in part B.

5.7 Recommendations may be classified according to the following categories:

- **Congratulatory remarks and minimal changes recommended, if any.**
- **Desirable changes recommended** at the institution's convenience and follow-up in the next cycle of evaluations.
- **Important/needed changes requested for ensuring appropriate academic quality** within a reasonable time, in coordination with the institution (1-3 years)
- **Essential and urgent changes required, on which continued authorization will be contingent** (immediately or up to one year).
- **A combination of any of the above.**

**Part D - Appendices:**

5.8 The appendices shall contain the Committee's letter of appointment and the schedule of the on-site visit.

**6. The General report**

In addition to the individual reports concerning each study program, the Committee shall submit to the CHE a general report regarding the status of the evaluated field of study within the Israeli institutions of higher education. The report should also evaluate the state and status of Israeli faculty members and students in the international arena (in the field), as well as offer recommendations to the CHE for standards and potential state-wide changes in the evaluated field of study.

**We urge the Committees to clearly list its specific recommendations for each one of the topics (both in the individual reports and in the general report) and to prioritize these recommendations, in order to ease the eventual monitoring of their implementation.**



**Appendix 2: Site Visit Schedule**

**Civil Engineering - Schedule of site visit**  
**Ariel University Center of Samaria, Ariel**

**Monday, May 23, 2011**

<b>Time</b>	<b>Subject</b>	<b>Participants</b>
09:30-10:15	Opening session with the heads of the institution and the senior staff member appointed to deal with quality assessment	<b>President:</b> Prof. Dan Meyerstein <b>Rector:</b> Prof. Michael Zinigrad <b>Head, Quality Assessment System:</b> Dr. Nitza Davidovitch
10:15-11:00	Meeting with dean of the faculty of Engineering	Prof. Yossi Pinhasi
11:00-11:45	Meeting with the academic and administrative heads of the department of Civil Engineering	Dr. Rivka Gilat
11:45-12:30	Meeting with faculty and representatives of relevant committees (teaching/curriculum committee, admissions committee, appointment committee)*	<b>Teaching Committee:</b> Prof. Iakov Iskhakov Dr. Efraim Elia Dr. Ariel Goldman <b>Admission Committee:</b> Prof. Yuri Ribakov Dr. Boris Blostotsky
12:30-13:15	Lunch (in the same room)	Closed-door working meeting of the committee
13:15-14:00	Tour of campus (classes, library, offices of faculty members, computer labs etc.)	
14:00-14:45	Meeting with senior lecturers*	Prof. Yaakov Bloch Prof. Iakov Iskhakov Prof. Yuri Ribakov Prof. Uri Komornik Prof. Meir Levkovich Dr. Efraim Elia Dr. Eitan Goldschmidt Dr. Moshe Danieli Dr. Matti Adan Dr. Yehuda Ashkenazy Dr. Alex Schechter Dr. Yosef Raichlin
14:45-15:30	Closed-door working meeting of the committee	

**Tuesday, May 24, 2011**

<b>Time</b>	<b>Subject</b>	<b>Participants</b>
09:30-10:15	Meeting with Alumni***	8 Alumni
10:15-11:00	Meeting with students***	8 students from all levels.
11:00-11:45	Meeting with adjunct lecturers ***	Dr. Beni Lew Dr. Naftali Goldshlager Mr. Amiram Amir Mr. Yaacov Dachkovsky Mr. Assaf Verker Mr. Ido Halperin Mr. Gidon Krantz
11:45-13:00	Lunch and Closed-door working meeting of the committee	
13:00-14:00	Summation meeting with heads of department and institution	

\* The heads of the institution and academic unit or their representatives will not attend these meetings.

\*\*\* The visit will be conducted in English with the exception of students who may speak in Hebrew and anyone else who feels unable to converse in English.