



**Committee for the Evaluation of
Biotechnology & Biotechnology Engineering Study Programs**

Hadassah Academic College Jerusalem

Biotechnology Study Program

Evaluation Report

December 2012

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Chapter 1: General Background

At its meeting on July 25, 2010, the Council for Higher Education (**CHE**) decided to evaluate study programs in the field of Biotechnology and Biotechnology Engineering during the academic year 2012.

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

- **Prof. Moshe Rosenberg**, Department of Food Science & Technology, UC Davis, USA, Committee Chair¹
- **Prof. Gad Galili**, Department of Plant Sciences, Weizmann Institute of Science, Israel
- **Prof. Milica Radisic**, Institute of Biomaterials and Biomedical Engineering, Department of Chemical Engineering and Applied Chemistry, University of Toronto, Canada²
- **Prof. Joseph Shiloach**, Biotechnology Core Lab, NIH- National Institutes of Health, USA

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

Within the framework of its activity, the Committee was requested to:³

1. Examine the self-evaluation reports, submitted by the institutions that provide study programs in Nutritional Sciences, and to conduct on-site visits at those institutions.
2. Submit to to 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 2010).

¹ During the first round of visits Prof. Carl Batt of Cornell University was Committee Chair. During the period between the two rounds of visits Prof. Batt resigned due to incomparable disagreements

² Prof Radisic joined the committee for its second round of visits, thus did not take part in the evaluation of Tel Hai College, ORT Braude College and The Hebrew University of Jerusalem

³ The Committee's letter of appointment is attached as **Appendix 1**.

Chapter 2-Committee Procedures

The Committee held its first meetings on March 14, 2012, during which it discussed fundamental issues concerning higher education in Israel, the quality assessment activity, as well as Biotechnology and Biotechnology Engineering Study programs.

In March 2012, the Committee held its first round of visits of evaluation, and visited Tel Hai College, ORT Braude College and the Hebrew University of Jerusalem. In June 2012 the Committee conducted its second evaluation cycle, and visited Ben-Gurion University of the Negev, Hadassah Academic College Jerusalem, Tel Aviv University and The Technion. During the visits, the Committee met with various stakeholders at the institutions, including management, faculty, staff, and students.

This report deals with the Biotechnology Study Program at Hadassah Academic College Jerusalem which took place on **June 11, 2012**⁴.

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

The Committee thanks the management of Hadassah Academic College Jerusalem and the Department of Biotechnology for their self-evaluation report and for their hospitality towards the Committee during its visit at the institution.

⁴ In accordance with the CHE's policy, Prof. Gad Galili did not participate in the evaluation of Biotechnology studies at Hadassah Academic College Jerusalem in order to prevent the appearance of a conflict of interests

Chapter 3: Evaluation of Biotechnology Study Program at Hadassah Academic College Jerusalem

** 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.*

Executive Summary

The Biotechnology B.Sc. study program (BTP) at Hadassah Academic College Jerusalem (HAC) is offered by the School of Health and Life Sciences. This 3-year program was launched in 2004 and received its accreditation from the CHE in April 2006. In the 2010/2011 academic year, 166 students were enrolled in the program and 70 new students can be admitted annually. The BTP has a rigorous and well structured curriculum that allows educating and training students to assume positions in the biotechnology and related industries, or pursue graduate degrees at research universities. The curriculum allows developing both the theoretical background and the practical skills of the students, however, some adjustments are needed. The faculty members of the program are well qualified to instruct the curriculum and are very dedicated to their teaching activities, and do all that is needed in order to promote the success of the students. The student population of the program is very diverse and all of the different strata of the Israeli society are well represented. The college and the program do not have a core research infrastructure to meet needs of faculty members and students. The latter has an adverse effect on the promotion process of faculty members, has resulted in a skewed distribution of ranks among faculty members and requires all of the students to carry out their compulsory required research project off campus. Colleges should be focused on instructing undergraduate students rather than on developing new knowledge, however, a core research infrastructure to accommodate limited-scope research activities of faculty members and some of the students needs has to be established. The promotion process has to be based on assessing success of faculty members in meeting reachable goals without penalizing them for not meeting unattainable objectives and goals. A concept of establishing an individual-specific job description has to be developed, implemented and used in assessing success of faculty members.

Overall, the committee feels that the BTP at the HAC has strong foundation and academic merits, and that it trains its students to successfully meet needs of the modern biotechnology industry and research in Israel.

The committee has identified several curricular, personnel and infrastructural needs that have to be addressed.

Major recommendations are:

- Develop a concise and focused mission statement and a detailed strategic plan;
- Recruit and install an Industry Advisory Board to the program.
- Pending the introduction of tangible opportunities for conducting research and until the concept of individual-specific job description has been implemented, base the promotion of faculty members, at all ranks, only on their accomplishments in teaching, community service and outreach activities.
- Develop and implement the concept of Learning Outcome Assessment.
- Develop and introduce faculty-member-specific job description and develop a clear set of guidelines that identify and specify, for each promotion steps in each of the academic ranks, the requirements for a successful promotion; once the latter has been developed, fully implement a promotion process that is based on assessing success in meeting the criteria and objectives that are stated in the individual-specific job description.
- The college together with the relevant governmental agencies should launch an effort aimed at establishing a core research infrastructure that will allow faculty members and students to conduct SOME LIMITED SCOPE research activities.

3.1 Background

Hadassah Academic College in Jerusalem was founded in 1970 as a technological college by Hadassah Women's Zionist Organization of America. The two campuses of the college are located in downtown Jerusalem. In recent years, The Council for Higher Education (CHE) has granted the college accreditation to award bachelor degrees in nine academic fields and graduate degrees in two fields.

- The academic programs at HAC are organized in four departments:
 1. The School of Information and Computer Science
 2. The School of Health and Life Sciences
 3. The School of Design and Communication
 4. The School of Management.

In the 2010-2011 academic year, 2,250 students were enrolled in the different programs at HAC.

The mission statement of the College is to: combine teaching, service, and responsibility for professional training, while offering available knowledge to students, professionals, and the general public.

The Biotechnology B.Sc. program at HAC is offered by the School of Health and Life Sciences. This 3-year program was launched in 2004 and received its accreditation from the CHE in April 2006. The total number of students enrolled in the B.Sc. BTP increased from 185 in 2007 to 194 in 2008 and declined to 166 in 2011. The number of incoming students enrolled in the BTP decreased from 71 in 2006/2007 to 60 in 2010/2011. The number of students that graduated the BTP increased from 43 in 2007 to 51 in 2011. The maximum number of freshmen that can be admitted (in a given year) is 70, reflecting the maximum capacity of the teaching laboratories at the BTP facility.

3.2 Mission, Goals and Aims

The BTP shares the overall College philosophy with respect to its inclusiveness and the opportunities it provides to diverse population of admitted students. The mission statement of the program is too broad. Rather than being generic and broad, the mission statement should focus on specific strengths and biotechnology-related areas that the program would like to highlight and promote. .

The BTP does not have a detailed strategic plan aimed at meeting its stated goals. After developing its mission statement, the BTP needs to develop a detailed strategic plan consist-

ing of tangible and specific long- and short-term objectives, addressing all of the academic-, curricular- and infrastructural-related aspects of the program.

A focused mission statement and a detailed and objectives-oriented strategic plan will effectively tool the BTP to:

- Better assess its curriculum (for its content, depth and breadth)
- Define and prioritize the desired study tracks
- Effectively plan and prioritize the academic and non-academic staff recruitment
- Plan the program's growth in both number of students and infrastructure.

Both the College and the BTP share a desire to introduce **some** research opportunities to meet the needs of faculty and students. The committee welcomes this direction and would like to suggest that it will be discuss as an integral part of developing the strategic plan of the BTP, **while adhering to the mission and goals of academic colleges in Israel.**

The BTP program maintains relationships with different sectors of the Biotechnology industry in Israel and values interactions with the industry, however, an Industry Advisory Board (IAB) to the program has not yet been established. The program can benefit immensely from establishing and interacting, on a regular basis, with an effective and committed IAB. An efficient IAB can provide comprehensive feedback about the program's adequacy and can partner with the program in shaping its scope and growth. The IAB can also assist the program in assessing and enhancing its success in meeting current and future needs of the Biotechnology Industry in Israel. It has to be noted that such boards are common at similar programs in the USA and have been proven to be a powerful and effective means that allow establishing meaningful dialogues with stakeholders.

Recommendations:

Immediate (full implementation within one year)

- Develop a concise and focused mission statement, reflecting the collective vision of the BTP's faculty members.
- Develop a detailed strategic plan addressing all of the academic- curricular- and infra-structural-related aspects of the program.
- Recruit and install an effective and committed Industry Advisory Board to the BTP consisting of leaders from the biotechnology and related industries.

3.3 The Study Program

The BTP is focused on preparing its graduates to successfully meet the challenges presented by the many areas of modern biotechnology. The three year program confers a B.Sc. degree in Biotechnology to its graduates after they have successfully completed the required 132 credit points (CP) curriculum.

Overall, the committee holds the opinion that the curriculum of the B.Sc. study program is relevant and adequate, and allows to effectively educating students in the interdisciplinary field of modern biotechnology. The committee commends the program on developing a curriculum that provides the students with the theoretical and applicable knowledge as well as with the practical skills that they need in order to successfully assume professional positions in the biotechnology industry, or to pursue graduate studies.

The curriculum is very structured and rigorous and the proportion of laboratory courses included in the program is impressive. The study program puts a significant emphasis on biological-sciences-related courses that account for 92 CP of the curriculum; Mathematics and Physics account for 16 CP, Chemistry for 14 CP and laboratory courses account for 11.5 CP. The committee recognizes the importance of practical experience that can be gained during laboratory-based courses and commends the program for developing and delivering a significant hands-on learning experience.

The committee has become aware of a current discussion in the program about the number of CP that has to be credited to each hour of laboratory course. At present, this ratio is

0.5:1. In response to complaints made by students, the program expressed a desire to change the latter to a 1:1 ratio. The committee holds the opinion that the 0.5-to-1 ratio is appropriate and commonly used all over the world in similar programs, and thus strongly recommends that this ratio will not be modified.

An important aspect of academic studies is the opportunity of students to explore new horizons and directions. The very limited proportion of elective courses (accounting only for 4.5 CP), that is included in the curriculum is of concern. The committee has identified the latter as deficiency that should to be addressed by adding more elective courses to the curriculum. In addition to new BT-specific courses, meeting the latter objective can be accomplished by also including in the electives list relevant courses that are offered by the other academic departments in the School of Health and Life Sciences. The committee recognizes the fact that implementing these modifications will require some adjustment of the current curriculum in order to “free up” some CP.

Communication skills of students, both in writing and in delivering technical presentations, are of critical importance. The curriculum lacks in this respect and a course in Technical Writing, in both English and Hebrew, has to be added to the curriculum.

Among the strengths of the BTP is the required 8-CP Research Project that is carried out in an off-campus research laboratory. The committee commends the program for including this important element in the curriculum and recognizes its importance to the training of the students. Currently, the search for a host laboratory is the sole responsibility of the students and is associated with a significant stress. The involvement of the research instructor/supervisor (at the host laboratory) in the grading process is limited, and the frequency at which the host laboratories are visited by the faculty members of the BTP is less than desired. These aspects of the Research Project have to be addressed, as detailed in the recommendations.

A significant proportion of the program’s graduates is successfully pursuing graduate studies (towards both M.Sc. and Ph.D.) at different universities, indicating that the curriculum is effective in preparing the programs graduates to successfully meet the academic and practical challenges associated with graduate studies. The committee would like to congratulate the program on its accomplishments in this regards.

The BTP has established some mechanisms and protocols for changing and updating the curriculum. However, the specific roles of the Steering Committee and the Educational Committee as well as the role of the head of the program have to be modified. Input from each of these committees has to be developed separately and independently and the influence of the head of the program on curricular issues has to be limited.

Recommendations:

Immediate (full implementation within one year)

- Recommendations pertaining to the Research Project:
 - Better assist and guide students in identifying and selecting a host laboratory for their research project.
 - Enhance the extent to which the BTP monitors the quality of instruction provided to its students at the sites where they conduct their research.
 - The coordinator of the research project should visit (at least once every year) all of the sites where the program's students conduct their research.
 - Once a new potential host laboratory for conducting Research Project is identified, the coordinator of the course should visit the site, meet with the PI who will instruct the students and make sure that the scope and objectives of the Research Projects are clear.
 - The on-site PI/supervisor will be requested to attend the final seminar delivered by the student and his/her involvement in the grading process will be increased.
- Recommendations pertaining to curricular modifications:
 - Develop and implement a better structured and clearly defined procedural path for reviewing and updating the curriculum.
 - Establish a process for periodically reviewing the entire curriculum.
 - Clearly define the specific roles, responsibilities and involvement of the program's Steering Committee, Educational Committee and the head of the program in the curriculum updating processes.
 - Establish a committee for monitoring and assessing success in implementing

curricular modifications.

Intermediate (full implementation within 2-3 years)

- Develop and offer more elective courses and increase the CP allocated to elective courses to 8-10 CP.
- Develop a compulsory course in Technical Writing (in both English and Hebrew) and instruct it during the first year of study.

3.4 Teaching & Learning Outcomes

In general, appropriate teaching methods are used in the classroom and in laboratories and proper utilization of information and teaching technology are made. The committee has found the grading system and practices of the program to be appropriate and adequate.

The evaluation of the teaching is based on feedback provided by students in the form of course evaluation survey that is coordinated by the Center for Academic Affairs of the College. The survey does not provide information about the quality of teaching but rather the degree of student satisfaction with the course and its instructor. Results of the survey are communicated to the instructor as well as to the leadership of the program and the college. These results are also considered during the instructor's promotion process.

Instructors of the compulsory courses are being evaluated by the students on a regular basis and results of the satisfaction are within the acceptable range (3.43-4.14 out of maximum 5). Instructors of the elective courses have not been evaluated during the recent 5 years and should be assessed on a regular basis. It seems that neither the on-site supervisors of the Research Project nor the faculty members (of the BTP) who serve as the coordinator of the Research Projects are being evaluated for the quality of their instruction and mentoring. Both instructors have to be evaluated by the students and the evaluation questionnaires have to be submitted before students present their results in a seminar and before they submit the final report of his/her research project.

Currently, the learning outcomes of the BT program are being assessed based on student's grades. This method provides only limited information and carries only a very limited value. In recent years, it has been recognized that grades alone cannot serve as effective tools

in assessing learning outcomes. Institutions of higher education in the USA and Europe have recognized that a full commitment to teaching and learning has to be based on assessing and documenting what and how much students are learning and, later on, using this information to improve the educational experiences.

A detailed concept of Learning Outcome Assessment, that allows defining the desired learning outcomes (for each course) and quantifying the success with which these outcomes have been acquired by students, has been developed and introduced at numerous programs.

Recommendations:

Immediate (full implementation within one year)

- Introduce procedures for assessing, on a regular basis, the quality of teaching of all instructors and mentors, including the off-site instructor of the Research Project

Intermediate (full implementation within 2-4 years)

- Develop, and implement the concept of Learning Outcome Assessment as the main tool for assessing the learning outcomes of all the courses and learning experiences that are included in the curriculum.

3.5 Human Resources

3.5.1 Faculty members

The faculty members of the BTP consist of: 11 Senior Teaching Faculty (STF), 8 Adjunct Senior Teachers (AST) and 8 Adjunct Junior Teachers (AJT). Only one of the STF is at the full professor rank, four are at the Senior lecturer rank and six are at the lecturer rank. All of the STF and AST faculty members hold a Ph.D. degree and all except one of the AJT faculty members hold a M.Sc. or M.A degree. The STF and AST faculty members teach most of the classes included in the curriculum while, except for two cases, AJT instruct the tutorial sessions of the different courses.

In general, the academic level of the faculty members is appropriate and adequate to the type and level of classes they instruct. However, the committee holds the opinion that all of the instructors should hold a graduate degree (M.Sc./M.A. or D.Sc./Ph.D.). The committee was impressed by the enthusiasm and dedication of the faculty members with whom it met

and would like to commend and congratulate the college and the program on having such an excellent academic staff. The committee would like to commend the Senior Teaching Faculty of the BTP for their dedication and the way they care for the students. The committee has become very impressed by the way faculty members support and assist students in addressing both academic and personal challenges and difficulties.

The STF members of the BTP account for an equivalent of 5.2 FTE (Full Time Employed instructors) and the combined FTE equivalent of STF and AST is 6.92. Excluding the contribution of the AST, the students-to-instructors FTE-ratio ranged, during the academic years 2007-2011, from 1:32 to 1:36. The students-to- combined instructors FTE-ratio ranged during 2007-2011 from 1:24 to 1:27. This data indicates the relatively heavy teaching load of the faculty members.

Reviewing the rank distribution of faculty members of the BTP and the procedures and criteria for promotion of faculty members, indicated to the committee that a major difficulty exists regarding the latter. The committee holds the opinion that the colleges should focus on instructing rather than on developing new knowledge, and that faculty members of colleges are thus to be expected to direct most of their effort at instructing the undergraduate study programs, with only limited involvement in research, when possible. It has to be recognized that, when possible, some limited scope of involvement of faculty members in research is likely to positively affect the quality of teaching. Current criteria for promotion require senior faculty members to develop and accomplish successful research record. The BTP at the HAC does not have the research infrastructure that is needed to support in-house research activities of its faculty members and their opportunities to meet research-related promotion requirements are thus significantly impaired. In addition to this, the fact that there is only one full professor in the BTP is of a very significant concern to the committee.

The committee strongly believes that faculty members should be assessed and promoted based on the extent to which they meet realistic objectives and that they should not be penalized for not meeting objectives that cannot be met (such as establishing a research accomplishment record). The committee has recognized a significant need to revise the way faculty members are evaluated and promoted, as described below. The committee recognizes

that introducing such revisions requires a dialogue and involvement of the program and the college as well as the CHE and other governmental agencies.

Faculty members of the BTP do not have an individual-specific detailed job description specifying the proportion of time they are expected to invest in each of their academic activities (teaching, research, community service and outreach). Establishing a fair promotion process requires developing and introducing a faculty-member-specific job description where the proportion of effort to be allocated to each of the academic and administrative activities of the individual faculty member is clearly defined. The details of the job description have to be developed through a dialogue with each faculty member and should be updated periodically, to reflect changes in the academic and administrative activities of the individual.

A detailed and individual-specific job description will allow better and more flexible distribution of the teaching load among faculty members and tailoring individual-specific activities profile, reflecting the capabilities and aspirations of each faculty member. The research components of the job description should realistically reflect both the availability of in-house research infrastructure and the extent to which opportunities for off-campus research collaboration exist.

Until the above-described concept is developed and implemented and as long as tangible opportunities for faculty members to become involved in research do not exist, promotion to all ranks should be based only on accomplishments in teaching, community service and outreach activities. This concept, when properly implemented, recognizes and considers the opportunities as well as the limitations that are presented to the faculty member by the institute and the program and provides effective means to objectively and fairly promote faculty members, based on their accomplishments. This approach is of specific importance in colleges, where the prime goal of the program should not be directed at research and development of new knowledge but rather at developing and instructing high quality undergraduate study programs. It has to be noted that the concept of individual-specific job description, is common in many highly reputable universities in the USA and other places.

Recommendations:

Immediate (full implementation within one year)

- Pending the introduction of tangible opportunities for conducting research as part of the criteria for promotion, and until the concept of individual-specific job description has been implemented, base the promotion of faculty members, at all ranks, only on their accomplishments in teaching, community service and outreach activities.

Intermediate (full implementation within 2-4 years)

- Instruct courses and laboratories only by faculty members holding a graduate degree.
- Develop and introduce faculty-member-specific job descriptions where the proportion of effort to be allocated to each of the academic and administrative activities of the faculty member are clearly defined
- Once the concept of individual-specific job description has been established and defined, develop and implement a clear set of guidelines that identify and specify, for each promotion step in each of the academic ranks, the requirements for a successful promotion.
- After establishing and introducing the revisions, as described above, fully implement a promotion process that is based on assessing success in meeting the criteria and objectives that are stated in the individual-specific job description.
- Include in the promotion process of faculty members (at all ranks) with a significant research component (more than 20%), and faculty members that are considered for promotion to the professorial rank a dossier evaluation by 3 outside reviewers, to be solicited from relevant academic programs abroad.

3.5.2 Students

The program attracts and admits a significantly diverse population of students, including those from educationally-underprivileged segments of the society, minorities and new immigrants, yet also enjoys a high demand among competitive candidates that can (and) apply to other colleges and/or universities. The admission rate to the program ranges from 52 to 57% and the proportion of admitted students that enroll in the program ranges from 79 to 86%.

The academic level of the students admitted to the BTP is such that will allow students to successfully meet the requirement necessary for graduation. The committee commends the college and the BTP for introducing and providing a preparatory academic program aimed at closing the knowledge gap of applicants with deficiencies in Mathematics, Physics and Chemistry. Academic criteria for advancement to next year and for graduation are appropriate and adequate and the attrition rate is low and acceptable (3-5%). The committee applauds the program on its achievements in this regard.

Students have access to counseling service capable of addressing their academic and personal needs; students with physical or learning disabilities enjoy the support and services of a Challenge Center that is aimed at meeting their specific needs. Both financial aid and excellence grants are provided by the Dean of Students. The committee commends the college for its social sensitivity and for the tangible means it has installed to support and promote its students.

The committee met with only a few current students (one in the first year and one in the third year) and 7 alumni, who all went on to pursue a higher degree (either M.Sc. or Ph.D.) at major Israeli Universities. The committee was impressed with the quality, determination and enthusiasm of the students with whom it met and is regretful that it didn't have the opportunity to meet more students.

Students identify Hadassah Academic College in general and the BTP in particular, as a place where they feel at home and is fully committed to their educational success. Students and alumni feel that the theoretical and practical skills and experience that they acquire in the BTP prepare them well to become competitive professionals in the field of biotechnology or to succeed in pursuing a higher academic degree. Survey of alumni revealed that over 50% of the participants were pursuing higher academic degrees, about 30% were working in the biotechnology industry and about 20% were employed in fields other than BT.

Students of the program feel that they can effectively influence their teaching experience when needed, even to an extent leading to the replacement of an instructor with less-than-desired teaching skills. The committee congratulates the program and the College for these accomplishments and welcomes the decision of the BTP to enhance communication with its alumni.

Recommendation:

Intermediate (full implementation within two years)

- Establish and update on a regular basis an alumni data base and maintain contact with the alumni on a regular basis

3.6 Research

Senior Teaching Faculty members of the BTP are engaged in research only to a very limited extent that varies among individuals and, in most cases, is not carried out on a regular basis. Consequently, faculty members have only limited opportunities to publish peer-reviewed research papers. Some of the adjunct faculty members have an acceptable number of publications, however, this reflects their research activities in programs and workplaces other than the BTP, and, in several cases, these publications are unrelated to biotechnology.

The opinion of the committee about the extent to which faculty members of the program should be expected to be involved in research has been detailed in part 3.5.1 of this report. The committee would like to reiterate its belief that the main goal of the colleges in Israel is the dissemination of existing knowledge in study programs that are aimed at educating and training students to assume professional positions in the industry or to pursue higher academic degrees at research universities. The committee also believes that a limited involvement of faculty members in research activities is important and conditions to allow the latter have to be developed.

No core infrastructure that can support even a limited-scope research program of the faculty members of the BTP exists at the program's facilities and thus involvement of faculty members in research is critically dependent on collaboration with researchers from other institutes. The lack of research infrastructure also dictates that all the compulsory required Research Projects of the BTP'S students need to be conducted at off-campus facilities. The committee has identified a critical need for the **college together with the relevant governmental agencies** to launch an effort aimed at establishing a core research infrastructure that

will allow faculty members and students to conduct **SOME LIMITED SCOPE** research activities. The committee also believes that the leaderships of HAC and of the BTP should proactively and strongly encourage and support the faculty members of the program in developing and submitting competitive research-infrastructure-building grant proposals.

Excellence in pursuing the latter direction has been recently demonstrated by the BTP that was awarded a significant research grant by the e EU-funded Bio-Xplore initiative. The \$800,000 grant in direct cost award enabled establishing a new small research lab, the Bio-explore facility, and allowed improvement of instrumentation and laboratory infrastructure. The committee is very impressed with this success of the program and its leadership and believes that this kind of resourcefulness demonstrates the competitive edge of HAC and the faculty members of the BTP that are involved in this project. The Bioexplore program and laboratory currently allows 4 students to conduct their final research project (thesis) as part of the Bio-explore project. Overall, the lab and project have created some limited research opportunities for both students and academic staff at HAC and demonstrate the potential in pursuing such directions.

Recommendations:

Immediate (to be fully implemented within one year)

- Develop new tools and mechanisms (and/or improve existing ones) to proactively encourage and support faculty members in developing and submitting research and infrastructure building competitive grant proposals.
- The college together with the relevant governmental agencies should launch an effort aimed at establishing a core research infrastructure that will allow faculty members and students to conduct **SOME LIMITED SCOPE** research activities.

3.7 Infrastructure

The CHE Biotech Evaluation Committee has found the infrastructure of the teaching facilities and means of the BT program at Hadassah Academic College to be appropriate and satisfactory. The committee feels that the teaching laboratories are properly equipped to

meet the goals of the curriculum. Similarly, the committee was impressed by the services, learning tools and the access to information (both on and off-campus) provided by the library to students and staff, and has found the use of teaching technology to be adequate.

The committee hopes that a core research infrastructure that can accommodate the research needs of faculty members and students, as described in the previous chapters of this report, will be established through a combined effort of CHE and HAC. The committee hopes that this effort along with the planned new building on campus and future success in securing research grants will result in the infrastructural enhancement that is needed in order to meet research needs of the BTP.

3.9 Quality assessment

The Self Evaluation Report was well prepared and contained all the information that was needed in order to enable the committee effectively assess the quality of the program. The committee would like to thank the faculty members and staff of the program that have been involved in producing the document and to congratulate them on a job well done.

The program has demonstrated capabilities to identify areas that needed attention or revision and addressed these areas as a part of the self evaluation process. The committee received the impression that the BTP appreciates the effectiveness of the self assessment process as an improvement-enabling tool and feels that quality-driven activities should be carried out by the program on a regular basis.

Recommendation:

Immediate (full implementation within one year)

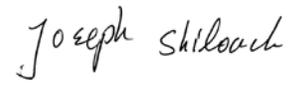
- Establish a Program Quality Assessment and Improvement committee charged it with the task of continuously identifying and addressing aspects of the program's activities that need improvement.

Signed by:



Prof., Moshe Rosenberg,

Chair



Prof. Joseph Shiloach



Prof. Milica Radisic

Appendix 1: Copy of Letter of Appointment



May, 2012

שר החינוך
Minister of Education
وزير التربية والتعليم

Prof. Moshe Rosenberg
Department of Food Science & Technology
University of California, Davis
USA

Dear Professor Rosenberg,

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 21st 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 Chair of the Council for Higher Education's Committee for the Evaluation of Biotechnology and Biotechnology Engineering Studies.

The composition of the Committee will be as follows: Prof. Moshe Rosenberg (Chair), Prof. Gad Galili, Prof. Milica Radisic, Prof. Joseph Shiloach.

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

In your capacity as 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 Elbocher, Committee Coordinator

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Appendix 2: Site Visit Schedule

Biotechnology and Biotechnology Engineering –schedule of site visit- Hadassah Academic College Jerusalem

Monday, June 11, 2012

Time	Subject	Participants
9:30 – 10:00	Opening session with the heads of the institution and the senior staff member appointed to deal with quality assessment	Prof. Nava Ben-Zvi (President) Dr.Zachi Milgrom (Vice President and Dean of Academic Administration)
10:00-10:30	Meeting with the Head of the School of Health & Life Sciences	Prof. Shmuel Razin (Head of School of Health and Life Sciences)
10:30-11:00	Meeting with the Head of the Department of Biotechnology	Prof. Bertold Fridlender (Biotechnology Department Chair)
11:00-11:45	Meeting with senior faculty and representatives of relevant committees (teaching/curriculum committee, admissions committee, appointment committee)*	Dr. Sara Sivan Dr. Sigal Matza-Porges Dr. Samah Simaan Dr. Eli Moallem Dr. Ravid Doron
11:45-12:30	Lunch – closed meeting	In the same room
12:30-13:30	Tour of campus (classes, library, offices of faculty members, computer labs etc.)	
13:30-14:15	Meeting with Adjunct Faculty*	Dr. Amalia Tabib Dr. Ofra Matan Dr. Sara Herscovich
14:15-15:00	Meeting with Graduates and Bachelors students* ***	Up to 8 students
15:00-15:45	Summation meeting with heads of the institution & School and department	Prof. Nava Ben-Zvi Dr.Zachi Milgrom Prof. Shmuel Razin Prof. Bertold Fridlender

* 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.