



**Committee for the Evaluation of Physics Studies**

**The Hebrew University of Jerusalem**

**The Racah Institute of Physics**

**Evaluation Report**

**December 2007**

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## **Chapter 1- Background**

At its meeting on March 8, 2005 the Council for Higher Education (CHE) decided to evaluate study programs in the field of Physics during the academic year 2005-2006.

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

- **Prof. Hanoch Gutfreund** - The Racah Institute of Physics, The Hebrew University, Committee Chairman.
- **Prof. Daniel Ashery** - School of Physics and Astronomy, Tel Aviv University.
- **Prof. Moshe Deutsch** - Department of Physics, Bar Ilan University.
- **Prof. James Langer** - Department of Physics, University of California Santa Barbara, U.S.A.
- **Prof. Stephen Lipson** – Faculty of Physics, the Technion, Haifa.

**Ms. Alisa Elon**- Coordinator of the committee on behalf of the Council for Higher Education.

Within the framework of its activity, the committee was requested to:

1. Examine the self-evaluation reports, which were submitted by institutions that provide study programs in Physics, and hold on-site visits to those institutions.
2. Present the CHE with final reports for the evaluated academic units and study programs - a separate report for each institution, including the committee's findings and recommendations, together with the response of the institutions to the reports.
3. To submit to the CHE a report regarding its opinion of the examined field of study within the Israeli system of higher education. The committee will submit a separate report to the CHE in this matter.

The committee's Terms of Reference document is attached as **Appendix 1**.

The first stage of the quality assessment process consisted of self-evaluation by the institutions. This process was conducted in accordance with the CHE's Guidelines for Self-Evaluation (of October 2005) and on the basis of the committee's specific instructions, as set forth in their letter to the institutions dated December 21, 2005.

## **Chapter 2-Committee Procedures**

The committee held its first meeting on March 26, 2006 during which it discussed fundamental issues concerning Physics study programs in Israel and its quality assessment activity.

During the period June-July 2006 the committee members received the self-evaluation reports.

In November 2006, the committee members conducted a full-day visit to each of the institutions offering study programs in the field under examination. During the visits, the committee met with the relevant officials within the organizational structure of each institution, as well as faculty and students.

In order to prevent the appearance of a conflict of interests, committee members did not participate in visits to institutions in which they were faculty members. Therefore, Prof. Hanoch Gutfreund did not take part in the committee's visit to the Hebrew University and the committee was headed there by Prof. Moshe Deutsch.

***This report deals with the Racah Institute of Physics at the Hebrew University of Jerusalem.***

The committee's visit to the Hebrew University took place on November 14, 2006. The schedule of the visit, including the list of participants representing the institution, is attached as **Appendix 2.**

The committee members thank the management of the Hebrew University and the Racah Institute of Physics for their self-evaluation report and for their hospitality towards the committee during its visit.

### **Chapter 3- Evaluation of the Racah Institute of Physics at the Hebrew University of Jerusalem**

#### **The University**

The Hebrew University was officially opened in 1925 on Mount Scopus in Jerusalem, but after the isolation of the campus in 1948 its activities were transferred temporarily to various locations in the western city, to be consolidated with the opening of the Givat Ram campus in 1955. Today, it has several campuses in various parts of the country, including Mount Scopus which was reopened in 1967. The total number of students is 21,000, of which about 12,000 are undergraduates, 6400 are 2<sup>nd</sup> degree, and 2600 are Ph.D. students, who belong to several Faculties, Schools and Institutes. The Physics Department belongs to the Faculty of Mathematics and Natural Sciences, all of whose departments are situated on the Edmund Safra Campus at Givat Ram. A few years ago, a School of Engineering was established, which absorbed the previously-existing Department of Applied Sciences. The Hebrew University has been through a serious financial crisis in recent years, which has affected, in particular, hiring new faculty. Technical support, administrative assistance and the provision of teaching services including lecture demonstrations and student tutoring have also been curtailed.

#### **The Physics Department**

The Physics department is called the Racah Institute of Physics, in memory of Prof. Giulio Racah, well known for his work on symmetries in theoretical physics, who was active in the department from 1939-1965. Members of the department carry out basic research in most fields of Physics: Astrophysics and Cosmology (4 faculty members), Condensed Matter Physics (11) Nuclear and High Energy Physics (8) and Cross-disciplinary and Non-linear Physics (12). Three other members of the faculty are described as “General Physicists” (total 38). The faculty members teach undergraduate and graduate courses to Physics students (72% of student-hours), as well as service courses for other Natural Science departments and the Engineering Faculty (18%). The total number of faculty and research fellows teaching courses is 45. The HU has recently introduced a program whereby internal reviews are made by external committees at seven year intervals. A review lasts four days, and the committee is instructed to examine all aspects of the department's activity, evaluate its academic level in research and teaching, identify

points of weakness and strength, and recommend ways of improving the departmental academic activities and stature. Five or six departments are to be reviewed each year. The Physics Department expects to be reviewed under this program in 2007.

### **Faculty Development**

The current 38 faculty members have an age distribution which is somewhat skewed towards the 60's, since at the time of the immigration from the FSU several new appointments were made of members with ages over 50. As a result, 40% of the present faculty is over 60 and 10 faculty members, 25% of the total, will be retiring during the next four years, six of them experimentalists. However, the University is intent on reducing the number of academic staff by grudgingly replacing retirees. The result is that it is nearly impossible to make long or even short-range faculty planning decisions. Just the same, when judging candidates, their quality (achievements, plans) is the decisive factor, and other considerations such as winning Alon grants are only secondary input to the recruiting decision.

No experimentalists were recruited between 1993 and 2003, but three were recruited since then. A new experimentalist usually needs a start-up sum of \$0.5M-\$1M, and there is a problem in getting a definite promise for this from the HU management quickly enough to secure agreement of accepted candidates when they have offers from other institutions. On the other hand, the Faculty of Mathematics and Natural Sciences seems to be more amenable to recruiting faculty for new teaching programs, such as computational biology and chemistry + physics, but the Faculty of Mathematics and Natural Sciences has only about \$0.6M in discretionary funds for this purpose. There is a new nanotechnology initiative which may in the future provide some start-up funds (but not salaries) for new faculty members. The Racah Institute is also interested in opening up new directions of research, such as experimental and theoretical biophysics and quantum information. (Two of the newly recruited faculty members are in these fields.) A new study track in biophysics is also anticipated.

### **Teaching by the Faculty**

The department aims to train physicists for work in industry and academia by giving as broad an education as possible. The first degree course includes 144 course-hours, of which only

10 are optional (i.e. elective), and covers all aspects of basic and modern physics. Despite this, the number of optional courses offered is very large (23), although some of them have only fewer than five registered students. These numbers may not in fact reflect the actual numbers of attendees since a recent University decision requires students who wish to take more options for credit to pay extra tuition fees. The number of credit points (10) for courses that can be freely chosen from the whole university is really too small to encourage students with enquiring minds.

Most faculty members and some senior researchers teach about three hours per week, including those who have management positions. Lecturers inactive in research may be asked to teach more than this, and a few emeriti volunteer to help with smaller loads. A faculty member may teach the same course for two or three years and then change, although some prefer to continue with the same courses for longer periods. The teaching staff also teaches service courses for Chemistry, Life-Sciences, Medical and Pharmacology students. In the past, these were often taught by adjunct teachers, but financial restrictions have now made it impossible to employ outside teachers to reduce the load. Occasionally, outstanding Ph.D. students are assigned to teach these courses. The average number of student-hours per year taught by a faculty member is 266, taking into account also the service courses, indicating an average class size of 44. Some courses are reported as having only a few registrants, and there are other courses with as many as 120 students. A substantial number (more than one third) of the faculty do not supervise any graduate students. At the other extreme, two members supervise 10 graduate students and one supervises 13.

Mathematics teaching is carried out by Mathematics faculty and is considered inefficient for teaching mathematical skills to physicists, but there is not enough manpower for this to be taught by physics faculty.

### **Teaching by Graduate Students**

Teaching assistants (graduate students) may teach 4-8 hours (exercises or laboratories). Reduced budgets for TAs and external teachers have forced larger exercise classes, with a consequent decrease in grade averages. In addition, now only about 20% of exercises submitted are checked. Extra help used to be available at any time in the form of a walk-in assistance room, but this practice has had to be discontinued. Some on-line assistance continues to be available



outside classes, but this is mainly effective for service courses and not for physics students whose questions are often deeper than can be answered by a computer program.

### **Undergraduate Teaching Program**

Students can study under the auspices of the Physics Department in four general options. All are three-year courses.

- Full program in physics as a single track, (144 course-hours, the obligatory program including 31 classical physics\*, 31 modern physics\*, 21 labs and 43 mathematics)
- Reduced program in physics as a single track, which is insufficient for continuation to M.Sc. (134 course-hours, the obligatory program including 27 classical physics, 7 modern physics, 12 labs)
- Dual Major: Physics (full or reduced) plus Mathematics (full or reduced) (162 or 138 course-hours)
- Dual Major, as above with another department in the University. (89 course-hours in Physics)

\*Classical physics = mechanics, electricity and magnetism, thermodynamics, waves, statistical mechanics;

\*Modern physics = Quantum mechanics, electrodynamics, astrophysics, solid state physics, nuclear physics, elementary particles and fields.

The grades for the courses are based on examination results and homework exercises submitted, but in the third year all students are obliged to take one seminar of 2 course-hours, for which they must give both oral and written presentations. Written examinations are given for all compulsory courses. Open book, and multiple-choice examinations are not used. Graded examination papers are made available on the HU web for cases of appeal.

### **Undergraduate Teaching Laboratories**

The regular laboratories include experiments using basic measurement methods on a wide range of topics and also cover error analysis. During recent years, the Institute has had inadequate funds to expand or even adequately maintain the laboratory facilities, although the general impression of the infrastructure was satisfactory. The students are not required to set up experiments by themselves and full instructions are provided.

In the first year laboratory there is one three-hour experiment per week, in some cases parallel to the same topics in lecture courses. This course concludes with an experimental examination based on one of the experiments. The topics include mechanics, electricity, radioactivity and geometrical optics. One instructor is responsible for seven pairs of students, and the laboratory is serviced by two technical assistants.

In the second year, the program is similar with experiments taking two to three weeks each, on topics including physical optics, nuclear physics, solid-state electronics, acoustics and quantum phenomena, some of which are not covered in the lectures. Students are encouraged to extend experiments and to come up with new ways to analyze the data acquired; they also have to present a short lecture on one experiment at the end of the semester.

The extended (project) laboratories, which are chosen by about one third of the students, contain more adventurous experiments on the same topics. These experiments are also carried out according to predetermined instructions, although the students have to show some initiative in planning, performance and data analysis. The laboratory is serviced by 1.5 laboratory assistant positions.

The senior laboratory (3<sup>rd</sup> year) contains longer experiments (about five weeks; i.e. six experiments per year) on more advanced topics that often are not included in the regular syllabus. These experiments are still carried out according to predetermined instructions and most are pre-assembled, which allows several groups to use the same setups in parallel. About 15% of the students in this course carry out small projects in the research laboratories.

The students did not consider the first and second year laboratories very good, but the advanced (3<sup>rd</sup> year) lab was found to be very interesting, particularly because of the interaction with the senior faculty (about four of whom teach the lab).

**Technical support:** The teaching labs are supported by 4.5 technician positions, and the research labs by one electronic and 6 mechanical technicians.

### **Undergraduate Student body**

The physics students taught include those accepted to the prestigious “Amirim” program, which allows a selected set of highly motivated students much greater freedom in their studies, and includes a significant independent study project as part of the B.Sc. The department also

trains “Talpiot” students, who are a selected group who combine their military service with a B.Sc. in Physics and Mathematics. These students sign up for 9 years during which they study physics and mathematics and afterwards serve the army in these fields. They are dedicated and hard-working and serve to increase the level in all courses.

Unfortunately, because of progressively poorer preparation in high schools, the load on students at the university level is getting greater, leaving less time for optional courses and also resulting in shallower learning. HU offers pre-university courses to offset this problem and to mitigate the effects of the period of army service. The increased pressure is particularly evident with the Talpiot students, who have progressively less time for studying because of competing obligations and often are unable to fulfill their potential. In general, to offset the differences in standards between high schools, HU would prefer to take students with a low selection criteria, and let the less successful ones leave after one or two semesters. However this is not cost-effective, since the government only pays for students who complete their studies. Indeed, the best correlation found is between final achievement and the psychometric examination results; the year in which those examinations were not used as an entrance requirement was a disaster.

### **Graduate studies**

Programs leading to the degrees M.Sc., Ph.D. after M.Sc., and direct Ph.D. (about 20%) are available for qualified students. Graduate students are accepted with grade averages above 85, but only a fraction (presently, grade >90) can be supported by assistantships. 44% of the M.Sc. students receive Teaching Assistantships (NIS 45,000 per year) for which they are required to teach 4-6 hours per week mainly for grading exercises, and 63% of the Ph.D. students (NIS 80,000 ) for 6-8 hours/week for exercise or laboratory sessions. All graduate degrees are obtained on the basis of research; the research proposals are monitored by a standing committee.

The M.Sc. degree requires 35 course-hours as well as a thesis, and takes two years. The Ph.D. degree requires a further 18 course-hours and up to five years.

At present there is an over-supply of candidates for the higher degrees, but this was not true during the “high-tech bubble”. The quality is not as good as ten years ago, partly because of deterioration in financial conditions. There is also the “Jerusalem effect”: young and secular people do not want to live in Jerusalem. Because of cuts in HU funding for scholarships, the advisors have to pay progressively larger fractions (20-50%) of the scholarships for their graduate

students. Consequently, rather than fighting for greater research grants, many prefer to take fewer graduate students. Some incentive is needed to encourage experimental faculty in particular to take more graduate students.

### **Issues raised by Faculty**

- The responsibility for financing graduate students' fellowships is being shifted increasingly onto the advisors. This creates an uneven distribution of graduate students among faculty members, and puts a heavy fund raising burden on the faculty members, correspondingly decreasing the time dedicated to advising the graduate students and to research.
- There seems to be a progressive deterioration in the quality of undergraduate students reaching the department, with the better students being attracted to other disciplines, particularly those with closer connections to the high-tech industries.
- The undergraduate program is considered to be good, but somewhat restrictive, with too few electives allowed (10 credits). Several faculty members advocated starting the teaching of the more advanced courses earlier. In particular, Prof. Kol suggested that statistical mechanics be moved from the third to the second year, and quantum mechanics be moved to the first semester of the second year. Two issues, the poor physical state of the teaching laboratories (and the need to revise some of the experiments), and the lower effectiveness of the mathematics instruction by mathematicians rather than by physicists, were raised by both faculty and students, and require, therefore, consideration by the Department authorities.

### **Issues raised by students**

The undergraduates pointed out with approval the supportive atmosphere in the department, and repeated the complaints about the "cook book" approach in the laboratories which does not develop physical initiative and independent thinking. A few pointed out that the choice of laboratory instructors is very important for the students' satisfaction with, and achievement in, the laboratory course.

### **Summary**

The financial crisis of the HU during the past years has had a major effect on the services available to students studying physics. The effect is particularly visible in cutbacks in the help

available to students outside lecture courses. As in other Israeli universities, the crisis is also making faculty planning close to impossible. This is reflected in the fact that 25% of the present HU Physics faculty, including six experimentalists, will be retiring within the next four years. Hopefully, the recent decision to hire three new experimentalists shows the beginning of a reversal to the trend. The small number of degree options offered at present (four, three of which are subsets of the full program) has the effect of reducing the teaching load considerably, and the Institute should be complimented on providing an unusually large number of optional courses, although the numbers of students officially registering for some of these courses is small. This may be because the course structures allow only 10 credit points for optional courses, and University regulations require charging additional tuition fees to students taking more than the minimum required credits. We therefore recommend increasing the number of optional credit points to encourage student to take these courses within the approved framework.

**Signed By:**



**Prof. Moshe Deutsch**

**Chairman**

**On behalf of the committee**

# APPENDICES

# APPENDIX 1

Terms of Reference of the Committee



18 October 2006

To:

Prof. Hanoach Gutfreund - The Racah Institute of Physics, the Hebrew University  
Prof. Daniel Ashery - School of Physics and Astronomy, Tel Aviv University  
Prof. Moshe Deutsch - Department of Physics, Bar Ilan University  
Prof. James Langer - Department of Physics, University of California Santa Barbara, U.S.A.  
Prof. Stephen Lipson - Faculty of Physics, the Technion, Haifa  
Esteemed Gentlemen,

I hereby appoint you as members of the Council for Higher Education's (CHE) Committee for the Evaluation of Physics Studies within institutions of higher education in Israel.

You are kindly requested to operate in accordance with the Appendix to the Terms of Reference of Evaluation Committees (study-programs), which is attached to this Terms of Reference document.

The Committee is requested within the framework of its activity to:

1. Examine the self-evaluation reports which shall be submitted by the institutions that provide study-programs in Physics, and hold on-site visits to those institutions.
2. Present the CHE- by January 2007- with final reports regarding the evaluated academic units and study-programs- a separate report for each institution including the Committee's findings and recommendations, together with the institutions' responses to the reports.

Within the framework of the final reports, the Committee is requested to refer to the following topics, among others, in relation to each of the study-programs:

1. The goals and aims of the evaluated academic unit and study-programs.
2. The study-program and its standard.
3. The academic staff.
4. The students.
5. The organizational structure — both academic and administrative - of the academic unit and study-program.
6. The broad organizational structure (school/faculty) in which the academic unit and the study-program operate.
7. Physical and administrative infrastructure available to the study-program.
8. Internal mechanisms for quality assessment
9. Conclusions of the academic unit and the study-program.
10. Other topics to be decided upon by the Evaluation Committee.

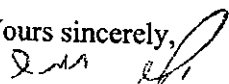


In addition to its final reports concerning each study program under examination, the committee shall submit to the CHE the following documents:

1. A report regarding Physics Studies within the Israeli system of higher education.
2. A proposal concerning standards for Physics Studies.

Professor Hanoch Gutfreund shall preside over the Committee as Chairman.  
Ms. Einav Broitman shall coordinate the Committee's activities.

Yours sincerely,



Yuli Tamir  
Minister of Education  
Chairperson of the Council for Higher Education

cc: Ms. Riki Mendelzvaig, Secretary of the Council for Higher Education  
Ms. Michal Neumann, in charge of the Quality Assessment Unit  
Ms. Einav Broitman, coordinator of the committee

Enclosure:

**Appendix to the Terms of Reference of Evaluation Committees (study-programs).**

## **Appendix to the Terms of Reference of 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. Within this framework, study-programs are to be evaluated once in six years and institutions once in eight years. The quality assessment system came into effect in the academic year of 2004-2005.

The 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 of the importance of this subject and to develop internal mechanisms for the evaluation of academic quality on a regular basis;
- 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 activity. The evaluation committee is requested not to make comparisons between the institutions.**

### **2. The Evaluation Committee**

- 2.1 The CHE shall appoint a Committee to carry out quality assessment of the study-programs.
- 2.2 A senior academic figure in the examined field shall be appointed as Chairman.
- 2.3 The Committee shall include 3 to 5 senior academic figures in the field from leading institutions in Israel and abroad. In exceptional cases, and in cooperation with the committee chairman, an authoritative figure who is not on the academic staff of an institution of higher education may be appointed as a committee member.
- 2.4 In the event that a member of the committee is also a faculty member in an institution being evaluated, he will not take part in discussions regarding that institution.

### **3. The work of the Evaluation Committee**

- 3.1 The Committee shall hold meetings, as needed, before visiting the institution, in order to evaluate the material received.
- 3.2 The committee shall visit the institution and the academic unit being evaluated within 3-4 months of receiving the self-evaluation report. The purpose of the visit is to verify and update the information submitted in the self-study 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, the administrative staff, and any other persons it considers necessary.

- 3.3 In a meeting at the beginning of the visit, the committee will meet with the heads of the institution (president/rector, dean), the head of the academic unit and the study-programs, in order to explain the purpose of the visit. At the end of the visit, the committee will summarize its findings, and formulate its recommendations.
- 3.4 The duration of the visits will be coordinated with the Chairman of the Committee according to the issue, and in any event will not be less than one day.
- 3.5 Following the visit, the committee will write its final report, including its recommendations, which will be delivered to the institution and the academic unit for their response. The institution's and the academic unit's response will not result in changes to the content of the Committee's report, unless they point out errors in the data or typographical errors in the Committee's report. In such cases, the committee will be able to make the required corrections in its final report.

#### **4. The Evaluation Committee's Report**

- 4.1 The final report of the evaluation committee shall address every institution separately.
- 4.2 The final report shall include recommendations on the subjects listed in the guidelines for self-evaluation, and in accordance with the Committee's Terms of Reference.
- 4.3 The recommendations can be classed as one of the five following alternatives:
  - 4.3.1 *Congratulatory remarks and minimal changes recommended, if any.*
  - 4.3.2 *Desirable changes recommended* at the institution's convenience and follow-up in the next cycle of evaluation.
  - 4.3.3 *Important/needed changes requested for ensuring appropriate academic quality* within a reasonable time, in coordination with the institution (1-3 years).
  - 4.3.4 *Essential and urgent changes required, on which continued authorization will be contingent* (immediately or up to one year).
  - 4.3.5 *A combination of any of the above.*
- 4.4 The committee's report shall include the following:
  - 4.4.1 **Part A — General background and an executive summary:**
    - 4.4.1.1 General background concerning the evaluation process, the names of the members of the committee, a general description of the institution and the academic unit being assessed, and the committee's work.
    - 4.4.1.2 An executive summary which will include a description of the strengths and weaknesses of the academic unit and program being evaluated, according to the subjects listed in the body of the report and a list of recommendations for action.
  - 4.4.2 **Part B — In depth description of subjects examined:**
    - 4.4.2.1 This part will be composed according to the topics examined by the evaluation committee, in accordance with the committee's Terms of Reference and the report submitted by the institution, and at the discretion of the committee.
    - 4.4.2.2 For each topic examined - the report will present a summary of the findings, the relevant information and an analysis thereof, and conclusions and recommended actions.
  - 4.4.3 **Part C — Summary and recommendations:**

- 4.4.3.1 A short summary of every one of the topics described in detail in Part B, including the committee's recommendations.
- 4.4.3.2 Comprehensive conclusion/s and recommendation/s regarding the evaluated academic unit and the study-programs.
- 4.4.4 **Part D- Appendices:**  
The appendices shall contain the committee's Terms of Reference, relevant information about the institution and the evaluated academic unit, the schedule of the on-site visit.
- 4.5 The final report will be delivered to the institution, with the deadline for its and the academic unit's response noted.
- 4.6 The Committee's final report together with the response of the institution and the academic unit will be brought before the CHE.
- 4.7 The CHE will discuss these documents and formulate its decisions within (approximately) a year from the time the guidelines for self-evaluation were sent to the institutions.

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# APPENDIX 2

The schedule of the visit

# Hebrew University – Physics, 14 Nov. 2006

Time	Subject	Participants
09:00-09:30	Opening session with heads of the institution, the senior staff appointed to deal with the quality assessment and the heads of the academic unit	Prof Miri Gur-Arye, Vice Rector Prof. Eliahu Friedman, Head of Academic Review in the Sciences Prof. Jacob Metzger, Head of Academic Review in the Humanities, Social Science and Law  (The Rector won't be in Israel at that date)
09:30-11:30	Meeting with the school's academic and administrative leadership - the decision makers of the academic unit	Profs. Hermona Soreq (Dean of Sciences), Jay Fineberg (Head of the Institute), Bill Glaberson (Head of Physics Studies), Avi Schiller (Head of Studies committee), Shmuel Elitzur (Head of Screening committee)
11:30-13:00	Tour of Teaching laboratories, meeting with Teaching Assistants (labs' instructors)	According to the order of the visit: 1. Second year student laboratory: Academic head- Prof. Jay Fineberg + 4 teaching assistants (Ph D students) 2. First year student laboratory: Academic head- Prof. Arie Zigler + 4 teaching assistants (Ph D students) 3. Third year student laboratory: Academic head- Prof. Bill Glaberson + 5 teaching assistants (Ph D students) –In the 3 <sup>rd</sup> year laboratory the visit will take place while teaching is being carried out. In the other laboratories teaching is not scheduled during the time of the visit.
13:00-14:00	Lunch	Committee members only
13:45-14:45	Meeting with senior academic staff*	Profs. Avishai Dekel (Cosmology), Lazar Friedland (Plasma and Nonlinear Physics), Barak Kol (High Energy Physics), Nathalie Balaban (Biophysics - Expt), Oded Millo (Condensed Matter – Expt.), Oded Agam (Condensed Matter – Theory)
14:45-15:45	Meeting with graduate students (MA and PhD) and Teaching Assistants*	MSc students: עדינה לדרהנדלר; מרב שטרן; הדר לוי PhD. Students: ישי שמעוני; אלעד זינגר; תמיר אפשטיין
15:45-16:45	Meeting with undergraduates*	Second year students: מומציגו מיכאל; אנגל גיורא Third year students: אינגל בן; אבישי איש-שלום; גיא גור-ארי
16:45-17:30	Summary meeting with Prof. Hermona Soreq and Prof. Jay Fineberg and the person in charge of quality in the institution	Prof Miri Gur-Arye, Vice Rector Prof. Eliahu Friedman, Head of Academic Review in the Sciences Prof. Jacob Metzger, Head of Academic Review in the Humanities, Social Science and Law;
17:30-18:00	Closed meeting	Committee members

\* ישיבות אלו יתקיימו ללא נוכחות של הנהלת המוסד ו/או החוג

