

# **Learning Differently**

## **A Guide for New Students at the Technion**

*Compiled by the Counseling Staff at the Unit for Student Advancement*

## **Welcome to the Technion**

Your first semester of studies at the Technion may be very different from the educational frameworks in which you have been a part of in the past: High school, preparatory year, individual courses, etc. The pace of the studies, the depth and breadth of the material studied and the lack of constant supervision all require you to adjust to a different learning system. Instruction at the Technion is based, as a whole, on independent study, which places a great deal of responsibility on you and the development of a high level of self-discipline. This is a challenging new beginning that will force you to get to know your strengths and to adjust to your new environment.

Successful adjustment is a process that involves analyzing previous times in your life in which you faced new situations (new home, school, basic training, etc.) and the ability that develops in the first few weeks to be surprised, to live communally, with a certain amount of uncertainty and willingness to establish yourself in this place.

Sometimes in this new situation, the first weeks of the semester may be overwhelming and you might feel like you can't handle all of the demands - this is natural. We assembled this booklet which suggests you "learn differently." The goal of this booklet is to assist you in developing study habits and coping behavior that may help ease your adjustment to you studies.

Studying at the Technion places many difficult challenges before you. Therefore, in the second half of this booklet we describe many difficulties common for new students and offer alternative solutions.

This booklet was written by the senior and professional counseling staff in cooperation with outstanding students. We advise you to reread it from time to time on order to get the most you can out of it.

We wish you the best of luck!

*Counseling Staff, Unit for Student Advancement*



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## All the Beginnings....

*Let us watch well our beginnings, and the results will manage themselves. (Alex Clark)*

### From High School to the Technion

In our view, the goal of the first semester is not necessarily to accumulate a lot of credits, or to immediately get amazing grades, but to adjust to the different system of teaching, new friends, a new schedule and more. In high school or maybe in a preparatory year there was daily supervision of your level of understanding and of the material studied. The teachers had constant external supervision of your knowledge and control over it. At the Technion, you take responsibility for this. It takes time to develop a supervision system for the required level of investment for self-study. It takes time to develop the sensors to indicate your level of understanding and control of the material.

In the places in which you studied in the past, the units of study were well-defined. Here the scope of the material you will learn in a class will be so vast, and you yourself will need to define, more than once, the central topics, the depth of understanding and number of hours required for you to understand. You will have to deal with abstract material and complex problems. This will be a jump in your level of thinking, one that requires flexibility in creating solutions and constant adaptation of meanings. Your ability to understand is not only a function of your intellectual ability but of your development of skills of hard work, perseverance and lots of practice.

**All of these new experiences are dependent on trial and error. It takes time. Therefore, during the first semester the emphasis should be on the quality of learning – "knowing how to study" – and on adjustment, not on the grades or credits.** It could be that an academic schedule that includes "only" four subjects or that totals 17 credits seems pretty meager, but will prove to require a very high level of investment and commitment. Although students at the Technion are characterized by high expectations and ambitions, it takes courage to match those expectations with your realistic abilities.

The statistical report of the Technion, recalculated every year, **reports that your grade average rises the farther along you are in your studies!** The reason – students generally improve their study habits after the initial adjustment period.

## Study Skills

*The more you strive— so shall your luck increase. (Gary Flare)*

Success in your studies is a function of ability, study skills, motivation, psychological strength to overcome the unknown, and luck.

In this section we will focus on study skills – the capability that allows you to study and cope with the academic requirements in the best way possible.

Study skills may be acquired and improved upon over the course of your studies and your professional life. Acquiring proper study skills influences your academic success and your feeling of self-worth.

The study skills suggested in this section are derived from three basic principles of instruction at the Technion:

The first principle is that studying at the Technion is based on independent study outside of the lecture and it will be your principle means of acquiring new knowledge. The independent learning style that you will acquire here will accompany you throughout your professional career, in which you will be required to renew your knowledge and study new subjects even more frequently. Independent study will become a way of life.

The second principle is that learning is active. A Technion student is active and involved: he goes over the material, solves, compares, and asks questions. All of this requires the student to be attentive and involved.

The third principle is that the student will develop his own supervision system for his academic work. There is no daily checking-in on the level of understanding, which requires high self-awareness to supervise yourself: check how much you understood, how you deal with the especially difficult material, what brings you success and what you need to change. The awareness of the components for success and failure are the basic elements of change and improvement.

*There is not royal road to Geometry. (Euclides)*

## **Lectures and Discussions**

### **Attendance in Lectures and Discussions**

In most cases, attendance is not mandatory in lectures. Despite this fact, it is highly recommended to attend lectures, even if you feel at the beginning that they do not contribute to your understanding. While you skip a lecture you do "earn" free time for independent study, but you are likely to miss out on material and emphasis that only the professor can provide. The professor creates an integration of materials taken from different sources and emphasizes views according to his experience and understanding.

From our experience, students that skip lectures end up investing a lot more time in order to understand the subjects studied than those students who were present in class.

In most of the basic subjects, there are discussion sessions that go along with the lectures. These sessions are intended to demonstrate the theory and its implementation by giving examples of solving problems and proofs. It is recommended to solve as many problem sets as possible, since the problem-solving skills are acquired mostly through individual practice. In tests you are required to understand the theoretical principles while at the same time demonstrate extensive technical skills in problem solving. The discussion sessions have less students and provide the opportunity for discussion on the material between the teacher's assistant and the student. Therefore attendance in discussion groups is considered mandatory.

Every professor and teacher's assistant has office hours, and it is recommended that you take advantage of them for help with difficult subjects.

### **Note-taking and Organization of Materials in Lectures and Discussion Groups**

Try to write everything in detail, even if at the beginning some things do not make any sense. With time you will learn to write down the main points - this is a learned skill. At the beginning of the semester, if you find it somewhat difficult to write while listening, it is advisable to get help from friends in your class.

During or after each lesson, try to summarize the key points and central equations that were taught. This will make it easier to go over the material before the next lecture. In addition, many students recommend copying those same sentences and equations on a separate sheet of paper from your notebook, which during the semester will be added to the summarizing notebook. Organizing materials, notes, emphasis of the main points and reviewing the material will greatly influence your level of understanding and ability to remember the material.

## **Reviewing Material**

It is highly recommended to reread your notes from the previous lecture before the next lecture. Reviewing the material covered in the previous lesson creates anchors of knowledge to which the new information can be attached in the next lesson. Research has proven that the better new learning is integrated with previous information, the greater the chances are that that the information will be remembered.

Preparing homework independently forces you to think, ask questions and reflects your level of command over the material as compared to other students. In the case that you come upon a complicated problem and get "stuck," break down the problem into subsections that you are able to deal with, try to find similar problems in the workbook or ask a friend. It could be that with combined effort you will be able to get "un-stuck" together. Sometimes even a short break can help. From our experience, sometimes returning after a short break opens new channels of thinking and allows you to see the problem from a different angle.

You can turn to the professor or teacher's assistant during their office hours for additional explanation. You can also seek out tutors, all of who are outstanding students, for additional practice and clarification.

Workbook – In some of the subjects you will be able to acquire workbooks with problem sets either partially or fully solved. At first, try to solve the problem by yourself. Only after you have solved the problem, look at the answer in the workbook, so that you can either give yourself a passing grade, or a new view on how to solve the problem.

## **Textbooks**

Usually the course syllabus is tailored to a book that you can check out from the central library, the faculty library (for short periods of time) or the lending library at the bookstore (for an entire semester for a payment of 15% of the value of the book).] At the same time, there are textbooks for independent study of the basic subjects in the framework of the Open University. You can enrich your learning with workbooks. While this kind of study does require for time, it is a highly recommended investment for the long term because it is a system of study and updating that you will mainly use throughout your professional career. This is on the condition that you have enough time for this. The vast majority of the professional books that you will come across are written in English. It is imperative that you have a command of technical English as early as possible in your studies.

*Inside every large problem is a small problem struggling to get out. (haoro)*

## **Labs**

The lab allows you to carry out practical experiments by implementing the theoretical principles learned in lecture. The work in a lab is usually comprised of a test at the beginning

of the lab, group work and a summarizing report. Pay attention to the first lab, where the way of setting up the lab and preparing the report is explained. Attendance in most of the labs is mandatory. With any problem you may have with lab reports or tests, you can turn to the lab coordinator or your individual lab instructor.

*Genius is one percent inspiration and ninety-nine percent perspiration. (Thomas Edison)*

## Attention and Focus

One of the important tasks of the first semesters is to identify the conditions in which your independent study is the most effective and you are most focused. Signs of a low level of focus include you getting up from your chair every few minutes, walking around, reading the paper and opening the fridge. In short, you are waiting for something to happen. Another option is that you do not get up from your chair but when you finish reading a question you realize you didn't read it at all. You are simply not there. You can cope with this problem by paying attention to the following points:

### Studying Portion – Range of Focus

It is important to check the maximum amount of continuous time that you are able to dedicate to solving problem sets or reading theoretical material and still **stay focused**. Pay attention to the crisis point, from which onwards you are no longer being productive in your work. This crisis point constitutes your basis for one continuous "Studying Portion." Afterwards you should take a "time-out" and move on to other activities from the wide range of things you must do that day, or to rest and return to another studying portion, this time perhaps in a different subject. It is important to prepare your next task before taking a break. It is easier to come back to studying after a break if you have already planned out the tasks you must complete afterwards.

In learning research carried out in Japan, the amount of the effectiveness of studying was studied, in which the effectiveness of students that dedicate their time only to studying was compared to the effectiveness of students who also go out and have fun during their studies. **They found that the "portion of studying" of students that also go out and have fun is more effective than those who only study.** The conclusion of the research **was that after a certain point, the benefit decreases with every additional hour of study.** It is important to stop, rest, and return with renewed strength. It is not true that students who study day and night are more successful.

A question that comes up all the time is how much time a week one should devote to homework and independent learning. The level of investment required is different for every student and dependent on the scope of the tasks, level of understanding, and previous preparation in the specific subject. A reasonable amount of investment is estimated at 25-30 hours a week. The level of effort is divided up throughout the semester at a different pace, like running a marathon. It starts off slow, you make more of an effort towards mid-term exams, it eases up a bit after mid-terms, and requires an increased effort for the big finish - the final exams...

**From our experience, it is recommended to start with the homework for the subjects you find the most difficult. Postponing working on difficult subjects until the end of the day makes focusing more difficult and leads to procrastination.**

*If the eyes are not sleeping, dreams stop (Torat Hazan)*

**Focus time** – Researchers point out that different people have different focus abilities throughout the day. Every person has their own internal clock. There are the hours in you are most alert; therefore take advantage of them for solving problem sets or reviewing theoretical material. There are people who need many more hours of sleep in order to function effectively and continuously, while others function better even if they slept very few hours a day. There are students that study better at night, others during the day. It is important to find the hours in which you are most alert and effective and to adjust your study schedule accordingly.

**Location** – Try to find out if you study most effectively in your room, the library, or maybe one of the study centers in the dormitories or your department building. Many students claim that the atmosphere in the library and study centers allows them to consult with others, and in these places you feel that you are not alone. The criterion for checking whether a study place is suitable is the results test – the output.

**Studying when tired** – After you finish your day of classes on campus at the Technion, take a break. Usually most of the courses end in the afternoon, a time during which it is difficult to focus in any case. So you can take a break, run some errands, get refreshed by swimming in the pool or any other kind of exercise. In addition, make it a habit to take a break after completing a complicated task. The Student Union offers a variety of cultural activities such as: movies, dancing, different concerts, etc. At the dormitories there are a wide range of activities, clubs and lectures.

**Studying in groups and individually** – At the Technion, studying is individual, but the heavy workload and open learning, point to advantages of the group study system. This type of study is also similar to work in the hi-tech field, which emphasizes teamwork.

The advantages of studying in a team or in pairs are prominent: starting from mutual support, enrichment of repertoire of possible solutions to a given problem, mapping weak points and finding points of strength. Sometimes it saves time when you get stuck on a problem for a long time and cannot see a solution. Creating a proper and appropriate study group requires investment, effort, and willingness for trial and error. It will not be easy to find a personally and academically appropriate study group. It is important to find a study partner who is at a similar level as you and is taking a course of study similar to your own. Despite all of the advantages mentioned above, at a certain stage of studying, it is very important to study independently where you are alone with the knowledge you have acquired over the semester, with tests from previous years trying to solve them by yourself. Individual learning is the most important because sometimes group or partner studying creates the illusion of knowledge. There are some students who are more suited for individual study and for them it is the best way to be certain of their knowledge. Our recommendation is to combine the two methods and find the proper balance between them.

*There is only one direction in the world: from one person to another. (Stanislav Yegiletz)*

## Time Management

*In a person's life, there is no time when he will have time for everything. (Yehuda Amichai)*

One of the prominent differences between the learning framework at the Technion and your previous educational frameworks is realized in the time factor. For most students, this is the first opportunity to independently manage their own schedules. The Technion brings you closer to the working world in which you need to determine your priorities and create your own schedule. This is, essentially, an open framework without direct supervision and requires you to manage your issues independently and effectively. The time factor at the Technion is critical. The semester is 14 weeks long, in which the pace of studies is quite fast. There is both a heavy workload and many tasks which you are required to complete in the given time; therefore, it is very important to deal with this factor carefully in order to take advantage of time in the best and most efficient way. **From our experience, many problems arise, which proper time management can fix. Some are:**

- The worry that it is impossible to complete all of the things you have to do in a week...
- The feeling of frustration and exhaustion that there is no time to breathe and definitely no time to enjoy life...
- The difficulty developing self-discipline and avoiding temptations...
- The tendency to procrastinate on an urgent task because there are other tasks and other subjects that also require your attention...
- Giving a disproportionate amount of your attention to one subject while work in your other courses suffers...

When your studying is not planned out, your energy is spent on putting out fires, and you end up working on what is **urgent** and not necessarily **important**.

When managing your studies, you must take into account your own personal data and the academic requirements of different courses. Your personal data includes: studying skills, mood, financial and personal issues, etc. Academic requirements include: attendance in lectures and discussions, turning in your work, mid-term exams (which there is a tendency, for some reason, to crowd into one week), lab reports and problem sets.

Pay attention to your "time wasters" – long telephone conversations, the internet, and others. All of these require you to plan out an ultimate schedule; meaning, a flexible schedule in which you can accomplish many different things in the given time period. It could be that at the beginning it will be difficult to plan these things out. In the beginning, determine a specific hour each week that you will plan the week ahead, and ten minutes a day to plan the next day. Write everything down in a detailed and orderly

fashion. After a short period of time you will see that this turns into a habit. That is the behavior that allows for change.

## **Semester Planning**

Write down in your calendar the dates for turning in problem sets, dates of quizzes and tests, preparation of lab reports and computer programs for each subject and how they spread out over the semester. This act of writing everything down will become the outline on the basis of which you will build your weekly and daily schedule, which will be dynamic and will change every week and every day according to the place of that week in the semester. For example: during a specific time in the semester you will invest more time in a subject in which you have an upcoming quiz. Afterwards, toward the end of the semester, when you will finish the requirements of a subject, you will put more effort into a different subject in which you have an upcoming test.

## **Weekly and Daily Planning**

Weekly planning allows you to *initiate* learning. When your studying is not planned out, all of your energy is focused on putting out fires and not on taking initiative. Planning gives you control over your daily life.

Principles of planning a schedule:

- Organize your frontal learning schedule (lectures and discussions).
- Make a list of activities and personal errands. Rate them according to importance and organize them into your schedule as well. Take advantage of "holes" in your schedule for these.
- Determine academic tasks for yourself and objectives you want to achieve by the end of the week (reviewing theoretical material, summaries, turning in an exercise, etc.). It is recommended that you divide each task into concrete activities, for example: studying for Calculus 1 may include reviewing theoretical material, solving problem sets, preparing for a quiz, making up material that you missed, meeting with a friend or teacher's assistant, etc. Define specific goals that you can check whether or not you have reached.
- Arrange the tasks according to order of importance and urgency and enter them in to your schedule accordingly. Try to estimate how much time each task will take. You will not dedicate the same amount of study time for each course. There are courses that the level of preparation necessary or difficulty of the material is such that you will need to dedicate more time than for courses that are relatively easier for you.

- Use the schedule for a few days. You will not always be able to complete all of the tasks, but you should be able to finish the most important ones. From the comparison of what is desirable versus the reality, you will be able to make conclusions about the tasks you were able to complete and those that were put off, what caused you to stop studying and when you were the most focused.

Below you will find a chart with different roles and goals. Fill them in and rate in terms of importance. Then use the **Weekly Planning Calendar**- fill in courses and other "Have to does" and your goals for the week. Be as specific as you can but also realistic.

**Weekly Diary**

**Goals and Roles**

	← student
	← Social
	← Personal
	←

### Weekly Planning Calendar

Time/Day	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
07:30-08:30							
08:30-09:30							
09:30-10:30							
10:30-11:30							
11:30-12:30							
12:30-13:30							
13:30-14:30							
14:30-15:30							
15:30-16:30							
16:30-17:30							
17:30-18:30							
18:30-19:30							
19:30-20:30							
20:30-21:30							
21:30-22:30							
22:30-23:30							
23:30-00:30							

## Test Preparation Strategy

Learning and success in your studies are the products of a continuous process. The test is the culmination of that process. The process has continuous tasks such as: submitting problem sets, lab reports, computer reports and tests. The tests are a natural part of the continuum and the effort. If you fail a test, you can take a Moed B – second chance test.

It is true that at the Technion your academic achievements are determined principally by your test grades. Here you will be required to use the knowledge you have acquired to solve familiar or new problems during a short period of time. Therefore you will need a special study system. According to our experience, this is also a learned skill and we have useful tips to help get you on the right track.

In this section we will present you with a model for test preparation that many students have found to be helpful. You can use this model to improve your studying and obtain the results you want.

### Test Periods

**Mid-term exams** – Half-way through each semester there are mid-term examinations in most subjects. It is highly recommended to attend these tests even if they are "protective" tests. This is in order to try out a test situation and learn lessons about the level and pace required in a test.

**Final exams** – Given at the end of the semester over a two-week period. It is recommended that you clarify test dates already at the beginning of the semester in order to plan your study schedule for the exam period.

*If you know something, say, "I know." If you don't know, admit "I don't know." In this way knowledge is expressed. (kung-fu-tze)*

## Test Preparation

During the final exam period, the time factor is critical because the exams are concentrated in a three-week period. During this period, there is not enough time to study new material and to practice properly. Therefore, it is highly recommended to review and practice the material studied throughout the semester and not only before final exams. In this way, you will have time close to exams to focus on problematic subjects that need additional practice. Attempts to cram a lot of material into a short period of time can hurt your understanding and your grades. Before the test, it is best to take advantage of the summarized notebook that you created throughout the semester that includes pages of equations, key sentences, etc. In preparing for the test, arrange the material according to subject, types of exercises, equations, and a number of examples of solved problem sets. Pay attention to subjects in which you are sure of your understanding and dedicate more time to subjects in which understanding is weaker.

It is recommended to solve a sample of the problem sets and questions that were solved over the course of the semester and that were given in exams from previous years. Check to make sure that the material on which the previous tests are based is the same material from the current semester. Copies of tests from previous semesters can be found at the test library operated by the Student Union. Details can be found on their website:

[www.asat.org.il](http://www.asat.org.il)

When preparing for a test, it is highly recommended that you fully solve some of the problems and reach an exact final answer to the problems, instead of solving them only partially. This is because the system at the Technion pays attention not only to the understanding of principles (understanding the "way"), but also providing exact answers. These demands require a lot of practice and skill. It is important to pay attention to proper placement of the numbers in the equations and the accuracy of the mathematical calculations.

In the last stage, after you have gone over the entire range of possible problems, it is recommended to try and solve at least one complete practice test in real test conditions. That means using a clock and giving yourself the same length of time as you will be given in the real test, without a break in the middle, without letting anyone else help you, and using only the materials that you will be allowed to bring with you in the test. It may be that such a test will reveal that your level of knowledge is good or it may reveal that there are still topics on which you need to focus more time.

It is recommended, at the last stage of your preparation, to study with another student in order for you to receive feedback on your knowledge and to learn other approaches to solving problems. It is also recommended during the final exam period to make a point of getting a good night's sleep and to eat properly, in order to allow your body to work efficiently. There is no point in preparing for a test at the last minute. It is important to keep yourself thinking clearly and maintain your ability to focus. If you have finished studying for an upcoming test, it is highly recommended not move on to other subjects, in order to prevent the new information from "covering up" the older information.

*In the middle of every difficulty lies an opportunity. (Albert Einstein)*

## **Test Behavior**

Students have put together an approach for writing tests that they have found to be effective:

- Read the test instructions carefully.
- Read the questions – there are two approaches to reading the questions. The first is to read all of the questions from the beginning to end and not to begin solving them immediately in order. Instead, begin with the easiest questions and only afterwards work on the more difficult ones. The second approach suggests that after reading the test instructions carefully, begin immediately to solve the questions in the order in which they appear without reading all of the questions first. If the question is written in an unclear way, write the question in your own words while rewriting the data provided and search for the unknown and the relevant equations. Find the relationship between the data provided and the unknown. List the basic assumptions on which the answer is based. Try to remember a similar question that was asked on a previous version of the test and look for the differences between them.
- Divide the time provided among the number of questions given and leave time for double-checking your answers or finishing questions that took you longer than you expected. Treat each question like its own mini-test, isolate it from the rest of the questions and dedicate the amount of time you set aside to work on it. If the time you set aside for a question is over and you still have yet to complete it, move to the next question and return to the unfinished question at the end of the test (during the time you set aside for double-checking your answers). Sometimes when you return to a question you were previously stuck on, the answer will suddenly reveal itself. These "miracles" are related to brain phenomena in the memory structure and the cognitive system. Many students report this phenomenon and are very happy to have experienced it.
- It is recommended to work on each one of the questions, even if you can only provide a partial answer. In the case that the wording of the question is unclear, it is recommended that you consult with your professor or teacher's aid.

*I always see problems as an opportunity in work clothes. (Henry Kaiser)*

### **Suggestions for Multiple-Choice Tests**

Multiple-choice tests at the Technion are very different from those you have encountered in the past because you won't be asked to find the right answer as it arises from intuition or immediate understanding, and you can't reach the answer through process of elimination. Instead, you will have to read the questions carefully, solve them completely and only then to look for the answer that you came to from the list of possible answers. From our experience, there is almost no chance that you will be able to find the correct answer by working from the end to the beginning. Therefore, the multiple-choice tests and the open tests are very similar in the way in which you will prepare for them and the way in which you will approach solving them.

Medical school students – most of the tests you will receive are multiple-choice. This is a system of evaluation that you will encounter throughout your studies. Here you will be required to find the most correct answer when there are answers that are definitely correct but do not fulfill all of the conditions. Here you will use process of elimination.

Accordingly, we suggest:

- Divide the time you have among the number of questions in the test and begin to solve the test with a clock in front of you.
- Read the question carefully.
- Read all of the possible answers to the question. Pay special attention to answers such as "all of the above" or "answers 2 and 3", because sometimes there is more than one right answer. Pay special attention to answers that include: always, usually, all, incorrect, does not exist, when, etc.
- Mark the answer that seems to be the most right to you. In this way answer all of the questions of which you are certain. Mark a plus (+) on all of the questions you are unsure of and a minus (-) on those you do not know. After you have solved all of the questions you are sure of, answer the questions according to the following order: first answer the ones marked with a plus and only afterwards answer the ones marked with a minus.
- Try not to change your choices, unless you have a good reason for doing so.
- Check the test when you are done; be especially sure that you marked the answers you intended to mark on your answer sheet. If you know that points are taken off for wrong answers, do not take your chances with a guess. If it was clearly stated that points will not be taken off for wrong answers (in those circumstances when you have no idea how to solve a problem), guess the correct answer.

## **After the Test**

After the test, of course you will feel relief, you will be able to breathe easier, but it is also **important to reflect on the lessons of the experience and identify areas in which you could have done better:**

**Test preparation** – You can think about if you had prepared for the test differently: if you had solved more problem sets, spent more time on theory, tried to solve more problems independently and not always with a partner, etc.

**Identifying mistakes** – You can ask for a copy of the test booklet and see if your mistakes were made in your calculations, memory error, mistakes coming from misunderstanding the question, from copying the wrong number, or from misunderstanding the material. From our experience, the most common errors among students are related to simple calculation mistakes or from copying the numbers in the question incorrectly. Usually you can appeal a grade on a test within two weeks of the grade being published. An appeal is submitted to the department of the subject in which you took the test.

**Nervousness/stress** – Clarify whether low achievement comes from nervousness and stress (see the section on test anxiety).

**Failing the tests** – In the case of failing a test, there is usually an opportunity to correct your answers. This is an advantage of the learning system at the Technion. You can improve your grade by retaking the test during the second round of exams. Build for yourself a system of improvement and supervision for the second round and dedicate more time to studying your problematic areas. If you have a problem in basic understanding of the material, it is recommended that you review the entire subject. In the case that you are not satisfied with your grade, even if it is a passing grade (over 55) you can improve your grade in the second round. In any case, remember that the last grade is the one that determines your grade. It is always recommended to check whether it is favorable to retake the test in the second round. It is important to remember that sometimes you will receive a grade that is slightly higher than your actual knowledge in a course, and sometimes you will receive a grade that is slightly lower. Sometimes, when the subject is basic and important it is a good idea to study a second time in order to get a good foundation of knowledge. However, you should always take the timing into account. In the winter semester there is almost no time to prepare for the second round of tests that takes place very close to the first round. This is not true in the spring semester, in which the second round of testing takes place about two months after the first round.

*It is neither good nor bad, but thinking makes it so. (Shakespeare)*

## Test Stress and Anxiety

We all get stressed out about tests. Stress, to a certain extent, has its advantages. We become more alert and pay more attention in order to succeed in the task at hand. Researchers have proven that over a certain level stress turns into anxiety, which harms functioning. In this situation, ability cannot be realized and a decrease in the level of implementation begins.

When stress is high, there are students that report physiological phenomena like stomach aches, fast heart beats, sweating, shaking, shortness of breath, insomnia the night before the test and more. Sometimes, there are phenomena that are not related to physical symptoms but harm use of thought processes like memory loss, trivial mistakes, inability to focus on reading the numbers in the question and improperly copying symbols from the question. One of the most obvious signs is entering into a mistaken understanding of solving the problem and inability to think of other alternatives. A serious expression of disruption in thought processes is what is called by students a "black out," which means a complete inability to think properly.

Sometimes it is a one-time occurrence; for example, fear of a specific subject that we put a lot of importance on...yet if the phenomenon returns and exams are seen as a threatening experience, there could be a number of reasons: extremely high internal demands to always achieve the highest grades (no matter what the cost), or not believing you have a chance of succeeding, sometimes because of personal tendencies of worrying in times of stress or disabled learning skills.

No matter what the reason, the side effects of stress are that your attention is focused on yourself, your anxiety, that internal negative voice and not on the test or the tasks you are meant to carry out. So it is difficult even to start reading or to copy numbers. The way of thinking in this situation is negative and includes a typical internal voice:

- I am starting out with only a 70
- I am sure that I will fail
- Everyone else except for me has already started
- If I studied so hard and still can't solve this problem, that's a sign that I am not very smart
- Why does it never work out for me
- All of the test questions from previous years that I solved were much easier than this
- If I fail at Calculus, it's a sign that the Technion is not right for me
- I wish my hands would stop shaking....

These negative thoughts reduce our ability to focus. They are usually characterized by profound self-criticism and are not rational. At this point stop and try to check – who taught you to think this way? How did you let these thoughts control you? It is in our power to create other thoughts that will lead us to other feelings and behaviors. Because in the same way that you chose a negative internal voice that predicts catastrophes, you can choose a positive and reassuring internal voice. You have the responsibility to choose your thoughts, and this takes practice in talking to yourself. Teach yourself to use a positive inner voice and be convinced that for you can treat each test with the appropriate proportions, and you can choose among alternatives that are not all black and white...

We have learned from students that have already finished their studies at the Technion (and dropout rate of the Technion is very low) that:

- Success is a relative concept
- You can't always succeed
- Sometimes there are difficult subjects that even "smart people" find difficult
- Sometimes you understand and succeed and other times you only moderately understand and still succeed quite well
- There is always the second round of tests...

Positive thoughts not only influence your thinking ability, but also your physical functioning. And the opposite is also true, physical relaxation positively influences thinking efficiency. Researchers point to the fact that when we are physically relaxed and the feeling of control is returned to us, we are free from compulsive tasks and are open to think about the destination ahead. There are many different methods of relaxation: running, walking, swimming, yoga, deep breathing, muscle relaxation, use of imagination, music, and more.

Everyone must find what works for them. If the feelings of stress and anxiety keep coming back and you feel like you have lost control over them, it is important that you turn to appropriate counseling and treatment services offered by the Guidance counselor. Treatment usually includes learning self-control and relaxation techniques as well as turning your inner voice from a negative and critical channel to a positive and encouraging one. All of these techniques will increase your chance of success.

*There are those who see everything through rose-colored glasses.*

*That's not healthy everyone says - it's even very dangerous.*

*There are those who see everything through a gray fog.*

*It's just a different form of the same disease.*

*Don't put on glasses*

*Rose-colored or gray.*

*Look with your eyes*

*Eyes wide open.*

*(Natan Alterman)*

## **Common Problems during the First Semester**

*Hope is a chance worth taking. (Anonymous)*

### **Feeling Disoriented and Not Understanding the Material**

Sometimes it happens that you don't understand part of the academic material. Maybe it has been a long time since you have studied in a classroom, maybe the professor is hard to understand, or maybe the material is just really difficult. It is recommended that you talk about it with your classmates. You might find that everyone in the class is having this problem. It often happens that things are unclear at the beginning and it takes a while to "process" them. If you are having difficulty understanding the material, it is recommended that you see your professors and teacher's aides during their office hours. You may want to get lessons from outstanding students – tutors that will explain the material and teach you "how to learn."

### **Feeling Confused and Unable to Concentrate**

It is possible that during the first few weeks you will feel a bit confused. The material is new and difficult to understand.

You might not be able to focus. This can happen due to the heavy workload or especially due to high expectations. Until now you have been in the top ten percent of your school, and here it is difficult to stand out, especially in your first year. At the Technion, the unrealistic expectation to always get high grades is a "common disease." Sometimes, the aspiration to get 100 causes your brain to freeze, because during a test or problem set you are focused on the grade and forget to study the details, you skip entire paragraphs, etc. Sometimes lack of concentration comes from the fact that the tasks seem difficult, too difficult to even begin. The system is to break down each complex task into smaller individual tasks.

The point is to begin.

You must remember that you are going through a big change in all areas of your life: in making new friends, organizing your free hours, study habits, economic considerations...so usually the following questions and doubts arise:

What am I even doing here? Have I made the right decision? Who should I make friends with, and how? What will they think of me? How will I tell my parents? My friends?

These are common questions during transition periods. It is natural and happens to most of us. It takes time for us to find our place in the classroom, in the dormitories and the academic environment. Usually if you talk with your classmates, you will find that they are also having similar feelings.

In any case, if the confusion continues and you would like to talk about it, you can turn to a counselor.

### **Feeling like Your Classes are Irrelevant to your Major**

It is a common feeling and a justified one, because you begin with introductory courses that make up the building blocks of for the subjects in your major that you will study later on. The structure of studies at the Technion is hierarchical. In the first year, you will study a wide range of scientific topics. Therefore, at this stage, do not hold on too tightly to the critical opinion, because in the future, the courses in your major will include labs and projects that will bring you closer to the working world and will add depth to your studies. In addition, later on in your studies you will find that your previous knowledge will add and deepen your understanding and increase your mental flexibility to be independent in your learning and your thinking.

### **Feeling that Your Major Isn't Right for You**

There are students that deliberate over how well their major suits them. This kind of deliberation lowers the level of motivation and makes academic success more difficult to achieve. Sometimes this deliberation is based on the mistaken expectation that "there is only one major that meets my expectations and is suitable for me" and that I am obligated to find that "magical major." The truth is that every individual has his or her own talents and tendencies. There is no one major to be found that expresses all of these abilities. In addition, there is a similarity within groups of different subjects. For example: there are overlapping topics between aeronautical engineering and mechanical engineering or between electrical engineering and computer science. Over the course of the years the courses become more specialized and additional areas of specialty are added to them, and in the future the areas in which you are most interested will probably also change. In order to help you clarify the reasons for your deliberation and the direction which is most fitting for you, here are a few points for your consideration:

- In the first year – courses in all departments are basic and introductory (math, physics, English, chemistry, computers). Therefore, it is difficult to conclude from the first year anything about the unique content of studies in a specific department. In the case that your dissatisfaction stems from lack of academic success, you must remember that sometimes the explanation for this is connected to a weaker academic background. The connection between lack of success and feeling unsuited to your department is very common and improving your grades can definitely increase your feeling of a "fit" with your major.

- It is possible and recommended to treat the area of your current studies as only a basic preparation and the specialization will come later, throughout your work in different places or in the framework of studying for advanced degrees. Many professions require advanced training at the level of a master's degree or higher, to which you may arrive from a wide variety of bachelor's degrees.

## **Did You Know?**

- **12,000 students study at the Technion, about a third of which study towards advanced degrees.**
- **36% of students at the Technion are women!**
- **Since its founding 84 years ago, about 60,000 engineers and scientists have finished their studies at the Technion.**
- **70% of engineers and scientists in Israel are graduates of the Technion.**
- **70% of Hi-tech managers in Israel are graduates of the Technion.**

## **To Read after the First Semester**

There are experiences that are easiest to learn from in retrospect.

During the first semester, you should focus on adjusting to a new learning framework, dealing with a wide variety of challenges that the Technion places before you and gaining basic knowledge.

The second semester should be designated to making improvements and coming to conclusions about what you learned over the first semester.

Self-examination is essential in order to give yourself a report of what you did well and what you need to improve upon. Do you prefer to study alone or with a group? Do you need to take notes during a lecture or focus on listening? Is the workload too much? Have you learned how to study for tests? Comparing yourself to others is not important.

The transcript is a picture on which one can give his or her own opinion. The picture is not coincidental and stems from the level of your investment, your coping abilities in uncertain situations and your academic abilities. Some subjects are important, and others even more so. There are subjects for which it is worthwhile to retake the course in order to obtain a higher grade, and those for which it is acceptable to "just pass."

If your academic achievements are low, you should turn to an academic counselor in your department so that he or she may help you build a schedule that matches your abilities. At the same time, we recommend that you see a guidance counselor in order to map out your difficulties and to find appropriate solutions to the problem.

The conclusions at which you will arrive will allow you to build the second semester filled with increased output while realistically self-evaluating according to the reality in which you live.

## **There in a Call, and there is an Answer...**

### **Students with Physical Disabilities**

Students with physical disabilities can receive academic and emotional counseling from the counseling staff of the Unit for Student Advancement .There is cooperation between the counseling staff and the academic faculty in order to solve any problems that stem from disabilities. Students with physical disabilities that are interested in receiving accommodation for exams are requested to fill out the forms that can be found on the website [www.undergraduate.technion.ac.il](http://www.undergraduate.technion.ac.il) under Student Services > Forms. Students requesting information on accessibility to specific buildings can turn to Ms. Yonit Kaplan at [yonit@dp.technion.ac.il](mailto:yonit@dp.technion.ac.il). For students with visual impairments or learning disabilities there is a special computer lab in the Ullman Building, Floor 300, that is equipped with special accessories (text enlargement, voice support, slow text scanning and more).

### **Students with Learning Disabilities**

At the Unit for Student Advancement there is an academic and emotional support system for these students including individual counseling on studying strategies, private lessons, and more.