The Graduate School
Technion – I.I.T

Past – Present – Future
* The Graduate School
  - is the Soul of the Technion

It has brilliant graduate students and produces new generations of researchers and the technological leaders of Israel.
Graduate Studies

The Master Degrees:

MSc
Master of Science

ME
Master of Engineering

MBA
Master of Business Administration

and the Doctorate:

PhD
Doctor of Philosophy
The Masters Level

<table>
<thead>
<tr>
<th>Program</th>
<th># of thesis credits</th>
<th># of course credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc with a Research Thesis</td>
<td>20</td>
<td>16-24</td>
</tr>
<tr>
<td>MSc with a Major Eng. Project</td>
<td>20</td>
<td>16-24</td>
</tr>
<tr>
<td>MSc with a Final Paper</td>
<td>12</td>
<td>28-36</td>
</tr>
</tbody>
</table>

under the guideline of a faculty/adjunct advisor, and trains students to do advanced research, a project work or literature surveys.

- ME no research but with a final project course

- MBA for students with various previous backgrounds (with an emphasis on engineering) furthers managerial skills.
The PhD Level

- A major research leading to publication/s in high quality international journals.
- Under the guidance of a senior faculty advisor.
- Prepares students for:
  - Academia
  - Industrial R & D
  - Leadership
Graduate School Funding 2001-2005
in scholarship portions (around 1000 NIS each)
Scholarships are given only to research students (and mostly for those fully committed to full time research at the Technion.)

00/01: 64426
01/02: 59336
02/03: 57633
03/04: 53744
04/05: 53160

0 10000 20000 30000 40000 50000 60000 70000

00/01 01/02 02/03 03/04 04/05
Total Faculty vs. Total PhD and MSc Research Graduates 1999-2004

- Faculty
- Total MSc+PhD Research Graduates
Total Faculty vs. PhD and MSc Research Students 1999-2004

- Faculty: 2355, 2389, 2401, 2280, 2279, 2277
- Research students (PhD, MSc): 605, 626, 641, 631, 637, 645

Year:
- 1999: Faculty 2277, Research students 645
- 2000: Faculty 2279, Research students 637
- 2001: Faculty 2280, Research students 631
- 2002: Faculty 2401, Research students 641
- 2003: Faculty 2389, Research students 626
- 2004: Faculty 2355, Research students 605
Numbers of ME and MBA (Non-thesis Master Students) 1999-2004

1/1999: 695
1/2000: 824
1/2001: 955
1/2002: 1150
1/2003: 1240
1/2004: 1242
Numbers of MSc and PhD Students 1999-2004

- MSc research students
- PhD

<table>
<thead>
<tr>
<th>Year</th>
<th>MSc</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1999</td>
<td>633</td>
<td>1644</td>
</tr>
<tr>
<td>1/2000</td>
<td>624</td>
<td>1641</td>
</tr>
<tr>
<td>1/2001</td>
<td>624</td>
<td>1656</td>
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<tr>
<td>1/2002</td>
<td>663</td>
<td>1738</td>
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<tr>
<td>1/2003</td>
<td>742</td>
<td>1647</td>
</tr>
<tr>
<td>1/2004</td>
<td>813</td>
<td>1542</td>
</tr>
</tbody>
</table>

Graph shows the number of MSc and PhD students from 1999 to 2004, with a slight decrease observed from 2000 to 2004.
* Research Capacity

Technion faculty presently advises an average of about 4 research students. If we have ~ 600 faculty members (every 7th year 1/7 of faculty goes on sabbatical) the maximal advising capacity is limited to 2500 research students.

Therefore we may aim for ~1250 MSc research students ~1250 PhD students

(And we are almost there!)
* The Future

To increase the Graduate School –

1. We need to hire more faculty and/or encourage faculty to advise more students. An average of 6-7 students is, in some fields, quite a reasonable load.

2. We need more support for internal research students (note that PhD and research MSc students cost more and stay longer with us).

3. We need to increase enrollment in non-research master programs (and in this to use wisely the "Continuous Education and Advanced Studies" unit).
Percentage of Graduate Students in the Technion and in USA leading Universities

- Johns Hopkins
- U. of Chicago
- MIT
- UCSF
- Columbia
- CalTech
- Stanford
- Harvard
- Carnegie Mellon
- Yale
- NYU
- U. of Rochester
- USC
- U. Penn
- Princeton
- UCLA
- Technion IIT
- U. of Maryland CP
- Berkeley
- Yeshiva U.
- U. of Washington Seattle
- U. Wisconsin Madison

Values:
- Johns Hopkins: 66.8%
- U. of Chicago: 59.8%
- MIT: 59.5%
- UCSF: 57.9%
- Columbia: 55.7%
- CalTech: 55.7%
- Stanford: 54.1%
- Harvard: 49.9%
- Carnegie Mellon: 42.4%
- Yale: 41.6%
- NYU: 40.2%
- U. of Rochester: 40.0%
- USC: 38.7%
- U. Penn: 37.0%
- Princeton: 30.3%
- UCLA: 28.8%
- Technion IIT: 27.0%
- U. of Maryland CP: 27.0%
- Berkeley: 25.0%
- Yeshiva U.: 24.8%
- U. of Washington Seattle: 22.9%
- U. Wisconsin Madison: 21.5%
* Proposal for the Future

Make the Technion an advanced research university by establishing a 5-years non-research Master's degrees as the main study program in each department. Any student will have the option to leave after 3 years with a BA degree (in some fields) or after 4 years with a BSc degree. The best students will have the option to enter to an MSc/PhD research program, from the five year program. This way we can have a Technion which is essentially a Graduate School. That will also produce high level undergraduates. The ideal numbers, in my opinion, are 6000 undergraduates + 6000 graduates (who will continue past the 4th year, of which ~ 3000 will be research students – MSc's & PhD's).