L.E.A.P.

2017 Final Report
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This year is the thirteenth successful year of the Learning Enrichment Advancement Program (L.E.A.P.) at McMaster University. We would like to thank everyone who contributed to our program whether it be financial support, volunteering time, and/or equipment. L.E.A.P. would not be as successful without the generous support of McMaster’s Faculty of Engineering, McMaster Engineering Alumni, industry partners, sponsors, parents, and students.

Our goal for 2017 was to expand the program by adding three new streams, increasing the variety of options offered to high school students. The addition of the B-Tech 101 stream exposed students to a hands-on approach to engineering and technology, with a focus on process automation, biotechnology and automotive technology. The Business 101 stream stemmed from the Engineering and Management program at McMaster University, encompassing marketing, strategic management, information systems, and human resources. The Computer Science stream was developed to give students a more in depth and advanced coding experience from Codemakers++, involving many more programming languages and challenging projects. We are proud to announce that our expansion of the Learning Enrichment Advancement Program has resulted in record breaking enrollment for the summer of 2017.

Along with developing and delivering high caliber projects in STEM, our enthusiastic team of instructors reached even more students through free high school workshops in the Hamilton and Greater Toronto Area. Our staff were able to inspire students to pursue and acknowledge the opportunities that surround them in the engineering and science professions.

Although we are moving on to pursing our respective engineering fields, we will always remember the amazing experiences we have had with the Learning Enrichment Advancement Program. As directors, there is no better reward than seeing the growth both personally and technically in every single student that passes through our program. We are excited to see L.E.A.P. grow and prosper in future years to come!

David Jeon
Director
L.E.A.P.

Kristin Bennett
Assistant Director
L.E.A.P.

Marc Peters
Assistant Director
L.E.A.P.

Carm Vespi
Manager
Alumni Relations
& Youth Programs
Our Mission

*Inspire, Engage, Design*

L.E.A.P. for high school students was initiated by Dean Elbestawi and was brought to life in 2005 by Carm Vespi and Dr. Stephen Velduis (Mechanical Engineering) in response to the increasing demand of the Venture Summer Camps for elementary school students. Over the past thirteen years, LEAP has grown in enrollment and continuing to increase due to our innovative approach to teaching youth about STEM.

The L.E.A.P. staff are devoted to providing the best possible experience for our students. Our current structure allows students to choose one or more of eleven unique streams we offer, each of which combine complementary engineering, science, and management disciplines. The programs at L.E.A.P. provide insight into every engineering discipline offered at McMaster University.

Our goal at The Learning Enrichment Advancement Program is to expose high school youth to the opportunities they may have never been aware of, surrounding engineering, science, and management. L.E.A.P. gives students the chance to explore these career opportunities by showcasing programs at McMaster University through each stream we offer.

It is our mission to encourage creativity, innovation, and excellence, all while maintaining an inclusive environment and breaking stereotypes. We strive to foster personal growth by inspiring youth to pursue their passion for the STEM fields.
In summer 2017, the L.E.A.P. program offered eleven streams catering to different disciplines and aspects of engineering, science, technology, and management. The variety of streams allowed students to explore their interests in many ways.

**Bioengineering and Biomedical**
- **B-Tech 101**
- **Business 101**
- **Civil and Environmental Engineering**
- **Codemakers++**
- **Computer Science**
- **Electrical and Mechatronics**
- **Engineering 101**
- **Engineering Physics**
- **Mechanical and Materials Engineering**
- **Science 101**
L.E.A.P. is excited to announce a record breaking enrollment of 479 students this year! Our expansion of the program has resulted in our success, and helped increase in our reach internationally.

Our efforts put towards inspiring young women to pursue STEM fields has resulted in an enrollment of 47% females of 479 students!
L.E.A.P. Workshop Statistics
2017
Travelling Workshop Schools

L.E.A.P. delivered various travelling workshops to 24 schools across the Greater Hamilton-Toronto Area. Our team reached 2,532 high school students through travelling workshops, and 3,171 high school students through other outreach initiatives.

<table>
<thead>
<tr>
<th>Conference</th>
<th>Number of Students Reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenforest STEM Conference</td>
<td>225</td>
</tr>
<tr>
<td>Innovation 150</td>
<td>1700</td>
</tr>
<tr>
<td>Discovery Day</td>
<td>50</td>
</tr>
<tr>
<td>Girls Conference</td>
<td>35</td>
</tr>
<tr>
<td>Jacob Hespeler</td>
<td>50</td>
</tr>
<tr>
<td>Take Your Kids to Work Day</td>
<td>15</td>
</tr>
<tr>
<td>Go CODE Girl*</td>
<td>19</td>
</tr>
<tr>
<td>Go ENG Girl*</td>
<td>85</td>
</tr>
<tr>
<td>Women in Engineering Overnight</td>
<td>36</td>
</tr>
<tr>
<td>Engineering and Science Olympics</td>
<td>100</td>
</tr>
<tr>
<td>RISE Conference</td>
<td>22</td>
</tr>
<tr>
<td>More Gems Event</td>
<td>75</td>
</tr>
<tr>
<td>Global Engineering Conference</td>
<td>8</td>
</tr>
<tr>
<td>BASEF</td>
<td>500</td>
</tr>
<tr>
<td>STAO Conference</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2532</strong></td>
</tr>
</tbody>
</table>

* Girls in grades 9-12
L.E.A.P. has continued its effort in reaching students internationally by increasing countries enrolled by **150%** from the previous year. This year, international students composed **7.5% of L.E.A.P.’s total enrollment**, including students from Italy, Pakistan, Taiwan, China, Japan, Saudi Arabia, Turkey, Czech Republic, Moldova, Singapore, and United Arab Emirates. Students from the United States of America were also in attendance!

"Your program has raised my kid’s confidence and interest in engineering big time. Kudos to the faculty and the Engineering Alumni Office for making this this easy for international applicants. Thank you all at LEAP" – Parent of International L.E.A.P. Student
L.E.A.P.’s Impact

✓ Expanded program to engage **5,703 students** through travelling workshop and outreach initiatives

✓ Expanded our summer program to reach **479 high school students**

✓ Provided co-op opportunities for **28 Undergraduate McMaster Engineering and Science** students

✓ Developed 3 new programs, **Computer Science, Business 101, and B-Tech 101**; increasing our program capacity by 225 students

✓ Awarded **15 bursaries** to female students to attend L.E.A.P.

✓ Awarded **13 scholarships** to attend L.E.A.P. from various engineering departments

✓ Awarded **9 entrance scholarships** to McMaster Engineering for exceptional students who participated in L.E.A.P

✓ Organized **two educational conferences** for **71 girls** total in grades 9 through 12 and awarded **10 entrance scholarships** from the Dean to attend McMaster Engineering

✓ Featured on **CHCH Hamilton News** to promote STEM projects and L.E.A.P.

✓ Increased international country enrollment by **150%**
L.E.A.P.’s Industry Tours

L.E.A.P. offers students the unique opportunity to experience real world applications of engineering and science through engaging industry tours. Every stream at L.E.A.P. attended tours that were relevant to their specific curriculum.

St. Joseph’s Hospital

Canmet Materials

Mohawk College Biotechnology Laboratories
L.E.A.P.’s Industry Tours

McMaster Nuclear Reactor (MNR)

McMaster Automotive Resource Center (MARC)

McMaster Applied Dynamics Laboratory (ADL)
Stay in Residence with L.E.A.P.!

In addition to the program experience, L.E.A.P. offers students a two week stay in one of McMaster’s many residence building: Mary E. Keyes! Students not only get to stay in residence but they get to participate in a wide variety of after program activities that give students’ insight on what a first year at McMaster University would be like.

Alpine Tower Climbing Course

Lazer Mania

Day Trip to Canada’s Wonderland
Parent and Student Comments

“My son LOVED it. He was so impressed with the scope of projects and the variety. He never complained once which means he really liked it. Lots of talk about what they did every day. Thank you - it was a great program and we will certainly consider for next year!! ” – L.E.A.P. Parent

“It was an amazing experience and I feel that it has helped me expand my horizons. After this program, I was able to develop a new interest for engineering and build a better understanding for science.” – Science 101 Student

“As parents, we look forward to seeing what she comes up with for her science projects in the coming year. As parents we are grateful to leading Universities giving our children a serious look and providing insights into ever evolving fields of post-secondary study choices and access to faculty.” – L.E.A.P. Parent

“I really enjoyed how interactive and fast paced this camp was as my high school education consists of very little engineering and hands on labs and experiments. I feel that what I have been able to do in two weeks my school does not offer in high school at all.” – Engineering 101 Student

“My daughter really enjoyed the camp. We sent her because she loves science and is thinking about engineering for university. We also sent her because she is very shy in new situations and we wanted her to get a feel for being on the campus as McMaster will be her first choice for university. She said the group of kids and instructors were great. She didn’t want it to end. That says a lot! Great experience.” – L.E.A.P. Parent
Closing Remarks

Every year, McMaster University’s Learning Enrichment Advancement Program provides students with the opportunity to explore science, technology, engineering and mathematics while fostering personal growth, creativity, critical thinking, and interpersonal skills. The students attending L.E.A.P. get the chance to work with undergraduate instructors, graduate students, and professors at McMaster University. We seek to provide students with a unique engineering curriculum for each L.E.A.P. stream where the students will not only learn something new, but also learn about potential job opportunities in the future.

This year, L.E.A.P. increased its outreach to student through providing an increase of workshops to the Hamilton and Greater Toronto Area. Our efforts were well received by schools, which lead to an overall increase in enrolment within our program; reaching our highest enrolment total of 479 students. Moreover, we plan on increasing our outreach by hosting more international students with our program. The exchange of ideas between students from all parts of the world allows for new perspectives and ways of thinking to be developed, therefore enhancing collaborative and critical learning skills.

L.E.A.P. will continue to strive for excellence with its curriculum through the upcoming year as we continue to increase our current record of 479 students. The program would not be as successful as it is today without the continuous support of our dedicated staff, faculty members, sponsors and students. We thank all of those who have helped L.E.A.P. continue to be a world-class program!

Thank you for another fantastic year!
Special Thanks

Our Sponsors:

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Department of Mechanical Engineering, McMaster University

Department of Civil Engineering, McMaster University

Department of Materials Science and Engineering, McMaster University

W. Booth School of Engineering Practice and Technology, McMaster University

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