Global Clinic Sponsors
Amgen
Applied Biosystems
Bio-Rad Laboratories
Earth Observatory of Singapore
Hewlett Packard
Lien Institute for the Environment
Operation Hope Foundation

University Partners
Birla Institute of Technology (India)
Kogakuin University (Japan)
Nanyang Technological University (Singapore)
National University of Singapore (NUS)
Technion-Israel Institute of Technology
University of Iceland
University of Puerto Rico
THE GLOBAL CLINIC PROGRAM AT A GLANCE

What is the HMC Global Clinic Program?
• Built upon HMC’s internationally recognized Clinic Program.
• Prepares students to become innovative engineers and scientists in a global context.
• Projects include a corporate or foundation sponsor and an international university partner.
• Teams consist of upper-level students from HMC and a university partner, and faculty from both institutions, all of whom collaborate on projects that begin in the summer and are completed at the end of the academic year.

What does the sponsor gain?
• Useful project results such as a hardware or software prototype, a device or program to be put into production, a mathematical analysis and research investigation, or a design proposal.
• Intellectual Property Rights owned by the sponsor—patents are common.
• Fresh insight by a highly talented team of international students.
• High visibility on campus throughout the academic year, beneficial to recruiting efforts.

What is the sponsor’s involvement?
• Submission of Project Statement during the preceding spring.
• Appointment of liaison(s) to guide team to desired results through weekly contact.
• Payment of Clinic fee in installments during the year.

Mission of the HMC Global Clinic Program
The mission of the HMC Global Clinic Program is to prepare HMC students to engage in the practice of solving open interdisciplinary problems as a member of a team in a global context.

“Global Clinic provided a wonderful chance for me to gain experience working internationally across cultural and geographic boundaries. I had the opportunity to travel to Iceland and experience a truly unique natural and social setting while also becoming exposed to the nuances of project management and execution in a foreign country. Though I anticipated Iceland to be fairly similar to the U.S. in its style of engineering and project delivery, we found the project management aspect to offer even greater learning during the year than the technical. Through our involvement with the University of Iceland, we not only worked on an amazing application of waste heat to create small-scale renewable power, but learned how to work with a team half a world away, communicate with advisors and team members from abroad, and coordinate project delivery despite differences in resource availability and location. And, in doing all of this, we also had a lot of fun and made friends with our Icelandic counterparts!”

Robert Best ’10
Engineering major, HMC

Project
Waste Heat Reclamation Via a Small-Scale Organic Rankine Cycle
(with the University of Iceland)

Fellowship Cite
In 2010, Robert was one of 40 students nationwide to receive the Watson Fellowship for a year of independent exploration and travel outside the United States. Robert specifically studied eco-cities in Asia, Africa and Europe.
Harvey Mudd College has been at the forefront of undergraduate engineering, mathematics and science education for 50 years.

The History of the HMC Global Clinic Program
Recognizing that the world is becoming increasingly "flat," HMC Professor of Engineering Anthony Bright began the Global Clinic Program in 2005 to prepare students to become innovative engineers and scientists in a global context. The first two Global Clinic projects were run in Puerto Rico, with sponsors Amgen and Hewlett Packard and university partner The University of Puerto Rico. We continue to establish new partnerships with overseas universities and sponsors. Projects have been run successfully in several countries around the world, including Singapore, India and Iceland.

As companies expand their operations abroad, higher education has responded with new programs to prepare students for work in a time of unprecedented global demands for energy, food and shelter. A key element of HMC's strategic vision is to ensure that its graduates are among those prepared to meet these and other global challenges.

Global Clinic Endowment
Global Clinic was founded in 2005. In 2009, the Vickery Family generously supported the Harvey Mudd College Global Clinic Program with a $1 million endowment. Robert, an aerospace engineer, and Joan, a mathematician and software developer saw their son John Vickery '90/91 put his education into practice. John is a member of the HMC Board of Trustees and works at Sony DADC.

Goals of the Global Clinic Program
- To foster a deeper understanding in our graduates of the culture, language and business practices of another country, and to communicate shared interests and objectives in the course of collaborative team projects.
- To offer international sponsors a partnership role in the education of the next generation of engineering, mathematics and science graduates.
- To benefit society by promoting international cooperation and partnerships to address the challenges of the global community.

The Harvey Mudd College Global Clinic Program
The HMC Clinic is an internationally recognized program initiated at HMC in 1963. It brings student teams together with sponsoring industry, government and nonprofit organizations to solve real-world industry problems in an academic setting. Since its inception, over 375 organizations have participated in the HMC Clinic Program, resulting in nearly 1,400 completed projects.

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Overview and Timeline of a Global Clinic Project

Project Planning and Development: In the year preceding the start of the Global Clinic project, sponsors are identified, project details defined and liaisons are assigned to work with the student/faculty teams from partner institutions. The typical team includes three or more students each from Harvey Mudd College and the partner institution, with faculty advisors from each institution.

Project Timeline. The project runs for one full year, including both a summer and academic-year component. Projects and partners are identified and commitments confirmed typically by early spring before the Global Clinic project starts.

Summer – International Exchange: HMC students travel to the partner institution for an intensive two-to-three week program. Likewise, the students from the partner university visit HMC for a similar period of time (this can take place during the summer or during the academic year). The focus of summer work is on initial project planning, project design, meeting the liaisons, and intensive team building/acculturation activities.

Academic Year (September-May) – Remote Collaboration: The student teams remain in weekly contact with each other during the academic year via email, teleconference and videoconference and with the sponsor liaisons via a weekly multi-conference call. Global Clinic teams from both abroad and in the U.S. engage as a larger group in general Clinic support activities, such as design reviews and project presentations. Global Clinic project milestones and deadlines are aligned with those of domestic Clinic. The HMC and overseas Global Clinic teams work together on developing communication, project writing and prototype assembly. Project work culminates in final presentations at the sponsoring organization and on the HMC campus at the end of the academic year.

Faculty Supervision

Faculty members from each institution are appointed to guide the teams, monitoring progress and assisting with facilitating team communications. The faculty members work cooperatively to ensure that the academic goals for the students are met, including establishment of the summer curriculum. Each institution takes responsibility for hosting the student teams during the summer/academic-year visits.

Sponsor Involvement

The sponsor submits the Project Statement in the preceding spring. Sponsor liaison(s) are appointed to guide the team to desired results through weekly contact. In addition to appointing a project liaison, the sponsoring organization pays a fee to support the program. Payments are typically made in three equal installments at intervals during the project year.

The History of the HMC Clinic Program

The idea for the HMC Clinic Program originated in 1963 in the Department of Engineering to channel HMC student initiative, drive and intelligence into projects of a real-world nature. Founders Jack Alford and Mack Gilkeson felt that the best way to do this was to give students “clinical” experience like that which medical students receive as part of their training—thus, the name Clinic.

The flagship of our engineering program is Clinic, which includes three courses in the junior and senior years. A student team engages in the full range of professional activities associated with carrying out a project for a client, from design conception to completion. This direct experiential learning is the hallmark of clinical practice for all professions. As professionals, students learn teamwork, leadership, planning, communication, ethical responsibility not in a classroom but from the example and conduct of peers and mentors as participants of an authentic industrial project experience. The philosophy of Clinic is at the heart of the Global Clinic Program which includes students from all departments at Harvey

“This one-year program was, to say the least, challenging, especially since the project took us out of our comfort zone and it was as if we were venturing into uncharted territories. This, however, allowed me to nurture and hone critical and creative thinking, communication and management skills. The whole experience was an eye-opener for me, in particular having the opportunity to experience a real-life borderless workplace experience; it was at the same time also meaningful, knowing that the success of the project is likely to have a positive impact on the educational environment. If I had to summarise my Harvey Mudd Global Clinic Program experience, I would definitely say it was an experience beyond my wildest imagination, and I would not trade anything in exchange for this fulfilling, impactful and lasting experience.”

Sharon Chang

Physics major,
National University of Singapore

Project

Design, Building and Validation of a Low-Cost Real-Time Polymerase Chain Reaction Instrument for Copying and Quantifying DNA

“Quantifying DNA Reaction Instrument for Copying and Quantifying DNA”
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Project

Micro Vegetable Processor and Packager for Poor Rural Vegetable and Fruit Farmers in Developing Countries. This project was featured in an article about the combined efforts of NSC, Operation Hope Foundation and students in the HMC-NUS Global Clinic Program.
Mudd College. As a result of the Clinic Program, Harvey Mudd College has been at the forefront of undergraduate engineering, mathematics and science education for 50 years.

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The Global Clinic students make a series of presentations and written progress reports during the year, honing their technical writing and public speaking skills.

About Harvey Mudd College
Since its founding in 1955, Harvey Mudd College has been dedicated to educating a special breed of scientists, mathematicians and engineers with exceptional breadth in their technical education and a firm academic grounding in the humanities and social sciences. A student’s coursework is divided roughly into thirds, covering the humanities and social sciences, the Common Core (in biology, chemistry, computer science, engineering, mathematics and physics) and the student’s major. Harvey Mudd College has earned national recognition for its accomplishments, and its faculty and students rank among the nation’s best. HMC has consistently been rated as one of the most selective colleges in the nation. A low student-faculty ratio (8:1) enhances close interaction between students and the faculty, all of whom hold a Ph.D. degree or a terminal degree in their field and many of whom have industrial experience.

Located in Southern California, Harvey Mudd College is a member of The Claremont Colleges, a group of five distinctive undergraduate colleges and two graduate institutions.

For additional information, contact the Director of Corporate Relations at 909.607.7015.

“I was privileged and delighted to be the liaison for the first Global Clinic Project with an Indian university: the Birla Institute of Technology (BIT) in Ranchi, Jharkhand. At the time, I was a visiting research professor at BIT. The HMC students had a strong, diverse education over a range of disciplines, including general engineering, chemistry and global economics. The BIT students had a strong engineering education with a distinct emphasis on mechanical engineering. Despite, or because of these differences, the students bonded well and brought these diverse talents to the project at hand. It was clear from the start that the HMC students brought a higher level of innovative thinking to the project, and the BIT students brought a stronger focused engineering discipline. It was wonderful to see these students working together and, in the process, sharing their cultural differences. There is no doubt in my mind that the Global Clinic Program benefitted all involved: students, teachers and liaisons. Being involved has been one of the best experiences of my career, and I continue to seek opportunities for other projects. In my opinion, the world would be the better for an expansion of such programs to more universities in other countries; a goal that deserves to be encouraged and supported.”

Dr. Gordon Pickelt
Engineering Innovative Solutions, LLC
Global Clinic Liaison, Birla Institute of Technology
THE HARVEY MUDD COLLEGE
Global Clinic Program