

REQUEST FOR PROPOSALS

National Collegiate Inventors and
Innovators Alliance (NCIIA)

2002-2004

In 2002-2004, the National Collegiate Inventors and Innovators Alliance (NCIIA) will award over \$2 million in grants to colleges and universities to develop and support the creation of programs and projects in invention, innovation, and entrepreneurship education. We believe that invention, innovation, and entrepreneurship are essential components of the higher education curriculum and vital to the nation's economic future. We work with colleges and universities to build collaborative experiential learning programs that help nurture a new generation of innovators and entrepreneurs with strong technical and business skills.

The NCIIA is increasingly interested in and welcomes proposals for commercially viable projects that are technologically innovative and show promise to improve the environment and the human condition. Such projects should follow a sustainable entrepreneurial model. We are also particularly interested in supporting E-Teams whose demographic makeup reflects the balance and diversity of the teams' home institutions.



Stanford University received an advanced E-Team grant to support the development of **Impact Indicator**, leading to the commercialization of smart running shoes.

Our mission

The National Collegiate Inventors and Innovators Alliance fosters **invention, innovation, and entrepreneurship in higher education** as a way of creating innovative, commercially viable, and socially beneficial businesses and employment opportunities in the United States. The program was founded on the premise that invention, innovation, and entrepreneurship are essential components of the higher education curriculum and vital to the nation's economic future. The NCIIA works with colleges and universities to build collaborative experiential learning programs that help nurture a new generation of innovators and entrepreneurs with strong technical and business skills and the tools and intention to make the world a better place.

The NCIIA is an initiative of **The Lemelson Foundation**, a private philanthropy established by the prolific inventor Jerome Lemelson and his family. The Foundation seeks to stimulate the U.S. economy and secure its position in the global marketplace by nurturing the next generation of inventors, innovators, and entrepreneurs.

E-Teams

At the heart of the NCIIA's activities are programs that support the development and growth of **E-Teams**. E-Teams (the E stands for excellence and entrepreneurship) are groups of students, faculty, and industry advisors who join forces to create technologically innovative, commercially viable products that lead to the development of successful entrepreneurial ventures. E-Teams develop technologies with commercial potential while strengthening their own business skills and preparing for careers in invention, innovation, and entrepreneurship. The NCIIA has a particular interest in fostering E-Teams that reflect the diversity of the teams' home institutions.

The NCIIA grant program

In May and December of each year, the NCIIA accepts proposals for **course and program** and **advanced E-Team** grants on behalf of member colleges and universities around the country. In a competitive process, a panel of external reviewers judges each proposal's merit based on the demonstrated strength of the technical and commercial opportunity, institutional support for the proposed program or project, adherence to the mission and goals of the NCIIA, and the project's sustainability and likelihood of succeeding in the marketplace.

We support programs and courses that promote invention, innovation, entrepreneurship, and the work of E-Teams. NCIIA grants fund projects from the initial concept through exploratory E-Team coursework to the development of patents and work leading to commercialization of new products and technologies.

NCIIA grants support educational activities leading to commercialization. We offer these grants only to member colleges and universities within the United States. For information on becoming an NCIIA member, visit <http://www.nciia.org>.

Course and program grants

Faculty and staff from NCIIA member institutions apply for **course and program grants** on behalf of their college or university to develop new courses and programs in invention, innovation, and entrepreneurship, or to strengthen existing programs by adding new components or collaborating with faculty members from other disciplines. The aim of successful funded courses and programs is to structure curricula that foster and develop independent E-Teams. Course and program grants range in size from \$2,000 to \$50,000. They support programs lasting one to three years.

Advanced E-Team grants

E-Teams and/or their faculty advisors apply on behalf of their home institutions for **advanced E-Team grants** to support the development of a new product or venture from the idea stage to prototyping and preparation for commercialization. Advanced E-Team grants range in size from \$1,000 to \$20,000. The grant period is typically twelve to eighteen months.



This E-Team from the **University of Nevada at Reno** developed a GPS navigation system for the blind and visually impaired.

Requirements for submitting a grant proposal

Membership in the NCIIA

Only NCIIA member colleges and universities may apply for grants. If you're not sure about your institution's membership status, visit <http://www.nciia.org/members> to find out. At the same location, you can find membership information and download an application form. Annual membership dues are \$300 for colleges and \$500 for universities. Membership in the NCIIA provides all faculty and students at member institutions with:

- Reduced fees at NCIIA-sponsored **events**.
- Free or reduced-fee services from our **resource partners**.
- Eligibility to apply on behalf of the institution for NCIIA **grants**.
- A **network** of other members with whom to meet and share ideas.

Institutions wishing to apply for grants must apply for membership at or before the grant application deadline.

Institutional support

The NCIIA fosters student invention and entrepreneurship with the expectation that some student innovators will commercialize their services or products. We require **sponsoring institutions** to sign an agreement with The Lemelson Foundation when a grant is awarded. The agreement states in part that ownership of discoveries or inventions resulting from activities financed by NCIIA grants will be governed by grantee institutions' intellectual property policies. If a school does not have an intellectual property policy, then the institution must develop an E-Team agreement that establishes ownership of ideas resulting from E-Team work. The NCIIA and The Lemelson Foundation take no financial or ownership interest in the projects funded by these grants.

We supply copies of the grant agreement on request.

We favor proposals for courses, programs, and projects which:

- Enable E-Teams to develop technological innovations with commercial potential and/or demonstrable social benefits.
- Balance teams or curricula so they are multidisciplinary, involving students and advisors from technical, business, and humanities disciplines.
- Reflect the diversity of the home institution, and actively engage faculty and students from groups traditionally underrepresented in invention, innovation, and entrepreneurship, including women and minorities.
- Create opportunities for high quality group learning experiences.
- Move beyond academic exercises to real-life business interactions, and create viable collaborative opportunities for participants from both academe and industry.

A Case Western Reserve University E-Team that emerged from the Master of Science in Physics-Entrepreneurship Program is developing the Art-Heart Interface, a non-invasive screening test for coronary occlusive disease.



Course and Program Grants

- **\$2,000–\$50,000**
- Grant periods of **1–3 years**
- Support for **program creation** and **operations**

Course and program grants **generate** and **institutionalize** high-quality **E-Team programs** and support efforts to teach invention, innovation, and entrepreneurship in U.S. colleges and universities. We offer program development grants for multi-year periods of up to three years. Institutional or other ongoing external support of the proposed program or course is expected by the end of the grant period.

These grants primarily fund the formation and development of **early stage E-Teams** within a course. Grant funds may be used for supplies, equipment, or expenses related to product development in the initial stages of E-Team projects. Grant funds do not cover institutional overhead or faculty salaries, but can provide faculty stipends of up to \$5,000. We award grants to institutions under the supervision of the principal investigator, who distributes funds to the E-Teams as needed. Equipment and other resources purchased with grant funds become the property of the institution.

Faculty from all academic disciplines as well as managers and administrators of business development and technology transfer entities affiliated with a university or college are eligible to apply on behalf of their home institutions. Please visit the funded projects database on our website at <http://www.nciia.org/funded.html> for abstracts of the projects we have funded in past grant cycles.

Evaluation Criteria

We support courses and programs likely to generate E-Teams focusing on technological innovation and entrepreneurship. We favor proposals that demonstrate:

- **Faculty expertise** and access to expertise in appropriate areas through the involvement of advisors and mentors from both the technical and business communities.
- **Pedagogical methods** designed to encourage team formation, group problem-solving, and entrepreneurial approaches.
- An **institutional commitment** to and plan for supporting the proposed course or program on an ongoing basis beyond the grant period.
- Access to necessary **resources** from the sponsor institution (e.g., computers, space, lab equipment).
- Demonstration of commitment by the institution and faculty members to support the efforts of E-Teams that wish to **continue** their work after the course ends.
- Evidence that the course will attract and purposefully engage students and faculty from groups that have been **historically underrepresented** in invention, innovation, and entrepreneurship, particularly minorities and women.

Deliverables and Reporting Requirements

Acceptance of an NCIIA grant requires a firm commitment to **report** on the funded project in a complete and timely manner. We supply grant recipients with a suggested reporting format. To learn about reporting on-line, visit <http://www.nciia.org/grants/reporting.html>.

Grantees must submit a final report to the NCIIA at the end of the grant period. Reporting is required to ensure the institution's eligibility for future funding. Multi-year projects must submit an annual report of approximately five pages providing a summary of achievements to date and estimated expenditures for the period. We expect student and faculty participants to complete periodic **surveys** in paper and electronic format to help us assess and improve NCIIA program effectiveness.

Annual and final reports should include:

- **Course descriptions, syllabi, and auxiliary materials**, including URLs for course websites. (These materials are disseminated through the NCIIA curricular resources database.)
- An **evaluation** of the course.
- A description of **E-Teams** started during the course and a summary of their accomplishments.
- A detailed **financial report** indicating how the grant was spent.
- A summary of **future plans** for the course or program developed.



An E-Team from **Cal Poly San Luis Obispo** displays various iterations of their design for a **flexible bolt** at the **March Madness for the Mind** exhibition at the Smithsonian's National Museum of American History.

Course and Program Grant Application Narrative

Please address the following in your proposal narrative, in the order shown. Limit your narrative to five single-sided, single-spaced pages in 12-point font.

1. Provide a **brief historical narrative** describing how the course or program has developed to date. If you have received prior NCIIA funding for this project, describe the results of the funded project and attach a copy of the final grant report.
2. **Describe** the course or program.
 - Include information on content and pedagogy, including your approaches to team formation, group problem-solving, innovative thinking, and entrepreneurial approaches to problems.
 - List measurable learning objectives for the course or program.
 - Attach a syllabus and auxiliary materials.
 - Indicate when the course will be offered and how frequently you intend to offer it.
3. Discuss the **E-Teams** that will begin in this course, indicating how many students will enroll, and the number of E-Teams that will form.
4. Describe how the proposed curriculum will emphasize problem solving and will support and reward students for **innovative thinking**.
5. Explain how the proposed course or program will encourage **inventive, innovative,** and **entrepreneurial initiatives**. If appropriate, describe how the project will raise students' global awareness and bring about positive social and environmental change.
6. Attach a recent copy of the **résumés** (three pages or less per résumé) of the individuals applying on behalf of the institution, and briefly describe their qualifications.
7. Describe how the course will use **mentors** and other internal and external advisors to move E-Teams toward the formulation and execution of commercially viable projects.
8. Discuss how the course or program will attract and purposefully engage students and faculty from groups **historically underrepresented** in this field, particularly minorities and women.
9. List the **equipment** and other resources necessary for the program. Indicate how your institution will provide access to these resources.
10. Explain how the institution will support E-Teams interested in **continuing their projects** beyond the end of the course, and how it will support the program or course after the end of the grant period.
11. Attach a **letter** from your Dean, Provost, or Department Chair affirming the institution's commitment to developing and perpetuating the proposed course or program.
12. Submit an itemized **budget spreadsheet** (maximum grant award is \$50,000). Include a narrative justification for major budget items. Eligible line items include:
 - Equipment.
 - Supplies.
 - Travel.
 - Technical services.
 - Expenses related to students' performing patent searches or creating marketing analyses, business plans, or prototypes.
 - Faculty planning stipend (up to \$5,000).

Ineligible expenses include overhead, faculty salaries, honoraria over \$200 to speakers, faculty stipends totaling over \$5,000, wages for students during the academic year, publicity expenses, and legal and other expenses of business formation or operation.
13. Present your course or program **evaluation** plan. Describe in detail how you will determine whether the course or program's learning objectives have been met, including how you will measure E-Team productivity and outcomes. For tips on evaluation and assessment, visit <http://www.nciia.org/resources/assessment.html>.

Advanced E-Team Grants

- **\$1,000–20,000**
- **12–18 month** grant period
- Support for development of **innovative products** with **commercial potential**, and steps leading to **commercialization**

Advanced E-Team grants provide opportunities for experiential learning through the development of **prototypes** and **plans** leading to the commercialization of innovative products, technologies, and businesses. Student E-Team members with their faculty advisors in all academic disciplines, and managers and administrators of business development and technology transfer entities affiliated with an NCIIA member college or university may apply on behalf of their institutions.

Advanced E-Team grants support **later-stage development** of an idea and planning for its commercialization. E-Teams may form as part of a course or on the independent initiative of students, faculty, or other representatives of member institutions. Grant funds are used for supplies, equipment, or expenses related to advanced stages of project development, including certain legal fees and student stipends. The grantee institution owns any equipment purchased with an Advanced E-Team grant. NCIIA funding does not cover institutional overhead. The E-Team faculty advisor is responsible for tracking, directing, and reporting the disbursement of grant funds, and is the principal investigator of record.

An E-Team should consist of at least two graduate or undergraduate students and a faculty advisor. In addition, the team should include industry and business development advisors and mentors. If members of an E-Team come from different schools, at least one of these schools must be a member of the NCIIA and must administer the grant. Please visit the funded projects database on our website at <http://www.nciia.org/funded.html> to view abstracts of projects we have funded in past grant cycles.



The **VR Systems** E-Team from the **University of Southern California** used advanced E-Team funding to develop a panoramic virtual reality system for the treatment of acrophobia and other anxiety disorders.

Evaluation Criteria

We favor proposals for projects with realistic, well-documented **technical** and **commercial** promise; strong faculty and mentor **support**; an appropriate **balance** of technical, business, social science, and humanities team members; and a makeup that reflects the **diversity** of the population at large. We evaluate proposals using the following criteria:

- Technical **feasibility**.
- Use of technology that is **appropriate, achievable,** and **commercially sustainable**.
- A **plan** and **budget** that are reasonable and achievable.
- Likelihood of development of a **licensable** or **marketable** product or service.
- Demonstrated knowledge of **market** and evidence of consumer interest.
- Appropriate student and advisor **skills**.
- Team **membership**:
 - Balance of **business, technical,** and other specialists.
 - External **mentors**.
 - **Diversity** reflecting the institution's population.
- **Team** (faculty, students, mentors, and institution) **commitment**.
- Strong **faculty recommendations**.

Deliverables and Reporting Requirements

Acceptance of an NCIIA grant requires a firm commitment to **report** on the funded project in a complete and timely manner. We require reporting as a condition of accepting the grant, and to ensure institutional eligibility for future funding. We supply grant recipients with a suggested reporting format. To learn about reporting on-line, visit <http://www.nciia.org/grants/reporting.html>.

Grantees submit a final report to the NCIIA at the end of the grant period. We also expect grantees to participate in periodic surveys to help us assess and improve NCIIA program effectiveness.

Final and annual reports must include:

- A list of **E-Team members** and their permanent contact information.
- A completed **business plan** for the project.
- A sample **prototype** or a detailed description of prototype.
- A description of **accomplishments**.
- A 500 word **abstract** describing project objectives and achievements.
- Photographic and other **documentation** of accomplishments.
- A **financial report** detailing how the grant funds were spent.

E-Team Grant Application Narrative

Please address the following in your proposal narrative. Limit your narrative to five single-sided, single-spaced pages in 12-point font. Any member of the E-Team may submit the grant proposal on behalf of the institution.

1. **Describe** the project and its innovative features. If you have received previous NCIIA funding for this or a related project, please describe the results of the funded project and attach a copy of the final grant report and business plan.
2. Describe your project's **market potential**. Include the size of the potential market, your competitive advantages, and the project's consumer appeal. Proposals should present commercialization opportunities in a realistic and well-informed context with a survey of the existing art, basic competitive intelligence, and a clear development strategy.
3. If applicable, describe your project's social and environmental impact.
4. List **E-Team members**, their skills, and their roles in this project. Attach résumés (no more than three pages). We favor proposals from E-Teams that:
 - Involve **multidisciplinary** teams of students, faculty, and advisors from technical, business, and liberal arts disciplines.
 - Engage **mentors** and practitioners from relevant professional fields.
 - Reflect the sponsoring institution's **diversity**.
5. List **advisors** (faculty, industry experts, and mentors). Attach résumés (no more than three pages) or brief bios.
6. Provide a **work plan** and **timeline** for the project. Indicate whether the E-Team will work on the project during the summer, as an independent study during the academic year, or as part of a course. Work plans should be realistic and should clearly indicate the sequence to be followed.
7. List the **equipment** and other resources necessary for the project. Indicate whether your institution will provide access to these resources and, if not, how you will access them.

8. Include a **budget** in tabular format (maximum grant award is \$20,000). Eligible line items include:
 - Equipment.
 - Supplies.
 - Travel.
 - Technical services.
 - Expenses related to performing patent searches, disclosures and applications, or creating marketing or business plans.

Ineligible expenses include overhead, faculty salaries, stipends totaling over \$3,000 per person or \$7,500 per project, publicity expenses, and legal and other expenses of business formation and operation.

Other grant programs

Faculty participants share their success stories at an **NCIIA conference**.



Dissemination grants are available to NCIIA members who have participated in grant-supported projects. Recipients may use these grants to cover travel expenses related to presenting papers at professional conferences describing their NCIIA-funded courses, programs, or projects.

Conference sponsorship grants support the conferences of partner organizations whose members can benefit from learning more about the NCIIA and its resources.

We accept applications for dissemination and conference sponsorship grants on a rolling basis throughout the year. Please apply three to six months in advance of the event for which you seek sponsorship. You may download a faxable pdf application form for a dissemination grant from <http://www.nciia.org/grants/dissemination.pdf>. A faxable application for conference sponsorship grants is available at <http://www.nciia.org/grants/confsponsor.pdf>.

Summary table

Grant Type	Deadlines	Amount	Duration
Course and Program Grants	May 15 and December 15	\$2,000-\$50,000	One to three years
Advanced E-Team Grants	May 15 and December 15	\$1,000-\$20,000	Twelve to eighteen months
Dissemination Grants	Rolling	Up to \$1,500	One-time basis
Conference Sponsorship Grants		Variable	

NCIIA Grant Application Cover Sheet

Please submit a copy of this cover sheet, completed and signed, with each grant application. Attach one copy of the cover sheet to each of the seven packets of application materials you submit. This form is available on-line at <http://www.nciia.org/grants/application.pdf>.

Date: _____ Type of grant requested: Course and Program Advanced E-Team

Amount requested: \$ _____ Period when funds will be used: from _____ to _____
month/year month/year

Name of project: _____

Are you applying for other NCIIA grants in this cycle? yes no

If yes, please list:

Name of other proposal: 1. _____ Course and Program Advanced E-Team

Name of other proposal: 2. _____ Course and Program Advanced E-Team

Name of other proposal: 3. _____ Course and Program Advanced E-Team

Proposal abstract (250 words or less. Please attach):

Principal investigator (the lead faculty member or advisor to the project):

Name: _____ Title: _____

Department: _____ Institution: _____

Address: _____ Tel: _____

Fax: _____ E-mail: _____ URL: _____

Administrative contact (the grants administrator or fiscal officer authorized to commit the institution to the terms of the grant. The award letter will be addressed to this person.)

Name: _____ Title: _____

Department: _____ Institution: _____

Address: _____ Tel: _____

Fax: _____ E-mail: _____ URL: _____

Check here if your institution has an intellectual property policy that governs the ownership of intellectual property developed by E-Teams. Enclose a copy of this policy with your application.

Course and program grant applicants:

When will the course or program first be offered? From _____ to _____
month/year month/year

Will it be offered on a repeating basis? yes no If yes, when? fall spring other _____

Advanced E-Team grant applicants:

On a separate sheet, please list all E-Team members, including their names, status (student, faculty, industry expert), institutions, areas of expertise, and role in the project. Please indicate which member is the primary contact.

- Check here if your E-Team is applying for **equipment grants** provided by NCIIA resource partners. Attach the appropriate supplemental application form (<http://www.nciia.org/resources/equipment.html>).

Signatures

(Completed original signature page required with each application. Copy of signed application cover sheet must be attached to each of seven application packages submitted.)

Faculty advisor: _____ Date: _____

Print name: _____

Title: _____

Department chair: _____ Date: _____

Print name: _____

Title: _____

Dean of the faculty: _____ Date: _____

Print name: _____

Title: _____

Director of sponsored programs: _____ Date: _____

Print name: _____

Title: _____

MAIL THIS FORM TO NCIIA, 100 VENTURE WAY, HADLEY, MA 01035.

Questions? 413/587-2172, or info@nciia.org.

Before you submit your grant proposal:

- **Review** the guidelines carefully. Make sure that your narrative addresses **all** evaluation criteria completely and concisely. Follow all instructions carefully, and provide all the information requested. If your proposal is incomplete, poorly written and/or poorly presented, it will not be reviewed.
- **Confirm** that your institution is a member of the NCIIA, and that your membership dues are paid. You can check your status online by following the member database link at <http://www.nciia.org/members>. To join the NCIIA, download an application form, e-mail info@nciia.org, or call **413/587-2172**.
- **Familiarize** yourself with the materials at <http://www.nciia.org/resources>. These materials cover core concepts of importance to NCIIA participants.

When you are ready to submit:

- Make **six copies** of the **signed Grant Application Cover Sheet** and **all** the proposal materials, including attachments. Assemble the original application and each of the six copies with the signed cover sheet on top.
- **Mail** the seven complete packages to:

**NCIIA Grants Program
100 Venture Way
Hadley, MA 01035**

Proposals must arrive by 4:00 p.m. on the day of the deadline. We do not accept faxed proposals; however, we welcome electronic submissions. Please visit <http://www.nciia.org/grants/electronic.html> for guidelines.

NOTE: External committees of faculty, investors, and technology specialists review NCIIA grant proposals on a strictly voluntary basis. Please honor the value of their time by using the utmost care in preparing your proposal.

Other NCIIA Resources

In addition to grants, we offer a collection of resources to support invention, innovation, and entrepreneurship in higher education.

Each March, we sponsor an **annual conference**, where participants network and share resources through paper sessions, panel discussions, and workshops. The highlight of the conference is the **March Madness for the Mind E-Team Exhibition**, in which the best of NCIIA's E-Teams display and discuss prototypes of their cutting-edge innovative products. We also offer occasional **training institutes** in response to our members' needs.

Our **web site** is home to curricular resource materials, including in-depth descriptions of course and program and advanced E-Team grant projects. We also offer online student and faculty training guides to becoming an entrepreneur and starting a college entrepreneurship organization. We are expanding our resource library to include other learning guides and related resources.

NCIIA members may access special low-cost services provided by our resource partners, including rapid prototyping services, intellectual property advice, market research, and product commercialization. Visit <http://www.nciia.org/resources> to learn more.



NCIIA **annual conferences** provide great opportunities to meet and network with like-minded **faculty and students**.

Proposal timeline

For projects starting:	Proposal submission deadline:	Notification date:
Spring or summer 2003	December 15, 2002	March 1, 2003
Summer or fall 2003 or spring 2004	May 15, 2003	July 31, 2003
Spring or summer 2004	December 15, 2003	March 1, 2004
Summer or fall 2004 or spring 2005	May 15, 2004	July 31, 2004