




NATIONAL SOCIETY OF BLACK ENGINEERS

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CONSULTING DESIGN OLYMPIAD TOOLKIT

VERSION 1.0

July 2011



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CDO Program History

The Consulting Design Olympiad is in its fifth year as a NSBE competition and this year is expected to be even more spectacular than the first. Participation in Consulting Design Olympiad increases each year through team innovation. Last year, Aachen University and Morgan State University took first place (Gold) with the project “Constructing a Biogas Plant for a Boarding School in Cape Coast, Ghana”.

Bridging engineers from across the globe, this program encourages International Cooperation and breaks down the technology divide each NSBE member at a time. Get involved today in this dynamic opportunity that is sure to shape history.



Program Intent

The **Consulting Design Olympiad (CDO)** is a design project that challenges NSBE members to be global engineering consultants, enabling them to take action around issues that affect various regions of the world, and in particular the developing world. Working with their international counterparts, our members will develop strategies and innovative approaches to solving critical engineering problems.



How to Participate

i. Form Your Team

- Each team will have eight members: four from North American chapter and four from an International chapter. Your team of four must be from the same chapter. Commitment to your partnering team is a key factor for success during team building and project development. Teams are encouraged to select advisors who support global collaboration and will actively participate in coaching your team through the entire project toward success.
- Each team must conceive a project and develop a problem statement (*Refer to Section 4.0 on Problem Statement*).
- Each team must come up with a team name.
- Each team must elect a team captain who will serve the project manager and also as a liaison between the team and the International Programs Coordinator. If you have further questions please contact the International Programs Coordinator (*Refer to Section 8.0*)

NB*: Chapter Pairing Requests and Process: Each chapter should submit their own application form. On the form you must specify the chapter you are pairing with. BOTH chapters must specify each other to ensure the pairing. If you do not have a chapter to pair with and would like pairing assistance please note it on your application and fill out the section with topic interests to ensure that a suitable match can be made through the International Committee.

ii. Register your team on NOL or International Committee Website

Team captains must register their teams under event registration on the National Website or via the International Committee Website

REGISTER HERE: <http://international.nsbe.org/pages/cdo.htm>... (International Committee website)

**email form to International Programs Coordinator (contact info below)



Problem Statements:

A problem statement is a clear concise description of the issues that need to be addressed by a problem solving team. A good problem statement should answer these questions:

- What is the problem? This should explain why the team is needed.
- Who has the problem or who is the client/customer? This should explain who needs the solution and who will decide the problem has been solved.
- What form can the resolution be?
- What is the scope and limitations (in time, money, resources, and technologies) that can be used to solve the problem?

Teams must create problem statements that are technical in nature. They must encompass theory and/or application involving Engineering or the Sciences (Biology, Chemistry, Physics, Computer, or Materials). Below are some sample topic areas:

- Creating and maintaining a local WiFi network in rural Cameroon
- Viability of sugarcane fiber as an adhesive for commercial use.
- Implementing low cost solar water heaters
- Implementing small biogas plants as power plants for remote villages

Your problem statement solution should focus on the implementation and execution, rather than research. Ideal problem statements should incorporate existing ideas and technology rather than creating or requiring new research.



Important Dates

September 17, 2011	Registration Opens on NSBE national website.
October 1, 2011	International Committee Programs Coordinator begins receiving abstracts for review and comment.
November, 2011	Fall Regional Conferences includes International Chair briefing with Q&A
December 9, 2011	Last day for chapters that do not have a paired team to submit applications
December 23, 2011	Last day to register team for CDO competition participation by 11:59PM EST.
December 30, 2011	Abstracts due for review by the International Committee Programs Coordinator by 11:59PM EST.
January 13, 2012	Abstract approval is sent and CDO teams posted to website and news release.
February 17, 2012	Early Project Submission - bonus points awarded for early project submission.
February 24 , 2012	Project Submission (Consulting Design Feasibility Report, Scaled Design and Project Schedules) due by 11:59PM EST. Late projects will not be accepted.
March 2, 2012	Top teams will be notified if they will move forward for the national competition. All other teams will be asked to submit a poster for the poster competition
March 16, 2012	Final Reports (with Bench Tests or Statistical Analysis) due by 11:59PM EST.
March 19, 2012	Final reports transmitted to CDO Judges for review.
March 23, 2012	All electronic material (PowerPoint for finalists and posters for all others) must be submitted to the IC Programs Coordinator.
March 30, 2012	Presentation of projects / poster display at National Convention.
March 31, 2012	CDO Judges submit winners to International Committee.



National Competition Deliverables

All CDO deliverables are the property of the National Society of Black Engineers for the purpose of promotion and education of its mission. Each team will prepare the following deliverables for the competition:

- Abstract (Due December 30, 2011)
- Project Proposal Report (Due February 24 , 2012)
- Final Written Project Report (Due March 19, 2012)
- Oral Presentation - 20 minute PowerPoint or visual aid during National Convention (Due March 23,2012)
- Poster – For teams not competing in the Presentation round (Due March 23,2012)

Abstract

The abstract is due **December 30, 2011** although it may be submitted as early as October 1st, 2011. Submission of the abstract allows early assessment of concepts by the International Committee for the purpose of team partnering and assisting teams with project selection. Only one paragraph required including a one sentence problem idea and potential geographic location where the problem exists.

Project Proposal Report

The project proposal report is due **February 17, 2012** at 11:59pm EST to the International Programs Coordinator as a PDF email attachment. CDO Judges will use each team's project proposal report to determine which teams advance to final presentation at the National Convention. Here is a summary of everything that needs to be included in your final report.

- One paragraph abstract, revised based on comments from the International Committee
- Problem statement
- Scope
- Technical information to support your solution (including any calculations, simulations, graphs, etc that were used)
- Environmental, economic, socio-culture, or other challenges facing the proposal
- Draft proposed solution and implementation plan
- Issues raised which will be addressed in the final written report
- Preliminary reference page of information sources



Final Written Report

The final report is due **March 9, 2012** at 11:59PM to the International Programs Coordinator as a PDF email attachment. Here is a summary of everything that needs to be included in your final report.

- One paragraph abstract
- Problem statement
- Scope
- Technical information to support your solution (including any calculations, simulations, graphs, etc that were used)
- Environmental, economic, socio-culture, or other challenges facing the proposal
- Bench test, statistical analysis and/or stakeholder interviews supporting final solution
- Final solution and Implementation plan
- Conclusion on how well the issue in the problem statement was resolved
- Reference page of major information sources

*See CDO Report Specifications for more information on report format.

Poster

The poster competition is available to ALL CDO contestants including those who did not make the final presentation round. An electronic version of the poster is due **March 23rd, 2012**. The team must bring a printout of the poster to the National Convention to be presented to the judges. Date to be announced. Posters serve three audiences: the CDO Judges, attendees of the National Convention while it is on display and visitors to the NSBE International Committee website, where a JPEG or PDF version of the poster will be displayed.

Maximum poster board size allowed is 48" X 48". Only one poster is permitted per team. A 3-legged tripod wooden easel or similar stand is recommended for display of the poster. Larger fonts, 2-3 color variations, relevant graphics on the poster aid in describing the team's problem and proposed solution. Display the project title at the top and the team schools with team members, project advisors and other contributors at the bottom.



Judging, Oral Presentation and Awards

Judging

Teams will be judged by the following criteria

Collaboration (30%)

- Use of electronic resources
- Communication

Report and Proposal (20% each, total 40%)

- Quality of Research
- Grammar
- Accuracy

Oral Final Report Presentation (30%)

During Convention, teams will have 20 minutes to present on their project, with a 10-15 minute question/answer session. The time required to move onto the stage, to set-up and break-down poster and audio-visual equipment should not exceed five additional minutes for each presentation.

Judging Criteria of Oral Final Report Presentation

- Completeness of review of problem and proposed solution
- Inclusion of team members
- Use of visual aids
- Ability of team to answer judges' questions
- Delivery by team members and effectiveness of presentation
- Adherence to time constraints

Poster Presentation

Please note: Poster and Oral Presentation are judged simultaneously. Plan to incorporate your poster into your oral presentation and practice your presentation with the poster.

Judging Criteria of Poster Presentation

- Conciseness and clarity of the poster
- Completeness of the poster
- Team's knowledge of the subject
- Overall visual impression

Awards

Awards will be given to the top finalists as judged at National Convention. There will be three winners: gold, silver and bronze. Check the NSBE International Committee website for the announcement of competition award values.



International Programs Coordinator Contact Info

D'Andre Wilson
International Programs Coordinator
nsbeinternational.programs@gmail.com



Appendix : Additional Resources

(Beneficial to CDO Participants)

- **PMBOK Guidance and Getting Your PMP Designation**

The NSBE CDO program involves a great deal of project management and collaboration. To aid with your project, the Project Management Institute has developed a text, [A Guide to the Project Management Body of Knowledge \(PMBOK® Guide\)](#) that you may find useful. It is hoped that from experience with the competition you will gain project management skills that will help you succeed professionally. The International Committee challenges you to utilize this experience towards Project Management Certification. Review of the Project Management Certification requirements can result in fulfilling both requirements simultaneously.

For information, check out the Project Management Institute website at <http://www.pmi.org/Pages/default.aspx>

- **Project Management Software**

To help manage documents you will want to use some project management software so both the North American and International parts of the team have access to the same information in an organized manner. It is easy to lose information in email, or lose it on your computer. Using project management software will enable your team to see everything you see, and so everything can be organized and grouped.

Fortunately for NSBE, Microsoft has given us a grant to the MSDN Alliance and two of the top rated collaboration tools are free to any NSBE member: Office Groove 2007, OneNote 2007 and Project Pro 2007. If you do not remember, or do not have a login name or password use the following information to request one:

Email: support@nsbe.org

Phone: 703-549-2207

The URL to the MSDN Alliance is:

http://msdn01.e-academy.com/elms/Storefront/Home.aspx?campus=nsbe_it

Once you login, click on the software link on the upper left menu. Then select the software you would like to download.

- **Extra points will be awarded for successful use of MSDNAA software in your project.**

It is not required you use these programs, but they are recommended. (To prove use of MSDNAA, include screenshots in the appendix of your project proposal and make note in your email to the International Programs Coordinator)

Microsoft Office Groove 2007 is a collaboration software program that helps teams work together dynamically and effectively, even if team members work for



different organizations, work remotely, or **work offline**. If you work offline in Groove, when you reconnect to the server everything you changed will update on everyone else's workspace. Also, if someone else made changes while you were offline, you will get all their changes when you reconnect with the server. Working in Groove workspaces saves time, increases productivity, and strengthens the quality of team deliverables.

Microsoft Office Project Professional 2007 helps you stay informed, keep project teams aligned, as well as control project work, schedules, and finances. You can become more productive through integration with familiar Microsoft Office system programs, powerful reporting options, and guided planning, wizards, and templates.

Microsoft Office OneNote 2007 is a digital notebook that provides people one place to gather their notes and information, powerful search to find what they are looking for quickly, and easy-to-use shared notebooks so that they can manage information overload and work together more effectively. Unlike paper-based systems, word processing programs, e-mail systems, or other productivity programs, Office OneNote 2007 delivers the flexibility to gather and organize text, pictures, digital handwriting, audio and video recordings, and more — all in one digital notebook on your computer.

- **Exploring the Triple Bottom Line for Sustainability**

MIT D-Lab – Development through Dialogue, Design and Dissemination <http://d-lab.mit.edu/about>

- **Publications through International Journal of Environment and Sustainable Development (IJESD)**

<http://www.inderscience.com/browse/index.php?journalID=10&year=2010&vol=9&issue=1/2/3>

- **Case Studies**

Bangladesh – Rural Renewable Electrification Project

http://www.youtube.com/watch?v=nsWGoRRY_Zs&feature=related

Wind Energy without Turbine

http://www.humdingerwind.com/#/wi_overview/

<http://www.popularmechanics.com/science/energy/solar-wind/4287795>