

Report of the National Visiting Committee LASER-TEC: The Laser and Fiber Optics Regional Center

Meeting Dates: June 11-12, 2015

Report Date: June 16, 2015

NVC Members

1. Daniel Hull, PI, Exec. Dir. OP-TEC, the National Center for Optics and Photonics Education
2. Dede Starnes, Corning Cable Systems, (via T/C)
3. Helen Wild, Asst. Supt. St. Lucie School District
4. Don Hawkins, VP Operations, Precision Contracting Services (PCS)
5. Ron Darbee, Lawrence Livermore National Labs
6. Richard DeSalvo, Senior Scientist, Photonics Core Technology Center, Harris Corporation
7. Glenn Rustay, Principal, St Lucie School District
8. Michael Bass, CREOL, University of Central FL

LASER-TEC PI's

Chrys Panayiotou, PI, Director LASER-TEC, Indian River State College, Ft. Pierce, FL
Gary Beasley, CoPI, Lead Photonics Instructor, Central Carolina CC, NC
James Pearson, CoPI, Executive Director, FL Photonics Cluster, FL
Dorian McIntire, CoPI Program Coordinator, Tri County Technical College, SC

Evaluator

Fraser Dalglish, Optical Engineering Manager, Harbor Branch Oceanographic Institution

Others Attending: LASER-TEC Staff & Partner Colleges

Natalia Chekhovskaya Program Manager, LASER-TEC, IRSC
Lauren Hays Program Coordinator, LASER-TEC, IRSC
William Keiser, Laboratory Technician, LASER-TEC, IRSC
Ed Massey, President, IRSC
Tina Hart, VP IRSC
Amanda Orzechowshi, Dept. Chair, TCTC

Overview

The mission of LASER-TEC is to *develop a sustainable pipeline of qualified laser and fiber optic technicians to meet industry needs in the Southeastern United States.*

Goals

1. Assist colleges with existing LFO programs by providing support, professional development, and equipment.
2. Assist colleges without LFO programs to create courses and programs by providing startup support.
3. Provide professional development for K-12 STEM teachers to bring LFO career awareness to students to create a high-school-to-college student pipeline.
4. Create awareness of LFO careers and a clear pathway for returning veterans to recruit them for participating regional college programs.
5. Develop, expand, and strengthen partnerships between LFO industries and all regional colleges.
6. Expand the membership of the Industrial Advisory Board (IAB), and monitor the supply,

demand, and skill-set needed by LFO technicians in the Southeast region through a strong Industrial Advisory Board.

LASER-TEC is completing its 22th month with initial NSF grant funding received in August 2013. The Center engages a consortium of two-year colleges, high schools, universities, industry partners in the states of FL, SC, NC, MS, TN, KY, GA, AL, PR, and WA. The participating entities have committed to join forces in creating a secondary-to-postsecondary “pipeline” of highly qualified and strongly motivated students and empowering community colleges to meet the urgent need for technicians in lasers and fiber optics. LASER-TEC also has national responsibility for curriculum, teaching materials, technical assistance and faculty training in fiber optics and spectroscopy.

LASER-TEC serves two types of two-year postsecondary programs (and partner high schools):

1. Those devoted to lasers and fiber optics technology, and
2. Those devoted to technologies that are enabled by lasers and fiber optics technology

Commendations

General:

1. LASER-TEC is commended for the commitment and involvement of the competent management team (PI, CoPIs, Partner Colleges, etc.) involved in the project and the administration and staff involved at each partner college.
2. LASER TEC is commended for the excellent and competent staff, including the addition of Nicky Wingfield as a recruiting and employment specialist.
3. IRSC is commended for the strong Institutional support to the LASER-TEC Center.
4. LASER-TEC has excellent laboratory facilities that continue to expand with significant industry support. Space has been consolidated to move offices into the same building.
5. LASER-TEC is commended for outreach/communication of program existence, goals, value, etc.: professionally marketed via flyers, brochures, and website.
6. The Center is well focused on its overall mission to *develop a sustainable pipeline of qualified laser and fiber optic technicians to meet industry needs.*
7. LASER-TEC is commended for the partnerships with Corning, Synoptics, Florida Solar Energy Center (FSEC) and PCS, and its aggressive pursuit and leadership in fiber optics technician education.
8. LASER-TEC PI Chrys Panayiotou is commended for cooperative and complementary partnerships with OP-TEC and MPEC (the Midwest Regional Center), to maximize breadth and impact on photonics education throughout the country, as well as the Southeast.
9. LASER-TEC is commended for its efforts to support OP-TEC’s Photonics Systems Technician (PST) curriculum and teaching materials.
10. LASER-TEC is commended for its outreach, collaboration and leadership with other ATE centers and projects including the upcoming 2015 HI-TEC Conference and International Year of Light events.

Under Goal 1

11. LASER-TEC efforts in the development of solar installation curriculum and certification programs are timely and appropriate.
12. The Center is effectively using its partner colleges to build the employer networks in each sub-region.
13. Jim Pearson's efforts to expand the Industrial Advisory Board and general industry awareness are significant.
14. The Center has the appropriate amount of delegation of responsibility and accountability to partner colleges – allowing flexibility to the sub-region to tailor programs to their individual area needs.
15. The Center's plan to update the Curriculum Infusion Guides for strengthening electronics programs by including a photonics specialty is encouraged.
16. The CCCC effort to educate and train incumbent workers at Northrup-Grumman in partnership with OP-TEC is significant.

Under Goal 2

17. LASER-TEC is commended for outreach efforts to support colleges throughout the country in establishing new LFO programs both within and outside of the region.
18. The PI's plan to assist colleges to secure additional funding sources is noteworthy.
19. The Center is providing visibility to the program and offering valuable assistance to regional colleges through the use of presentations, student/teacher camps, and good use of media.

Under Goal 3

20. LASER-TEC is commended for its use of the International Year of Light events as national, community and student outreach strategies.
21. The *Light and Optics Exploration* lesson plan guide and its correlation with the previously developed affordable kit are excellent.
22. The Center initiated the development of affordable laser eye protection which is provided as part of the Light and Optics Exploration Kit.
23. TCTC is commended for its use of social media to support instruction and student outreach.
24. LASER-TEC's plans to expand into a variety of social media for student outreach are timely and appropriate.

Under Goal 4

25. LASER-TEC is commended for increasing overall veteran student count among partner colleges.
26. LASER-TEC has developed a viable plan to provide student outreach in areas with heavy veteran representation.

Under Goal 5

27. LASER TEC is commended for its use of industry volunteers to help champion industry and regional college partnerships
28. The Center has leveraged its grant funds by obtaining donations of time, money, and materials from industry partners.

Under Goal #6

29. The Center is commended for maintaining and demonstrating growth in the number of participants in industry training programs.

Recommendations

General

1. LASER-TEC has a well-organized, well-qualified team. The NVC recommends LASER TEC To continue to pursuing its goals including:
 - Center organization and partner development
 - LFO course development
 - Visibility and outreach efforts
 - New College recruitment
2. Continue providing support in fiber optic and spectroscopy course/program development to all interested colleges throughout the U.S.
3. Continue providing assistance in retraining the employed and unemployed.
4. Provide professional development for faculty at colleges in the Southeast region.
5. The Evaluator is using highly accepted methodology and the report clearly states the process and results to date. However, the Evaluator's presentation to the NVC was primarily a "Progress Report"; not an "Evaluation Report". The NVC expects the Evaluator to include metrics and examples supporting the goals and their impact.
6. The NVC believes that the Center progress for less than two years of operation is substantial, but the Evaluator Report for 2016 must clearly show the broader impact of Center activities and strategies, in order to justify continued funding. The PI and Evaluator should meet in the next month to review the planned accomplishments for Y3, as well as the methodology to report on the impact of the planned efforts. Consider using an "Internal Evaluator" to conduct the studies which will provide the required data for the External Evaluator.
7. PI provide within the next 45 days a written response to NVC recommendations, and schedule a teleconference with the NVC in the fall to discuss these responses.
8. Leverage NVC members to support LASER TEC initiatives by providing action items for them as appropriate.

Under Goal 1

9. Work to encourage availability of LFO Partner College and provide the Partner College resources to assist other colleges within the region.
10. Continue to provide and support professional development of college faculty within the region.
11. Continue providing a list of available webinars and other useful training resources to LFO partner colleges and others in the SE region.
12. Continue to develop relationship with BISCI.
13. Substantially support enrollment and student recruitment for colleges in the region.
14. Update the Curriculum Infusion Guide and disseminate the information broadly.
15. Organize and participate in a conference at IRSC with cooperation from OP-TEC and MPEC to promote and demonstrate how to infuse Photonics into EET (Center)
16. Work with IRSC president to promote electronic curriculum infusion strategies to college leaders at the AACC conference.

17. Document and broadly disseminate the successful strategies for K-12 outreach, including kits, guides, curriculum, summer camps, etc.

Under Goal 2

18. Continue the campaign to inform all community colleges of the SE region about the Center and its purpose. Invite them to participate in Center activities.

19. Continue the outreach to employers of the region and encourage them to contact colleges close to them to start LFO courses or programs with assistance from the Center.

20. Assist interested colleges with information on funding sources and grant writing.

Under Goal 3

21. Center should document and broadly disseminate the successful strategies for K-12 outreach, including kits, guides, curriculum, summer camps, etc.

22. Create a guide on how curriculum is designed and developed by LASER-TEC, including a matrix to tie photonics principles to state and national standards where possible. Include information in the guide to help K-12 schools incorporate this material into the classroom.

23. Explore strategies to convert lesson plans to the “uniform lesson module”.

24. Encourage Northport K-8, partner schools, and TCTC to evaluate lesson plans with the input of working K-12 teachers.

Under Goal 4

25. Continue to emphasize a strategy to increase enrollment of returning veterans.

26. Continue working with the minority/diversity office of each college to create initiatives for increasing enrollment of minority groups in LFO programs.

Under Goal 5

27. Continue to pursue strategies to develop and expand training opportunities, partnerships, and industry awareness.

Under Goal 6

28. Continue to expand and strengthen partnerships with the Industry Advisory Board (IAB) and educational institutions.

Conclusion

The NVC is impressed with the hard work, dedication, and quality contributions of the LASER-TEC team. Our impression is one of committed and innovative people who believe strongly in the Center vision and mission.

LASER TEC has achieved remarkable progress during this reporting period. We note particularly the hard work and commitment of Chrys Panayiotou and the other PIs, as well as staff members Natalia Chekhovskaya, Lauren Hays and Will Keiser

The NVC concludes that confidence in LASER TEC is high, and that based on our observations this Regional Center will continue to be successful.

Respectfully submitted,
LASER TEC National Visiting Committee,
Dan Hull Chair