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### **NCLT Contributions to Nanoscience Education at the Undergraduate Level<sup>1</sup>**

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The National Center for Learning and Teaching in Nanoscale Science and Engineering (NCLT) has a mission to build national capacity in Nanoscale Science and Engineering Education (NSEE) by reaching to millions of learners. This mission calls for the development of a globally competitive national nano workforce and national cadre of leaders in NSEE. Part of the NCLT's integrated program focuses on higher education initiatives and the development of undergraduate resources in NSE. The Center has developed an online educational resource repository for the NSEE community, the NanoEd Resource Portal at <http://www.nclt.us>. This talk involves a description of the applications and context for integrating NSE into undergraduate courses. It will provide research and development examples on new degree programs and concentrations in NSE. The following are a few highlights of NCLT's contributions in undergraduate education:

- Example of several short introductory units on Scanning Tunneling Microscopy, Scanning Electron Microscopy and Nanopatterning Techniques
- Simulations that can be incorporated into undergrad courses on Information Storage Technology (i.e. Nanomagnetism simulations and accompanying introductory material)
- Archive of seminars on various topics on NSE concepts
- Working prototype of Nanoconcentration in Physics
- Database of Degree Programs highlighted on the NCLT NanoEd Resource Portal
- Rubric for course development criteria
- Potential venue for professors to post their courses, degree programs, etc. for national and global dissemination

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