

SUMMARY OF FINDINGS

About the Survey

At the request of the Illinois State Board of Education (ISBE) in 2005, NIU conducted an online survey of teachers of science and mathematics at the middle school and high school levels. This baseline survey assessed what teachers knew and were teaching about 26 “critical technologies,” new and emerging concepts identified as drivers of Illinois’ future innovations and economic vitality. Based on a similar survey leased by ISBE from the Kentucky Science and Engineering Foundation, this project adapted survey items, methodology, and report design with permission granted by terms of the lease.¹ The results of the Illinois survey will help Illinois educators, businesses, and policymakers determine ways to prepare Illinois citizens as well as our future scientists, technologists, engineers, and mathematicians to meet the challenges of the global marketplace.

“Critical Technologies”

The Illinois Mathematics and Science Academy (IMSA) identified the 26 science and mathematics concepts in consultation with educators, researchers, engineers, and representatives of business and industry. Participants in the identification process agreed that these concepts are now or are becoming growth areas in Illinois’ economy. Definitions of the concepts, which are similar to 25 concepts identified in Kentucky in 2004, can be found in Appendix B. The concepts are listed below and grouped into five categories.

Biosciences

Astrobiology
Biomaterials
Biomechanics
Biotechnology
Natural Products
Recombinant DNA

Environmental and Energy Technologies

Alternative Fuels
Bioremediation
Fuel Cell
Green Technology

Human Health and Development

Biodefense
Bioinformatics
Gene Therapy
Genomics
Proteomics
Stem Cells

Information Technology and Communications

Artificial Intelligence
Algorithms
Data Warehousing and Mining
Graph Theory
Modeling Complex Nonlinear Systems
Quantum Computing

Materials Science and Advanced Manufacturing

Biopolymers
Celestial Mining
Nanotechnology
Smart Materials

¹ Copyright © 2004 The Kentucky Science and Technology Corporation. All rights reserved. All content contained in this document is protected by copyright laws, and may not be reproduced, republished, distributed, transmitted, displayed or otherwise exploited in any manner in whole or in part without the express prior written permission of the Kentucky Science and Technology Corporation (www.kstc.com).