COLLGE OF
SCIENCE & ENGINEERING
INSCITE
CENTRAL MICHIGAN UNIVERSITY

InSciTE System Model

(Integration of Science, Technology and Engineering)

Dr. Wiline Pangle - InSciTE Director

PROGRAM MISSION: To create an equitable student-driven environment for undergraduate students to develop skills on interdisciplinary communication, collaboration and real-world problem solving to become culturally competent and effective leaders.

INPUTS

FUNDING
- Applied to multiple federal grants, including NSF and DoD, to fund assessment and dissemination
- Sustained by tuition within 3 years
- Extensive external donor network

EXPERTISE
- Interdisciplinary faculty council as oversight and guidance
- Team instruction by faculty from multiple departments within STEM
- Faculty from multiple colleges within the university providing intervention and guidance

DIVERSE STUDENT BODY
- Recruitment of students identifying as first gen, with financial risk, LGBTQAI+, with disabilities, and historically marginalized in STEM
- 83% of current InSciTE students identify as marginalized in STEM

INSTITUTIONAL SUPPORT
- In-kind contributions from college, program director, and assessment director
- Support from upper administration (Provost and University Board of Trustees)

EXTERNAL PARTNERSHIPS
- Local and state industry collaboration for internships and networking

PROGRAM VALUES:

EQUITY RELEVANCE TO REAL-WORLD PROBLEMS LEARNER-CENTERED
COLLABORATION CREATIVE PROBLEM SOLVING

PROCESS: 15-credit undergraduate certificate

InSciTE 1
1st year spring semester
- Introduction to all skills, with a focus on oral communication, collaboration and conflict resolution
- Student-driven research projects
- Team-based pedagogy

InSciTE 2
2nd year spring semester
- Skills focus on written communication
- Reinforcement of collaboration and conflict resolution skills
- Student-driven research projects
- Team-based pedagogy

InSciTE 3
3rd year spring semester
- Skills focus on project management and data skills
- Student-driven research projects

InSciTE 4+5
4th year fall & spring capstone experience
- Authentic research experience
- Affinity-based team
- Teams pitch project to faculty mentors
- Authentic deliverables

OUTPUTS

SUCCESSFUL STEM LEADERS: 50-75 students graduate each year that:
- Collaborate successfully
- Communicate effectively
- Employ processes to achieve desired outcomes
- Apply scientific habits of mind
- Develop personal and professional identities

KNOWLEDGE OUTCOMES:
- Dissemination in peer-reviewed journals and national conferences
- Identification of key pedagogical factors essential to a culture of belonging in STEM to allow skill building
- Replicable model for other institutions shared regionally

CULTURE SHIFT AT CMU:
- 20-30 within-college faculty involved in InSciTE yearly
- Faculty improve pedagogical skills in all courses
- Increased overall retention
- Leadership in DEI initiatives

BROADER IMPACTS
- Empowerment of STEM students
- Increase diversity in the work force
- More skilled workforce
- Improved student retention and job placement
- Change in culture within university