

Certificate Program in

Advanced Manufacturing & Integrated Photonics

LUX ET SPES



STONEHILL COLLEGE



BRIDGEWATER
STATE UNIVERSITY

REDEFINING THE TECHNOLOGICAL MANUFACTURING LANDSCAPE

The Photonics Certificate program offered by the Stonehill-Bridgewater Partnership for Integrated Photonics is an integral part of an expansive public-private collaboration. It is supported by a \$770,000 sub-grant as part of a \$1.8 million grant from the U.S. Office of Naval Research to the Knowledge and Innovation for Manufacturing Initiative at the Massachusetts Institute of Technology.



“We are creating new and exciting opportunities for our students to gain skills in an emerging field that is making cutting-edge changes in areas such as telecommunications, data communications, laser-based radar, and sensing.”



FREDERICK W. CLARK JR., ESQ.
President of Bridgewater State University

“Our science faculty have worked tirelessly in partnership with colleagues around the Commonwealth and in private industry to develop this innovative and timely area of expertise.”



REV. JOHN DENNING, C.S.C.
President of Stonehill College



ADVANCED MANUFACTURING & INTEGRATED PHOTONICS PROGRAM

Photonics, the study of light-based technology and other applications of optical science, is rapidly expanding. But the supply of qualified workers is inadequate to fulfill industry hiring needs, particularly personnel involved in assembly, quality control, testing, repair and technical work.

The Advanced Manufacturing & Integrated Photonics Certificate — offered by the Stonehill-Bridgewater Partnership for Integrated Photonics in partnership with MIT's Knowledge and Innovation for Manufacturing Initiative — is 15 months long, emphasizes hands-on experience, and is aimed at rapidly preparing students for immediate employment upon finishing.

PROGRAM BENEFITS

- Complete part-time program in as little as four semesters
- Gain skills that increase marketability in other technical fields, e.g. robotics, electronics and materials
- Attend both Stonehill College and Bridgewater State University (BSU), known for advanced optics and photonics labs
- Learn in a cutting-edge optics and photonics labs with equipment used in industry — including Photonic Integrated Chips (PICs), XRD, CNC, FTIR and UV-VIS spectrophotometers, lasers, optical fiber tools, and 3D printer/scanner
- Experience the unique MIT boot camp over the course of several one-day field trips

PROGRAM OUTCOMES

- Design components for semiconductor and optical devices
- Describe theory behind design and fabrication of integrated circuits
- Gain competency in problem solving, technical communication and safety in photonics and optics technician workplace
- Gain knowledge of electronics (basic theory and applications including measuring and testing) in the photonics and optics technician workplace
- Learn to define a photonics project or problem clearly
- Learn to conduct applied work in a timely fashion
- Learn to communicate the results of a project



ADDITIONAL PROGRAM ELEMENTS

CAPSTONE

- Provides on-campus problem-based learning projects or industry-guided projects
- Encourages students to independently trouble-shoot equipment, work with fiber or integrated circuits, or other optical devices
- Ensures students will be able to work within a manufacturing or other industry workplace with appropriate interpersonal skills
- Gives opportunity to practice and consolidate learned skills before starting internship

INTERNSHIP

- 8-week worksite program
- 3-week overlap with capstone
- Career Development Center provides professional training on resume preparation and interviewing



LAB FACILITIES

The science complexes at BSU and Stonehill offer extensive optics and photonics resources — with the support of a \$3.8 million grant from the Massachusetts Manufacturing Innovation Initiative — both recently launched their Lab for Education and Application Prototypes (LEAP).



ABOUT BRIDGEWATER STATE AND STONEHILL

BRIDGEWATER STATE UNIVERSITY

- Among the largest four-year universities in Massachusetts with 10,998 (2016) undergraduates & graduates combined
- 20 years of experience in photonics and optics-related research programs and work force creation
- The Massachusetts State College System's only optics specialization department supported by 4 other Physics Laboratory spaces within a \$100 million science complex
- Offers courses that will become part of an accredited photonics and optical engineering degree program next year





STONEHILL COLLEGE

- Nationally ranked private, Catholic college offering undergraduate and graduate programs in business, education, science, arts and humanities
- Strong biology, chemistry, biochemistry, neuroscience, physics, computer science and environmental science programs
- Received significant STEM grant support from numerous science organizations, including the National Science Foundation, American Chemical Society, Camille and Henry Dreyfus Foundation
- Recently introduced a photonics major and minor



APPLY NOW

For current application deadlines, tuition rates, and to apply online, please visit stonehill.edu/phonics.

Apply online

Additional application requirements

- Written personal statement
- 1 letter of recommendation
- Current resume



QUESTIONS?

Contact the Office of Graduate Admission

508-565-1600 | grad@stonehill.edu

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