The Electronics Design Center is one of Case Western Reserve University’s many professional service centers which offers its facilities & expertise to internal and external customers.

The Electronics Design Center (EDC) is a world-renowned research center specializing in the development of microsensors and microsystems. The Electronics Design Center dedicates itself to the facilitation of technology transfer between a university and an industrial environment. The EDC is not only a research and educational center but also a fully equipped microfabrication laboratory. We specialize in small, prototyping runs of devices or can provide a service on a device that you already possess. One of our unique strengths is applying microfabrication processes to non-silicon, non-traditional materials.

SERVICES AND EXPERTISE:

Thin Film Clean room contains:
- Sputtering System (DC), Denton Vacuum Discovery 18
- Sputtering System (RF), Denton Vacuum Explorer 14
- Targets: Ag, Al2O3, Al, Au, C, Cr, Cu, Ir, Ni, Pb, Pt, SiO2, Ta, Ti, W, and many more

Thick Film Clean room contains:
- Thick Film Printer, MPM TF-100
- Inkjet Printer, Asymtek Century C-730
- Spin Coater, SCS
- Laser profilometer, Cobra
- Picospritzer, Parker Automation
- Microscope for inspection, rheometer, oven and furnace
- GIX Microplotter

Processing Clean Room contains:
- Programmable Spin Coater, Laurell
- Hot Plate, Wenesco
- Photomask Aligner, ABM
- Annealing Furnace, Thermco Mini-Brute

Additional Equipment:
- Annealing Furnace, Thermco Mini-Brute
- Wire Bonder, Kulicke and Soffa Model 4123
- Dicing Saw, DISCO DAD3350
- Cutting & Marking Laser, Versa 2.30
- Resistance Measurement, Lucas Labs 4 Point Probe
- Spot Welder, Unitek
- Vacuum Ovens, furnaces

• The EDC provides services such as custom sputtering, microfabrication, thick film printing, and wafer dicing.
• The EDC trains users on its equipment and allows access to its laboratories for processing.
• The EDC provides access to its laboratories and equipment for courses, both credit granting courses and short courses

EDC website: engineering.case.edu/edct
A Single-use, Disposable, In Vitro Platinum-Based Biosensor for the Detection of Extremely Low levels of Nitric Oxide in Aqueous Medium - Nitric Oxide (NO) plays an important role in the human body as a gaseous cellular signaling molecule involved in many physiological processes. With an extremely short half-life of a few seconds in aqueous medium, NO radicals are extremely difficult to detect in vitro. A method of detection of NO includes electroanalysis; a sensor and NO reacts, inducing a current or voltage change. An electrochemical thin-film platinum based biosensor incorporated with a NO selective porphyrin and ionic conductive electrolyte membrane was developed at the Electronics Design Center. It was possible to classify concentration of nitric oxide by the amplitude of the amperage peak. These results demonstrate that the detection of extremely low levels of NO by a cost-effective and user-friendly biosensor is possible.