

# Certificate in Electronics Parts, Manufacturing, and Packaging Engineering

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The proposed *Graduate Certificate Program in Electronics Parts, Manufacturing, and Packaging Engineering* (GCRT-EPMPE) entails a total of 12 graduate credit hours. All the courses in the certificate program are taken for a grade. This program is offered by the Samuel Ginn College of Engineering, with the lead departments being Industrial and Systems Engineering and Mechanical Engineering. In order to earn the certificate credential, each student will take two core courses and two elective courses. The required core courses are:

- **INSY 6850 ELECTRONICS MANUFACTURING SYSTEMS**
- **MECH 6310 MECHANICS OF ELECTRONIC PACKAGING**

Elective will be selected based upon consultation with the student's academic advisor and may be any course deemed appropriate by the advisor. Sample elective courses include:

- **ELEC 6200 COMPUTER ARCHITECTURE AND DESIGN**
- **ELEC 6260 EMBEDDED COMPUTING SYSTEMS**
- **ELEC 6730 MICROELECTRONIC FABRICATION**
- **MECH 7300 FRACTURE MECHANICS**
- **ELEC 7750 LOW TEMPERATURE ELECTRONICS**
- **INSY 7740 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY**
- **INSY 7380 RELIABILITY ENGINEERING**
- **INSY 7730 PRODUCT DESIGN, DEVELOPMENT, AND TEST**
- **MECH 6210 ELECTRONICS THERMAL MANAGEMENT**
- **MECH 6610 MECHANICAL VIBRATION**
- **MECH 7220 CONVECTION HEAT TRANSFER**
- **MECH 7240 NUMERICAL METHODS IN HEAT TRANSFER**
- **MECH 7630 MECHANICAL IMPACT**

In this manner, the required core courses provide a unifying experience for all students while offering sufficient flexibility in the selection of elective courses so as to allow each student to work with an advisor to tailor the program to satisfy their specific training needs and interests.