

## Product Life-cycle Management Scholarship Program

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Dr. Van Til's educational and research interests focus on the modeling, analysis and control of manufacturing systems, lean and Product Lifecycle Management (PLM). His projects have been supported by the National Science Foundation and the Michigan Economic Development Corp. as well as by companies such as Fiat Chrysler Automobiles, Ford Motor Co., Siemens PLM Inc. and the Crittenton Hospital Medical Center. He has served in visiting positions at universities in Hawaii, the Netherlands and Australia.

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Currently a Professor of Engineering in the Department of Industrial and Systems Engineering at Oakland University. I have over 25 years of teaching and research experience and over ten years of industrial experience.

## **Product Lifecycle Management Scholarship Program**

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### Introduction.

The Product Lifecycle Management (PLM) Scholarship Program is supported by a National Science Foundation *Scholarships in STEM* (S-STEM) grant. The goal of the S-STEM program is to provide academically sound, but financially challenged, students with the means to enroll as full-time students at Oakland University in the fields of Industrial and Systems Engineering, Mechanical Engineering or Electrical Engineering with the expectation that a successful student will receive a baccalaureate degree and will, upon graduation, be capable of entering the high technology workforce or continuing their education at the graduate level.

### The Scholarships.

All students accepted into the PLM Scholarship program received a need-based scholarship of \$4,300 per academic year, if their level of financial need was sufficiently high. In addition, the School of Engineering and Computer Science matched it with an \$500 per year academic scholarship. Some students were accepted with less than \$4,300 in financial need, and were awarded a smaller scholarship based on their need. All scholarships were renewed annually for any student in good academic standing.

The financial need of some scholarship students varied year-to-year as determined by the Federal Application For Student Aid (FAFSA), and their scholarship award was adjusted accordingly. If a student's need went down in a given year, funds were set aside to ensure that student could receive the maximum scholarship amount in future years should their financial need increase.

As students dropped-out of the PLM Scholarship Program, primarily due to poor academic performance, changing to a non-engineering major or transferring to another university, additional students were added.

The program is currently in its final year. A total of 69 students have received PLM Scholarships. Of these students, 19 left the program before graduating, 25 are currently active and 25 have graduated.

### Academic Support.

During the first 3 years of the PLM Scholarship Program, upper-class engineering students were hired to provide tutoring assistance to the scholarship students. This tutoring focused on courses taken during the first 2 years (math, science and engineering core courses). In addition, the 4 investigators served as mentors to the students on an as needed basis.

Some scholarship students met regularly with the tutors and/or faculty mentors while others rarely took advantage of these resources. In order to encourage these meetings, informal lunches

were held at least once per semester between the students, tutors and faculty mentors at a local pizza restaurant. These lunches were funded by the university, no funds came from the S-STEM grant.

### Industrial Internships.

A unique feature of the PLM Scholarship program involved investigators working with several companies to identify paid engineering internship opportunities (both summer and year-round) for the students. A large number of the students were placed into such internship opportunities at some point during the program.

The investigators received assistance on identifying internship opportunities from Oakland University's Pawley Lean Institute as well as the university's Career Services Office. The investigators also worked closely with the university's Career Services Office to prepare students for these internships (develop resumes and cover letters, mock interviews, etc.).

Of the 50 students who are active or have graduated, 27 worked for at least one semester on paid, part-time engineering internships during the academic year. None of the students who left the PLM Scholarship Program worked on internships during the academic year.

The following 24 companies hired PLM Scholarship students to part-time, paid engineering internship positions during the summer or academic year:

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|--------------------------------------|---|
| • Autoliv Americas Inc.              | • General Motors Corp.                  |
| • AET Integration Inc.               | • GKN                                   |
| • American Axle & Manufacturing Inc. | • Hirotec America                       |
| • BAE Systems                        | • LG Electronics                        |
| • Carcoustics USA Inc.               | • Lockheed Martin                       |
| • Comau LLC                          | • Meritor Inc.                          |
| • Complete Data Products Inc.        | • R & E Automated Systems Inc.          |
| • Consumers Energy                   | • Red Viking Corp.                      |
| • Disney                             | • Rousch Industries                     |
| • DTE Energy                         | • Siemens PLM Inc.                      |
| • Faurecia North America             | • ThyssenKrupp Systems Engineering Inc. |
| • Fiat Chrysler Automobiles          | • Toyoda Gosei                          |

### Careers.

The goal of the PLM Scholarship Program is to produce graduates capable of entering the high technology workforce or continuing their education at the graduate level. One of the graduates continued on to graduate school full-time, all the remaining graduates accepted full-time engineering positions at the following companies:

- |                  |                        |
|------------------|------------------------|
| • Brose          | • General Motors Corp. |
| • BAE Industries | • LG Electronics       |

- Continental Automotive Systems
- Disney
- Emerson
- Faurecia North America
- Fiat Chrysler Automobiles
- General Dynamics Land Systems
- Ogura Clutch
- SGS NA
- Siemens PLM Inc.
- TG Fluid Systems
- Toyota Boshoku America

Several of these graduates who are working full-time are also obtaining engineering M.S. degrees on a part-time basis.

#### What's Left To Do.

The final semester for the PLM Scholarship Program is winter 2018. Currently, there are 25 active students in the program. Many of these students will graduate within 1-2 semesters. Although scholarship funds will not be available after this semester, the investigators will continue to working with the remaining students in all other aspects of the PLM Scholarship Program until the remaining students graduate.