**ANNUAL REPORT**

January 1, 2017 – December 31, 2017

Submitted to:

Dr. Ju Hyo Kim, Dean

College of Science and Engineering (CSE)

February 1, 2018

Prepared by:

# James C. Helm, Ph.D., P.E.

# Associate Professor

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**TEACHING AND EDUCATIONAL ACTIVITIES**

**I. CLASSROOM INSTRUCTION**

Formal classes taught, with totals of: **236** graduate students and **708** Student Credit Hours generated for the College of Science and Engineering (CSE).

**Spring 2017**

* SWEN 5431 TESTING, VALIDATION and VERIFICATION: Role of verification and validation (V&V) in the system life cycle. Techniques and tools. Quality assessment, testing, inspection, proof-of-correctness and relevant V&V standards: One sections, with 33 total students. Student Evaluation of Intructer Overall Teaching Abillity Mean 3.88
* SENG 5330 RISK MANAGEMENT: Explains what Continuous Risk Management is; to help understand the principles, functions, methods, and tools; to show what it could look like when implemented within a project; and to show how a project could implement its own adaptation. Three Section, with 61 total students. Student Evaluation of Intructer Overall Teaching Abillity Mean for 3 sections S1 4.00, S2 4.00 and S3 5.00

**Summer 2017**

* SWEN 5431 TESTING, VALIDATION and VERIFICATION: Two sections, with 49 total students. Student Evaluation of Intructer Overall Teaching Abillity Mean section 1 was 3.91 and section 2 was 4.00

**Fall 2017**

* SWEN 5130 REQUIREMENTS ENGINEERING: Current techniques, methods, tools and processes used in requirement analysis, definitions and specifications, including system modeling. One sections, with 43 total students. Student Evaluation of Intructer Overall Teaching Abillity Mean 3.83
* SWEN 5431 TESTING, VALIDATION and VERIFICATION: one sections, 27 total students. Student Evaluation of Intructer Overall Teaching Abillity Mean 4.00
* SENG 5330 RISK MANAGEMENT: One Section, with 23 total students. Student Evaluation of Intructer Overall Teaching Abillity Mean 4.50

**II. PROGRAM AND COURSE DEVELOPMENT**

* SWEN MS program development, I helped establish a SWEN Lab for equipment for the Lab computers, software, and COTS tools relevant to the software engineering curriculum and courses.
* Systems and Software Engineering programs, I attended the fall and spring open house to promote both programs.
* For course development: I developed a web base course named, “Software Architecture & Design.” The course is for all software professionals, architects, and senior system design engineers. <http://sceweb.sce.uhcl.edu/helm/SWEN-SAD>
* For course development: I developed another web base course named, “Unity Your First Game Overview.” The course educates the student on the aspects of using the Unity interface, essential Unity concepts, building a game and locating the Asset Store. <http://sceweb.sce.uhcl.edu/helm/Unity-Web-Links/default.htm>
* For course development: I developed another web base course named, “Risk Management Short Course.” This course is for SWEN 6838 Capstone in summer. <http://sceweb.sce.uhcl.edu/helm/RiskManagement-Short-Course/default.htm>

**III. ADMINISTRATIVE ACTIVITIES**

* Software Engineering Program Chair: the SWEN faculty elected me as Program Chair (ended May 2017).
* Assisted with registration and student CPS, advising and mentoring Graduate students each semesters.
* Prepared and presented the Graduate Advising and Registration Event at the beginning of each semester for Software Engineering Program.
* Faculty Search committee member for a Program Chair of the SWEN Program.
* For the Office of Institutional Effectiveness (OIE). I contributed to the mission of UHCL by promoting and leading institutional effectiveness activities for the SWEN program. Developed a Capstone Rubric to evaluate capstone students SWEN skills.
* Third year Reviews: Chair for Dr. Soma Datta and Committee member for Dr. Michael Findler.

**RESEARCH, SCHOLARLY AND ARTISTIC ACTIVITIES**

1. **RESEARCH**

* Continued working on SLAM as a modeling and simulation tool to incorporate a web base input client (allow the user to build the model system input in HTML) and call the SLAM executable on a server. SLAM is a modeling and simulation program coded in FORTRAN. I now have the FORTRAN code for SLAM executing a variety of basic network models. Created executable examples of: Work Stations in Series; Truck Hauling; Port Operations, Critical Path models and PERT networks types.
* Using and understanding the Unity Editor tool for 2-D and 3-D graphic. Created a course to organize and maintain Unity and association with Visual Studio.

1. **REFEREED CONFERENCE PAPER**

Edited for the Proceedings of the ASME 2017 Dynamic Systems and Control (DSC) Conference the following Papers: **DSCC2017**

* Shaohui Foong, Karupppasamy Subburaj, and Kristin L. Wood; AN INDUCTIVE, DESIGN-CENTRIC APPROACH TO CONTROL ENGINEERING EDUCATION WITH A COMPETITIVE ATMOSPHERE, Tysons, Virginia, USA, October 11-13, 2017

1. **SCHOLARLY ACTIVITIES**

* Delta Computing & Engineering Colloquium, I presented“Online course development tool (BBTEMP) template, to prototype, build, link and maintain a Blackboard (BB) course,” UHCL, Delta 241, October 2, 2017. <http://sceweb.sce.uhcl.edu/helm/BBTEMP/default.htm>

**IV. GRANTS AND CONTRACTS**

* Generated $309,239.04 SCH formula funding and Fee dollars I generated for the SWEN Program. See Table below.

**PROFESSIONAL ACTIVATES AND SERVICE 20 percent**

**I. SERVICE TO THE PROFESSION**

* Member of IBM's Academic Initiative and Rational Users Group.
* Member of International Council On Systems Engineering (INCOSE).
* Senior Member of the Institute of Electrical and Electronics Engineering (IEEE).

1. **SERVICE TO THE PUBLIC**

* Judge at the High Schools Science Engineering Fair of Houston
* Texas Board of Professional Engineers

1. **SERVICE TO THE UNIVERSITY**

* Advised students at the fall and spring Undergraduate and Graduate Open House and advised CSE SWEN, and SENG students during open enrollment at UHCL.
* Attended the Faculty Assembly meetings
* Presented the SWEN Program to the New Student Orientation meetings
* Attended both UHCL Fall & Spring Commencements 2017
* Member of the Faculty Development Fund/Leave Committee 2017
* Member of the CSE Policy Committee 2017
* Member of the Post Tenure Review Committee 2017
* Member of the Curriculum Committee CSE 2017.
* Worked with Quinn Bowman on SWEN Domestic Graduate Enrollment.
* Worked on CSE Strategic Plan

The following table gives the 2017 School Year Formula Funding Generated by Students Credit Hours in my courses. The Formula ($7.66) and Weight ($55.39) are from the THECB webpage.

