DATA CENTER ENGINEERING (DTCN)

DTCN501. INTRODUCTION TO DATA CENTER ENGINEERING. 3.0 Semester Hrs.

(I, II) This unique course will develop students' foundational knowledge in critical disciplines related to large-scale data center infrastructure design and performance. The course is intended for students with a B.S. in engineering, computer science, or applied and engineering physics who are interested in careers and/or opportunities in data center engineering and management. The course will incorporate real data center examples for introducing analysis of data center design and computing hardware and network requirements; engineering principles for data center power system design, distribution, and control; heat transfer systems for computer system thermal management and building HVAC; and large-scale data file organization, information system architecture, and network and software security. The course will conclude with lectures and an assignment related to sustainability and robustness for data center engineering and design. 3 hours lecture; 3 semester hours.

DTCN502. DATA CENTER INFRASTRUCTURE MANAGEMENT. 3.0 Semester Hrs.

(I, II) This course conveys the basic principles for operating, managing, and optimizing the hardware and software necessary for a large, modern data center. Students will learn how data center components are integrated and managed through software for various applications and in general for security, efficiency, adaptability, robustness, and sustainability. It is intended for graduate students with backgrounds in engineering or computer science. The students will become familiar with best practices in the industry and will demonstrate their knowledge by developing a operations management plan for a specific data center application. 3 hours lecture; 3 semester hours.

DTCN503. DATA CENTER ENGINEERING GRADUATE SEMINAR. 1.0 Semester Hr.

(I, II) The Data Center Engineering Seminar will provide students a broad knowledge of current industry and research developments in analysis, design, and operations of Data Center Engineering through once a week discussions and/or seminars from invited guest speakers presenting topics related to data center design, operations, and economics. Students will prepare several short reports on industry developments and/or academic research related to presentations and will deliver a technical presentation and lead a subsequent discussion on an approved topic relevant for the industry. Corequisite: DTCN501. 1 hour seminar; 1 semester hour.

DTCN591. DATA CENTER ENGINEERING DESIGN AND ANALYSIS. 2.0 Semester Hrs.

(I, II) In this graduate-level course, students will participate in a directed team-based project learning through planning, designing, and analyzing a large, modern data center for an industry- or government-relevant application. The course will build on content learned in pre-requisite courses on an Introduction to Data Center Engineering and on Data Center Infrastructure Management. Students will collaborate in multi-disciplinary teams to develop and present the design and analysis of a large, modern data center design for an industry or government application. 2 hours seminar; 2 semester hours.