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.