COMPUTER ENGINEERING

Program Information

The Department of Computer and Information Science and Engineering offers the Master of Science and the Doctor of Philosophy degrees in Computer Engineering through the College of Engineering. Minimum requirements for these degrees are given in the Graduate Degrees (http://gradcatalog.ufl.edu/graduate/degrees/) section of this catalog.

The department offers graduate study and research in Algorithms, Computer Vision, Databases, Graphics and Modeling, Machine Learning, Networks, and Systems, with active labs in Bioinformatics; Computational Science and Intelligence; Vision, Graphics and Medical Imaging; Database Systems Research and Development; Data Science Research; Mobile and Pervasive Computing; Human-Centered Computing; and Cybersecurity.

Specific degree requirements and options may be found here: http://cise.ufl.edu/academics/grad (http://cise.ufl.edu/academics/grad/).

Instructions for application for admission may be found here: http://cise.ufl.edu/admissions/graduate (http://cise.ufl.edu/admissions/graduate/).

Degrees Offered

Degrees Offered with a Major in Computer Engineering

- Doctor of Philosophy
- Master of Engineering
- Master of Science
  - without a concentration
  - concentration in Digital Arts and Sciences

Requirements for these degrees are given in the Graduate Degrees (http://gradcatalog.ufl.edu/graduate/degrees/) section of this catalog.

Courses

Computer and Information Science and Engineering Departmental Courses

Code	Title	Credits
CAI 5731	Biostatistics for AI	2
CAI 5732	AI for Clinical Decision Support	3
CAI 6108	Machine Learning Engineering	3
CAI 6307	Natural Language Processing	3
CAI 6726	Clinical AI Design Studio I	3
CAI 6727	Clinical AI Design Studio II	3
CAI 6826	Project in Artificial Intelligence Systems	3
CAI 6910	Supervised Research in AI for Health	1-5
CAP 5100	Human-Computer Interaction	3
CAP 5108	Research Methods for Human-Centered Computing	3
CAP 5404	Deep Learning for Computer Graphics	3
CAP 5416	Computer Vision	3
CAP 5510	Bioinformatics	3
CAP 5705	Computer Graphics	3
CAP 5771	Introduction to Data Science	3
CAP 5841	Modeling and Computing with Geometry	3
CAP 6137	Malware Reverse Engineering	3
CAP 6516	Medical Image Analysis	3
CAP 6610	Machine Learning	3
CAP 6615	Neural Networks for Computing	3
CAP 6617	Advanced Machine Learning	3
CAP 6701	Advanced Computer Graphics	3
CAP 6769	Advanced Topics in Data Science	3
CAP 6779	Projects in Data Science	3
CDA 5155	Computer Architecture Principles	3
CDA 5636	Embedded Systems	3
CDA 6325C	Cyber-physical System Security	3
CEN 5035	Software Engineering	3
CEN 5726	Natural User Interaction	3
CEN 5728	User Experience Design	3
CEN 5735	Human-Centered Input Recognition Algorithms	3
CEN 6070	Software Testing and Verification	3
CEN 6075	Software Specification	3
CIS 5209	Penetration Testing -- Ethical Hacking	3
CIS 5370	Computer and Information Security	3
CIS 5371	Introduction to Cryptology	3
CIS 6261	Trustworthy Machine Learning	3
CIS 6307	Internet Data Streaming	3
CIS 6905	Individual Study	1-3
CIS 6910	Supervised Research	1-5
CIS 6930	Special Topics in CIS	3
CIS 6935	Graduate Seminar	1-12
CIS 6940	Supervised Teaching	3
CIS 6971	Research for Master's Thesis	1-15
CIS 7979	Advanced Research	1-12
CIS 7980	Research for Doctoral Dissertation	1-15
CNT 5106C	Computer Networks	3
CNT 5410	Computer and Network Security	3
CNT 5517	Mobile Computing	3
CNT 6107	Advanced Computer Networks	3
CNT 6530	Mobile Networking	3
CNT 6885	Distributed Multimedia Systems	3
COP 5536	Advanced Data Structures	3
COP 5556	Programming Language Principles	3
COP 5615	Distributed Operating System Principles	3
COP 5618	Concurrent Programming	3
COP 5725	Database Management Systems	3
COP 6726	Database System Implementation	3
COT 5405	Analysis of Algorithms	3
COT 5442	Approximation Algorithms	3
COT 5520	Computational Geometry	3
COT 5615	Mathematics for Intelligent Systems	3
COT 6315	Formal Languages and Computation Theory	3
EGN 5949	Practicum/Internship/Cooperative Work Experience	1-6
EGN 6913	Engineering Graduate Research	0-3
IDC 5715	Virtual Reality for the Social Good	3

College of Engineering Courses

Code	Title	Credits
CAP 5771	Introduction to Data Science	3
EEE 5354L	Semiconductor Device Fabrication Laboratory	3
EEE 5776	Applied Machine Learning	3
EEE 6778	Applied Machine Learning II	3

EGN 5215	Machine Learning Applications in Civil Engineering	3
EGN 5216	Machine Learning for Artificial Intelligence Systems	3
EGN 5442	Programming for Applied Data Science	3
EGN 5447	Mathematical Foundations for Data Science for Engineers I	3
EGN 6216	Artificial Intelligence Systems	3
EGN 6217	Applied Deep Learning	3
EGN 6446	Mathematical Foundations for Applied Data Science	3
EGN 6640	Entrepreneurship for Engineers	3
EGN 6642	Engineering Innovation	3
EGN 6937	Engineering Fellowship Preparation	0-1
EGN 6951	Integrated Product and Process Design G1	3
EGS 6039	Engineering Leadership	3
EGS 6101	Divergent Thinking	3
EGS 6216	AI Ethics for Technology Leaders	3
EGS 6512	Managing Engineering with Integrity	3
EGS 6626	Fundamentals of Engineering Project Management	3
EGS 6628	Advanced Practices in Engineering Project Management	3
EGS 6629	Agile Project Management for Engineers and Scientists	3
EGS 6681	Advanced Engineering Leadership	3
ESI 6900	Principles of Engineering Practice	1-4

Student Learning Outcomes

Computer engineering (phd)

SLO 1 Knowledge
Students identify, formulate, and solve computer science and engineering problems

SLO 2 Knowledge
Students can critically read computer science and engineering literature

SLO 3 Skills
Students use the techniques, skills, and tools necessary for computer science and engineering practice at an advanced level

SLO 4 Professional Behavior
An understanding of professional and ethical responsibility

SLO 5 Professional Behavior
Students can communicate effectively

Computer Engineering (ME & MS)

SLO 1 Knowledge
Students identify, formulate, and solve computer science and engineering problems

SLO 2 Knowledge
Students can critically read computer science and engineering literature

SLO 3 Skills
Students use the techniques, skills, and tools necessary for computer science and engineering practice at an advanced level

SLO 4 Professional Behavior
Professional experience: an understanding of professional and ethical responsibility

SLO 5 Professional Behavior
Professional experience: Students can communicate effectively