Erik Jonsson School of Engineering and Computer Science

Minors

Students must take a minimum of 18 semester credit hours for the minor, 12 of which must be upper-division semester credit hours. Students who take a minor will be expected to meet the normal prerequisites in courses making up the minor, and should maintain a minimum GPA of 2.000 on a 4.00 scale (C average). Semester credit hours may not be used to satisfy both the major and minor requirements; however, free elective semester credit hours or major preparatory classes may be used to satisfy the minor. Core courses offered by the school may count as lower-division semester credit hours toward the minor. Topics courses must be approved by the school.

The undergraduate minors in the Erik Jonsson School of Engineering and Computer Science are the following:

Department of Computer Science

- Computer Science
- Information Assurance
- Software Engineering

Department of Materials Science and Engineering

- Nanoscience and Technology

Department of Computer Science

Faculty

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Professors: Farokh B. Bastani, Sergey Bereg, R. Chandrasekaran, Ovidiu Daescu, Yvo G. Desmedt, Ding-Zhu Du, András Faragó, Paul Fishwick, Xiaohu Guo, Gopal Gupta, Zygmunt Haas, Kevin Hamlen, Sanda M. Harabagiu, Dung T. Huynh, Jason Jue, Murat Kantarcioglu, Latifur Khan, Andrian Marcus, Dan I. Moldovan, Yu-Chung (Vincent) Ng, Simeon C. Ntafos, Ivor P. Page, Balakrishnan

Prabhakaran, Ravi Prakash, Balaji Raghavachari, Kamil Sarac, Bhavani Thuraisingham, Subbarayan Venkatesan, W. Eric Wong, Weili Wu, I-Ling Yen, Kang Zhang, Si Qing Zheng

Professors Emeritus: William J. Pervin, Ivan Hal Sudborough, Klaus Truemper

Associate Professors: Alvaro Cárdenas, Lawrence Chung, Jorge A. Cobb, Vibhav Gogate, Yang Liu, Ryan McMahan, Neeraj Mittal, Sriraam Natarajan, Tien Nguyen, Haim Schweitzer, Rym Zalila-Wenkstern

Assistant Professors: Kyle Fox, Shuang Hao, Cong Liu, Benjamin Raichel, Nicholas Ruozzi, Shiyi Wei, Lingming Zhang

Senior Lecturers: Sridhar Alagar, Gordon Arnold, Eric Becker, Jonathan Brandenburg, Ebru Cankaya, Anjum Chida, Michael Christiansen, John Cole, Chris I. Davis, Karen Doore, Timothy (Tim) Farage, Ranran Feng, Richard Goodrum, Neeraj Gupta, Shyam Karrah, Kamran Khan, Pushpa Kumar, Khiem Le, Karen Mazidi, Timothy McMahan, Richard K. Min, Linda Morales, Anarag Nagar, Nhut Nguyen, Mehra Nouroz Borazjany, Greg Ozbirn, Mark Paulk, Stephen Perkins, Miguel Razo-Razo, William (Bill) Semper, Charles Shields Jr., Jason W. Smith, Janell Straach, Laurie Thompson, Jeyakesavan (Jey) Veerasamy, Don G. Vogel, James Willson, Nurcan Yuruk

Minor in Computer Science: 21 semester credit hours

Students majoring in Computer Engineering, Computer Science or Software Engineering cannot add a minor in Computer Science.

A minor in Computer Science requires 21 semester credit hours earned through the following courses:

CS 1337 Computer Science I

CS 2305 Discrete Mathematics for Computing I

CS 2336 Computer Science II

CS 3305 Discrete Mathematics for Computing II

CS 3345 Data Structures and Introduction to Algorithmic Analysis

CS 3354 Software Engineering

CS Elective (any 4000-level organized CS class or CS 4390)

Minor in Information Assurance: 30 semester credit hours

A minor in Information Assurance requires 30 semester credit hours earned through the following

courses:

CS 1337 Computer Science I

CS 2305 Discrete Mathematics for Computing I

CS 2336 Computer Science II

CS 3305 Discrete Mathematics for Computing II

CS 3345 Data Structures and Introduction to Algorithmic Analysis

CS 4347 Database Systems

CS 4348 Operating Systems Concepts

CS 4389 Data and Applications Security

CS 4393 Computer and Network Security

CS 4398 Digital Forensics

Minor in Software Engineering: 21 semester credit hours

Students majoring in Computer Engineering, Computer Science or Software Engineering cannot add a minor in Software Engineering.

A minor in Software Engineering requires 21 semester credit hours earned through the following courses:

CS 1337 Computer Science I

CS 2305 Discrete Mathematics for Computing I

CS 2336 Computer Science II

SE 3306 Mathematical Foundations of Software Engineering

CS 3345 Data Structures and Introduction to Algorithmic Analysis

CS 3354 Software Engineering

SE Elective (any 4000-level organized SE class)

Department of Materials Science and Engineering

Faculty

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Professors: Orlando Auciello, Yves J. Chabal, Kyeongjae (KJ) Cho, Massimo V. Fischetti, Julia W. P. Hsu, Jiyoung Kim, Moon J. Kim, Manuel Quevedo-Lopez, Amy V. Walker, Robert M. Wallace, ljh160330

Associate Professors: Lev D. Gelb, Walter E. Voit, Chadwin D. Young

Assistant Professor: William Vandenberghe

Professors Emeritus: Yves J. Chabal, Bruce E. Gnade, Don Shaw

UT Dallas Affiliated Faculty: Kenneth J. Balkus Jr., Ray H. Baughman, Julia Chan, Wonjae Choi, Stuart Cogan, Ann (Catrina) Coleman, James J. Coleman, Xianming Dai, John P. Ferraris, Matthew J. Goeckner, Qing Gu, Fatemeh Hassanipour, Wenchuang (Walter) Hu, Gil S. Lee, Jeong-Bong Lee, Mark Lee, Hongbing Lu, Anton V. Malko, Majid Minary, Kenneth K. O, Lawrence J. Overzet, Shalini Prasad, Dong Qian, Mario A. Rotea, Jason D. Slinker, Ronald A. Smaldone, Mihaela C. Stefan, Anvar A. Zakhidov

Minor in Nanoscience and Technology: 18 semester credit hours

Goals for the Minor in Nanoscience and Technology

As the field of nanotechnology develops further, particularly in the north Texas region, The University of Texas at Dallas has an important role to play in the education of knowledge workers for the industry. The Minor in Nanoscience and Technology offered by the Department of Materials Science and Technology provides a means for undergraduate students to familiarize themselves with the concepts and principles of nanotechnology.

This minor has been designed around three core MSEN designated courses, the content of which is exclusively related to Nanoscience and Nanotechnology. The remaining nine semester credit hours of courses may be chosen from the list of courses below.

The contents of the courses BIOL 4461, CHEM 3322, and PHYS 4301 are similar enough that only one of these three courses may count toward the minor. In addition, several lower-division electives have been included to provide streamlined access to the available upper-division electives.

Since the three core courses are all upper-division electives, only one of the remaining nine semester credit hours must be an upper-division course, although students may choose to

challenge themselves by pursuing all nine semester credit hours as upper-division electives.

Educational Objectives for the Minor in Nanoscience and Technology On completion of the Minor program, students will:

- Have a comprehensive general education background
- Have a working knowledge of nanotechnology and nanoscience principles and industry applications
- Be able to apply key concepts in materials science, chemistry, physics, biology, and engineering to the field of nanotechnology
- Understand the societal and technology issues that may impede the adoption of nanotechnology
- Have the ability to communicate effectively and work collaboratively
- Be able to become successful professionals and, if they desire, be able to pursue graduate study
- Be able to identify career paths and requisite knowledge and skills for career change towards nanotechnology

Requirements for the Minor in Nanoscience and Technology

A total of 18 semester credit hours are required, consisting of three core classes (9 semester credit hours) and 9 additional semester credit hours of electives.

I. Core Requirements: 9 semester credit hours

MSEN 3301 Introduction to Nanoscience and Nanotechnology

MSEN 3302 Microscopy, Spectroscopy, and Nanotech Instrumentation

MSEN 4V95 Undergraduate Research (in Nanotechnology)

II. Elective Requirements: 9 semester credit hours

Students must complete at least nine semester credit hours chosen from the following courses. At least one of the courses must be upper-division (3000 or 4000):

MSEN-designated courses:

MSEN 3310 Introduction to Materials Science

MSEN 4391 or EE 4391 Technology of Plasma

MSEN 4V95 Undergraduate Research (in Nanotechnology)

Lower-division courses:

CHEM 2323 Introductory Organic Chemistry I

CHEM 2325 Introductory Organic Chemistry II

MATH 2451 Multivariable Calculus with Applications

PHYS 2303 Contemporary Physics

MECH 2320 Mechanics of Materials

Upper-division courses:

PHYS 4352 Concepts of Modern Physics

PHYS 4383 Plasma Physics

MECH 4360 Introduction to Nanostructured Materials

MECH 4370 Introduction to MEMS

EE 4392 Introduction to Optical Systems

EE 3310 Electronic Devices

EE 3311 Electronic Circuits

CHEM 4335 Polymer Chemistry

CHEM 3472 Instrumental Analysis

CHEM 4473 Physical Measurements Laboratory

CHEM 3321 Physical Chemistry I

CHEM 4355 Computational Modeling

Only one of the following courses may be used to count toward the Minor:

BIOL 4461 Biophysical Chemistry

CHEM 3322 Physical Chemistry II

PHYS 4301 Quantum Mechanics I

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