

Research Area (Knowledge) and Skills Development Courses for Ph.D. Qualifying Exam

(Last revised: 09/2012)

(Students must take two research area courses and two skills courses from one academic area.)

Bioengineering

Research Area: (at least one from graduate level) BioE 450, BioE 428, GDCB 542, BIOL 436, BIOL 423, GDCB 536, Stat 565, PHYS 532, PHYS 461, BIOL 444, CprE 567, CprE 570

Skills: EE 524, EE 528, EE 532, EE 536, EE 538, EE 527, EE 517, EE 523, EE 527, EE 571, EE 530, EE 535, ME 552, Stat 401, Stat 402, Stat 430, Stat 542, Stat 543, ComS 511, CprE 526

Communications and Signal Processing

Research Area: EE 521, EE 524, EE 527, EE 528, EE 547, EE 621, EE 622

Skills: EE 523, EE 571, CprE 547, Stat 642, Stat 543

Computing and Networking Systems

Research Area: CprE 541, CprE 543, CprE 581, CprE 583

Skills: (at least two from different groups)

- *Group 1: (probability, statistics, etc.)* EE 523, Stat 430, Stat 447, Stat 500, Stat 512
- *Group 2: (algorithms, modeling, etc.)* CprE 528, CprE 582, ComS 511
- *Group 3: (optimization, graph theory, etc.)* EE 571, IE 510, IE 519, IE 534

Electric Power and Energy Systems

Research Area: EE 552, EE 553, EE 554, EE 653

Skills: EE 547, EE 577, EE 578, EE 519, CprE 558, CprE 588, ComS 561, Math 503, Math 525, Math 554, Math 557, IE 534, IE 510, IE 631, IE 632, Econ 500, Econ 502, Stat 401, Stat 447, Stat 451, Stat 500, Stat 537, WESEP 501, WESEP 502, WESEP 511

Electromagnetic, Microwave, and Nondestructive Evaluation

Research Area: EE 512, EE 513, EE 514, EE 517, EE 518, EE 519, EE 588

Skills: Math 426, Math 471, Math 481, Math 510, Math 511, Math 517, Math 519, Math 520, Math 525, Math 561, Math 562, Stat 401, Stat 447

Microelectronics and Photonics

Research Area: EE 532, EE 535, EE 536, EE 538

Skills: (one from each group)

- *Group 1:* Phys 480, Phys 481, Phys 511, MSE 510, MSE 552
- *Group 2:* Math 426, Math 481, Stat 401, Stat 402

Secure and Reliable Computing

Research Area: CprE 530, CprE 531, CprE 532, CprE 536

Skills: CprE 528, CprE 533, CprE 582, Stat 401, Stat 402, Stat 430, Stat 551, Stat 554, ComS 511, ComS 531, ComS 540, IE 510, IE 519, IE 534, Math 547

Software Systems

Research Area: CprE 526, CprE 548, CprE 550, CprE 554, CprE 556, CprE 557, CprE 558

Skills: CprE 528, CprE 582, EE 571, ComS 511, ComS 512, ComS 531, ComS 572, IE 510, IE 519, IE 534, Math 547

Systems and Controls

Research Area: EE 572, EE 575, EE 577, EE 578, EE 674

Skills: EE 523, EE 571, Math 414 or 515, Math 503, Math 525, Math 554, Math 557, IE 510 or Math 607, IE 534, IE 631, IE 632

VLSI

Research Area: CprE/EE 435, CprE/EE 465, CprE/EE 501, CprE/EE 504, CprE/EE 505, CprE/EE 506, CprE/EE 507, CprE/EE 508, CprE/EE 509X, CprE 564, CprE 566

Skills: CprE 526, EE 523, EE 571, ComS 511, IE 510, IE 534, Math 501, Math 547, Math 414, Math 415, Math 515, Math 516, Stat 533, Stat 542, Stat 543, Stat 544