

# **Academic Area and General Skills Courses for Ph.D. Qualifying Exam**

**(Last revised: 03/2015)**

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

## **Bioengineering**

*Academic 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, ME 552*

*General 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, Stat 401, Stat 402, Stat 430, Stat 542, Stat 543, ComS 511, CprE 526*

## **Communications and Signal Processing**

*Academic Area: EE 521, EE 524, EE 527, EE 528, EE 547, EE 621, EE 622*

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

## **Computing and Networking Systems**

*Academic Area: CprE 541, CprE 543, CprE 581, CprE 583*

*General 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**

*Academic Area: EE 552, EE 553, EE 554, EE 559, EE 653*

*General Skills: EE 577, EE 578, EE 519, CprE 592 "Cyber Security for Smart Grid," ComS 561, Math 501, Math/ComS/CprE 525, Math 557, IE 534, IE 510, IE 631, IE 632, Econ 501, Econ 502, Stat/IE 533, Stat 542, Stat 543, WESEP 501, WESEP 502, WESEP 511*

## **Electromagnetic, Microwave, and Nondestructive Evaluation**

*Academic Area: EE 512, EE 513, EE 514, EE 517, EE 518, EE 519, EE 588*

*General 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 402, Stat 447*

## **Microelectronics and Photonics**

*Academic Area:* EE 532, EE 535, EE 536, EE 538

*General 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**

*Academic Area:* CprE 530, CprE 531, CprE 532, CprE 536, CprE 592 “Cyber Security for Smart Grid”

*General 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**

*Academic Area:* CprE 526, CprE 548, CprE 550, CprE 554, CprE 556, CprE 557, CprE 558

*General 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**

*Academic Area:* EE 575, EE 577, EE 578

*General Skills:* EE 523, EE 527, EE 571, Math 414 or 501 or 515, Math 554, Math 557

## **VLSI**

*Academic 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

*General 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