Microelectronics-Photonics (MEPH)

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Microelectronics-Photonics (microEP) is an interdisciplinary program based in the Division of Interdisciplinary Studies in the Graduate School that prepares students for careers involving micro/nano materials, processing, and devices applied in areas such as photonics, microelectronics, bio/chemical analysis, etc. The microEP Graduate Program offers M.S. and Ph.D. degrees, as well as an undergraduate minor in Microelectronics-Photonics.

The purpose of this minor is to allow undergraduates in science and engineering to be able to capitalize on the research and educational core of the microEP Graduate Program as they prepare to enter the job market or compete for positions in top level graduate programs.

Requirements for a minor in Microelectronics-Photonics:

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>INEG 4323</td>
<td>Quality Engineering and Management</td>
</tr>
<tr>
<td>INEG 4433</td>
<td>Systems Engineering and Management</td>
</tr>
<tr>
<td>INEG 4443</td>
<td>Project Management</td>
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</tbody>
</table>

Select four of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BENG 4123</td>
<td>Biosensors &amp; Bioinstrumentation</td>
</tr>
<tr>
<td>CHEM 4213</td>
<td>Instrumental Analysis</td>
</tr>
<tr>
<td>ELEG 4203</td>
<td>Semiconductor Devices</td>
</tr>
<tr>
<td>ELEG 4223</td>
<td>Design and Fabrication of Solar Cells</td>
</tr>
<tr>
<td>MEEG 4303</td>
<td>Materials Laboratory</td>
</tr>
<tr>
<td>MEPH 488V</td>
<td>MicroEP Undergraduate Research</td>
</tr>
<tr>
<td>PHYS 3603</td>
<td>Introduction to Modern Physics</td>
</tr>
<tr>
<td>PHYS 4713</td>
<td>Solid State Physics</td>
</tr>
<tr>
<td>PHYS 4213</td>
<td>Physics of Devices</td>
</tr>
</tbody>
</table>

Or from other appropriate courses not on this list if approved first by the microEP Program and by the course instructor. ¹

Total Hours 15

¹ See examples at the microEP Web site.

Students accepted into the microEP minor must attend an orientation session at the beginning of each semester as well as the monthly microEP graduate student research presentations. Students enrolled in the microEP minor must attend at least one public presentation of a Master of Science thesis in microEP or a Doctor of Philosophy dissertation in microEP each semester. Students wishing to declare this minor must apply through the microEP Program Web site, http://microEP@uark.edu, and be accepted into the minor at least two regular semesters before their graduation date.

Faculty

A
Ang, Simon S., Ph.D. (Southern Methodist University), M.S.E.E. (Georgia Institute of Technology), B.S.E.E. (University of Arkansas), Professor, Department of Electrical Engineering, 1988.

B
Balda, Juan Carlos, Ph.D. (University of Natal), B.S. (Universidad Nacional del Sur), University Professor, Department of Electrical Engineering, 1989.

Barraza-Lopez, Salvador, Ph.D. (University of Illinois-Urbana-Champaign), B.S. (Instituto Politecnico Nacional de Mexico), Associate Professor, Department of Physics, 2011.

Bellaiche, Laurent, Ph.D., M.S., B.S. (University of Paris VI, France), Distinguished Professor, Department of Physics, 1999.

Benamara, Mourad, Ph.D., M.S. (University of Toulouse III, France), Assistant Professor, Nanotechnology, 2007.

Beyzavi, M. Hassan, Ph.D. (Freie Universitât Berlin, Germany), Assistant Professor, Department of Chemistry and Biochemistry, 2017.

C
Chen, Zhong, Ph.D. (North Carolina State University), M.Eng. (National University of Singapore), B.S. (Zhejiang University), Assistant Professor, Department of Electrical Engineering, 2015.

Churchill, Hugh O.H., Ph.D., A.M. (Harvard University), B.A. (Oberlin College), B.M. (Oberlin Conservatory of Music), Assistant Professor, Department of Physics, 2015.

Coridan, Robert, Ph.D., M.S. (University of Illinois-Urbana-Champaign), B.S. (The Ohio State University), Assistant Professor, Department of Chemistry and Biochemistry, 2015.

D
Di, Jia, Ph.D. (University of Central Florida), M.S., B.S. (Tsinghua University), Professor, Department of Computer Science and Computer Engineering, 2004.

E
El-Shenawee, Magda O., Ph.D. (University of Nebraska-Lincoln), M.S., B.S. (Assiut University, Egypt), Professor, Department of Electrical Engineering, 2001.

F
Fu, Huaxiang, Ph.D. (Fudan University), B.S. (University of Science and Technology of China), Professor, Department of Physics, 2002.

H
Harter, William G., Ph.D. (University of California-Irvine), B.S. (Hiram College), Professor, Department of Physics, 1986.

Hergoz, Joseph B., Ph.D. (University of Notre Dame), B.S. (Louisiana State University), Assistant Professor, Department of Physics, 2013.

Hestekin, Jamie A., Ph.D. (University of Kentucky), B.S.Ch.E. (University of Minnesota-Duluth), Professor, Ralph E. Martin Department of Chemical Engineering, 2006.

Heyes, Colin David, Ph.D. (Georgia Institute of Technology), B.S. (Loughborough University), Assistant Professor, Department of Chemistry and Biochemistry, 2008.

Huitink, David, Ph.D., M.S.M.E., B.S.M.E. (Texas A&M University), Assistant Professor, Department of Mechanical Engineering, 2017.
J
Jensen, Morten O., Ph.D. (University of Aarhus, Denmark), M.Sc. (Georgia Institute of Technology), Associate Professor, Department of Biomedical Engineering, 2014.
K
Kumar, Pradeep, Ph.D. (Boston University), M.Sc. (Indian Institute of Technology, Mumbai, India), Assistant Professor, Department of Physics, 2013.
M
Malshe, Ajay P., Ph.D., M.S., B.S. (University of Poona, India), Distinguished Professor, Department of Mechanical Engineering, 1995.
Manasreth, Omar, Ph.D. (University of Arkansas), M.S. (University of Puerto Rico-Rio Piedras), B.S. (University of Jordan), Professor, Department of Electrical Engineering, 2003.
McCann, Roy A., Ph.D. (University of Dayton), M.S.E.E., B.S.E.E. (University of Illinois), Professor, Department of Electrical Engineering, 2003.
Millett, Paul, Ph.D., M.S. (University of Arkansas), B.E. (Vanderbilt University), Assistant Professor, Department of Mechanical Engineering, 2013.
Moradi, Mahmoud, Ph.D. (North Carolina State University), M.S., B.S. (Sharif University of Technology), Assistant Professor, Department of Chemistry and Biochemistry, 2015.
Muldoon, Timothy J., M.D. (Baylor College of Medicine), Ph.D. (Rice University), B.S. (Johns Hopkins University), Assistant Professor, Department of Biomedical Engineering, 2012.
N
Nair, Arun, Ph.D. (Virginia Tech), M.S. (Colorado State University), B.T. (Mahatma Gandhi University), Assistant Professor, Department of Mechanical Engineering, 2013.
Naseem, Hameed A., Ph.D. (Virginia Polytechnic State University), M.Sc. University Professor, Department of Mechanical Engineering, 1985.
P
Pohl, Edward A., Ph.D., M.S.R.E. (University of Arizona), M.S.S.E. (Air Force Institute of Technology), M.S.E.M. (University of Dayton), B.S.E.E. (Boston University), Professor, Department of Mechanical Engineering, 2004.
Porter, Errol, M.S.E.E., B.S.E.E. (University of Arkansas), Research Associate, Microelectronics-Photonics, 1997.
S
Salamo, Gregory J., Ph.D. (City University of New York), M.S. (Indiana University-Purdue University-Indianapolis), B.S. (City University of New York, Brooklyn College), Distinguished Professor, Department of Physics, 1975.
Selvam, R. Panneer, Ph.D. (Texas Tech University), M.S.C.E. (South Dakota School of Mines and Technology), M.E., B.E. (University of Madras, India), University Professor, Department of Civil Engineering, 1986.
Shew, Woodrow L., Ph.D. (University of Maryland-College Park), B.A. (College of Wooster), Associate Professor, Department of Physics, 2012.
Singh, Surendra P., Ph.D., M.A. (University of Rochester), M.Sc., B.Sc. (Banaras Hindu University, India), University Professor, Department of Physics, 1982.
T
Tung, Steve, Ph.D., M.S.M.E. (University of Houston), B.S.M.E. (National Taiwan University), Professor, Department of Mechanical Engineering, 2000.

W
Wang, Yong, Ph.D., M.S. (University of California, Los Angeles), B.S. (University of Science and Technology of China), Assistant Professor, Department of Physics, 2015.
Ware, Morgan, Ph.D. (North Carolina State University), B.S. (Florida State University), Assistant Professor, Department of Electrical Engineering, 2005.
Wejinya, Uchechukwu O., Ph.D., M.S., B.S. (Michigan State University), Associate Professor, Department of Mechanical Engineering, 2008.
X
Xiao, Min, Ph.D. (University of Texas at Austin), B.S. (Nanjing University), Distinguished Professor, Department of Physics, 1990.
Xiao, Jie, Ph.D. (State University of New York-Binghamton), M.S., B.S. (Wuhan University), Associate Professor, Department of Chemistry and Biochemistry, 2016.
Y
Yu, Fisher, Ph.D. (Arizona State University), M.S., B.S. (Peking University), Associate Professor, Department of Electrical Engineering, 2008.
Z
Zhou, Wenchao, Ph.D. (Georgia Institute of Technology), M.S.M.E. (Xi'an Jiaotong University, Xi'an, China), B.S.M.E. (Huazhong University of Science and Technology, Wuhan, China), Assistant Professor, Department of Mechanical Engineering, 2014.
Zou, Min, Ph.D., M.S.M.E. (Georgia Institute of Technology), M.S.A.E., B.S.A.E. (Northwestern Polytechnical University), Professor, Department of Mechanical Engineering, 2003.

Courses
MEPH 488V. MicroEP Undergraduate Research. 1-3 Hour.
Special research topics associated with undergraduates enrolled in the Microelectronics-Photonics minor program, or by special permission of the microEP Director to undergraduate students engaged in research with microEP faculty members. May be repeated for up to 6 hours of degree credit.