KULLIYYAH OF ENGINEERING

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With the vision to be a “world class centre of engineering education and research with values and ethics”, the mission of the Kulliyyah of Engineering is to provide quality engineering education, with sufficient scope to include fundamental and specialized knowledge and practice in engineering and a broad base in management, ethics, and humanities, so that the graduates are prepared to serve the current and emerging needs of the society. With the Kulliyyah’s philosophy based on the systems approach, the engineering programmes offer an integrated and comprehensive education that transcends the boundaries of various disciplines. This is consistent with the Islamic concept of *tawheed*, which unifies the spiritual and physical aspects of life into a harmonious continuity.

Besides being professionally qualified and competent, the graduates will acquire spiritual, intellectual, moral and ethical characteristics towards the development of an integral and harmonious relationship with Allah (the creator), fellow human beings and with the natural environment. The interdisciplinary approach to engineering education will not only allow the graduates to solve industrial and human problems; it will also enable them to bring about and manage changes in conformity with the worldview based on the principles of Islam.

Engineers, in addition to understanding scientific principles, are concerned with the timing, economics, and values that define the application of those principles. With this in mind, the Kulliyyah fosters a close partnership with industry and government, and also reaches out to both the IIUM community and the public at large with its services. In addition to its teaching role, the Kulliyyah feels a related responsibility to conduct strong research programmes that contribute to the advancement of knowledge.

The Kulliyyah has six departments which are:
- Department of Electrical and Computer Engineering
- Department of Manufacturing and Materials Engineering
- Department of Mechanical Engineering
- Department of Mechatronics Engineering
- Department of Biotechnology Engineering
- Department of Science in Engineering

Facilities
- Applied Mechanic Lab
- Communication Lab
- Computer Integrated Manufacturing Lab
- Control System Lab
- Digital Logic Design and Micro processor Lab
- Drawing Lab
- Electromechanical System Lab
- Electronic Circuit Lab
- Fluid Mechanics Lab
- General Purpose Computer Lab
- Thermal Science Lab
- System Design Lab
- Multimedia Lab
- Materials Testing Lab
• Production Lab
• Robotics and Automation Lab
• Software Engineering and Graphic Computational Lab
• Basic Circuit Lab
• Electronics Lab
• Computer Aided Design Lab
• Electronics Instrumentation & Measurement Lab
• Microelectronics Lab
• Digital Communications Lab
• Analogue Communications Lab
• Microwave Lab
• Antennas Radar & Propagation Lab
• Computer Teaching Lab
• Photovoltaic Lab
• Communication Protocols Lab
• Computer Communication & Network Lab
• Mobile Cellular Communications
• Optoelectronic
• RF Design Lab
• VLSI Design
• Electronic Instrumentation & Measurement Lab
• Satellite Communications Lab
• Structure Mechanics Lab
• Vehicle Dynamic Lab
• MEMS & NANO Lab
• Aero Dynamic Lab
• Propulsion Lab
• Structural Dynamic Lab
• Aerospace Dynamic and Simulation Lab
• IC Engine Testbed Lab
• Combustion Lab
• Acoustics Lab
• Auto Instrumentation and Control Lab
• Heat Transfer Lab
• Chassis, Brakes and Suspension Lab
• Mechatronic System Design Lab
• Instrumentation Lab
• Machine Vision Lab
• Intelligence System Lab
• Environmental Engineering Lab
• Molecular Biology and Genetic Lab
• Plant Biotechnology Lab
• Animal Tissue Lab
• Bioprocess Engineering Lab
• Bioprocess Utilities Lab
• Autoclave and Jambo Size Centrifuge Lab
• Biocomputational and Biomodeling Lab
• Analytic and Bioinstrumentation
• Food Engineering Lab
• Transport and Biochemical Kinetics Lab
• Chemistry Lab
• Microbiology Lab
• Wind Tunnel
• Postgraduate Computer Lab
• Resource Room
POSTGRADUATE PROGRAMMES

- **Master of Science** by Coursework and Research / Research only
  - Automotive Engineering
  - Biotechnology Engineering
  - Communication Engineering
  - Computer and Information Engineering
  - Electronic Engineering
  - Manufacturing Engineering
  - Material Engineering
  - Mechatronics Engineering
  - Mechanical Engineering

- **Ph.D. (Engineering)** by Research Only
  
  *Offered by Department of:*:
  - Department of Electrical and Computer Engineering
  - Department of Manufacturing and Materials Engineering
  - Department of Mechatronics Engineering
  - Department of Mechanical Engineering
  - Department of Biotechnology Engineering

MASTER'S PROGRAMME

Programme Structure

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Courses</td>
<td>15</td>
</tr>
<tr>
<td>IRKH Course</td>
<td>3</td>
</tr>
<tr>
<td>Research Methodology</td>
<td>2</td>
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<tr>
<td>Seminar</td>
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<tr>
<td>Dissertation</td>
<td>20</td>
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<td><strong>Total</strong></td>
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The following IRKH course is compulsory for all MSc and Ph.D. students:

RKGS 6000  Values, Technology and Society.

MASTER OF SCIENCE (MATERIAL ENGINEERING)

Engineering Courses (15 cr. hrs)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MME 6210</td>
<td>Advanced Thermodynamics of Materials (3)</td>
</tr>
<tr>
<td>MME 6211</td>
<td>Deformation Behaviour of Materials (3)</td>
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<tr>
<td>MME 6212</td>
<td>Microstructural Control (3)</td>
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<td>MME 6213</td>
<td>Structural Steels (3)</td>
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<tr>
<td>MME 6214</td>
<td>Corrosion Processes and Protection (3)</td>
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<tr>
<td>MME 6215</td>
<td>Surface Engineering for Tribological Applications (3)</td>
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<tr>
<td>MME 6216</td>
<td>Advanced Foundry Engineering (3)</td>
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<td>MME 6217</td>
<td>Nondestructive Testing of Materials (3)</td>
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<tr>
<td>MME 6218</td>
<td>Modern Welding Technology (3)</td>
</tr>
<tr>
<td>MME 6219</td>
<td>Modeling and computer simulation of IC manufacturing processes (3)</td>
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<tr>
<td>MME 6220</td>
<td>Advanced Composite Materials (3)</td>
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<td>MME 6230</td>
<td>Advanced Ceramics (3)</td>
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<td>MME 6231</td>
<td>Thin Films (3)</td>
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<td>MME 6232</td>
<td>Bioceramics (3)</td>
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<td>MME 6240</td>
<td>Advanced Polymer Synthesis and Processing (3)</td>
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<td>MME 6241</td>
<td>High Performance Polymeric Materials (3)</td>
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<tr>
<td>MME 6250</td>
<td>Surface Chemistry and Catalytic Materials (3)</td>
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<tr>
<td>MME 6260</td>
<td>Advanced Materials Characterization (3)</td>
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</table>
Dissertation (20 cr. hrs.)
ECE 6999   Dissertation (20)

Seminar (0 cr. hrs.)
ECE 6197   Seminar (0)

Further information can be obtained from Department of Manufacturing and Material Engineering, T: +603-6196-4452, F: +603-6196-4477, E: mmedept@iium.edu.my