Faculty of Industrial Sciences & Technology (FIST)

Chronological record of the establishment of FIST

- **2001**: The government approved to establish a university at Pahang
- **2002**: Establishment of University College of Engineering & Technology Malaysia (KUKTEM)
- **2006**: KUKTEM is known as Universiti Malaysia Pahang (UMP); endorsed by the Cabinet
  - Approval of paperwork of establishment of FIST by senate
- **2007**: Refining paperwork of establishment of FIST and its academic programme
- **2008**: Approval of paperwork by Ministry of Higher Education Malaysia

**FIST was officially established on 1 May 2008**
Vision & Mission

Vision

We offer academic programs and consultancy as well as research in Science and Technology that emphasize industrial elements to produce holistic manpower to meet the stakeholders' need.

Mission

To be a Science and Technology based faculty that meets industrial needs and serves as main reference center.

Campuses

Skills and practical based tertiary education

Specializes in engineering and technology
Faculties in UMP

1. Industrial Sciences & Technology
2. Chemical & Natural Resources Engineering
3. Civil Engineering & Earth Resources Engineering
4. Computer Systems & Software Engineering
5. Engineering Technology
6. Industrial Management
7. Mechanical Engineering
8. Manufacturing Engineering
9. Electrical & Electronics Engineering

Staff of Material Technology Programme
Staff and Expertise

<table>
<thead>
<tr>
<th>Energy Materials Processing</th>
<th>Nanomaterials (Photovoltaic &amp; Energy Storage)</th>
<th>Catalyst</th>
<th>Microwave materials</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Photovoltaic &amp; Realistic Modelling</th>
<th>Energy Storage</th>
<th>Solid Electrolyte</th>
</tr>
</thead>
</table>

Undergraduate Programmes

2008
BAppSc. (Honours) Industrial Chemistry

2009
BAppSc. (Honours) Industrial Biotechnology

2012
BAppSc. (Honours) Material Technology
**MATERIAL TECHNOLOGY CURRICULUM**

<table>
<thead>
<tr>
<th>Types of Courses</th>
<th>Credit Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td>(58+ *6 + **12 = 76)</td>
<td>Courses, *FYP, **Industrial Training</td>
</tr>
<tr>
<td>Elective</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>16</td>
<td>Applied Calculus, Applied Statistics, LQM, LSM, MVV, QAQTL, Business Organization</td>
</tr>
<tr>
<td>University</td>
<td>20</td>
<td>Soft skills, language, co-curriculum, technical/report writing</td>
</tr>
<tr>
<td><strong>Total Credit</strong></td>
<td><strong>127</strong></td>
<td>Graduation Requirement = 127 credit hours</td>
</tr>
</tbody>
</table>

**Courses Offered by Material Technology**
Elective Courses

- Thin Film Technology
- Supercapacitor Technology
- Solar Cell Technology
- Corrosion
- Liquid Crystals Technology
- Molecular Modelling
- Semiconductor Devices
- Recycle Technology
- Computational Physics

Postgraduates

Advanced Materials & Physics
- Nanostructured Materials
- Renewable Energy Materials and Devices
- Superconductors
- Semiconductor Physics
- Optical Physics
- Polymer Nanocomposites
- Biomaterials
- Other Advanced Materials and Physics Related Field

Chemistry & Industrial Chemistry
- Natural Products
- Fine & Specialty Chemicals
- Catalysis
- Oleochemical
- Petrochemical
- Polymer Chemistry
- Analytical Chemistry
- Environmental Pollution Monitoring
- Food Chemistry
- Organometallic Chemistry
- Other Chemistry Related Field

Biotechnology
- Bioprocess and Fermentation
- Enzyme/Protein Technology
- Industrial Biochemistry
- Industrial Microbiology
- Bioremediology
- Biotechnology/Kits
- Biocatalysis
- Cell Culture Technology
- Food Microbiology
- Drug Delivery and Discovery
- Genomics Technology
- Plant Biotechnology
- Carbohydrate Technology
- Bioinformatics
- Molecular Biology
- Other Biotechnology Related Field

Mathematics and Statistics
- Mathematical Modelling
- Food Flows/Heat Mass Transfer
- Fluid Dynamics
- Solid Mechanics
- Numerical Analysis
- Mathematical Education
- Group Analysis
- Bio-mathematics
- Computer Aided Geometric Design (CAGD)
- Material Modelling
- Pattern Recognition
- Structural Equation Modelling
- Stochastic Modelling
- Time Series Analysis
- Multivariate Analysis
- Operational Research
- Interdisciplinary Research
- Quality & Productivity
- Circular Statistics
- Environmental Statistics
- Other Mathematical Related Field
Research Clusters

<table>
<thead>
<tr>
<th>DRUG DISCOVERY &amp; DIAGNOSTICS</th>
<th>ADVANCED MATERIALS</th>
<th>GREEN TECHNOLOGY</th>
<th>APPLIED &amp; IND. MATHEMATICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Jaya Vejayan</td>
<td>Prof. Dr. Jose Rajan</td>
<td>Dr. Essam Makky</td>
<td>Dr. Mohd Sham</td>
</tr>
<tr>
<td>• Omics Technology</td>
<td>• Functional Materials</td>
<td>• Biomass Conversion</td>
<td>• Market &amp; Trends</td>
</tr>
<tr>
<td>• Biodiagnostics</td>
<td>• Photonic Materials</td>
<td>• Bioremediation</td>
<td>• Dynamical System</td>
</tr>
<tr>
<td>• Organic Synthesis</td>
<td>• Catalyst</td>
<td>• Plants, Soils &amp; Microbe</td>
<td></td>
</tr>
<tr>
<td>• Natural Products</td>
<td></td>
<td>• Renewable Energy</td>
<td></td>
</tr>
</tbody>
</table>

Grants (cluster-based)

81 active grants
RM 6 Million
FIST-INDUSTRY STRATEGIC PARTNERSHIP

CURRICULUM
- Fundamental
- Industry-based
- Practical

INDUSTRY PARTNERSHIP
- Curriculum review (IAP/BOS)
- Attachment/exchange expertise
- Resource sharing

ACADEMIC

INDUSTRIAL EXPOSURE
- Visit to industry
- Co-lecturing
- Industry talk series

STRUCTURED INDUSTRIAL TRAINING
- Relevant FYP
- Industrial training
- Extended training

INDUSTRIAL EXPOSURE
- Visit to industry
- Co-lecturing
- Industry talk series

LABORATORIES & RESEARCH FACILITIES

NMR
LABORATORIES & RESEARCH FACILITIES

Teaching and research laboratories

Analytical chemistry laboratory  Organic chemistry laboratory  Unit operation laboratory
Physisorption analyser
Nuclear magnetic resonance spectrometer
Thermal gravimetric analyser
Ion chromatography, UV-Visible spectrometer
X-ray diffractometer
Gas chromatography

Company Profiling (in Website)
Industry PhD
Industry Panel/Expert (IAP)
Consultancy & Technical Services / Facility Sharing / Joint Research Lab
Research & Development & Commercialization
Outward and Inward Exchanges
Community Service
Part-time expert lecturer
Technology Transfer/Patenting
Undergraduate Structured Internships

University–Industry Interactions
THANK YOU