Gas turbine failures are costly and disruptive to power generation whether they be due to minor maintenance issues or due to catastrophic damage to the machine. Adequate investigation is therefore essential following a failure to ensure there is no re-occurrence. Within a design and materials context, this course tackles the key questions regarding the failure of gas turbines: Why do gas components fail? What steps can be taken to learn from the failures and how can you avoid a future re-occurrence?

### Your programme

**Day one**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:45</td>
<td>Registration and refreshments</td>
</tr>
<tr>
<td>09:00</td>
<td>Introduction</td>
</tr>
</tbody>
</table>
| 09:30 | Design and degradation  
  - Why components degrade in service. |
| 10:45 | Refreshments |
| 11:00 | Design and degradation (continued)  
  - How the designer tries to deal with degradation  
  - Examples of normal degradation. |
| 12:00 | Lunch and laboratory tours |
| 13:15 | Failure analysis process  
  - What is root cause analysis?  
  - Who is to carry out the investigation?  
  - Investigation process and framework  
  - Tools of the investigation. |
| 14:45 | Refreshments |
| 15:00 | Design related failures  
  - Coatings life shortfall  
  - Blade creep  
  - Disc rim cracking  
  - Combustion can cracking  
  - Compressor blades. |
| 17:00 | Close. |

**Day two**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:45</td>
<td>Refreshments</td>
</tr>
</tbody>
</table>
| 09:00 | Operations related failures  
  - Thermal fatigue of blades  
  - Blading corrosion  
  - Fouling from poor filtration. |
| 10:45 | Refreshments |
| 11:00 | Manufacturing and repair related failures  
  - Poor coatings  
  - Inappropriate heat treatments  
  - Inadequate repair workscope  
  - Limitations from properties of repairs. |
| 12:15 | Group exercise: Part 1 |
| 12:30 | Lunch and laboratory tours |
| 13:30 | Group exercise: Part 2 |
| 14.00 | Maintenance/inspection related failures  
  - Component overheating  
  - Compressor corrosion and inspection  
  - Compressor blade failures. |
| 15:30 | Applications and implications |
| 16.00 | Close. |
Booking Form

Please photocopy this form if you wish to register more than one delegate.
Send a second person at a discounted price!

Delegate details

Name Dr Mr Mrs Miss
Job title
Organisation
Address

Telephone
Fax
E-mail

VAT Number (EU customers only)

Bookings

I wish to make a firm booking for:
Understanding Gas Turbine Failures

Date................................................    BC No:............................
16-17 September 2015 (Leatherhead)

Fees*

<table>
<thead>
<tr>
<th>Fee rate</th>
<th>Fee</th>
<th>VAT@20%</th>
<th>Total</th>
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<tbody>
<tr>
<td>Early booking</td>
<td>£720.00</td>
<td>£144.00</td>
<td>£864.00</td>
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<tr>
<td>Standard rate</td>
<td>£800.00</td>
<td>£160.00</td>
<td>£960.00</td>
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</tr>
</tbody>
</table>

*AccessERA subscribers and additional delegates receive a 10% discount on these rates. If you subscribe to AccessERA and would like to use your AccessERA credits to attend, please contact the Events Team on: +44 (0)1372 367319. For more information on booking rates, please go to: http://shop.era.co.uk

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Cardholder’s telephone.................................................

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Name____________________________________________Signature____________________________________________

*available at http://shop.era.co.uk/main.asp?sitepages=TermsPage
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Additional booking rates:
Additional booking rates are applicable to second and subsequent delegates and may only be claimed at the time of booking.

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