

# RECIRCULATING AQUACULTURE SYSTEMS (RAS) & AQUAPONICS

Design, Engineering, Operation, and Management

15-19 January 2016

ASIAN INSTITUTE OF TECHNOLOGY, THAILAND



## PROGRAMME

**Thursday, 14 January 2016**  
**Arrival and check in at AITCC Hotel**

**Day 1 (Friday, 15 January 2016)**

7.30 – 8.30 am	<b>Breakfast</b>	
9.00 am – 9.30 am	<b>Opening session</b>	
9.30-10 am	<b>Group photo</b>	

### TECHNICAL SESSIONS

**Recirculating Aquaculture System Engineering (Dr. James Ebeling)**

10 – 11 am	<b>Technical session 1</b>	<ul style="list-style-type: none"> <li>• Overview of RAS Systems Engineering</li> </ul>
11 -11.15 am	<b>Coffee break</b>	
11.15 am – 12.30 pm	<b>Technical session 2</b>	<ul style="list-style-type: none"> <li>• Engineering Design – Mass balance Loading and Growth</li> </ul>
12.30 – 1.30 pm	<b>Lunch</b>	
1.30 – 2.45 pm	<b>Technical session 3</b>	<ul style="list-style-type: none"> <li>• Water Quality</li> <li>• Culture Tank Design</li> </ul>
2.45 – 3 pm	<b>Coffee break</b>	
3 – 4 pm	<b>Technical session 4</b>	<ul style="list-style-type: none"> <li>• Solids capture</li> <li>• Waste Treatment and Effluent Management</li> </ul>
4 – 5 pm	<b>Interactive session</b>	<ul style="list-style-type: none"> <li>• Q &amp; A</li> </ul>
6.30 – 8 pm	<b>Welcome Dinner</b>	

**Day 2 (Saturday, 16 January 2016)**

**Recirculating Aquaculture System Engineering (Dr. James Ebeling)**

7.30 – 8.30 am	<b>Breakfast</b>	
9 – 10.30 am	<b>Technical session 5</b>	<ul style="list-style-type: none"> <li>• Circulation/Pipe Flow and Pumps</li> <li>• Biofiltration/Denitrification</li> </ul>
10.30 – 11 am	<b>Coffee break</b>	
11 am – 12.30 pm	<b>Technical session 6</b>	<ul style="list-style-type: none"> <li>• Gas Transfer – Oxygen/CO<sub>2</sub></li> <li>• A design example</li> </ul>
12.30 – 1.30 pm	<b>Lunch</b>	
1.30 – 2.45 pm	<b>Technical session 7</b>	<ul style="list-style-type: none"> <li>• Biosecurity and Fish Health</li> <li>• Economics and Risk Assessment</li> </ul>
2.45 – 3 pm	<b>Coffee break</b>	
3 PM – 5 pm	<b>Technical session 8</b>	<ul style="list-style-type: none"> <li>• Group Task: Design of a Grow-out System</li> <li>• Q &amp; A</li> </ul>

<b>Day 3 (Sunday, 17 January 2016)</b> <b>Low Cost RAS and Aquaponics Integration in the Tropics (Dr. Wilson Lennard)</b>		
7.30 – 8.30 am	<b>Breakfast</b>	
9 – 10.45 am	<b>Technical session 9</b>	<ul style="list-style-type: none"> <li>• Overview of Low cost RAS and Aquaponics</li> </ul>
10.45 – 11 am	<b>Coffee break</b>	
11 am – 12.30 pm	<b>Technical session 10</b>	<ul style="list-style-type: none"> <li>• Principles of Low cost RAS approach</li> </ul>
12.30 – 1.30 pm	<b>Lunch</b>	
1.30 – 2.45 pm	<b>Technical session 11</b>	<ul style="list-style-type: none"> <li>• Low Cost RAS Design</li> <li>• Low Cost Fish Tanks and Filter Designs and Choices</li> </ul>
2.45 – 3 pm	<b>Coffee break</b>	
3 – 4 pm	<b>Technical session 12</b>	<ul style="list-style-type: none"> <li>• Low Cost RAS Management</li> <li>• Protective Low Cost RAS &amp; Aquaponic Structures for the Tropics</li> </ul>
4 – 5 pm	<b>Interactive session</b>	<ul style="list-style-type: none"> <li>• Q &amp; A</li> </ul>
<b>Day 4 (Monday, 18 January 2016)</b> <b>VISIT TO BANGSAEN AQUARIUM, CHONBURI, THAILAND</b> <b>TECHNICAL SESSION 13</b> <b>Recirculating Systems for Public Aquarium (Dr. Vorathep Muthuwan)</b>		
<b>Day 5 (Tuesday, 19 January 2016)</b> <b>TECHNICAL SESSION, Continued</b> <b>Low Cost RAS and Aquaponics Integration in the Tropics (Dr. Wilson Lennard)</b>		
7.30 – 8.30 am	<b>Breakfast</b>	
9 – 10.45 am	<b>Technical session 14</b>	<ul style="list-style-type: none"> <li>• Aquaponic System Design and Sizing</li> <li>• Deep Flow Hydroponic Component Design and Sizing</li> </ul>
10.45 – 11 am	<b>Coffee break</b>	
11 am – 12.30 pm	<b>Technical session 15</b>	<ul style="list-style-type: none"> <li>• Aquaponic Nutrient Dynamics</li> <li>• Commercial Aquaponic System Management and Operation</li> </ul>
12.30 – 1.30 pm	<b>Lunch</b>	
1.30 – 2.45 pm	<b>Technical session 16</b>	<ul style="list-style-type: none"> <li>• Aquaponic System Buffering Regimes and species</li> <li>• Aquaponic Food Safety</li> </ul>
2.45 – 3 pm	<b>Coffee break</b>	
3 – 4 pm	<b>Interactive session</b>	<ul style="list-style-type: none"> <li>• Q &amp; A</li> </ul>
4 – 5 pm	<b>Closing session</b>	
<b>Wednesday, 20 January 2016</b>		
	<b>Departure /</b> <b>AIT-WAS Smart Shrimp Farming Workshop (from 20 – 22 Jan 2016)</b>	