Storage and Flow of Bulk Solids Course Schedule

**Tuesday**

8:00 am  Check-in
8:30 am  Welcome  Dr. Raju Dandu and Todd Smith, Kansas State University
8:45 am  Bulk Solids Innovation Center Tour  Dr. Raju Dandu and Todd Smith, Kansas State University
9:15 am  Common Flow Problems and their Results  Karl Jacob, University of Michigan
10:15 am  Break
10:30 am  Flow Properties Measurement and Hopper Design Principles  Karl Jacob, University of Michigan
11:45 am  Lunch served in east room
12:30 pm  Flow Property Testing - Group Exercise  Karl Jacob, University of Michigan and Wade Winfrey, Coperion K-Tron
1:30 pm  Procedure for Designing a Hopper/Bin  Karl Jacob, University of Michigan
3:00 pm  Break
3:15 pm  Design of Chutes  Karl Jacob, University of Michigan
4:00 pm  Venting of Hoppers/Air Filtration/Dust Control  Todd Smith, Kansas State University
5:00 pm  Industry Tour and Dinner  Hosted by Coperion K-Tron

**Wednesday**

8:30 am  Feeder Selection and Design  Karl Jacob, University of Michigan
9:15 am  Aeration and Flow Aids  Karl Jacob, University of Michigan
10:00 am  Break
10:15 am  Flow Aids continued  Karl Jacob, University of Michigan
10:45 am  Particle Segregation and Solutions  Karl Jacob, University of Michigan
12:00 pm  Lunch served in east room
12:45 pm  Caking, Agglomeration, and Moisture Effects  Karl Jacob, University of Michigan
1:45 pm  Magnets, Metal Detectors and Separators  Rod Henricks, Bunting Magnetics
2:30 pm  Break
2:45 pm  Flow of Bulk Solids in Different Size Hoppers - Group Exercise  Dr. Raju Dandu and Todd Smith, Kansas State University and Wade Winfrey, Coperion K-Tron
3:15 pm  Screw Conveyors  David Johnson, KWS
4:15 pm  Valves used in Bulk Solids Handling  Justin Christiancy, Vortex Valves
5:00 pm  Industry Tour and Dinner  Hosted by Vortex Valves

Optional - see following pages for details
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>8:30 am</td>
<td>Dust Explosion Protection</td>
<td>Jason Krbec, CV Technology</td>
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<tr>
<td>9:30 am</td>
<td>Structural Design Considerations for Silo and Bins</td>
<td>Keith McGuire, CST</td>
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<td>10:15 am</td>
<td>Break</td>
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<tr>
<td>10:30 am</td>
<td>Silos - Sizing and Specifications</td>
<td>Keith McGuire, CST</td>
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<td>11:15 am</td>
<td>Level Measurement and Weighing in Bins and Silos</td>
<td>Nathan Grube, BinMaster</td>
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<td>12:15 pm</td>
<td>Lunch served in east room</td>
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<tr>
<td>1:15 pm</td>
<td>Material Sampling and Particle Characterization Tests</td>
<td>Dr. Raju Dandu, Kansas State University</td>
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<td>2:00 pm</td>
<td>Instrumentation and Control in Bulk Solids Handling</td>
<td>Steve Reed, Kasa</td>
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<td>3:00 pm</td>
<td>Break</td>
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<tr>
<td>3:15 pm</td>
<td>Overview of Discrete Element Method (DEM) Modeling of Solids Flow</td>
<td>Dr. Raju Dandu, Kansas State University</td>
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<td>4:00 pm</td>
<td>Closing and Evaluation</td>
<td>Dr. Raju Dandu, Kansas State University</td>
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Schedule is subject to change. A final schedule will be provided to attendees on course start date.