Monday, October 11

8:00    **WELCOME**
        Michelle Wilson  
        PCA

8:30    **FUNDAMENTALS OF CONCRETE**  
        Michelle Wilson  
        - Materials Selection
        - Fresh & Hardened Concrete Properties

9:00    **CEMENTITIOUS MATERIALS**  
        Michelle Wilson  
        - Portland Cement
        - SCMs

10:30   **BREAK**

10:45   **AGGREGATES**  
        George Seegebrecht  
        CCE  
        - ASTM C33
        - Characteristics of Aggregates
        - Grading

12:00   **LUNCH**

1:00    **CHEMICAL ADMIXTURES**  
        Colin Lobo  
        NRMCA  
        - Air Entrainment
        - Water Reducers & Super-plasticizers
        - Set Modifying Admixture
        - Specialty Admixtures

2:00    **SKIN SAFETY W/ CEMENT & CONCRETE**  
        - Safety Video

2:30    **BREAK**

2:45    **LABORATORY EXERCISE**  
        @NRMCA Labs  
        - Use of Chemical Admixtures
        - Use of SCMs
        - Use of Fibers

4:30    **EVALUATION & ADJOURN**
Design and Control of Concrete Mixtures

Tuesday, October 12

8:00 BATCHING, MIXING, & TRANSPORTING HANDLING CONCRETE
Colin Lobo
- Checklist for Concrete Placement
- Delivery Considerations
- Placing Equipment
- Vibration & Consolidation

8:45 HOT & COLD WEATHER CONCRETING
Michelle Wilson
- Effects of High Concrete Temperatures
- Cooling Concrete Materials
- Effect of Freezing on Fresh Concrete, Maturity Method
- Strength Gain of Low Temperature Concrete

10:00 BREAK

10:15 PLACING AND FINISHING CONCRETE
George Seegebrecht
- Finishing Methods
- Jointing Procedures

12:00 LUNCH

1:00 CURING
George Seegebrecht
- Methods & Materials
- Period & Temperature

2:00 VOLUME CHANGES OF CONCRETE
Michelle Wilson
- Early Age Volume Changes
- Moisture Changes (Drying Shrinkage)
- Thermal Changes
- Curling (Warping)
- Elastic and Inelastic Deformation
- Chemical Changes and Effects

2:45 BREAK

3:00 CONTROL TESTS FOR CONCRETE
@NRMCA Labs
- Demonstration- Fresh Concrete Tests-
  - Slump, Air, Unit Weight, Temperature

4:30 EVALUATION & ADJOURN
Wednesday, October 13

8:00  HIGH-PERFORMANCE CONCRETE  
   ● Reinforced Concrete  
   ● High-Early  
   ● High-Strength  
   ● High-Durability  
   Colin Lobo

10:00  BREAK

10:15  DESIGNING CONCRETE MIXTURES  
   ● Factors to Be Considered  
   ● Selecting Mix Characteristics  
   Michelle Wilson

12:00  LUNCH

1:00  PROPORTIONING CONCRETE MIXTURES  
   ● Absolute Volume Procedure  
   ● Group Projects  
   @NRMCA Labs

2:45  BREAK

3:00  PROPORTIONING CONCRETE MIXTURES (Cont.)  
   ● Laboratory

4:30  EVALUATION & ADJOURN
Thursday, October 14

8:00 INNOVATIONS IN CONCRETE TECHNOLOGY
- Translucent Concrete
- Photocatalytic (Self-Cleaning)
- Engineered Cementitious Composites (Bendable Concrete)
- Self-Healing Concrete
- Additive Manufacturing (3D Printing)
- Geosynthetic Composites
- Robotics
- Drones
- Artificial Intelligence (AI)
- Virtual Cement Hydration
- Nanotechnology
- Lunar Concrete

Michelle Wilson

8:45 BREAK

9:15 BREAK-OUT SESSION
- What Have We Learned??

Review Panel

10:00 BREAK

10:15 BREAK-OUT SESSION
- What Have We Learned??

11:15 CLOSING REMARKS

11:30 EVALUATION & ADJOURN