Siemens Mechatronic Systems Certification Program
Instructor Certification Course Level 1

Sample Agenda

Monday – Day 1

9:00 Welcome
  • Greetings
  • Administrative Announcements

9:45 Ice Breaker

10:45 Break

11:00 Siemens Mechatronic Systems Certification Program (SMSCP) Overview and Update
  • Levels
  • Job Profiles
  • Relationship of Course Objectives to Job Profiles
  • Role of Instructor Certification in SMSCP

12:30 Lunch

13:30 Tour of the University/College that hosts the course
  • Instructor Certification Program Rooms
  • Campus

15:00 System Approach: Overview

16:30 Wrap-Up/Summary
Wednesday – Day 2

09:00 Mechatronic Systems Teaching
  - **Totally Integrated Automation (TIA) System/Gear Sorting Line/Bottle Filling Line**
  - **Modules and Subsystems**
  - **System Approach Presentation**

10:30 Break

10:45 Application of System Approach in Mechatronic Systems Education
  - **System Approach Module Breakdown Diagram**
  - **Mechatronic Systems: Common Components**
  - **System Function Descriptions: Energy, Mass and Information Flow**
  - **Group Work: Module Function Chart Development**

12:00 Lunch

13:00 Group Exercise Presentation and Discussion

14:00 Break

14:15 Troubleshooting Strategies
  - **Structure of an Effective Troubleshooting Lesson: Utilizing a Real System**
  - **Group Work: Troubleshooting-Fault Finding**
  - **Presentation of Fault Finding Strategy**

17:00 Wrap-Up/Summary
Wednesday – Day 3

09:00 VCAT Training and Electronic Resource Management

10:00 Presentations- Individual School Mechatronic Systems (Participants)

11:00 Break

11:15 Presentations- Individual Mechatronic Systems (Participants)

12:00 Lunch

13:00 System Approach Teaching Examples

13:00-14:00 Course 3
- Sample Lesson and Sample Test Questions
- Connection to System Approach and Job Profile
  (Topic: Pneumatic Cylinder-by a DCV)

14:00-16:00 Course 4
- Sample Lesson and Sample Test Questions
- Connection to System Approach and Job Profile
  (Topic: Mixing Tank Control-PLC Programming)

16:00 Break

16:15 Sample Lesson Structure Organization Overview

17:00 Preparing Sample Lesson Structure
Thursday – Day 4

9:00  Overview of Simulated Systems
  • Diagnostic Kit

10:15 Break

10:30 Group Work: Diagnostic Kit

11:30 The Role and Importance of Factory Tours in Technical Education

12:00 Lunch

12:30 Assemble for Factory Tour & Transportation

13:00 Factory Tour

15:30 Factory Tour De-briefing

16:00 Preparing Sample Lesson Structure

Friday – Day 5

9:00 Finish Sample Lesson Preparation

10:00 System Approach Sample Lesson Unit Presentations

12:00 Lunch

13:00 System Approach Sample Lesson Unit Presentations continued

14:00 Break

14:15 SMSCP Implementation Discussion and Program Feedback

16:00 End of Paradigm Week
Monday – Day 6

09:00 Introduction SMSCP Level 1
- Mechatronic Assistant – the Machine Operator
- SMSCP Level 1 Course Structure
- Role of the Job Profile

10:00 Introduction: Elements of Level 1, Course 1
(Electrical Components)
- Job Profile Reconciliation
- Course Content Overview
- Course Objectives and Syllabus
- Examination Content

12:00 Lunch

13:00 Level 1 Course 1
- Group Task: Hardware Fault Implementation & Troubleshooting

14:30 Break

14:45 Review Sample Lesson Structure and Introduction of Final Lesson Presentation

15:30 Implementation Workshop
- Getting Started and Implementation Models

17:00 Wrap-Up/Summary
Tuesday – Day 7

9:00  Introduction: Elements of Level 1, Course 2 (Mechanical Components and Electrical Drives)
  • Job Profile Reconciliation
  • Course Content Overview
  • Course Objectives and Syllabus
  • Examination Content

12:00 Lunch

13:00 Test Question Development Using System Approach
  • Group Task: Develop and Present Sample Test Questions

14:00 Implementation Workshop II
  • SMSCP Integration

16:00 Preparing Final Lesson Presentation

Wednesday – Day 8

9:00  Introduction: Elements of Level 1, Course 3 (Electro-Pneumatic and Hydraulic Control Systems)
  • Job Profile Reconciliation
  • Course Content, Objectives and Syllabus
  • Examination Content

12:00 Lunch

13:00 ‘Closing the Loop’ using Simulated Systems
  • FluidSIM
  • Diagnostic Kit
  • Group Work: Practice Simulations

15:00 Preparing Final Lesson Presentation
## Thursday – Day 9

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Introduction: Elements of Level 1, Course 4 (Digital Fundamentals and PLCs)</td>
</tr>
<tr>
<td></td>
<td>- Job Profile Reconciliation</td>
</tr>
<tr>
<td></td>
<td>- Course Content Overview</td>
</tr>
<tr>
<td></td>
<td>- Course Objectives and Syllabus</td>
</tr>
<tr>
<td></td>
<td>- Introduction to PLC - Siemens</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch</td>
</tr>
<tr>
<td>13:00</td>
<td>Systems Based Teaching: Developing Model Systems to Encourage Adaptive Expertise</td>
</tr>
<tr>
<td></td>
<td>- Group Work: Model System Design</td>
</tr>
<tr>
<td>15:00</td>
<td>Wrap Up/Group Work Discussion</td>
</tr>
<tr>
<td>16:00</td>
<td>Preparing Final Lesson Presentation</td>
</tr>
</tbody>
</table>

## Friday – Day 10

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>Final Lesson Instructor Presentation</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch</td>
</tr>
<tr>
<td>13:00</td>
<td>Final Lessons Feedback</td>
</tr>
<tr>
<td>14:00</td>
<td>Follow Up Discussion</td>
</tr>
<tr>
<td>15:00</td>
<td>Program Feedback</td>
</tr>
<tr>
<td>16:00</td>
<td>Closing Ceremony</td>
</tr>
</tbody>
</table>