Overview of Needs Assessment

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Needs Assessment
Individual

- The process of determining the proficiency level of an individual:
  - Knowledge of a subject, i.e. Cognitive ability
  - Ability to perform a task, i.e. Hands- On ability

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Needs Assessment Organizational

- The process of determining where Training is “NOT” needed for an individual
- The process of determining where Training is “IS” needed for an individual
- The process of determining Training Categories for the organization
- The process of determining the number of individuals requiring training

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Structure of Needs Assessment

- Knowledge Assessment:
  - Objective type questions, multiple choice and True/False
  - Criterion Referenced Scoring
  - Administered On-Line
  - Scored by vendor
  - Scoring criteria determined by client & CBPH
  - Analysis of data by CBPH

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Structure of Needs Assessment

- Hands-On Assessment:
  - Simulated Tasks determined by client
  - Administered on site
  - Criterion Referenced Scoring
  - Scored by on site
  - Scoring criteria determined by client & CBPH
  - Analysis of data by CBPH

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Scoring

- Criterion Referenced methodology is used for determining proficiency.
- The Criterion Level is set at 80% mastery (90% for Lockout/Electrical Safety) for the Knowledge Assessments and => 4 for the Hands-On Assessments. Typically “pass” would indicate scores meeting the criteria and “fail”, “not successful”, etc. indicate scores not meeting the criteria.
- Scores were expressed as Low, Medium, and High. High scores meet the Criterion Level of 80%.

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Knowledge Assessment Mechanical

- 162 Questions covering 15 categories
- Scoring Criteria:
  - High => 80% per category
  - Medium =>50% and < 80% per category
  - Low < 50% per category

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Knowledge Assessment Mechanical

- Scoring:
  - Total Score (1) Numeric, i.e. 116
  - Total Score (1) Level, i.e. Medium
  - Category Score (15) Numeric, i.e. 8 for Alignment
  - Category Score (15) Level, i.e. Medium for Alignment

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Knowledge Assessment Mechanical Categories

- Alignment/Couplings
- Bearings
- Blueprint Reading
- Fasteners
- Rigging
- Hydraulics
- Lockout
- Lubrication
- Mechanical Drives
- Plumbing/Piping
- Pneumatics
- Precision Maintenance
- Measuring
- Pumps
- Welding/Fabrication

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Hands-On Assessment Mechanical

- Six simulated Tasks
- Scoring Scale = 1 to 5
  - 1 or 2 = not able to perform task
  - 3 = performed task at minimal level
  - 4 or 5 performed task a very high level
- Scoring Criteria:
  - High => 4 per category
  - Medium = 3 per category
  - Low <= 2 per category

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Hands-On Assessment Mechanical

- Total Score per Task (1) Numeric, i.e. 3 for Alignment
- Category Score per Task (1) Level, i.e. Medium for Alignment

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Hands-On Assessment Mechanical - Tasks

- Alignment
- Bearings
- Chains
- Piping
- Pumps
- Welding

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Knowledge Assessment
E&I

- 183 Questions covering 9 categories
- Scoring Criteria:
  - High => 80% per category
  - Medium =>50% and < 80% per category
  - Low < 50% per category

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Knowledge Assessment
E&I

- Scoring:
  - Total Score (1) Numeric, i.e. 116
  - Total Score (1) Level, i.e. Medium
  - Category Score (10) Numeric, i.e. 8 for Motors
  - Category Score (10) Level, i.e. Medium for Motors

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Knowledge Assessment
E&I Categories

- Electrical safety
- Basic Electricity
- Motors
- Control Devices
- Transformers
- Basic Instrumentation
- Controllers
- Transmitters
- Valves - Instrumentation

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Hands-On Assessment
E&I

- 5 simulated Tasks
- Scoring Scale = 1 to 5
  - 1 or 2 = not able to perform task
  - 3 = performed task at minimal level
  - 4 or 5 performed task a very high level
- Scoring Criteria:
  - High => 4 per category
  - Medium = 3 per category
  - Low <= 2 per category

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Hands-On Assessment
E&I

- Total Score per Task (1) Numeric, i.e. 3 for Motors
- Category Score per Task (1) Level, i.e. Medium for Motors

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Hands-On Assessment
E&I - Tasks

- Instrumentation
- PLC5
- PowerFlex 700
- AC/DC Motors
- Motor Starters

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Interpretation of Scores Knowledge and Hands-On

- High – Training Not Recommended
- Medium – Training Recommended
- Low – Training Recommended

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Communicating/Feedback to Participants

- Knowledge Assessment:
  - Report Total Scores (1) by Level, i.e. Total Assessment = Medium
  - Report Category Scores (15 or 9) by Level, i.e. Alignment = Medium; Motors = Medium
- Hands-On Assessment:
  - Report Category Scores (6 or 5) by Level, i.e.

    Alignment = Medium; Motors = Medium

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Method for Calculating Knowledge Assessment Total Score Level

- Calculate the “mean” score for all participants
- Calculate the “standard deviation” for all participants
- Group all scores by “standard deviation”
- High Level are scores greater than + 1 standard deviation
- Medium Level are scores from -1 to + 1 standard deviation
- Low Level are scores lower than -1 standard deviation

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Notes on Calculating Knowledge Assessment Total Score Level

- This method is Norm referenced as opposed to Criterion Referenced.
- The scores will be placed in a “normal distribution” with approximately 66% of participants receiving “Medium” scores, 17% receiving “low” scores and 17% receiving “High” scores.
- This method is only used for purposes of reporting the Knowledge Assessment Total Score Level.

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