

The National Institute  
For  
Certification In Engineering Technologies



The NICET Update  
Annual M-TRAC Workshop  
8/17/2010

## 50 years of proven performance

- ❖ 100% financial independence and self-support.
- ❖ Annual budget over \$5,000,000.
- ❖ Over 35 certification programs available.
- ❖ Over 130,000 technicians certified to date.
- ❖ A database of over 44,000 active certificants.
- ❖ Over 14,000 written exams administered annually.
- ❖ National test center network (P & P + CBT).
- ❖ Significant growth in our popular programs.
- ❖ Started to convert of major programs to CBT.

## The Last 24 Months & The Next 24 Months

## NICET CBT Conversion & Certification Program Development

## NICET Alternative Test Delivery Methods

- ❖ Pencil & Paper
- ❖ Computer Based Testing
- ❖ Internet Based Testing

## In Transportation Programs ....

- ❖ Highway Construction Inspection ... (11-10)
  - Water and Sewer Lines Construction Inspection
  - Stormwater & Wastewater System Construction Inspection
  - Erosion and Sediment Control
- ❖ Bridge Safety Inspection .. (10-10)

## In Materials Testing ... Lab & Field

- ❖ Asphalt – Concrete – Soils ... (4-11)
- ❖ Highway Materials
- ❖ Geotechnical Construction Inspection
- ❖ Geotechnical Exploration
- ❖ Geotechnical Laboratory Testing
- ❖ Geotechnical Generalist

## Conversion of Fire Protection Programs

### Completed:

- ❖ Fire Alarm Systems

### Underway:

- ❖ Automatic Sprinkler System Layout
- ❖ Inspection and Testing of Water-Based Systems
- ❖ Special Hazards Suppression Systems

## Conversion to CBT

work elements >>> single tests

- Use sound test development processes to develop the exam.
- Use sound test administration and certification processes to qualify the candidates.

## Our Objective ....

Fairness + Reliability + Validity

=

A Defensible Exam

&

A Defensible Certification Program

## Certification Program Development

A Step By Step Process!



## Test Design ....

### .... Characteristics of a Certification Test

- ❖ Identifies the right people per the established criteria
- ❖ Differentiates between *minimally qualified*, or *baseline*, candidates and the *unqualified* candidates
- ❖ Tests significant, important, relevant and necessary knowledge & skills
- ❖ Pass/Fail (no letter grades)



## Building a good test . . .

*... by writing good test questions!*

- ❖ Have the appropriate level of difficulty
- ❖ Cover significant, important, and relevant content (the things that really matter)
- ❖ Clear, precise, and direct (not confusing)
- ❖ Free of unintentional sources of difficulty
- ❖ Free of unintended answer cues
- ❖ Unbiased toward any candidate
- ❖ Are based on clear & reliable resources/references
- ❖ Differentiate between qualified and unqualified candidates

## CBT Technology ... The Challenges

- ❖ Our data base / a question banking system / the CBT vendors
- ❖ Test design, test length & seat time
- ❖ Limited number of references (3-4 max)
- ❖ Qualified staff for test design & publishing
- ❖ Candidate management & review for certification
- ❖ Cost & the need for a new test fee structure

## CBT Technology ... The Challenges

- ❖ Question development ...
  - ❖ One 100 (3 version) question test requires the authoring of 450 to 500 questions by SMEs
  - ❖ Edits, SME technical edits, final edits & publishing
  - ❖ 100 question test requires a seat time of 2.5 to 3 hrs (i.e. time for tutorial + NDA + Survey + answering questions ..)
- ❖ Determination of the passing score ...
  - ❖ Beta Testing
  - ❖ The Angoff Process

## Benefits of CBT Technology ...

- ❖ The tools that beyond the multiple choice question ... (e.g. drag & drop, hot spots, point & click, simulation ...)
- ❖ Testing one or more of the related tasks at the same time ...
- ❖ Testing flexibility & convenience ...
- ❖ Eliminates issues related to bias & examiner involvement ..
- ❖ Objective rather than subjective scoring ...
- ❖ Immediate grading & results ...
- ❖ High test security in specialized national test centers ... (e.g. finger prints, palm vein ..)
- ❖ Reasonable cost ...
- ❖ Efficient administration ...
- ❖ Reliable data collection on candidate & exam performance ...

