Machining
Level 1 & 2

National certifications based on industry-written, industry-approved standards
Machining Level 1 & 2 Standards

Duty Areas, Knowledge, Skills, and Abilities

- Job Planning and Management
- Job Execution
- Quality Control and Inspection
- Process Adjustment and Improvement
- General Maintenance
- Industrial Safety and Environmental Protection
- Career Management and Employment Relations
- Written and Oral Communications
- Mathematics
- Decision Making and Problem Solving
- Social Skills and Personal Qualities
- Engineering Drawings and Sketches
- Measurement
- Metalworking Theory
- Introduction to CNC

Standards
Credentials
Roles & Set Up
Process
Resources
Machining Level 1 & 2 Credentials

- Twenty areas of focus
  - CNC Milling: Operator
  - CNC Milling: Programming Setup & Operations
  - CNC Milling Skills II
  - CNC Turning: Operator
  - CNC Turning: Programming Setup & Operations
  - CNC Turning Skills II
  - Drill Press Skills I & II
  - EDM 2 Axis Wire
  - EDM Plunge
  - Grinding Skills I & II
  - Job Planning, Benchwork & Layout
  - Manual Milling Skills I & II
  - Measurement, Materials & Safety
  - Turning Operations: Turning Between Centers I & II
  - Turning Operations: Turning Chucking Skills I & II
Certification Toolkit translates credentials into:

- Applied Mathematics
- Cutting Tool Assembly
- Geometrical Dimensioning and Tolerancing
- Inspection
- Machine Maintenance
- Machine Safety
- Machining Applications
- Measurements
- Operations
- Print Reading
- Shop Safety

Selecting Credentials

View/Download the Certification Toolkit

[Image of the Certification Toolkit]

NIMS®

Standards | Credentials | Roles & Set Up | Process | Resources
Roles & Set Up

1. Organization: Your school or company

2. Sponsors: Individuals who oversee the performance assessment (Teachers, trainers, etc.)

3. Proctors: Organization employees who administer the theory assessment

4. Candidates: Individuals pursuing NIMS credentials (students, employees, apprentices, etc.)
1. Register your organization and primary point of contact (POC)

<table>
<thead>
<tr>
<th>Who should complete this registration?</th>
<th>The individual who will oversee all NIMS activities at your location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples</td>
<td>In Education Setting → Lead Instructor, Dean, Department Head, etc.</td>
</tr>
<tr>
<td></td>
<td>In Industry Setting → Training Manager, HR Manager, Supervisor, etc.</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Oversee NIMS activity and coordinate payment</td>
</tr>
<tr>
<td>Registration &amp; Fees</td>
<td>Complete the online Organization Registration ($0)</td>
</tr>
<tr>
<td>Account Functionality</td>
<td>• Register new sponsors</td>
</tr>
<tr>
<td></td>
<td>• View registered sponsors and their candidates</td>
</tr>
<tr>
<td></td>
<td>• Access Resources page</td>
</tr>
</tbody>
</table>
## 2. Register your sponsor(s)

<table>
<thead>
<tr>
<th>Who should complete this registration?</th>
<th>The individual(s) who will oversee performance assessments</th>
</tr>
</thead>
</table>
| **Examples**                          | In Education Setting → Instructor, Teacher, Teaching Assistant, etc.  
|                                       | In Industry Setting → Trainer, Training Supervisor, etc. |
| **Responsibility**                    | Oversee candidates’ performance assessment activities  
|                                       | Sign *CAR Affidavits of Successful Completion* and send to NIMS  
|                                       | Schedule theory testing time and date with proctor(s) |
| **Registration & Fees**               | 1. POC logs into the [NIMS site](https://nims.gov).  
|                                       | 2. Clicks *Add a Sponsor* and completes registration form ($0).  
|                                       | 3. Repeat until all sponsors are registered. |
| **Account Functionality**             | • View candidate profiles (includes earned credentials)  
|                                       | • Access *Resources* page |
| **Note**                              | Sponsors ARE NOT REQUIRED to test for NIMS credentials |
## 3. Register your proctor(s)

<table>
<thead>
<tr>
<th>Who should complete this registration?</th>
<th>The individual(s) who will oversee theory assessments. NOTE: Sponsors cannot serve as proctors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples</td>
<td>In Education Setting → Administrator, testing center personnel, instructors of other subjects, etc.</td>
</tr>
<tr>
<td></td>
<td>In Industry Setting → HR personnel, administrative personnel, etc.</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Oversee all theory assessments:</td>
</tr>
<tr>
<td></td>
<td>• Verify candidate identify</td>
</tr>
<tr>
<td></td>
<td>• Assist candidate in logging in and purchasing appropriate exam</td>
</tr>
<tr>
<td></td>
<td>• Enter confidential proctor code unlock exam</td>
</tr>
<tr>
<td>Registration &amp; Fees</td>
<td>Proctors must complete <a href="#">online registration</a> ($0) prior to theory testing</td>
</tr>
<tr>
<td></td>
<td>• Proctor ID: enter first initial and full last name as one word</td>
</tr>
<tr>
<td></td>
<td>• Proctor Code: enter confidential code of your choosing; this code will be requested anytime an theory exam is taken</td>
</tr>
<tr>
<td></td>
<td>NOTE: Proctors do not log in at test time; do not receive a username/password.</td>
</tr>
<tr>
<td>Tip</td>
<td>Register multiple proctors</td>
</tr>
</tbody>
</table>
## 4. Register your candidate(s)

<table>
<thead>
<tr>
<th>Who should complete this registration?</th>
<th>The individual(s) who is pursuing NIMS credentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples</td>
<td>In Education Setting → Student, apprentice, etc.</td>
</tr>
<tr>
<td></td>
<td>In Industry Setting → Apprentice, trainee, employee, etc.</td>
</tr>
<tr>
<td>Responsibility</td>
<td>1. Successfully complete performance assessment</td>
</tr>
<tr>
<td></td>
<td>2. Successfully complete theory assessment</td>
</tr>
<tr>
<td>Registration &amp; Fees</td>
<td>Candidates must complete <a href="#">online registration</a> ($40) prior to attempting their first theory assessment</td>
</tr>
<tr>
<td></td>
<td>NOTE: Registration is required once per candidate; Candidates are not required to re-register if multiple credentials are being pursued.</td>
</tr>
<tr>
<td>Note</td>
<td>Prior to registration: ensure candidate has an active, accessible email address</td>
</tr>
</tbody>
</table>
Earning Credentials
Two-Step Validation Process

Validation #1
Performance

Validation #2
Theory

= Credential
Validation #1

**Performance Types**

Measurement, Materials, and Safety does not include a performance assessment.

- Demonstrate hands-on knowledge, skills, and abilities by completing a CAR or industry-designed project

**CARs**
CNC Milling: Operator
CNC Turning: Operator

**Industry-Designed Project**
CNC Milling: Programming Setup & Operations
CNC Milling Skills II
CNC Turning: Programming Setup & Operations
CNC Turning Skills II
Drill Press Skills I & II
EDM 2 Axis Wire
EDM Plunge
Grinding Skills I & II
Job Planning, Benchwork & Layout
Manual Milling Skills I & II
Turning Operations: Turning Between Centers I & II
Turning Operations: Turning Chucking Skills I & II
Demonstrate hands-on knowledge, skills, and abilities by completing a checklist of skills checks

- Follow Credentialing Achievement Record (CAR)
- Download CAR from Resources page (requires login)
- Candidates complete CARs:
  - At school/company facility
  - Without assistance
  - Under sponsor supervision
- No attempt limit; no time limit
- Send Affidavit of Successful Completion to NIMS using the Affidavit Upload Portal at https://goo.gl/bVTc6u
Validation #1b

Performance: Project

Applies to all other Machining Level I and II credentials

- Demonstrate hands-on knowledge, skills, and abilities by machining a specific part using a NIMS-issued print and associated guidelines

- Level I Projects: no time limit
  Level II Projects: time limit noted on print

- Candidates complete projects:
  - At school/company facility
  - Without assistance
  - Under sponsor supervision

- When complete, sponsors arrange inspection as follows:
### Performance: Project Inspection

#### Inspection in an **EDUCATION** Setting

**Measurement, Materials, and Safety**
No performance assessment; skip to theory.

**Job Planning, Benchwork, and Layout**
Requires two projects; both may be inspected by sponsors.

**All other Machining I and II credentials* require inspection by two MET-TEC Committee members.**

*Excludes CNC Milling: Operator and CNC Turning: Operator

A MET-TEC Committee is a group of local industry reps who inspect candidate projects as needed. [See guidelines and registration ($0) form.](#)

#### Inspection in an **INDUSTRY** Setting

**Measurement, Materials, and Safety**
No performance assessment; skip to theory.

**Job Planning, Benchwork, and Layout**
Requires two projects; both may be inspected by sponsors.

**All other Machining I and II credentials* require inspection by two MET-TEC Committee members.**

*Excludes CNC Milling: Operator and CNC Turning: Operator

A MET-TEC Committee is a group of company quality/inspection employees who inspect candidate projects as needed. [See guidelines and registration ($0) form.](#)
When inspection is complete and the part is considered to be passing, send the Affidavit of Successful Completion to NIMS.

- Use the new Affidavit Upload Portal at https://goo.gl/bVTc6u
Validation #2

Theory

Applies to all **Machining Level I and II credentials**

- Demonstrate theoretical knowledge, skills, and abilities through completion of a proctored, timed theoretical assessment

- Exams administered at your location
  - Accessed via NIMS website
  - Proctor required
  - Multiple choice, true/false, fill-in-the-blank, etc.
  - 90-minute time limit
  - Immediate results (pass/fail)

- Accommodations available (readers, paper tests, etc.)

- Retakes available anytime

- $35 per level one; $50 per level two (includes retakes)
Credential

- PDF emailed to candidate and sponsor upon passing theory exam
- Nationally recognized
- Portable
- Stackable
- No expiration
- Color PDFs accessible 24/7 (login required)
Fees & Payment Options

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidate Registration</td>
<td>$40 per candidate</td>
</tr>
<tr>
<td>Level I Theory</td>
<td>$35 per exam, per candidate</td>
</tr>
<tr>
<td>Level II Theory</td>
<td>$50 per exam, per candidate</td>
</tr>
<tr>
<td>Level III Theory</td>
<td>$50 per exam, per candidate</td>
</tr>
</tbody>
</table>

Option 1: Pre-Pay

1. Calculate expected candidate registration costs.
2. Calculate expected theory exam fees.
3. Prior to theory testing: submit payment via check, credit card, or purchase order. (see below)

> Check

1. Mail check to NIMS.
2. NIMS will put funds into an account identified by a 4-digit code. A NIMS rep will contact the organization POC and sponsor(s) with the code. At this time the code may be used.

> Credit Card

1. Call NIMS office with credit card ready.
2. A NIMS rep will put funds into an account identified by a 4-digit code and provide that code. At this time the code may be used.
3. A NIMS rep will email a receipt.

> Purchase Order (PO)

1. Send POs NIMS electronically by visiting the PO Upload Portal at https://goo.gl/bVTc6u.
2. Complete all fields, attach your PO file, and click submit.
3. A NIMS rep will email an account code that can be used to pay fees. An invoice will also be sent.

Option 2: Pay On-Screen

When registering candidates or administering theory exams, have a credit card ready for on-screen payment.

The payment screen will require the credit card type, card number, expiration date, and full billing address.
Frequently Asked Questions

- **Under 18?**
  Yes, if enrolled in a state-recognized training program

- **Certified Instructors?**
  Optional. Exam fees are waived for sponsors who wish to test.

- **Program Accreditation?**
  Optional. Not a requirement for testing.

- **Non-NIMS Projects?**
  No. Performance assessments must follow CARs or projects.

- **Theory Before Performance?**
  No. Performance assessments always occur first.

- **Proctor Code Sharing?**
  No. Proctor codes are confidential and may not be shared.

- **Combo Performance Affidavit?**
  One affidavit per project.

- **Theory Exam Retake Window?**
  Retakes can occur anytime; there is no waiting period. Fees are assessed for each attempt.

- **How many inspections?**
  Each project is inspected by two MET-TEC Committee members.

- **Start with Level 2?**
  Candidates can earn credentials in any order.
Resources

- NIMS Resources Page [NIMS Resources Page](#) (requires login)
  - CARs
  - Prints and performance affidavits
  - Standards
  - Study guides

- Amatrol
  - [CNC Machine Operator Program (Classroom Version)](#)
  - [CNC Machine Operator Program (Online Version)](#)
  - Industrial Technology Maintenance

- Cengage Learning [Precision Machining Technology](#) suite
  - Textbook
  - Workbook and Projects Manual
  - NIMS Study Guide
  - MindTap

- [Immerse2Learn](#)
Featuring **INLET:**

**IN**terpret the standards and credential requirements

**Learn** by planning and earning each level I credential

**Extract** the skills and knowledge required

**Translate** into instructional content

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**5-Day Machining Instructor Training Workshop**

Facilitator-led classroom and hands-on lab time provide:

- Working knowledge of NIMS credentialing and program accreditation
- Best practices for aligning curriculum with NIMS standards and credentials
- Opportunity to earn multiple Machining Level I credentials

Machining Instructor Training workshops are hosted by organizations nationwide that have the machining equipment required to complete the course.

The investment per host organization is $5,995.

View other workshops: [nimsready.org/workshops](http://nimsready.org/workshops)
Principles of Right Skills Now

Fast-Tracked, For-Credit Career Training – The accelerated route, using modular curriculum, allows individuals to gain credentials with immediate value.

Industry Credentials with Value in the Workplace – This model allows students to transition to employment while continuing their studies and their accumulation of industry-recognized credentials and credit.

Pathways to Advancement and Degrees – The hiring employers will emphasize the importance of workers continuing to achieve their educational goals as they are working to help them advance within their career pathway.

Right Skills Now Model

- Nationally replicable framework for a fast-track CNC operations course or pre-apprenticeship program
- 16- to 24-week hands-on training that provides industry demanded competency-based skills
- Includes advanced manufacturing internship
- Program completers earn:
  - CNC Milling: Operator
  - CNC Turning: Operator
  - Job Planning, Benchwork and Layout
  - Measurement, Materials, and Safety
  - ACT's National Career Readiness Certificate

Visit Resources Page to view/print/download Implementation Guide (requires login)

Manufacturers need the Right Skills Now

Enhanced Training Option
Help is on the way!
Contact NIMS for support anytime.

e-mail support@nims-skills.org
phone (703) 352-4971
fax (703) 352-4991

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linkedin http://goo.gl/gCv5Kw