

Minnesota Attorney General: Administrative Rules Proceedings

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Version 3
August 20, 2018

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RULE REVIEW CHECKLIST

File No. 1659 — Docket No. 05-0009, 0831

DATE RECEIVED 1-24-90 — ADOPTED W/O HEARING _____

REVIEW DATE 2-2-90 — EMERGENCY RULE _____

DUE DATE 2-7-90 — TO REVISOR ON 1-29-90

REVISOR APPROVED 2-1-90

APPROVED 2-6-90 — REVISOR DISAPPROVED _____

DISAPPROVED _____ — FILED W/SEC. OF STATE 2-6-90

WITHDRAWN _____ — RETURNED TO AGENCY _____

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4 Rule as adopted (4 copies)

✓ Notice to Solicit Outside Information/Opinion (if applicable)
- 6-5-89 Date published in State Register
- _____ Comments

_____ Petition for Adoption of a Rule (if applicable) ~~N/A~~

✓ Board's Authorizing Resolution
- June 20, 1989 Date adopted

✓ Proposed Rule
- ✓ Revisor's Certificate

_____ Notice of Intent to Adopt Rule
- 136C.04 subd 9 Statutory Authority
- _____ ~~Small Business Statement~~
- _____ ~~Expenditure of public money statement~~
- 11-22-89 Signature

✓ Statement of Need and Reasonableness (if applicable)
- _____ ~~Small Business Statement~~
- _____ ~~Fees - § 16A.128~~

_____ Affidavit of Mailing Notice of Intent to Adopt Rule
- Nov 28, 1989 Date (30)/25 days before adoption — indicates is attached
- _____ Notice attached
- NO Copy of rule or summary attached

✓ Publication in State Register
- Dec 4, 1989 Date (30)/25 days before adoption

✓ 180-day deadline from:
- NA Effective date of law requiring rule (14.12) (both rules) — not mandatory
- ✓ end of comment period (§ 14.26) (rules without hearing)
- _____ effective date of statutory authority (§ 14.29) (emergency rules)

✓ Resolution Adopting
- Jan 9, 1990 Date adopted

✓ Findings of Fact, Conclusions & Order Adopting
- 1-10-90 Date

_____ Written requests, submissions or comments — requested a copy of the State of need and Reasonableness

✓ Declaration of attorney
- Chuck Mothul Name of SAAG representing agency

_____ ~~Notice of Submission to Atty. Gen. (if applicable)~~

_____ ~~Aff. of Mailing Notice to Atty. Gen. (if applicable)~~

FILE COPY

SF-00006-05 (4/86)

DEPARTMENT : ATTORNEY GENERAL

STATE OF MINNESOTA

Office Memorandum

DATE : February 6, 1990

TO : GEORGE POMROY, License Revision Specialist
BOARD OF VOCATIONAL TECHNICAL EDUCATION
550 Cedar Street, Suite 100 (55101)

FROM : CHRISTIE B. ELLER
Assistant Attorney General
525 Park Street, Suite 500 (55103)

PHONE : 296-9421

SUBJECT : In the Matter of the Adopted Permanent Rule Relating to Vocational Postsecondary Teacher Licenses: Technical Occupations

The above-referenced Permanent rule has been approved as to its legality by the Attorney General on February 6, 1990.

Enclosed is your copy of the approved rule. This office has already filed two copies with the Secretary of State, who will forward one copy to the Revisor of Statutes. The fourth is being retained by this division of the Attorney General's Office for its records.

Also enclosed are any petitions, requests, submissions or comments along with any extra copies of documents which you submitted to the Attorney General.

Your next step is to arrange for publication of the Notice of Adoption in the State Register. In a day or two, you should receive from the Revisor's Office three copies of the notice of adoption of your rule. You should submit two copies of the Notice of Adoption to the State Register for publication. A permanent rule without a hearing does not become effective until five days after a notice of adoption is published in the State Register in accordance with Minn. Stat. § 14.27. An emergency rule becomes effective five working days after approval by the Attorney General; however, the agency must publish a notice in the State Register in accordance with Minn. Stat. § 14.34.

If you have any questions in this regard please contact me.

CBE:bbl
Enclosures
cc: William Brown, Chief Judge (memo only)
MaryAnn Hruby " "
Charles T. Mottl " "

State Board of Vocational Technical Education

Adopted Permanent Rules Relating to Vocational Postsecondary Teacher Licenses; Technical Occupations

Rules as Adopted

3700.0700 LICENSES IN THE TECHNICAL OCCUPATIONAL AREA.

Subpart 1. **Listed here.** An applicant for a license to teach postsecondary vocational programs and courses in the technical occupational area must meet the requirements in this part. These requirements are in addition to the requirements listed in part 3700.0100 and for a particular license (listed in the part that covers that particular license).

Subp. 2. **Recent occupational experience.** An applicant for a license to teach in the technical occupational area must have 2,000 hours of occupational experience within the five years just before applying for that license.

Subp. 3. **Does not apply.** Part 3515.9921 does not apply to parts 3700.0705 to 3700.0770.

3700.0710 AUDIO RECORDING SPECIALIST.

Subpart 1. **May teach.** A teacher who has an audio recording specialist license may teach in the audio recording specialist program and may also teach courses in:

A. basic audio recording and reinforcement;

B. audio for nonmedia professionals;

C. mixing I and II; and

D. sound tracks for slide productions.

Subp. 2. **Other requirements.** The applicants must meet the requirements listed in part 3700.0100 and the requirement for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** The applicant must have 8,000 hours of occupational experience as a primary audio engineer in multi-track recording of music and audio for television film and audio-visual and must have experience in three of the areas listed in this subpart:

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A. audio time code lock;

B. musical instrument digital interface (MIDI);

C. audio location recording;

D. troubleshooting audio equipment; and

E. audio recording project planning and management.

Subp. 4. **Substitution for occupational experience.** The applicant may substitute the education described under item A, B, C, or D for up to 4,000 hours of occupational experience required under subpart 3. The education must be from an accredited postsecondary institution. If the substitution is made, the applicant must still comply with the recency requirements in part 3700.0700, subpart 2.

A. A bachelor's or higher degree with a major in audio recording, television production, or speech and broadcasting may be substituted for 4,000 hours.

B. An associate degree in audio recording specialist, television, or radio production may be substituted for 2,000 hours.

C. A diploma in audio recording specialist, television, or radio production may be substituted. A one-year program or a program of 45 or more quarter credits equal 1,050 hours. A two-year program or a program of 90 or more quarter credits equal 2,000 hours.

D. The completion of courses for credit or clock hours for audio recording specialist, television, and radio production. One hour of instruction equals one hour of occupational experience. One quarter credit equals 20 hours of occupational experience. One semester credit equals 30 hours of occupational experience.

Subp. 5. **Substitution for recent occupational experience.** Teaching experience in primary program content at an accredited postsecondary institution or industrial setting may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in audio recording. Two hours of teaching equal one hour of occupational experience.

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3700.0715 AUTOMATED SYSTEMS TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has an automated systems technology license may teach in the automated systems technology, automated packaging equipment maintenance, automated manufacturing, automated equipment maintenance, flexible automation, and robotics programs and may also teach courses in:

A. schematic reading;

B. programmable logical controller (PLC);

C. industrial electronics (nonconsumer);

D. AC/DC motor controls;

E. introduction to robotics;

F. nonservo robots;

G. servo robots;

H. manufacturing cells;

I. computerized integrated manufacturing (CIM); and

J. automated packaging technology.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical occupational area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience as described in item A, B, or C. The education must be from an accreditated postsecondary institution.

A. A bachelor's or higher degree with a major in computer science, industrial technology, or the following fields of engineering: robotics, industrial process control, mechanical, electrical, computer, packaging, or motion control and 4,000 hours of occupational experience in automated manufacturing process application and industrial controls. This experience must be in at least two of the following areas: production planning, systems interfacing, manufacturing methods, programming systems, or system troubleshooting and repair of system, and system configuration and product process.

B. An associate degree in robotics, manufacturing technology, electronics, automated systems, automated

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manufacturing, automated machinery, automated packaging, instrumentation technology, or computer technology and 6,000 hours of occupational experience in automated manufacturing process application and industrial controls. A minimum of 4,000 hours in this area must be in at least two of the following: planning, systems interfacing, manufacturing methods, programming systems, or troubleshooting and repair of system and system configuration and product process. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining experience may be in any of the following: robotics/flexible automation application, flexible automation programming, quality control in a production environment, computer aided drafting (CAD), packaging technology, vision systems, mechanical power transmission, fluid power mechanics, computerized numerical controls (CNC), electronics technician, and electrician with voltage application in excess of 220 ~~watts~~ volts.

C. A two-year diploma program or a program of 90 or more quarter credits in artificial intelligence, automated equipment, automated packaging, automated systems, electronics, fluid power, instrumentation technology, or computer technology and 6,000 hours of occupational experience in automated manufacturing process application and industrial controls. A minimum of 4,000 of the hours in this area must be in at least two of the following: planning, systems interfacing, manufacturing methods, programming systems, or troubleshooting and repair of system and system configuration and product process. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining experience may be in any of the following areas: robotics/flexible automation application, flexible automation programming, quality control in a production environment, computer aided drafting (CAD), packaging technology, vision systems, mechanical power transmission, fluid power mechanics, computerized numerical controls (CNC), electronics technician, and electrician with voltage application in excess of 220 watts.

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Subp. 4. **Substitution for recent occupational experience.** Teaching experience at an accredited postsecondary institution, industrial, or business setting in primary program content in automated systems technology may be substituted for 1,500 of the 2,000 hours required in part 3709.0700, subpart 2. Two hours of teaching equal one hour of occupational experience.

3700.0720 PRINTED CIRCUIT BOARD TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a printed circuit board technology license may teach in the printed circuit board program and may also teach courses in:

A. introduction to computer aided drafting (CAD);

B. basic electricity;

C. introduction to DOS;

D. fundamentals of electronic drafting; and

E. introduction to UNIX.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in electrical engineering or industrial technology and 4,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

B. An associate degree in industrial technology, electrical or electronic drafting, mechanical drafting, electro-mechanical technology, computer aided design, or electronics technology and 6,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

C. A diploma or certificate in a two-year program or a program of 90 or more quarter credits in electrical or electronic drafting, mechanical drafting, electro-mechanical

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technology, industrial engineering technology, printed circuit design technology, or electronics technology and 6,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in computer aided printed circuit board design for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience required.

3700.0725 ENVIRONMENTAL TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has an environmental technology license may teach in the environmental technology, air and water analysis technology, water/waste treatment technician, food laboratory testing and management, and environmental chemical technology programs and also teach courses in:

A. chemistry;

B. microbiology;

C. instrument analysis;

D. air analysis; and

E. wastewater analysis.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or above degree with a major in chemistry, environmental science, or chemical engineering and 4,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control

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laboratory, or in operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining 2,000 hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

B. An associate degree in environmental technology, food science laboratory testing and management, chemical laboratory testing and management, water/waste treatment, or water and air analysis and 6,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or in operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

C. A two-year diploma or a program of 90 or more quarter credits in environmental technology, food science laboratory testing and management, chemical laboratory testing and management, water/waste treatment or water and air analysis and 6,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise

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pollution.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in environmental laboratory analysis according to Environmental Protection Agency standards for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

3700.0730 LASER ELECTRO OPTICS TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a laser electro optics technology license may teach in the laser electro optics technology program and may teach courses in:

A. laser materials processing techniques;

B. medical laboratory lasers; and

C. vacuum systems for laser technology.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in mechanical or electrical engineering or laser technology and 4,000 hours of occupational experience in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2.

B. An associate degree in laser technology or electronics technology and 6,000 hours of occupational experience with a minimum of 4,000 hours in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2.

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The remaining hours may be in installation maintenance or testing of electronic equipment.

C. A diploma in laser electro optics technology or electronics technology. A two-year program or a program of 90 or more quarter credits and 6,000 hours of occupational experience with a minimum of 4,000 hours in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining hours may be in installation, testing, or maintenance of electronic equipment.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in laser electro optics technology for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience required.

3700.0735 METALLURGICAL TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a metallurgical technology license may teach in the metallurgical technology program and may teach metallurgical specific courses.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in engineering, metallurgy, industrial technology, chemistry, or physics and 4,000 hours of occupational experience with a minimum of 2,000 hours in metallography, failure analysis of materials, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals,

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nondestructive testing, or quality control of metal manufacturing.

B. An associate degree in engineering, metallurgical technology, nondestructive testing, powder metal technology, or industrial laboratory technology and 6,000 hours of occupational experience with a minimum of 2,000 in metallography, failure analysis of material, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

C. A two-year program or a program of 90 or more quarter credits in metallurgical technology, nondestructive testing, powder metal technology, or industrial laboratory technology and 6,000 hours of occupational experience with a minimum of 2,000 hours in metallography, failure analysis of materials, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in metallurgical technology or nondestructive testing for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

3700.0740 METROLOGY TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a metrology technology license may teach in the metrology technology program and may teach metrology specific courses.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and

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occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in mathematics, industrial technology, physics, or engineering and 4,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

B. An associate degree in engineering, instrumentation technology, metrology, electronics technician, or applied physics and 6,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

C. A two-year program or a program of 90 or more quarter credits in metrology, instrumentation technology, or electronic technology and 6,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in metrology technology for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

3709.0200 ARTIFICIAL INTELLIGENCE TECHNICIAN.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

[For text of subp 3, see M.R. 1989]

Subp. 4. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial setting may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The only substitution allowed for the 500 hours of programming artificial intelligence

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required under subpart 3, item B, is teaching programming artificial intelligence. Otherwise, the teaching of any programming may be substituted. Two hours of teaching equal one hour of occupational experience.

3709.0210 VIBROACOUSTICS TECHNOLOGY.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** An applicant must have 8,000 hours of verified occupational experience in testing and measuring of both acoustics and mechanical vibrations and must include the 2,000 hours of occupational experience within the five years just before applying for licensure.

[For text of subp 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial or military setting may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in vibroacoustics specific technology. Two hours of teaching equal one hour of occupational experience.

3709.0220 PLASTIC COMPOSITES TECHNOLOGY.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** An applicant must have 8,000 hours of verified occupational experience in polymer composites. This experience must be in at least two of the following: research and development, design, formulations, and manufacturing and must include the 2,000 hours of occupational experience within the five years just before applying for licensure.

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[For text of subp 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial or military setting in plastic composites technology may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in plastic composites technology. Two hours of teaching equal one hour of occupational experience.

3709.0280 TELECOMMUNICATIONS SYSTEMS TECHNICIAN.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

[For text of subps 3 and 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution, or at an industrial or military setting may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in telecommunications. Two hours of teaching equal one hour of occupational experience.

RENUMBER. The Revisor of Statutes shall renumber Minnesota Rules, parts 3709.0200 as 3700.0705; 3709.0220 as 3700.0750; 3709.0280 as 3700.0755; and 3709.0210 as 3700.0760.

LICENSE CONVERSION. EXISTING LICENSES, CONVERSION TO NEW LICENSES. On the date this rule becomes effective, the board shall convert a license listed in column A and issued under part 3515.9921 to the license listed in column B. At the next renewal date for the license, the renewal license must show the new license category.

A.	B.

Approved
by Revisor _____

1. automated manufacturing technology robotics automated packaging equipment maintenance automated systems technology	1. automated systems technology
2. water and waste treatment technician occupations food laboratory testing and management environmental technician occupations	2. environmental technology

Approved by Revisor _____

APPROVED AS TO FORM AND LEGALITY

Feb 6 19 90

HUBERT H. HUMPHREY, III
ATTORNEY GENERAL

BY Christie B. Eller
ASSISTANT ATTORNEY GENERAL

STATE OF MINNESOTA
DEPARTMENT OF STATE
FILED
FEB 06 1990
Joan Anderson
Secretary of State

4:02 pm

STATE OF MINNESOTA
Board of Vocational Technical Education
100 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Office Memorandum

TO: Patricia Nolte, Legal Assistant
Public Finance Division
525 Park Street

FROM: Georgia Pomroy, License Revision Specialist

DATE: January 24, 1990

PHONE: 296-3929

SUBJECT: Document Review for Technical Occupations 3700.0700 to 3700.0740 and 3709.0200 to 3709.0220 and 3709.0280

The documents have been enclosed for your review. Steps 5 and 7 through 11 have been repeated to comply with the statute requiring 30-day publication. Swine Production Management referenced in some documents is going through a separate rule process.

TECHNICAL OCCUPATIONS 3700.0700 TO 3700.0740 AND 3709.0200 TO 3709.0220 AND 3709.0280

1. Signed Notice of Intent to Solicit Outside Opinion - May 25, 1989

2. *State Register* Copy - Solicitation of Outside Opinion - June 5, 1989

3. Authorizing Resolutions for Proposed Rules - June 20, 1989

4. Copy of Proposed Rules Approved by Revisor

*5. Signed Notice of Intent to Adopt a Rule as Mailed - September 7, 1989 (original)
November 22, 1989 (to comply with 30-day statute)

6. Statement of Need and Reasonableness

*7. Affidavit of Mailing - September 19, 1989 (original)
November 28, 1989 (to comply with 30-day statute)

*8. *State Register* Copy of Rules as Published with Intent to Adopt -
September 25, 1989 (original)
December 4, 1989 (to comply with 30-day statute)

9. Four copies of rule as adopted

*10. State Board's Resolution Adopting Rules - November 14, 1989 (original)
January 9, 1990 (new)

*11. Findings of Fact and Conclusions of Law - November 14, 1989 (original)
January 10, 1990 (new)

12. Request for Need and Reasonableness

13. Declaration by Attorney General - January 22, 1990

*Procedure repeated to comply with 30-day statute.

GP:lrv
NOLTE.TEC

Enclosures

Stat. Auth.
136C.04 subd 9

The State Board may promulgate rules, according to the provisions of chapter 14 for licensure of teaching support, and supervisory personnel in post-secondary and adult vocational education.

have until Jan 4, 1990 to comment published Dec 4, 1989
-31 days

Notice of Intent
missing E(11) - rule is attached
or a summary and how to get
a free copy of the rule

notice of Intent indicates proposed rule was published in the Sept 25, 1989 State Reg.

did she mail out the attached rules
did they drop the ball

Both mailings did mail out the rule

2-5-90 - 1st mailing mailed a copy of rules on 1st mailing

Swine Production is coming later
pulled it because an Agriculture
already published Swine Rule
Rules will be coming

2-5-90

D. Pomroy said that the rules were mailed on the 1st mailing

Swine Rules were pulled as going to be submitted later

In the Matter of the Proposed Adoption of the Rule of the State of Minnesota, State Board of Vocational Technical Education Governing Licensure Criteria: Postsecondary Vocational Technical Education, Minnesota Rules 3700.0700 to 3700.0740, Audio Recording Specialist, Automated Systems Technology, Printed Circuit Board Technology, Environmental Technology, Laser Electro Optics Technology, Metallurgical Technology, Metrology Technology; editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Artificial Intelligence Technician, Vibroacoustics Technology, Plastic Composites Technology, Telecommunications Systems Technician

AFFIDAVIT OF MAILING THE NOTICE OF INTENT TO ADOPT A RULE WITHOUT A PUBLIC HEARING AND CERTIFICATE OF MAILING LIST

STATE OF MINNESOTA]
] ss.
COUNTY OF RAMSEY]

LeAnn R. VanDorsten, being sworn says:

I hereby certify that the list of persons and associations who have requested, pursuant to Minnesota Statutes, sections 14.14, subdivision 1a and 14.22 or 14.30, that their names be placed on the State Board of Vocational Technical Education rulemaking mailing list is accurate, complete and current as of this 28th day of November, 1989.

That on the 28th day of November, 1989, at the City of St. Paul, County of Ramsey, State of Minnesota, I mailed the attached Notice of Intent to Adopt A Rule Without a Public Hearing for Technical rules 3700.0700 to 3700.0740, 3709.0200, 3709.0210, 3709.0220, 3709.0280 by depositing in the State of Minnesota Central Mail System for United States mailing, a copy thereof, with postage prepaid, to all persons and associations on the aforementioned mailing list.

LeAnn R. VanDorsten
[Name]

Executive I
[Title]

Subscribed and sworn to before me
this 28th day of November, 1989.

Caroline E. Wisniewski

20109920.FRM

CAROLINE E. WISNIEWSKI
NOTARY PUBLIC-MINNESOTA
DAKOTA COUNTY
MY COMMISSION EXPIRES MARCH 28, 1991

RULE MAKING MAILING LIST
~~11/4/88~~ ~~2-14-89~~ ~~3-29-89~~ ~~5-8-89~~
9-6-89

John Banks
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Larry Fraser 4-30-91
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In the Matter of the Proposed Adoption of the Rule of the State of Minnesota, State Board of Vocational Technical Education Governing Licensure Criteria: Postsecondary Vocational Technical Education, 3700.0700 TO 3700.0740, Audio Recording Specialist, Automated Systems Technology, Printed Circuit Board Technology, Environmental Technology, Laser Electro Optics Technology, Metallurgical Technology, Metrology Technology; editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Artificial Intelligence Technician, Vibroacoustics Technology, Plastic Composites Technology, Telecommunications Systems Technician; Agricultural Occupations - New Venture, rule 3700.0285, Swine Production Management.

AFFIDAVIT OF MAILING THE NOTICE OF INTENT TO ADOPT A RULE WITHOUT A PUBLIC HEARING AND CERTIFICATE OF MAILING LIST

STATE OF MINNESOTA]
] ss.
COUNTY OF RAMSEY]

LeAnn R. VanDorsten, being sworn says:

I hereby certify that the list of persons and associations who have requested, pursuant to Minnesota Statutes, sections 14.14, subdivision 1a and 14.22 or 14.30, that their names be placed on the State Board of Vocational Technical Education rulemaking mailing list is accurate, complete and current as of this 19th day of September, 1989.

That on the 19th day of September, 1989, at the City of St. Paul, County of Ramsey, State of Minnesota, I mailed the attached Notice of Intent to Adopt A Rule Without a Public Hearing for Technical and Swine Production Management rules 3700.0700 to 3700.0740, 3709.0200, 3709.0210, 3709.0220, 3709.0280, and 3700.0285 by depositing in the State of Minnesota Central Mail System for United States mailing, a copy thereof, with postage prepaid, to all persons and associations on the aforementioned mailing list.

LeAnn R. VanDorsten
[Name]

Executive I
[Title]

Subscribed and sworn to before me
this 19th day of September, 1989.

Caroline E. Wisniewski

CAROLINE E. WISNIEWSKI
NOTARY PUBLIC-MINNESOTA
DAKOTA COUNTY
MY COMMISSION EXPIRES MARCH 28, 1991

20109920.FRM

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9-6-89

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MR.	LARRY	SCHEMMEL	STC-PIPESTONE	NORTH HIAWATHA	PIPESTONE, MN 56164	(507) 825-5471
MS.	CINDY	CEDERGREN	THIEF RIVER FLS TECH COLLEGE	HIGHWAY ONE EAST	THIEF RIVER FALLS, MN 56701	(218) 681-5424
MR.	JIM	BAYMLER	WADENA TECHNICAL COLLEGE	405 COLFAX AVENUE SW	WADENA, MN 56482	(218) 631-3530
MR.	ROGER	IVERSON	WILLMAR TECHNICAL COLLEGE	BOX 1097	WILLMAR, MN 56201	(612) 235-5114
MR.	JAMES	JOHNSON	WINONA TECHNICAL COLLEGE	1250 HOMER ROAD	WINONA, MN 55987	(507) 454-4600

DEPARTMENT OF THE STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

In the Matter of the Proposed Adoption of the Rules of the State of Minnesota Governing Technical rules, 3700.0700 to 3700.0740, Audio Recording Specialist, Automated Systems Technology, Printed Circuit Board Technology, Environmental Technology, Laser Electro Optics Technology, Metallurgical Technology, Metrology Technology; editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Artificial Intelligence Technician, Vibroacoustics Technology, Plastic Composites Technology, Telecommunications Systems Technician

NOTICE OF INTENT TO ADOPT A RULE WITHOUT A HEARING

(1) Notice is hereby given that the State Board of Vocational Technical Education intends to adopt the above-entitled as published in the *State Register* on September 25, 1989, Volume 14, Number 13, rule without a public hearing following the procedures set forth in the Administrative Procedure Act for adopting rules without a public hearing in Minnesota Statutes, Section 14.22 to 14.28. The statutory authority to adopt the rules is Minnesota Statutes 136C.04, Subdivision 9.

(2) All persons have 30 days until 4:30 p.m., Thursday, January 4, 1990, in which to submit comment in support of or in opposition to the proposed rule or any part or subpart of the rule. Comment is encouraged. (3) Each comment should identify the portion of the proposed rule addressed, the reason for comment, and any change proposed.

Any person may make a written request for a public hearing on the rule within the 30-day comment period. (4) If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficient number withdraw their request in writing. (6) Any person requesting a public hearing should state his or her name and address, and is encouraged to identify the portion of the proposed rule addressed, the reason for the request, and any change proposed. (7) If a public hearing is required, the agency will proceed pursuant to Minnesota Statutes, Sections 14.131 to 14.20.

(5) Comments or written requests for a public hearing must be submitted to:

Georgia Pomroy, License Revision Specialist
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-0680

(8) The proposed rule may be modified if the modifications are supported by data and views submitted to the agency and do not result in a substantial change in the proposed rule as noticed.

A copy of the proposed rule was published in the *State Register* on September 25, 1989, Volume 14, Number 13.

(12) A Statement of Need and Reasonableness that describes the need for and reasonableness of each provision of the proposed rule and identifies the data and information relied upon to support the proposed rule has been prepared and is available from Georgia Pomroy at the above address and phone, upon request. (12)

(9) If no hearing is required, upon adoption of the rule, the rule and the required supporting documents will be submitted to the Attorney General for review as to legality and form to the extent the form relates to legality. Any person may request notification of the date of submission to the Attorney General. Persons who wish to be advised of the submission of this material to the Attorney General, or wish to receive a copy of the adopted rule must submit the written request to:

Georgia Pomroy
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
(612) 296-0680

Date: Nov 22, 1989

Helen Henrie

Helen Henrie, Deputy Director
Minnesota Technical College System

original

DEPARTMENT OF THE STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

In the Matter of the Proposed Adoption of the Rules of the State of Minnesota Governing Technical rules, 3700.0700 to 3700.0740, Audio Recording Specialist, Automated Systems Technology, Printed Circuit Board Technology, Environmental Technology, Laser Electro Optics Technology, Metallurgical Technology, Metrology Technology; editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Artificial Intelligence Technician, Vibroacoustics Technology, Plastic Composites Technology, Telecommunications Systems Technician; Agricultural Occupations - New Venture, rule 3700.0285, Swine Production Management.

NOTICE OF INTENT TO ADOPT A RULE WITHOUT A PUBLIC HEARING

(1) Notice is hereby given that the State Board of Vocational Technical Education intends to adopt the above-entitled rule without a public hearing following the procedures set forth in the Administrative Procedure Act for adopting rules without a public hearing in Minnesota Statutes, Section 14.22 to 14.28. The statutory authority to adopt the rules is Minnesota Statutes 136C.04, Subdivision 9.

All persons have 30 days until 4:30 p.m., Tuesday, October 24, 1989, in which to submit comment in support of or in opposition to the proposed rule or any part or subpart of the rule. Comment is encouraged. Each comment should identify the portion of the proposed rule addressed, the reason for comment, and any change proposed.

Any person may make a written request for a public hearing on the rule within the 30-day comment period. If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficient number withdraw their request in writing. Any person requesting a public hearing should state his or her name and address, and is encouraged to identify the portion of the proposed rule addressed, the reason for the request, and any change proposed. If a public hearing is required, the agency will proceed pursuant to Minnesota Statutes, Sections 14.131 to 14.20.

Comments or written requests for a public hearing must be submitted to either:

Glenda Moyers, Supervisor
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-5707

Georgia Pomroy, License Revision Specialist
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-0680

The proposed rule may be modified if the modifications are supported by data and views submitted to the agency and do not result in a substantial change in the proposed rule as noticed.

A copy of the proposed rule is attached to this notice.

A Statement of Need and Reasonableness that describes the need for and reasonableness of each provision of the proposed rule and identifies the data and information relied upon to support the proposed rule has been prepared and is available from Glenda Moyers or Georgia Pomroy at the above address and phone, upon request.

If no hearing is required, upon adoption of the rule, the rule and the required supporting documents will be submitted to the Attorney General for review as to legality and form to the extent the form relates to legality. Any person may request notification of the date of submission to the Attorney General. Persons who wish to be advised of the submission of this material to the Attorney General, or wish to receive a copy of the adopted rule must submit the written request to either:

Glenda Moyers
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
(612) 296-5707

Georgia Pomroy
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
(612) 296-0680

Helen Henrie

Helen Henrie, Deputy Director
Minnesota Technical College System

Sept 7, 1989
(Date)

LCRAR

REC'D OCT 20 1989

Legislative Commission to

Review Administrative Rules

Senator Gene Waldorf
Chair

Representative Peter Rodosovich
Vice-Chair

Maryanne V. Hruby
Director

October 5, 1989

Georgia Pomroy, License Revision Specialist
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101

Dear Ms.Pomroy:

You recently published a set of proposed rules relating to Vocational Postsecondary Teacher Licenses; Technical Occupations. The LCRAR maintains a file of all Statements of Need and Reasonableness (SONARs). With your assistance, we can keep this file current. We ask you to forward, at your earliest convenience, a copy of the SONAR for these recently published rules to:

The Legislative Commission to Review Administrative Rules
Maryanne Hruby, Director
55 State Office Building
St. Paul, Minnesota 55155

The Minnesota Technical College System also published (on September 25, 1989) a set of proposed rules relating to License to Teach Swine Production Management, but did not list a contact person. Therefore, I'm directing my inquiry to you for a SONAR for these proposed rules also in hopes that you can either send us a copy or direct this request to the proper individual.

If you have any questions please contact me.

Thank you.

Sincerely,

Michele Swanson
Commission Secretary

Minnesota Technical Institute System

State Board of Vocational Technical Education
Capitol Square Building 550 Cedar Street St. Paul, MN 55101

October 20, 1989

Campus Locations

ALBERT LEA
ALEXANDRIA
ANOKA
AUSTIN
BEMIDJI
BRAINERD
BROOKLYN PARK
CANBY
DETROIT LAKES
DULUTH
EAST GRAND FORKS
EDEN PRAIRIE
EVELETH
FARIBAULT
GRANITE FALLS
HIBBING
HUTCHINSON
JACKSON
MANKATO
MINNEAPOLIS
MOORHEAD
PINE CITY
PIPESTONE
RED WING
ROCHESTER
ROSEMOUNT
ST CLOUD
ST PAUL
STAPLES
THIEF RIVER FALLS
WADENA
WHITE BEAR LAKE
WILLMAR
WINONA

Michele Swanson
Commission Secretary
55 State Office Building
St. Paul, MN 55155-1201

Dear Ms. Swanson:

In response to your request received October 20, 1989, I am enclosing a copy of the Statement of Need and Reasonableness for the proposed rules, Technical Occupations, as well as Swine Production Management as published in the September 25, 1989, State Register.

If you have any questions, feel free to contact our office at 296-3929.

Sincerely,

Georgia Pomroy/cs

Georgia Pomroy,
Licensure Revision Specialist

Enclosure

Office of the Revisor of Statutes

Administrative Rules

Richard J. Sands
Senior Assistant Revisor
296-2798



700 State Office Building
100 Constitution Avenue
St. Paul, MN 55155-1297

August 30, 1989

Ms. Georgia Pomroy
State Board of Vocational Technical Education
First Floor
Capitol Square Building
St. Paul, MN 55101

RE: File No. 1552

Dear Ms. Pomroy:

I am enclosing six copies of your rules, approved as to form. Please submit two copies to the State Register for publication.

If you have any questions, please call me.

Very truly yours,

Richard J. Sands

State Board of Vocational Technical Education

Proposed Permanent Rules Relating to Vocational Postsecondary Teacher Licenses; Technical Occupations

Rules as Proposed (all new material)

3700.0700 LICENSES IN THE TECHNICAL OCCUPATIONAL AREA.

Subpart 1. **Listed here.** An applicant for a license to teach postsecondary vocational programs and courses in the technical occupational area must meet the requirements in this part. These requirements are in addition to the requirements listed in part 3700.0100 and for a particular license (listed in the part that covers that particular license).

Subp. 2. **Recent occupational experience.** An applicant for a license to teach in the technical occupational area must have 2,000 hours of occupational experience within the five years just before applying for that license.

Subp. 3. **Does not apply.** Part 3515.9921 does not apply to parts 3700.0705 to 3700.0770.

3700.0710 AUDIO RECORDING SPECIALIST.

Subpart 1. **May teach.** A teacher who has an audio recording specialist license may teach in the audio recording specialist program and may also teach courses in:

A. basic audio recording and reinforcement;

B. audio for nonmedia professionals;

C. mixing I and II; and

D. sound tracks for slide productions.

Subp. 2. **Other requirements.** The applicants must meet the requirements listed in part 3700.0100 and the requirement for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** The applicant must have 8,000 hours of occupational experience as a primary audio engineer in multi-track recording of music and audio for television film and audio-visual and must have experience in three of the areas listed in this subpart:

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A. audio time code lock;

B. musical instrument digital interface (MIDI);

C. audio location recording;

D. troubleshooting audio equipment; and

E. audio recording project planning and management.

Subp. 4. **Substitution for occupational experience.** The applicant may substitute the education described under item A, B, C, or D for up to 4,000 hours of occupational experience required under subpart 3. The education must be from an accredited postsecondary institution. If the substitution is made, the applicant must still comply with the recency requirements in part 3700.0700, subpart 2.

A. A bachelor's or higher degree with a major in audio recording, television production, or speech and broadcasting may be substituted for 4,000 hours.

B. An associate degree in audio recording specialist, television, or radio production may be substituted for 2,000 hours.

C. A diploma in audio recording specialist, television, or radio production may be substituted. A one-year program or a program of 45 or more quarter credits equal 1,050 hours. A two-year program or a program of 90 or more quarter credits equal 2,000 hours.

D. The completion of courses for credit or clock hours for audio recording specialist, television, and radio production. One hour of instruction equals one hour of occupational experience. One quarter credit equals 20 hours of occupational experience. One semester credit equals 30 hours of occupational experience.

Subp. 5. **Substitution for recent occupational experience.** Teaching experience in primary program content at an accredited postsecondary institution or industrial setting may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in audio recording. Two hours of teaching equal one hour of occupational experience.

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3700.0715 AUTOMATED SYSTEMS TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has an automated systems technology license may teach in the automated systems technology, automated packaging equipment maintenance, automated manufacturing, automated equipment maintenance, flexible automation, and robotics programs and may also teach courses in:

A. schematic reading;

B. programmable logical controller (PLC);

C. industrial electronics (nonconsumer);

D. AC/DC motor controls;

E. introduction to robotics;

F. nonservo robots;

G. servo robots;

H. manufacturing cells;

I. computerized integrated manufacturing (CIM); and

J. automated packaging technology.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical occupational area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience as described in item A, B, or C. The education must be from an accreditated postsecondary institution.

A. A bachelor's or higher degree with a major in computer science, industrial technology, or the following fields of engineering: robotics, industrial process control, mechanical, electrical, computer, packaging, or motion control and 4,000 hours of occupational experience in automated manufacturing process application and industrial controls. This experience must be in at least two of the following areas: production planning, systems interfacing, manufacturing methods, programming systems, or system troubleshooting and repair of system, and system configuration and product process.

B. An associate degree in robotics, manufacturing technology, electronics, automated systems, automated

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manufacturing, automated machinery, automated packaging, instrumentation technology, or computer technology and 6,000 hours of occupational experience in automated manufacturing process application and industrial controls. A minimum of 4,000 hours in this area must be in at least two of the following: planning, systems interfacing, manufacturing methods, programming systems, or troubleshooting and repair of system and system configuration and product process. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining experience may be in any of the following: robotics/flexible automation application, flexible automation programming, quality control in a production environment, computer aided drafting (CAD), packaging technology, vision systems, mechanical power transmission, fluid power mechanics, computerized numerical controls (CNC), electronics technician, and electrician with voltage application in excess of 220 watts.

C. A two-year diploma program or a program of 90 or more quarter credits in artificial intelligence, automated equipment, automated packaging, automated systems, electronics, fluid power, instrumentation technology, or computer technology and 6,000 hours of occupational experience in automated manufacturing process application and industrial controls. A minimum of 4,000 of the hours in this area must be in at least two of the following: planning, systems interfacing, manufacturing methods, programming systems, or troubleshooting and repair of system and system configuration and product process. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining experience may be in any of the following areas: robotics/flexible automation application, flexible automation programming, quality control in a production environment, computer aided drafting (CAD), packaging technology, vision systems, mechanical power transmission, fluid power mechanics, computerized numerical controls (CNC), electronics technician, and electrician with voltage application in excess of 220 watts.

Subp. 4. **Substitution for recent occupational experience.**

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Teaching experience at an accredited postsecondary institution, industrial, or business setting in primary program content in automated systems technology may be substituted for 1,500 of the 2,000 hours required in part 3709.0700, subpart 2. Two hours of teaching equal one hour of occupational experience.

3700.0720 PRINTED CIRCUIT BOARD TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a printed circuit board technology license may teach in the printed circuit board program and may also teach courses in:

A. introduction to computer aided drafting (CAD);

B. basic electricity;

C. introduction to DOS;

D. fundamentals of electronic drafting; and

E. introduction to UNIX.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in electrical engineering or industrial technology and 4,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

B. An associate degree in industrial technology, electrical or electronic drafting, mechanical drafting, electro-mechanical technology, computer aided design, or electronics technology and 6,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

C. A diploma or certificate in a two-year program or a program of 90 or more quarter credits in electrical or electronic drafting, mechanical drafting, electro-mechanical technology, industrial engineering technology, printed circuit

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design technology, or electronics technology and 6,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in computer aided printed circuit board design for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience required.

3700.0725 ENVIRONMENTAL TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has an environmental technology license may teach in the environmental technology, air and water analysis technology, water/waste treatment technician, food laboratory testing and management, and environmental chemical technology programs and also teach courses in:

A. chemistry;

B. microbiology;

C. instrument analysis;

D. air analysis; and

E. wastewater analysis.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or above degree with a major in chemistry, environmental science, or chemical engineering and 4,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or in operational testing, sampling, and monitoring

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in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining 2,000 hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

B. An associate degree in environmental technology, food science laboratory testing and management, chemical laboratory testing and management, water/waste treatment, or water and air analysis and 6,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or in operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

C. A two-year diploma or a program of 90 or more quarter credits in environmental technology, food science laboratory testing and management, chemical laboratory testing and management, water/waste treatment or water and air analysis and 6,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

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Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in environmental laboratory analysis according to Environmental Protection Agency standards for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

3700.0730 LASER ELECTRO OPTICS TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a laser electro optics technology license may teach in the laser electro optics technology program and may teach courses in:

A. laser materials processing techniques;

B. medical laboratory lasers; and

C. vacuum systems for laser technology.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in mechanical or electrical engineering or laser technology and 4,000 hours of occupational experience in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2.

B. An associate degree in laser technology or electronics technology and 6,000 hours of occupational experience with a minimum of 4,000 hours in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining hours may be in installation maintenance or

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testing of electronic equipment.

C. A diploma in laser electro optics technology or electronics technology. A two-year program or a program of 90 or more quarter credits and 6,000 hours of occupational experience with a minimum of 4,000 hours in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining hours may be in installation, testing, or maintenance of electronic equipment.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in laser electro optics technology for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience required.

3700.0735 METALLURGICAL TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a metallurgical technology license may teach in the metallurgical technology program and may teach metallurgical specific courses.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in engineering, metallurgy, industrial technology, chemistry, or physics and 4,000 hours of occupational experience with a minimum of 2,000 hours in metallography, failure analysis of materials, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal

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manufacturing.

B. An associate degree in engineering, metallurgical technology, nondestructive testing, powder metal technology, or industrial laboratory technology and 6,000 hours of occupational experience with a minimum of 2,000 in metallography, failure analysis of material, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

C. A two-year program or a program of 90 or more quarter credits in metallurgical technology, nondestructive testing, powder metal technology, or industrial laboratory technology and 6,000 hours of occupational experience with a minimum of 2,000 hours in metallography, failure analysis of materials, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in metallurgical technology or nondestructive testing for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

3700.0740 METROLOGY TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a metrology technology license may teach in the metrology technology program and may teach metrology specific courses.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The

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education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in mathematics, industrial technology, physics, or engineering and 4,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

B. An associate degree in engineering, instrumentation technology, metrology, electronics technician, or applied physics and 6,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

C. A two-year program or a program of 90 or more quarter credits in metrology, instrumentation technology, or electronic technology and 6,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in metrology technology for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

Rules as Proposed

3709.0200 ARTIFICIAL INTELLIGENCE TECHNICIAN.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

[For text of subp 3, see M.R. 1989]

Subp. 4. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial setting may be substituted for 1,500 of the 2,000 hours required in part ~~3709.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period.

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The only substitution allowed for the 500 hours of programming artificial intelligence required under subpart 3, item B, is teaching programming artificial intelligence. Otherwise, the teaching of any programming may be substituted. Two hours of teaching equal one hour of occupational experience.

3709.0210 VIBROACOUSTICS TECHNOLOGY.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** An applicant must have 8,000 hours of verified occupational experience in testing and measuring of both acoustics and mechanical vibrations and must include the 2,000 hours of occupational experience within the five years just before applying for licensure.

[For text of subp 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial or military setting may be substituted for 1,500 of the 2,000 hours required in part ~~3700.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in vibroacoustics specific technology. Two hours of teaching equal one hour of occupational experience.

3709.0220 PLASTIC COMPOSITES TECHNOLOGY.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** An applicant must have 8,000 hours of verified occupational experience in polymer composites. This experience must be in at least two of the following: research and development, design, formulations, and manufacturing and must include the 2,000 hours

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of occupational experience within the five years just before applying for licensure.

[For text of subp 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial or military setting in plastic composites technology may be substituted for 1,500 of the 2,000 hours required in part ~~3709.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in plastic composites technology. Two hours of teaching equal one hour of occupational experience.

3709.0280 TELECOMMUNICATIONS SYSTEMS TECHNICIAN.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

[For text of subps 3 and 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution, or at an industrial or military setting may be substituted for 1,500 of the 2,000 hours required in part ~~3709.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in telecommunications. Two hours of teaching equal one hour of occupational experience.

RENUMBER. The Revisor of Statutes shall renumber Minnesota Rules, parts 3709.0200 as 3700.0705; 3709.0220 as 3700.0750; 3709.0280 as 3700.0755; and 3709.0210 as 3700.0760.

LICENSE CONVERSION. EXISTING LICENSES, CONVERSION TO NEW LICENSES. On the date this rule becomes effective, the board shall convert a license listed in column A and issued under part 3515.9921 to the license listed in column B. At the next renewal date for the license, the renewal license must show the new license category.

Approved
by Revisor _____

	A.	B.
1.	automated manufacturing technology robotics automated packaging equipment maintenance automated systems technology	1. automated systems technology
2.	water and waste treatment technician occupations food laboratory testing and management environmental technician occupations	2. environmental technology

Approved
by Revisor _____

Office of the Revisor of Statutes

Administrative Rules

TITLE: Proposed Permanent Rules Relating to Vocational Postsecondary Teacher Licenses; Technical Occupations

AGENCY: State Board of Vocational Technical Education

MINNESOTA RULES: Chapters 3700 and 3709

The attached rules are approved for publication in the State Register

Richard J. Sands
Senior Assistant Revisor

CERTIFICATE OF THE STATE OF MINNESOTA
STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

AUTHORIZING RESOLUTION FOR ADOPTION OF A RULE WITHOUT A PUBLIC HEARING

I, F. B. Daniel, do hereby certify that I am a member and the President of the State Board of Vocational Technical Education, a Board duly authorized under the laws of the State of Minnesota, and that the following is a true, complete, and correct copy of a resolution adopted at a meeting of the State Board of Vocational Technical Education, duly and properly called and held on the 9thth day of January, 1990, that a quorum was present, and that a majority of those present voted for the resolution which has not been rescinded or modified.

"RESOLVED, that the rules relating to Postsecondary Licensure Criteria, for Technical Occupations and License Conversion 3700.0700 to 3700.0740 and 3709.0200 to 3709.0220 and 3709.0280 are approved and adopted, pursuant to authority vested in the State Board of Vocational Technical Education by Minnesota Statutes 136C.04, Subdivision 9. Helen Henrie, Interim State Director of the State Board of Vocational Technical Education, is authorized to sign the Findings of Fact, conclusions and order adopting the rule and further is authorized to modify the rule if necessary to obtain the approval of the rule by the Attorney General and to perform the necessary acts to provide that the rule shall have the force and effect of law."

IN WITNESS WHEREOF, I have hereunto subscribed my name this 9th day of January, 1990.

Officer of the Board

Attest by one other Board member

9925TS.3

CERTIFICATE OF THE STATE OF MINNESOTA
STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

AUTHORIZING RESOLUTION FOR ADOPTION OF A RULE WITHOUT A PUBLIC HEARING

I, JoAnn Cardenas Enos, do hereby certify that I am a member and the President of the State Board of Vocational Technical Education, a Board duly authorized under the laws of the State of Minnesota, and that the following is a true, complete, and correct copy of a resolution adopted at a meeting of the State Board of Vocational Technical Education, duly and properly called and held on the 14 th day of November, 1989, that a quorum was present, and that a majority of those present voted for the resolution which has not been rescinded or modified.

"RESOLVED, that the rules relating to Postsecondary Licensure Criteria, for Technical Occupations and License Conversion 3700.0700 to 3700.0740 and 3709.0200 to 3709.0220 and 3709.0280 and Agricultural Occupations - Swine Production Management 3700.0285 are approved and adopted, pursuant to authority vested in the State Board of Vocational Technical Education by Minnesota Statutes 136C.04, Subdivision 9. Helen Henrie, the Deputy Director of the State Board of Vocational Technical Education, is authorized to sign the Findings of Fact, conclusions and order adopting the rule and further is authorized to modify the rule if necessary to obtain the approval of the rule by the Attorney General and to perform the necessary acts to provide that the rule shall have the force and effect of law."

IN WITNESS WHEREOF, I have hereunto subscribed my name this 14th day of November, 1989.

JoAnn Cardenas Enos
Officer of the Board

Scott R. Morris

Attest by one other Board member

9925TS

STATE OF MINNESOTA
DEPARTMENT OF VOCATIONAL TECHNICAL EDUCATION

In the Matter of the Proposed Adoption of the Rule of the State of Minnesota Governing Postsecondary Vocational Teaching Licensure, rules for 3700.0700 to 3700.0740, Audio Recording Specialist, Automated Systems Technology, Printed Circuit Board Technology, Environmental Technology, Laser Electro Optics Technology, Metallurgical Technology, Metrology Technology; editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Artificial Intelligence Technician, Vibroacoustics Technology, Plastic Composites Technology, Telecommunications Systems Technician

FINDINGS OF FACT, CONCLUSIONS, AND ORDER ADOPTING RULE WITHOUT PUBLIC HEARING

(1) Notice of the State Board of Vocational Technical Education intent to adopt the above-entitled rule was published in the *State Register* on December 4, 1989, and was sent by United States mail to all persons on the list maintained by the agency pursuant to Minnesota Statutes, sections 14.14, subdivision 1a and 14.22 on November 28, 1989. (2) The statement of need and reasonableness was prepared before the notice of intent to adopt a rule without a public hearing was mailed to all persons on the rulemaking mailing list and published in the *State Register*, and was available to the public.

(4) All persons were given the opportunity to submit comment on the rule for 30 days after notice of the proposed rulemaking. (5) No requests for a public hearing on the rule were received by the agency. No comments or submissions on the rule were received by the agency.

(6) No requests for notice of submission to the Attorney General were received by the agency.

(8) Based on the comments and evidence in the record before the agency, I find the following: The above-captioned rule is needed and reasonable.

NOW, THEREFORE, IT IS ORDERED that the rule identified as 3700.0700 to 3700.0740 and editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Postsecondary Vocational Teaching Licenses, Technical Occupations, are adopted this 10th (9) day of January, 1990, pursuant to authority vested in the State Board of Vocational Technical Education by Minnesota Statutes, section 136C.04, Subdivision 9.

Helen Henrie 1/10/90

Helen Henrie Date
Acting Director
State Board of Vocational Technical Education

9930TECH

STATE OF MINNESOTA
DEPARTMENT OF VOCATIONAL TECHNICAL EDUCATION

In the Matter of the Proposed Adoption of the Rule of the State of Minnesota Governing Postsecondary Vocational Teaching Licensure, rules for Technical Occupations and License Conversion 3700.0700 to 3700.0740 and 3709.0200 to 3709.0220 and 3709.0280 and Agricultural Occupations - Swine Production Management 3700.0285

FINDINGS OF FACT, CONCLUSIONS, AND ORDER ADOPTING RULE WITHOUT PUBLIC HEARING

Notice of the State Board of Vocational Technical Education intent to adopt the above-entitled rule was published in the *State Register* on September 25, 1989, and was sent by United States mail to all persons on the list maintained by the agency pursuant to Minnesota Statutes, sections 14.14, subdivision 1a and 14.22 on September 19, 1989. The statement of need and reasonableness was prepared before the notice of intent to adopt a rule without a public hearing was mailed to all persons on the rulemaking mailing list and published in the *State Register*, and was available to the public.

All persons were given the opportunity to submit comment on the rule for 30 days after notice of the proposed rulemaking. No requests for a public hearing on the rule were received by the agency. No comments or submissions on the rule were received by the agency. One request for a statement of need and reasonableness was received by the agency.

No requests for notice of submission to the Attorney General were received by the agency.

Based on the comments and evidence in the record before the agency, I find the following: The above-captioned rule is needed and reasonable.

NOW, THEREFORE, IT IS ORDERED that the rule identified as 3700.0700 to 3700.0740 and 3709.0200 to 3709.0220 and 3709.0280 Postsecondary Vocational Teaching Licenses, Technical Occupations and 3700.0285 Agricultural Occupations - Swine Production Management are adopted this 14th day of November, 1989, pursuant to authority vested in the State Board of Vocational Technical Education by Minnesota Statutes, section 136C.04, Subdivision 9.

Helen Henrie 11/14/89

Helen Henrie
Deputy Director
State Board of Vocational Technical Education

Date

9930TS

Georgia, please see pg 840 + 846

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State Board of Vocational Technical Education

Proposed Permanent Rules Relating to Vocational Postsecondary Teacher Licenses; Technical Occupations

Notice of Intent to Adopt a Rule Without a Public Hearing

NOTICE IS HEREBY GIVEN that the State Board of Vocational Technical Education intends to adopt the above-entitled rule without a public hearing following the procedures set forth in the Administrative Procedure Act for adopting rules without a public hearing in *Minnesota Statutes*, Section 14.22 to 14.28. The statutory authority to adopt the rule is *Minnesota Statutes* 136C.04, Subdivision 9.

All persons have 30 days until 4:30 p.m., Tuesday, October 24, 1989, in which to submit comment in support of or in opposition to the proposed rule or any part or subpart of the rule. Comment is encouraged. Each comment should identify the portion of the proposed rule addressed, the reason for the comment, and any change proposed.

Any person may make a written request for a public hearing on the rule within the 30-day comment period. If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficient number withdraw their request in writing. Any person requesting a public hearing should state his or her name and address, and is encouraged to identify the portion of the proposed rule addressed, the reason for the request, and any change proposed. If a public hearing is required, the agency will proceed pursuant to *Minnesota Statutes*, Sections 14.131 to 14.20.

Comments or written requests for a public hearing must be submitted to either:

Glenda Moyers, Supervisor
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-5707

Georgia Pomroy, License Revision Specialist
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-0680

The proposed rule may be modified if the modifications are supported by data and views submitted to the agency and do not result in a substantial change in the proposed rule as noticed.

A copy of the proposed rule is attached to this notice.

A Statement of Need and Reasonableness that describes the need for and reasonableness of each provision of the proposed rule and identifies the data and information relied upon to support the proposed rule has been prepared and is available from Glenda Moyers or Georgia Pomroy at the above address.

If no hearing is required, upon adoption of the rule, the rule and the required supporting documents will be submitted to the Attorney General for review as to legality and form to the extent the form relates to legality. Any person may request notification of the date of submission to the Attorney General. Persons who wish to be advised of the submission of this material to the Attorney General, or wish to receive a copy of the adopted rule, must submit the written request to either:

Glenda Moyers
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
(612) 296-5707

Georgia Pomroy
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
(612) 296-0680

Helen Henrie, Deputy Director
Minnesota Technical College System

Rules as Proposed (all new material)

3700.0700 LICENSES IN THE TECHNICAL OCCUPATIONAL AREA.

Subpart 1. **Listed here.** An applicant for a license to teach postsecondary vocational programs and courses in the technical occupational area must meet the requirements in this part. These requirements are in addition to the requirements listed in part 3700.0100 and for a particular license (listed in the part that covers that particular license).

Subp. 2. **Recent occupational experience.** An applicant for a license to teach in the technical occupational area must have 2,000 hours of occupational experience within the five years just before applying for that license.

Subp. 3. **Does not apply.** Part 3515.9921 does not apply to parts 3700.0705 to 3700.0770.

3700.0710 AUDIO RECORDING SPECIALIST.

Subpart 1. **May teach.** A teacher who has an audio recording specialist license may teach in the audio recording specialist program and may also teach courses in:

A. basic audio recording and reinforcement;

B. audio for nonmedia professionals;

C. mixing I and II; and

D. sound tracks for slide productions.

Subp. 2. **Other requirements.** The applicants must meet the requirements listed in part 3700.0100 and the requirement for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** The applicant must have 8,000 hours of occupational experience as a primary audio engineer in multi-track recording of music and audio for television film and audio-visual and must have experience in three of the areas listed in this subpart:

A. audio time code lock;

B. musical instrument digital interface (MIDI);

C. audio location recording;

D. troubleshooting audio equipment; and

E. audio recording project planning and management.

Subp. 4. **Substitution for occupational experience.** The applicant may substitute the education described under item A, B, C, or D for up to 4,000 hours of occupational experience required under subpart 3. The education must be from an accredited postsecondary institution. If the substitution is made, the applicant must still comply with the recency requirements in part 3700.0700, subpart 2.

A. A bachelor's or higher degree with a major in audio recording, television production, or speech and broadcasting may be substituted for 4,000 hours.

B. An associate degree in audio recording specialist, television, or radio production may be substituted for 2,000 hours.

C. A diploma in audio recording specialist, television, or radio production may be substituted. A one-year program or a program of 45 or more quarter credits equal 1,050 hours. A two-year program or a program of 90 or more quarter credits equal 2,000 hours.

D. The completion of courses for credit or clock hours for audio recording specialist, television, and radio production. One hour of instruction equals one hour of occupational experience. One quarter credit equals 20 hours of occupational experience. One semester credit equals 30 hours of occupational experience.

Subp. 5. **Substitution for recent occupational experience.** Teaching experience in primary program content at an accredited postsecondary institution or industrial setting may be substituted for 1,500 of the 2,000 hours required in part 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in audio recording. Two hours of teaching equal one hour of occupational experience.

3700.0715 AUTOMATED SYSTEMS TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has an automated systems technology license may teach in the automated systems technology, automated packaging equipment maintenance, automated manufacturing, automated equipment maintenance, flexible automation, and robotics programs and may also teach courses in:

A. schematic reading;

B. programmable logical controller (PLC);

C. industrial electronics (nonconsumer);

D. AC/DC motor controls;

E. introduction to robotics;

F. nonservo robots;

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." **ADOPTED RULES SECTION** — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

G. servo robots;

H. manufacturing cells;

I. computerized integrated manufacturing (CIM); and

J. automated packaging technology.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical occupational area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience as described in item A, B, or C. The education must be from an accreditated postsecondary institution.

A. A bachelor's or higher degree with a major in computer science, industrial technology, or the following fields of engineering: robotics, industrial process control, mechanical, electrical, computer, packaging, or motion control and 4,000 hours of occupational experience in automated manufacturing process application and industrial controls. This experience must be in at least two of the following areas: production planning, systems interfacing, manufacturing methods, programming systems, or system troubleshooting and repair of system, and system configuration and product process.

B. An associate degree in robotics, manufacturing technology, electronics, automated systems, automated manufacturing, automated machinery, automated packaging, instrumentation technology, or computer technology and 6,000 hours of occupational experience in automated manufacturing process application and industrial controls. A minimum of 4,000 hours in this area must be in at least two of the following: planning, systems interfacing, manufacturing methods, programming systems, or troubleshooting and repair of system and system configuration and product process. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining experience may be in any of the following: robotics/flexible automation application, flexible automation programming, quality control in a production environment, computer aided drafting (CAD), packaging technology, vision systems, mechanical power transmission, fluid power mechanics, computerized numerical controls (CNC), electronics technician, and electrician with voltage application in excess of 220 watts.

C. A two-year diploma program or a program of 90 or more quarter credits in artificial intelligence, automated equipment, automated packaging, automated systems, electronics, fluid power, instrumentation technology, or computer technology and 6,000 hours of occupational experience in automated manufacturing process application and industrial controls. A minimum of 4,000 of the hours in this area must be in at least two of the following: planning, systems interfacing, manufacturing methods, programming systems, or troubleshooting and repair of system and system configuration and product process. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining experience may be in any of the following areas: robotics/flexible automation application, flexible automation programming, quality control in a production environment, computer aided drafting (CAD), packaging technology, vision systems, mechanical power transmission, fluid power mechanics, computerized numerical controls (CNC), electronics technician, and electrician with voltage application in excess of 220 watts.

Subp. 4. **Substitution for recent occupational experience.** Teaching experience at an accredited postsecondary institution, industrial, or business setting in primary program content in automated systems technology may be substituted for 1,500 of the 2,000 hours required in part 3709.0700, subpart 2. Two hours of teaching equal one hour of occupational experience.

3700.0720 PRINTED CIRCUIT BOARD TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a printed circuit board technology license may teach in the printed circuit board program and may also teach courses in:

A. introduction to computer aided drafting (CAD);

B. basic electricity;

C. introduction to DOS;

D. fundamentals of electronic drafting; and

E. introduction to UNIX.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in electrical engineering or industrial technology and 4,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

B. An associate degree in industrial technology, electrical or electronic drafting, mechanical drafting, electro-mechanical technology, computer aided design, or electronics technology and 6,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

C. A diploma or certificate in a two-year program or a program of 90 or more quarter credits in electrical or electronic drafting, mechanical drafting, electro-mechanical technology, industrial engineering technology, printed circuit design technology, or electronics technology and 6,000 hours of occupational experience designing printed circuit boards, which must include computer aided drafting (CAD).

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in computer aided printed circuit board design for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience required.

3700.0725 ENVIRONMENTAL TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has an environmental technology license may teach in the environmental technology, air and water analysis technology, water/waste treatment technician, food laboratory testing and management, and environmental chemical technology programs and also teach courses in:

A. chemistry;

B. microbiology;

C. instrument analysis;

D. air analysis; and

E. wastewater analysis.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or above degree with a major in chemistry, environmental science, or chemical engineering and 4,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or in operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining 2,000 hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

B. An associate degree in environmental technology, food science laboratory testing and management, chemical laboratory testing and management, water/waste treatment, or water and air analysis and 6,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or in operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

C. A two-year diploma or a program of 90 or more quarter credits in environmental technology, food science laboratory testing and management, chemical laboratory testing and management, water/waste treatment or water and air analysis and 6,000 hours of occupational experience with a minimum of 2,000 hours in laboratory analysis in an energy research center, industrial environmental laboratory, chemical quality control laboratory, or operational testing, sampling, and monitoring in effluent discharge and must include the 2,000 hours required in part 3700.0700, subpart 2. These experiences must be in a laboratory using Environmental Protection Agency standards. The remaining hours may be in evaluation and required process control outcome in a treatment center plant or on site sampling and analysis of stack emissions, ambient air, and noise pollution.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in environmental laboratory analysis according to Environmental Protection Agency standards for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." **ADOPTED RULES SECTION** — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

3700.0730 LASER ELECTRO OPTICS TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a laser electro optics technology license may teach in the laser electro optics technology program and may teach courses in:

A. laser materials processing techniques;

B. medical laboratory lasers; and

C. vacuum systems for laser technology.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in mechanical or electrical engineering or laser technology and 4,000 hours of occupational experience in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2.

B. An associate degree in laser technology or electronics technology and 6,000 hours of occupational experience with a minimum of 4,000 hours in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining hours may be in installation maintenance or testing of electronic equipment.

C. A diploma in laser electro optics technology or electronics technology. A two-year program or a program of 90 or more quarter credits and 6,000 hours of occupational experience with a minimum of 4,000 hours in maintenance, testing, and operation of industrial laser systems, laboratory laser systems, or medical laser systems. The 4,000 hours must include the 2,000 hours required in part 3700.0700, subpart 2. The remaining hours may be in installation, testing, or maintenance of electronic equipment.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in laser electro optics technology for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience required.

3700.0735 METALLURGICAL TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a metallurgical technology license may teach in the metallurgical technology program and may teach metallurgical specific courses.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in engineering, metallurgy, industrial technology, chemistry, or physics and 4,000 hours of occupational experience with a minimum of 2,000 hours in metallography, failure analysis of materials, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

B. An associate degree in engineering, metallurgical technology, nondestructive testing, powder metal technology, or industrial laboratory technology and 6,000 hours of occupational experience with a minimum of 2,000 in metallography, failure analysis of material, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

C. A two-year program or a program of 90 or more quarter credits in metallurgical technology, nondestructive testing, powder metal technology, or industrial laboratory technology and 6,000 hours of occupational experience with a minimum of 2,000 hours in metallography, failure analysis of materials, and physical or mechanical testing of materials. The remaining hours may be in chemical analysis of metals, nondestructive testing, or quality control of metal manufacturing.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in metallurgical technology or nondestructive testing for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

3700.0740 METROLOGY TECHNOLOGY.

Subpart 1. **May teach.** A teacher who has a metrology technology license may teach in the metrology technology program and may teach metrology specific courses.

Subp. 2. **Other requirements.** The applicant must meet the requirements listed in part 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Educational and occupational experience requirement.** The applicant must meet the educational and occupational experience described in item A, B, or C. The education must be from an accredited postsecondary institution.

A. A bachelor's or higher degree with a major in mathematics, industrial technology, physics, or engineering and 4,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

B. An associate degree in engineering, instrumentation technology, metrology, electronics technician, or applied physics and 6,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

C. A two-year program or a program of 90 or more quarter credits in metrology, instrumentation technology, or electronic technology and 6,000 hours of occupational experience testing, calibrating, troubleshooting, and repairing precision measurement equipment.

Subp. 4. **Substitution for recent occupational experience.** The applicant may substitute teaching experience in primary program content, at an accredited postsecondary institution, industrial, or military setting in metrology technology for 1,500 of the 2,000 hours required under part 3700.0700, subpart 2. Two hours of teaching equal one hour of the occupational experience.

Rules as Proposed

3709.0200 ARTIFICIAL INTELLIGENCE TECHNICIAN.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

[For text of subp 3, see M.R. 1989]

Subp. 4. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial setting may be substituted for 1,500 of the 2,000 hours required in part ~~3709.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The only substitution allowed for the 500 hours of programming artificial intelligence required under subpart 3, item B, is teaching programming artificial intelligence. Otherwise, the teaching of any programming may be substituted. Two hours of teaching equal one hour of occupational experience.

3709.0210 VIBROACOUSTICS TECHNOLOGY.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** An applicant must have 8,000 hours of verified occupational experience in testing and measuring of both acoustics and mechanical vibrations and must include the 2,000 hours of occupational experience within the five years just before applying for licensure.

[For text of subp 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial or military setting may be substituted for 1,500 of the 2,000 hours required in part ~~3700.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in vibroacoustics specific technology. Two hours of teaching equal one hour of occupational experience.

3709.0220 PLASTIC COMPOSITES TECHNOLOGY.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.

Subp. 3. **Occupational experience requirement.** An applicant must have 8,000 hours of verified occupational experience in polymer composites. This experience must be in at least two of the following: research and development, design, formulations, and manufacturing and must include the 2,000 hours of occupational experience within the five years just before applying for licensure.

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[For text of subp 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution or at an industrial or military setting in plastic composites technology may be substituted for 1,500 of the 2,000 hours required in part ~~3709.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in plastic composites technology. Two hours of teaching equal one hour of occupational experience.

3709.0280 TELECOMMUNICATIONS SYSTEMS TECHNICIAN.

[For text of subpart 1, see M.R. 1989]

Subp. 2. **Other requirements.** The applicant must meet the requirements in part ~~3709.0100~~ 3700.0100 and the requirements for a teacher in the technical area under part 3700.0700.
[For text of subps 3 and 4, see M.R. 1989]

Subp. 5. **Occupational recency substitution.** Teaching experience at an accredited postsecondary institution, or at an industrial or military setting may be substituted for 1,500 of the 2,000 hours required in part ~~3709.0100, subpart 1, item A~~ 3700.0700, subpart 2, if the teaching is done during the five-year period. The teaching must be in telecommunications. Two hours of teaching equal one hour of occupational experience.

RENUMBER. The Revisor of Statutes shall renumber *Minnesota Rules*, parts 3709.0200 as 3700.0705; 3709.0220 as 3700.0750; 3709.0280 as 3700.0755; and 3709.0210 as 3700.0760.

LICENSE CONVERSION. EXISTING LICENSES, CONVERSION TO NEW LICENSES. On the date this rule becomes effective, the board shall convert a license listed in column A and issued under part 3515.9921 to the license listed in column B. At the next renewal date for the license, the renewal license must show the new license category.

	A.	B.
1.	automated manufacturing technology robotics automated packaging equipment maintenance automated systems technology	1. automated systems technology
2.	water and waste treatment technician occupations food laboratory testing and management environmental technician occupations	2. environmental technology

State Board of Vocational Technical Education

Proposed Permanent Rules Relating to License to Teach Swine Production Management

Rules as Proposed (all new material)

3700.0285 SWINE PRODUCTION MANAGEMENT.

Subpart 1. **May teach.** A teacher who has a swine production management license may teach in the swine production management program and may also teach courses in:

A. swine specific content;

B. agriculture commodity marketing and purchasing; and

C. agricultural employee and employer relationships.

Subp. 2. **Other requirements.** The applicant must meet the requirements under part 3700.0100 and the requirements for a teacher in the agricultural occupational area under part 3700.0200.

Subp. 3. **Educational and occupational experience requirement.** The applicant must have either:

A. a bachelor's degree or above with a major in an agricultural field and 4,000 hours of occupational experience as an owner/operator, manager, supervisor, or service representative in the swine production areas of breeding, farrowing, nursery, and finishing; or

B. two years of postsecondary education from an accredited postsecondary institution in swine production management and 6,000 hours of occupational experience as an owner/operator, manager, supervisor, or service representative in the swine production areas of breeding, farrowing, nursery, and finishing.

Subp. 4. **Substitution for occupational experience.** Teaching experience at an accredited postsecondary institution or industrial setting may be substituted for 1,500 of the 2,000 hours of recent occupational experience if the teaching is done during the five-year period. The teaching must be in primary program content in swine production management. Two hours of teaching equal one hour of recent occupational experience.

Adopted Rules

The adoption of a rule becomes effective after the requirements of Minn. Stat. §14.14-14.28 have been met and five working days after the rule is published in *State Register*, unless a later date is required by statutes or specified in the rule.

If an adopted rule is identical to its proposed form as previously published, a notice of adoption and a citation to its previous *State Register* publication will be printed.

If an adopted rule differs from its proposed form, language which has been deleted will be printed with strikeouts and new language will be underlined. The rule's previous *State Register* publication will be cited.

An emergency rule becomes effective five working days after the approval of the Attorney General as specified in Minn. Stat. §14.33 and upon the approval of the Revisor of Statutes as specified in §14.36. Notice of approval by the Attorney General will be published as soon as practicable, and the adopted emergency rule will be published in the manner provided for adopted rules under §14.18.

Department of Public Safety

Adopted Permanent Rules Relating to the Uniform Fire Code

The rules proposed and published at *State Register*, Volume 13, Number 47, pages 2811-2823, May 22, 1989 (13 S.R. 2811) are adopted with the following modifications:

Rules as Adopted

7510.3100 PURPOSE.

The purpose of parts 7510.3100 to ~~7510.3270~~ 7510.3280 is to adopt uniform fire safety standards governing the maintenance of buildings and premises; regulate the storage, use, and handling of dangerous and hazardous materials, substances, and processes; and regulate the maintenance of adequate egress facilities.

7510.3110 SCOPE.

The scope of parts 7510.3100 to ~~7510.3270~~ 7510.3280 is intended to be consistent with *Minnesota Statutes*, section 299F.011.

7510.3120 RULES AND STANDARDS ADOPTED BY REFERENCE.

The Uniform Fire Code, as promulgated by the International Conference of Building Officials, and the Western Fire Chiefs Association (Whittier, California, 1988) is incorporated by reference and made a part of *Minnesota Rules* pursuant to statutory authority, subject to the alterations and amendments in parts 7510.3100 to ~~7510.3270~~ 7510.3280. The Uniform Fire Code is not subject to frequent change and is available at the State Law Library, 117 University Avenue, Saint Paul, Minnesota 55155.

7510.3140 ARTICLE 2 OF UNIFORM FIRE CODE.

Subp. 7. **Sec. 2.304(c).** Sec. 2.304 of the Uniform Fire Code is amended by adding a subsection to read:

Sec. 2.304. (c) **Standard 101 Incorporated.** Whenever the Uniform Fire Code, as amended by parts 7510.3100 to ~~7510.3270~~ 7510.3280, is silent on any subject, for any reason, in any situation, the provision of protection shall be in accordance with National Fire Codes, 1988, Standard Number 101, issued by the National Fire Protection Association (Quincy, Massachusetts, 1988) which is adopted by reference as part of this code as though set forth herein in its entirety. Standard Number 101 is not subject to frequent change and is available at the State Law Library, 117 University Avenue, Saint Paul, Minnesota 55155.

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State of Minnesota

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(4) behavioral sciences;

(5) women's studies;

(6) family life education; and

(7) counseling techniques.

D. Upon the first renewal, evidence of completion of 12 hours of state sponsored workshops in teaching Project Discover.

Subp. 4. **Substitution for required experiences.** The applicant may use the substitutions as described in items A and B.

A. The applicant may substitute up to 1,000 hours of occupational experience required in subpart 3, item B, through verified volunteer activity that occurred under supervision of paid professional staff within a human service agency. This experience may be in a shelter for the homeless, battered woman program, chemical dependency program, head start program, crises center, displaced homemaker program, handicapped program for special populations, minority advocacy agency, and legal advocacy program.

B. The applicant may substitute up to six credits of educational experience as required in subpart 3, item C, at the ratio of 12 clock hours for each quarter credit in the following topics: sexual harassment, decision making techniques, personal development, stress management, group facilitation, equal opportunity/affirmative action, career assessment, assertiveness training, interpersonal communications, financial planning, and human behavior.

Subp. 5. **Recent occupational experience.** An applicant for a license to teach in Project Discover must have 1,000 hours of the occupational experience within the five years before applying for the license.

Subp. 6. **Conversion of current Project Discover instructors.** Applicants verifying the teaching of a complete session of Project Discover to include personal development, career development, and applied issues within four years before the effective date of this part and who verify completion of 12 hours of state-sponsored workshops in teaching Project Discover are eligible for a license as a Project Discover instructor.

Department of State Board of Vocational Technical Education

Proposed Permanent Rules Relating to Vocational Postsecondary Teacher Licenses; Technical Occupations

Notice of Intent to Adopt a Rule Without a Public Hearing

NOTICE IS HEREBY GIVEN that the State Board of Technical Education intends to adopt the above-entitled as published in the *State Register* on September 25, 1989, Volume 14, Number 13, pages 840-846 rule without a public hearing following the procedures set forth in the Administrative Procedure Act for adopting rules without a public hearing in *Minnesota Statutes*, sections 14.22 to 14.28. The statutory authority to adopt the rules is *Minnesota Statutes* 136C.04, Subdivision 9.

All persons have 30 days until 4:30 p.m., Thursday, January 4, 1990, in which to submit comment in support of or in opposition to the proposed rule or any part or subpart of the rule. Comment is encouraged. Each comment should identify the portion of the proposed rule addressed, the reason for the comment, and any change proposed.

Any person may make a written request for a public hearing on the rule within the 30-day comment period. If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficient number withdraw their request in writing. Any person requesting a public hearing should state his or her name and address, and is encouraged to identify the portion of the proposed rule addressed, the reason for the request, and any change proposed. If a public hearing is required, the agency will proceed pursuant to *Minnesota Statutes*, sections 14.131 to 14.20.

Comments or written requests for a public hearing must be submitted to:

Georgia Pomroy, License Revision Specialist
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-0680

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." **ADOPTED RULES SECTION** — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

The proposed rule may be modified if the modifications are supported by data and views submitted to the agency and do not result in a substantial change in the proposed rule as noticed.

A copy of the proposed rule was published in the *State Register* on September 25, 1989, Volume 14, Number 13.

A STATEMENT OF NEED AND REASONABLENESS that describes the need for and reasonableness of each provision of the proposed rule and identifies the data and information relied upon to support the proposed rule has been prepared and is available from Georgia Pomroy at the above address and phone, upon request.

If no hearing is required, upon adoption of the rule, the rule and the required supporting documents will be submitted to the Attorney General for review as to legality and form to the extent the form relates to legality. Any person may request notification of the date of submission to the Attorney General. Persons who wish to be advised of the submission of this material to the Attorney General, or wish to receive a copy of the adopted rule, must submit the written request to:

Georgia Pomroy
Minnesota Technical College System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
(612) 296-0680

Official Notices

Pursuant to the provisions of Minnesota Statutes §14.10, an agency, in preparing proposed rules, may seek information or opinion from sources outside the agency. Notices of intent to solicit outside opinion must be published in the *State Register* and all interested persons afforded the opportunity to submit data or views on the subject, either orally or in writing.

The *State Register* also publishes other official notices of state agencies, notices of meetings, and matters of public interest.

Department of Commerce

Notice to Solicit Outside Opinion Regarding Proposed Rules for Currency Exchanges Including the Impact of Rules on Small Business

NOTICE IS HEREBY GIVEN that the Department of Commerce is seeking information or opinions from persons outside the agency to determine whether rules should be adopted in regard to the regulation of Currency Exchanges pursuant to *Minnesota Statutes*, Chapter 53A, and, if so, what those rules should be. Promulgation of these rules regarding Currency Exchanges is authorized by *Minnesota Statutes*, sections 45.023 and 53A.12.

Outside opinion is also being solicited as to how these rules will affect small businesses as defined by *Minnesota Statutes* Section 14.115, subdivision 1.

The Department of Commerce requests information and comments concerning the subject matter of these rules. Interested or affected persons or groups may submit statements of information or comment orally or in writing to:

Elissa G. Mautner
Staff Attorney
Department of Commerce
500 Metro Square Building
St. Paul, Minnesota 55101

Oral statements will be received during regular business hours over the telephone at (612) 296-9423.

All statements of information and comment shall be accepted until December 22, 1989. Any written material received by the Department of Commerce shall become a part of the record in the event that the rules are promulgated.

Dated: 18 November 1989

Michael A. Hatch
Commissioner of Commerce

NEED AND REASONABLENESS

MINNESOTA STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

Statement of Need and Reasonableness for licensure of Postsecondary Vocational Technical Personnel in Technical Occupations

Revision of Technical Occupational Instructor licenses in automated systems technology/robotics, air and water analysis, and water/waste treatment technology and licensure development for new venture programs:

3700.0710	Audio Recording Specialist
3700.0715	Automated Systems Technology
3700.0720	Printed Circuit Board Technology
3700.0725	Environmental Technology
3700.0730	Laser Electro Optics Technology
3700.0735	Metallurgical Technology
3700.0740	Metrology Technology

Minor rule modifications and rule number change to existing revised licenses:

3709.0200	Artificial Intelligence Technician
3709.0210	Vibroacoustics Technology
3709.0220	Plastic Composites Technology
3709.0280	Telecommunications Systems Technology

The statutory authority for the State Board of Vocational Technical Education to promulgate these rules is contained in Minnesota Statutes section 136C.04, subd. 9 which states:

Licensure. The State Board may promulgate rules, according to the provisions of Chapter 14, for licensure of teaching, support, and supervisory personnel in postsecondary and adult vocational education. The State Board may adopt licensure rules according to Sections 14.29 to 14.36 when necessary for continuous programs approved by the Board and when the Board determines appropriate licensure standards do not exist.

BACKGROUND INFORMATION

3700.0700 Technical occupational licensure rules represented here focus on three processes. For the purpose of clarification each process will be defined here.

1. New Venture Program Licenses

The State Board of Vocational Technical Education evaluates and approves initial and annual program applications according to the State Board of Education rules 3505.6100 to 3505.6400. Approximately ten to fifteen new venture programs receive approval annually. A new venture program is one which has not been previously offered within the technical college system and represents an entirely new program to be delivered. The office of the Attorney General Advised the State Board of Vocational Technical Education that the emergency rulemaking power of the Board according to sections 14.29 to 14.36 no longer was in effect. The Board, therefore, is using the permanent rule process for new venture programs since no appropriate licenses for these categories exist. The new venture programs represented in this statement are:

3700.0710	Audio Recording Specialist
3700.0715	Automated Systems Technology
3700.0720	Printed Circuit Board Technology
3700.0725	Environmental Technology
3700.0730	Laser Electro Optics Technology
3700.0735	Metallurgical Technology
3700.0740	Metrology Technology

2. Revision of Current Licenses

The State Board of Vocational Technical Education determined a need to revise postsecondary and extension vocational education licenses for instructors and support staff. A review of existing rules suggested the licensure rules needed clarification for the benefit of existing parties. The rules had not been revised for over ten years. The majority of the issues identified were related to interpretation of the terms: relevant education, relevant occupational experience, and vague or nonexistent course requirements. In addition, the Technical College System is undergoing a major restructuring of programs. The restructuring effort structures programs into individual courses and identifies the course into credit hours. This produced an added incentive for licensure revision due to the fact existing licenses licensed for programs only, thus limiting an instructor from teaching a particular course in his/her area of expertise to anyone other than a student registered within that program.

The formal rule revision occurs through a process which involves a general advisory committee. Representatives from licensed postsecondary: administrators, supervisory staff, vocational instructors and support staff, private trade school and the Board of Teaching, State Board of Vocational Technical Education staff, the Minnesota Council of Vocational Education, State Board of Education staff, and finally Licensure staff from the State Board of Vocational Technical Education serve in an ex-officio status. The committee formulates general licensure guidelines and procedures for selecting individuals to serve on specific committees. This committee then reviews and makes recommendations on the final licensure draft. As the restructuring effort on a program is completed the licensure revision for that specific area is started. It happened that three new venture programs, although they did not have specific licenses, fit into the restructured format for some existing programs licensed under current rule. For that reason, the programs under current rule were revised and incorporated with the new venture programs to develop a broader license with a base of knowledge relevant to the core content to be in all the programs. The license and the programs represented are listed as follows:

3700.0715 Automated Systems Technology

To include automated machinery systems/packaging, automated manufacturing technology, robotics, flexible automated technology, and automated systems technology.

3700.0725 Environmental Technology

To include air and water analysis technology, water/waste treatment technology, environmental chemical technology, environmental technology, food management laboratory and testing.

3. Editorial and minor rule modification

New venture programs have been developed and placed in a temporary rule number until permanent occupational block licensure revision began. The temporary rule number is 3709. The following licenses in the technical occupational area will be moved to the permanent technical occupational rule numbers of 3700.0700. The language changes are editorial and represent the format used in the permanent revisions.

A notice of Intent to Solicit Outside Opinion Regarding Proposed Rules for Licensure of Postsecondary Technical Occupational Programs was published in the State Register on June 5, 1989. A resolution to authorize rule development was passed by the State Board of Vocational Technical Education on June 13, 1989. Several committee meetings, a general advisory committee meeting, and consultation with the Revisor of Statutes and the Attorney General's office resulted in the proposed rules. The State Board of Vocational Technical Education staff then made the final rule recommendations.

GENERAL INFORMATION

The proposed permanent rules follow the precedent set by the revised agricultural instructor requirements adopted September 12, 1987, the revised business and office rules adopted February 6, 1988, and administrative licenses adopted on November 26, 1988. There are four major changes within the previous revisions and reflected within these revisions.

1. Crossover areas. The crossover areas compliment the technical college system's program restructuring. This effort converts programs to courses and then courses to credits. Thus the license allows the holder to teach a particular program and specified courses in any program throughout the technical college system. The courses listed as crossovers are reasonable since they are a result of the expertise acquired via the occupational and/or educational experiences specifically required of the license holder. This is needed to remove an artificial barrier which, in the past, allowed the individual to teach only within a program. This makes it possible to implement the restructured programs with appropriately credentialed staff, allowing an instructor to teach specific courses anywhere within a college.

2. Occupational experience requirements. The occupational experience requirement identifies the job titles which will be accepted to meet licensure requirements. This specificity is needed to provide both the applicant and the hiring authority with information which will be used in making application for the license. The occupational experience requirements are reasonable because they are conceptually and functionally represented in the education programs and in the occupations for which the programs prepare individuals. There is also an increase in the total number of occupational hours from current rule of 6000 hours to revised rule of 8000 hours. This is reasonable since credit is given for educational experiences which relate directly to the occupation in question. In addition, credit will be given for teaching experience as it relates directly to the occupation being taught. Since these substitutions allow for a total of 4000 hours of occupational experience, the increase to 8000 hours is reasonable. In addition, the increase to 8000 hours represents only a total of one year. Since the crossover areas require more specificity required to teach individual courses throughout the technical college system, a greater depth and breadth of knowledge is required which is represented in the additional year of experience or education.

3. Recent occupational experience. There is an increase in recent occupational experience form "500 to 1000 hours in the last five years" to "2000 hours in the last five years". This increase is necessary so that individuals teaching programs and courses are knowledgeable about technical, economic and industrial changes as they relate to their specific occupational field. It is reasonable since it allows a five year time frame in which to acquire one year or 2000 hours of occupational experience. It would be possible, therefore, to obtain the additional 2000 hours by working only four summers.

4. Substitution for occupational experience. This subpart is necessary as a means of allowing teachers to expand into new, modified or restructured programs which reflect both new content area and existing content. The utilization of teaching experience in specified programs assures that only teaching experience which is conceptually related to the new, modified, or restructured program is allowed as a substitute for recent occupational experience. This recognizes specific knowledge in current programs as applicable to new programs which contain a portion of the same or similar content. 500 hours of recent occupational experience is still retained for the new licensure area to assure up-to-date industrial exposure to the occupation. This amount is reasonable because it can be obtained over five years and is only 12 1/2 weeks.

3700.0700 LICENSES IN THE TECHNICAL OCCUPATIONAL AREA

Subpart 1. Listed Here. This subpart informs the applicant of the requirements which must be met for an instructor seeking licensure under rules 3700.0700. It also refers to 3700.0100 which contains the general licensure requirements for all instructors in the Technical College system. There are no changes in 3700.0100.

Subpart 2. Recent Occupational Experience. Indicates to the applicant the total number of occupational recency hours required within the five years preceding the application for licensure.

Subpart 3. Does Not Apply. Repeals existing 3515 charts for the specified 3700.0700 rules and specific 3515 rules which conflict with the 3700 rules.

3700.0705 to 3700.0755 Specific Licensure requirements. Specifies for the applicant specific authorization and requirements for each individual license.

Subpart 1. May Teach. Lists programs and courses which license holder may teach.

Subpart 2. Other Requirements. Refers to the other requirements an applicant must meet for licensure as referred to above.

Subpart 3. Occupational Experience Requirement. Specifies number of hours and specific occupational areas acceptable for instructor licensure in the specific occupational program.

Subpart 4. Substitutions for Occupational Experience. Degrees, diplomas, or coursework is identified which enables the applicant to substitute specific educational experience for designated number of occupational hours.

Subpart 5. Substitution for Recent Occupational Experience. Identifies relevant current teaching experience which can substitute for a portion of the recency requirement of 3700.0700, subpart 2.

3700.0760 Conversion to Existing Licenses. Informs interested parties of rule numbers and converted licensure categories.

The 3700.0700 rules will be implemented using current processes and should not incur additional expense.

SPECIFIC LICENSURE REQUIREMENTS

3700.0710 AUDIO RECORDING SPECIALIST

Subpart 1. May Teach. This license will allow the individual to teach in the audio recording specialist program and content specific to audio recording, basic audio recording and reinforcement, audio for nonmedia professionals, mixing I and II, and sound tracks for slide production. This is a reasonable crossover area since the occupational experience required in subpart 3 would assure the candidate has had experience in these specific areas. The experience as listed indicates the applicant must be the primary audio engineer in multi-track recording which must include music and other audio forms for television and other film areas. In this experience at least three of a described list of activities must be experienced. It is reasonable to assume an individual with this background would have the capabilities to teach the program content and specifically the crossover content which remains only within this particular program.

Subpart 2. Listed here. Refers to the general requirements as specified in 3700.0100. There are no changes in this part. 3700.0700 is explained under General Information, Item 4.

Subpart 3. Occupational experience requirement. Individuals graduating from this program are expected to have a base knowledge of production including creative aspects of the field such as scripting and design. They may also work as an independent in the field. Certainly it is assumed they may perform a variety of production tasks under the direction of a department manager. It is therefore reasonable to require an instructor to be at a level of employment which would assure that individual had the multifacet background to teach the program content. That level is listed as a primary engineer. In addition, the experience statements list the necessity for multi-track experience in both music and other audio forms. The applicant must then have experience in at least three of the described. This is a reasonable requirement since an individual teaching this program must have the breadth and depth of knowledge to cover a broad range of music and other audio recording productions since that is the program focus.

Subpart 4. Substitution for occupational experience. The substitutions in this subpart are consistent with the previous revised licenses in postsecondary vocational technical education. The substitutions as allowed are in the ratios set by these licenses and there is no change in these ratios. The degrees, diplomas and courses are in audio-recording, television or radio

production, or broadcasting. These are reasonable substitutions since all relate directly to the field of audio recording and contain content which is offered in the technical college program.

3700.0715 AUTOMATED SYSTEMS TECHNOLOGY

Subpart 1. May teach. An instructor with an automated systems technology license may teach in the automated system programs within the technical college system. The automated system programs include robotics, manufacturing and packaging. All these automated system programs are included under this license due to program restructuring which has resulted in all the programs having the same core in electronics and manufacturing. All programs use the same automation technology differing primarily in the application of the process. Since the experience as described in subpart 3 relies on experience in both manufacturing and controls with no substitution for the 4000 hours it is reasonable to assume the applicant must have the breadth and depth of knowledge to teach automation technology as well as the types of application. The crossover areas as listed remain in the technological experience level required of an applicant. In addition, they are restricted to items taught in the program itself which are cornerstones of the program.

Subpart 2. Other requirements. This refers to the general requirements as specified in 3700.0100. There are no changes in this subpart. 3700.0700 is explained in General Information, Item 4.

Subpart 3. Occupational experience requirement. A minimum of 4000 hours in both automated manufacturing process application and industrial controls is required. This is a reasonable requirement since this license allows an applicant to use automation in different application programs. Therefore it is also reasonable that no substitution is allowed for this experience, assuring that the candidate will have this level of skills and knowledge. The other experiences as listed recognizes areas an individual may have gained prior to continuing on to the higher level of application but which also are a portion of the programs. While it is reasonable to allow some of this experience as valid due to part of the program's content in and of itself, it would not be sufficient to teach all of the programs or all of the content. Thus the 4000 hours minimum is a reasonable requirement for the foundation of the license.

Subpart 4. Substitution for occupational experience. The substitutions as allowed are at the ratio of existing revised licenses. There is no change in this ratio. The degrees, both bachelor's and associate, the diplomas and courses are only in areas of industrial technology which are applicable to automated technology and are therefore reasonable substitutions. These areas are in robotics, process control, computer technology as it applies to programming, and electronics. Each area has direct application to major program content and is therefore reasonable.

Subpart 5. Occupational recency substitution. The teaching

experience allowed is only in core content and within automated systems technology only. It is therefore a reasonable substitution. It is assumed the instructor would have contact with industry and the advisory committees which allows the opportunity for currency in the fields. In addition, the individual would not be able to substitute out the 4000 hours of experience in automated manufacturing processes and industrial controls. It is assumed the candidate would have current industrial information by virtue of contact and work with the advisory committees as well as industry. In addition, the individual would still need to have the remaining 500 hours of recency. The ratio of two hours of teaching to substitute for one hour of occupational experience is the same as for previously revised licenses and there is no change in this ratio.

3700.0720 PRINTED CIRCUIT BOARD TECHNOLOGY

Subpart 1. May teach. An instructor with a printed circuit board technology license may teach in the printed circuit board technology program and basic crossover content as relates to the occupational and educational experience as described in subpart 3. The occupational and educational experiences are consistent with the crossover areas as listed and remain within the level required of the applicant and is therefore reasonable. An applicant is restricted to items taught in the program itself.

Subpart 2. Other requirements. This refers to the general requirements as specified in 3709.0100. There are no changes in this subpart.

Subpart 3. Occupational and educational experience requirement. Educational and occupational experience is required of this applicant. The level of content in this program involves design and manufacture of electronics equipment, home entertainment equipment, computers, word processors, telecommunications equipment and process controls. It is reasonable to require the instructor to have at least two years of education in specific areas to assure the scientific principles which form the foundation of this program. The educational areas were chosen for their content which involves electronics or types of drafting or design technology. The education required holds a portion of the content taught within the program and is therefore reasonable. In addition, the applicant must have occupational experience designing printed circuit boards, which must include CAD. This is a reasonable occupational requirement since the graduates of this program will be employed in this capacity. CAD is the foundation of printed circuit board technology therefore is also a reasonable stipulation. The ratio of occupational experience is directly related to the amount of education with a minimum of 4000 hours. This ratio is the same as in preceding revised licenses and there is no change in this ratio.

Subpart 4. Occupational recency substitution. The teaching experience allowed is in core content and within computer-aided circuit board technology only. It is therefore a reasonable substitution. It is assumed the instructor would have contact with industry and the advisory committee which allows the

opportunity for currency in the fields. In addition, the individual would still need to have the remaining 500 hours of recency. The ratio of two hours of teaching to substitute for one hour of occupational experience is the same as for previously revised licenses and there is no change in this ratio.

3700.0725 ENVIRONMENTAL TECHNOLOGY

Subpart 1. May teach. An instructor with an environmental technology license may teach in all the environmental based programs within the technical college system. The programs are all environmental technology related to air, waste, water, and laboratory testing. The chemistry, laboratory and testing skills in these programs require the same base of knowledge despite their application. The programs are a balance between scientific courses and mechanical applications to become an entry level operator. Based on the educational and occupational experiences required in subpart 3 it is reasonable to assume the applicant would have the base of knowledge, the skills, and the attitudes to teach this specific content. The crossover areas are content which can be expected to be within their educational criteria as well as their occupational experience and are therefore reasonable.

Subpart 2. Other requirements. This refers to the general requirements as specified in 3700.0100. There are no changes in this subpart. 3700.0700 is explained in General Information, Item 4.

Subpart 3. Occupational and educational experience requirement. Educational and occupational experience is required of this applicant. The level of content in this program involves scientific content which is better taught within an academic environment. It is reasonable to require a minimum of 2 years education in areas which would assure the foundation and consistency for the foundation areas of chemistry and microbiology. The education was chosen for content in the scientific areas of the programs. In addition, the applicant must have occupational experience with a minimum of 2000 hours in laboratory analysis in specific areas or operational testing, sampling, and monitoring of effluent discharge. This experience is reasonable since graduates of the programs will be expected to have a base knowledge of laboratory testing techniques. The remaining experiences recognize the various occupational areas in which an applicant may have begun employment. These areas are also reflected in the program content and are therefore reasonable. The ratio of occupational experience is directly related to the amount of education with a minimum of 4000 hours. This ratio is the same as in preceding revised licenses and there is no change in this ratio.

Subpart 4. Occupational recency substitution. The teaching experience allowed is only in core content and within areas of environmental technology. It is therefore a reasonable substitution. It is assumed the instructor would have contact with industry and the advisory committee which allows the opportunity for currency in the field. In addition, the

opportunity for currency in the field. In addition, the individual would still need to have the remaining 500 hours of recency. The ratio of two hours of teaching to substitute for one hour of occupational experience is the same as for previously revised licenses and there is no change in this ratio.

3700.0730 LASER ELECTRO OPTICS TECHNOLOGY

Subpart 1. May teach. This subpart identifies the program and specific courses an instructor may teach. The three courses listed are specifically in laser technology. An applicant with the experiences described in subp. 3 can be expected to have the skills and knowledge required for this content and are, therefore, reasonable.

Subpart 2. Other requirements. References requirements as listed in 3700.0100. There are no changes in this subpart. 3700.0700 is explained in General Information, Item 4.

Subpart 3. Occupational experience requirements. An individual with experience in maintenance testing and operation would have experience in construction and installation in order to reach this level. The three systems listed as appropriate areas of laser experience are industrial, medical and laboratory systems. It is reasonable to require the three levels of experience since graduates of this program may be hired in any of these areas. The systems listed are appropriate since any of these systems contain pulsed state lasers, molecular lasers, argon lasers, solid state lasers and vacuum technology, the core components in this program.

Subpart 4. Substitution for occupational recency. The bachelor's or above major is in engineering fields which include electronics and gyroscopes. This is reasonable since electronics is the basic foundation of this program. Gyroscopes is incorporated.

Other degrees and diplomas substituted are as follows:

Laser technology is reasonable as a substitution since it represents the core of laser electro optics technology.

Electronics is a reasonable substitution since it is the program's foundation.

The courses as listed represent knowledge obtained by the experience described in subp. 3 or occupational substitution in subp. 4 and are, therefore, reasonable.

Subpart 5. Substitution for occupational recency. Teaching in laser electro optics technology is the only substitution allowed. An instructor would be working with an advisory committee and making industrial visits and thus would be up-to-date on current technology. This is, therefore, a reasonable substitution. This substitution follows the precedent set by previously revised licenses.

Subpart 1. May teach. An instructor with a metallurgical technology license may teach in the metallurgical programs within the technical college system and courses which are specific in metallurgical content. This is reasonable due to the criteria as described in subpart 3. An applicant meeting the educational and occupational experience requirements of this subpart can be expected to have the necessary skills and knowledge required to teach this program and metallurgical content. The two years of postsecondary education required is to allow the candidate the necessary knowledge base in the sciences to teach this program. On the basis of this educational and occupational experience, it is reasonable to assume the applicant would have the breadth and depth of knowledge to function in an instructor capacity in this area.

Subpart 2. Other requirements. This refers to the general requirements as specified in 3700.0100. There are no changes in this subpart. 3700.0700 is explained in General Information, Item 4.

Subpart 3. Occupational and educational experience requirement. An applicant must have a minimum of two years postsecondary education in scientifically based content appropriate to teaching the principles and phenomena included in this program. This base of knowledge in physics and chemistry is contained in the engineering, metallurgy, industrial technology, chemistry, physics, laboratory technology, nondestructive testing, powder metal technology or industrial laboratory technology. This educational criteria assures a base of scientific knowledge consistent with all applicants to teach the basic chemistry and physics required in this program and is therefore reasonable. In addition, an applicant must have a minimum of 4000 hours of occupational experience. At least 2000 hours of that experience must be in areas where graduates of this program can be expected to find employment. These areas are metallography, failure analysis of materials and physical and/or mechanical testing and therefore is a reasonable requirement. The remaining occupational areas are in content which supplies a limited amount of application to the program and may be the route by which an applicant continues on to the higher level of metallurgical technology. It is reasonable to allow limited substitution for this experience since a portion of the skills acquired as a result of this experience is taught within the program. While it is reasonable to allow some of this experience as valid due to part of the program's content in and of itself, it would not be sufficient to teach all of the programs or all of the content.

Subpart 5. Occupational recency substitution. The teaching experience allowed is only in core content and within metallurgical technology or nondestructive testing. It is therefore a reasonable substitution. It is assumed the instructor would have contact with industry and the advisory committees which allows the opportunity for currency in the fields. In addition, the individual would still need to have the remaining 500 hours of recency. The ratio of two hours of teaching to substitute for one hour of occupational experience is

change in this ratio.

3700.0740 METROLOGY TECHNOLOGY

Subpart 1. May teach. An instructor with a metrology technology license may teach in the metrology technology programs and metrology specific content courses. Based on the educational and occupational experiences required in subpart 3, it is reasonable to assume the applicant would have the base of knowledge, the skills, and the attitudes to teach this specific content. The crossover area is metrology specific and is therefore reasonable.

Subpart 2. Other requirements. This refers to the general requirements as specified in 3700.0100. There are no changes in this subpart. 3700.0700 is explained in General Information, Item 4.

Subpart 3. Occupational and educational experience requirement. Educational and occupational experience is required of this applicant. The level of content in this program involves scientific content which is better taught within an academic environment. It is reasonable to require a minimum of 2 years education in areas which would assure the foundation and consistency of the foundation areas taught within this program consisting of both basic and advanced mathematics, statistical analysis, and metric measurements. The areas of education chosen were selected for their content in these areas and are therefore reasonable. The occupational experience requirement in testing, calibrating, troubleshooting and repairing precision measurement equipment is reasonable since these are the areas in which a graduate of this program is expected to find employment. The ratio of education and occupational experience is the same as that used for previously revised licenses. There is no change in this ratio.

Subpart 4. Occupational recency substitution. The teaching experience allowed is only in core content and within metrology technology. It is therefore a reasonable substitution. It is assumed the instructor would have contact with industry and the advisory committees which allows the opportunity for currency in the fields. In addition, the individual would still need to have the remaining 500 hours of recency. The ratio of two hours of teaching to substitute for one hour of occupational experience is the same as for previously revised licenses and there is no change in this ratio.

3709.0200 Artificial Intelligence
3709.0210 Vibroacoustics Technology
3709.0220 Plastic Composites Technology
3709.0280 Telecommunication Technology

The above rules have previously been adopted.

The 3709. rule numbers are being changed to 3700.0700 to represent licenses in the technical occupational area, as explained in this document under Background Information, Item 3.

In the Matter of the Adoption of the Rule of the State Board of Vocational Technical Education Governing 3700.0700 to 3700.0740 Postsecondary Vocational Licensure, Audio Recording Specialist, Automated Systems Technology, Printed Circuit Board Technology, Environmental Technology, Laser Electro Optics Technology, Metallurgical Technology, Metrology Technology, editorial changes in 3709.0200, 3709.0210, 3709.0220, 3709.0280, Artificial Intelligence Technician, Vibroacoustics Technology, Plastic Composites Technology, Telecommunications Systems Technician

DECLARATION OF COUNSEL

I Charles T. Mottl, Assistant Attorney General, do hereby declare that I have examined the above captioned rule, and the supporting rulemaking record, and that, based on my examination, the Administrative Procedure Act and Minnesota Rules, chapter 2010 have been followed. Any exceptions are listed below. For Attorney General billing purposes, the four-digit docket client code is .0831.

Charles T. Mottl
Assistant Attorney General

Dated: 1/22/90

9935TECH

Georgia: please see pg 2946

State of Minnesota

STATE REGISTER

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State Board of Vocational Technical Education

Opinion Sought Regarding Proposed Rules Governing the Rules for Licensure of Postsecondary Technical Education Personnel

Notice is hereby given that the State Board of Vocational Technical Education is seeking information or opinions from sources outside the agency in preparing to amend Chapter Thirty-Five: Rules for Licensure of Vocational Technical Education Personnel and specifically in Marketing, Health, Technical, Business and Office, and Permissive. The promulgation of these rules is authorized by *Minnesota Statutes* § 136C.04, subd. 9. and 125.185 subd. 4.

The State Board of Vocational Technical Education requests information and comments concerning the subject matter of these rules. Interested or affected persons may submit written statements of information or comment orally. Written comments should be addressed to:

Ms. Glenda Moyers
State Board of Vocational
Technical Education
100 Capitol Square Bldg.
550 Cedar Street
St. Paul, MN 55101
(612) 296-9444

Ms. Georgia Pomroy
State Board of Vocational
Technical Education
100 Capitol Square Bldg.
550 Cedar Street
St. Paul, MN 55101
(612) 296-3929

Oral Statements will be received during regular business hours over the telephone at (612) 296-3929 or in person at the above address.

All statements of information and comments shall be accepted until 4:30 p.m., Wednesday, July 5, 1989. Any written material received by the State Board of Vocational Technical Education shall become part of the record to be submitted to the Attorney General or Administrative Law Judge in the event the rule is adopted.

Helen Henrie, Deputy Director
State Board of Vocational
Technical Education

NOTARY PUBLIC LAWS

Statutory requirements regarding the oath of office, necessary bond, and taking of depositions. Includes an explanation of the term of office and procedures for removal from office. Code No. 2-13. $4.00.



Jane Smith
NOTARY PUBLIC-MINNESOTA
RAMSEY COUNTY
My Commission Expires January 1, 1994

U.S. SMALL BUSINESS ADMINISTRATION PUBLICATIONS:

Insurance and Risk Management for Small Business	Code No. 16-50. $3.00.
Small Business Finance	Code No. 16-42. $2.00.
Starting and Managing a Small Business of Your Own	Code No. 16-40. $4.75.

TO ORDER: Send to Minnesota's Bookstore, 117 University Avenue, St. Paul, MN 55155. Call (612) 297-3000, or toll-free in Minnesota: 1-800-652-9747. Minnesota residents please include 6% sales tax. On all orders, add $1.50 per order for postage and handling. Prepayment is required. Please include daytime phone. VISA/MasterCard orders accepted over phone and through mail. **Prices are subject to change.**

Publication editors: As a public service, please reprint this ad in your publication as is, reduced, enlarged, or redesigned to suit your format. Thank you.

STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

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Helen Henrie

Helen Henrie, Deputy Director
State Board of Vocational
Technical Education

Date: May 25, 1989

20109900.FRM

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CERTIFICATE OF THE

STATE BOARD OF VOCATIONAL TECHNICAL EDUCATION

AUTHORIZING RESOLUTION FOR RULE WITHOUT A PUBLIC HEARING

I, JoAnn Cardenas Enos, do hereby certify that I am a member and the President of the State Board of Vocational Technical Education, a board duly authorized under the laws of the State of Minnesota, and that the following is a true, complete, and correct copy of a resolution adopted at a meeting of the State Board of Vocational Technical Education duly and properly called and held on the 20th day of June 1989 that a quorum was present, and that a majority of those present voted for the resolution which has not been rescinded or modified.

> "RESOLVED, that Helen Henrie, Deputy State Director of the Minnesota Technical Institute System is hereby granted the authority and directed to sign and to give the Notice of Board's Intent to Adopt a rule without a public hearing governing Post-Secondary Vocational Licensure of personnel for Permanent rules for Marketing, Health, Technical, Business and Office, and Permissive to all persons who have registered their names with the Board for that purpose and publish the Notice and rule in the *State Register* and to perform any and all acts incidental thereto."

IN WITNESS WHEREOF, I have hereunto subscribed my name this 20th day of June 1989.

JoAnn Cardenas Enos
President
State Board of Vocational Technical Education

Attest by one other Board Member

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