ADOPTED REGULATION OF THE

STATE BOARD OF EDUCATION

LCB File No. R144-11

Effective May 30, 2012

EXPLANATION – Matter in ***italics*** is new; matter in brackets **[**~~omitted material~~**]** is material to be omitted.

AUTHORITY: §§1-4, NRS 385.080 and 385.110.

A REGULATION relating to education; prescribing the performance standards for courses of study in agricultural mechanical engineering technology power systems and agricultural mechanical engineering technology structural systems; revising the performance standards for a course of study in agricultural mechanical engineering technology; and providing other matters properly relating thereto.

Section 1. Chapter 389 of NAC is hereby amended by adding thereto the provisions set forth as sections 2 and 3 of this regulation.

Sec. 2. ***A course of study in agricultural mechanical engineering technology power systems must be designed so that pupils meet the following performance standards by the completion of the final course of instruction:***

1. For the area of general shop safety, demonstrate general shop safety procedures, as demonstrated by the ability of the pupil to understand personal and group safety while working in an agricultural mechanics environment.

2. For the area of welding, demonstrate the safe practices and proper techniques of welding while performing:

(a) Oxy-fuel cutting; and

(b) Shielded metal arc welding.

3. For the area of electricity:

(a) Understand the principles and theories of electricity in agriculture; and

(b) Apply the principles and theories of electrical circuits.

4. For the area of water and wastewater, understand the management of water and wastewater in agricultural and industrial settings, as demonstrated by the ability of the pupil to:

(a) Demonstrate safe practices and procedures in the management of water in agricultural and industrial settings; and

(b) Understand the theory and design of various water transfer systems and pumps.

5. For the area of agricultural construction, understand the principles and applications of agricultural construction, as demonstrated by the ability of the pupil to understand and demonstrate the proper practices, applications and procedures for drafting and constructing agricultural projects.

6. For the area of single and multiple cylinder engines, understand the principles and applications of single and multiple cylinder engines, as demonstrated by the ability of the pupil to:

(a) Demonstrate safe practices and procedures associated with the operation, maintenance and repair of small gasoline engines and equipment;

(b) Demonstrate a working knowledge of essential engine operating systems;

(c) Recognize appropriate power attachments and their applications; and

(d) Demonstrate the proper procedures for the maintenance and repair of single and multiple cylinder engines and their attachments.

7. For the area of agricultural machinery, demonstrate safe practices and procedures associated with the operation, maintenance and repair of agricultural machinery and equipment.

8. For the area of hand and power tools, identify and demonstrate the proper use of hand and power tools in agricultural settings, as demonstrated by the ability of the pupil to:

(a) Identify general hand and power tools; and

(b) Demonstrate the proper procedures for the maintenance and repair of hand tools.

9. For the area of electrical power, motors and controls, demonstrate the proper procedures associated with the operation, maintenance and use of electrical power, motors and controls in agricultural applications.

10. For the area of hydraulics, understand and demonstrate knowledge of the basic principles of hydraulic systems in the agricultural industry, including, without limitation, the operation and maintenance of those hydraulics systems.

11. For the area of supervised agricultural experience, describe the relationship between a supervised agricultural experience and the preparation that is necessary for a pupil to pursue a career in agriculture, as demonstrated by the ability of a pupil to actively develop and participate in a supervised agricultural experience in a manner that enables the pupil to develop the skills necessary for a career in agricultural mechanical engineering technology power systems.

12. For the area of leadership and Future Farmers of America, participate in leadership training through active membership in the Future Farmers of America, as demonstrated by the ability of the pupil to:

(a) Recognize the traits of effective leaders and participate in leadership training through involvement in the Future Farmers of America;

(b) Understand the opportunities available to a pupil through membership in the Future Farmers of America; and

(c) Understand the importance of participating in the community in which the pupil lives and the school in which the pupil is enrolled.

Sec. 3. *A course of study in agricultural mechanical engineering technology structural systems must be designed so that pupils meet the following performance standards by the completion of the final course of instruction:*

1. For the area of general shop safety, demonstrate general shop safety procedures, as demonstrated by the ability of the pupil to understand personal and group safety while working in an agricultural mechanics environment.

2. For the area of welding, demonstrate the safe practices and proper techniques of welding while performing:

(a) Oxy-fuel cutting; and

(b) Shielded metal arc welding.

3. For the area of electricity:

(a) Understand the principles and theories of electricity in agriculture; and

(b) Apply the principles and theories of electrical circuits.

4. For the area of water and wastewater, understand the management of water and wastewater in agricultural and industrial settings, as demonstrated by the ability of the pupil to demonstrate safe practices and procedures in the management of water in agricultural and industrial settings.

5. For the area of agricultural construction, understand the principles and applications of agricultural construction, as demonstrated by the ability of the pupil to:

(a) Demonstrate the proper practices, applications and procedures for the use of concrete and fencing in agricultural construction;

(b) Demonstrate the proper practices, applications and procedures for drafting in agricultural construction and for the construction of agricultural buildings;

(c) Understand the applications of copper and plastic pipes; and

(d) Understand the techniques used for surveying in agricultural construction.

6. For the area of single and multiple cylinder engines, understand the principles and applications of single and multiple cylinder engines, as demonstrated by the ability of the pupil to:

(a) Demonstrate safe practices and procedures associated with the operation, maintenance and repair of small gasoline engines and equipment;

(b) Demonstrate a working knowledge of essential engine operating systems; and

(c) Recognize appropriate power attachments and their applications.

7. For the area of agricultural machinery, demonstrate safe practices and procedures associated with the operation, maintenance and repair of agricultural machinery and equipment.

8. For the area of hand and power tools, identify and demonstrate the proper use of hand and power tools in agricultural settings, as demonstrated by the ability of the pupil to:

(a) Identify general hand and power tools; and

(b) Demonstrate the proper procedures for the maintenance and repair of hand tools.

9. For the area of supervised agricultural experience, describe the relationship between a supervised agricultural experience and the preparation that is necessary for a pupil to pursue a career in agriculture, as demonstrated by the ability of the pupil to actively develop and participate in a supervised agricultural experience in a manner that enables the pupil to develop the skills necessary for a career in agricultural mechanical engineering technology structural systems.

10. For the area of leadership and Future Farmers of America, participate in leadership training through active membership in the Future Farmers of America, as demonstrated by the ability of the pupil to:

(a) Recognize the traits of effective leaders and participate in leadership training through involvement in the Future Farmers of America;

(b) Understand the opportunities available to a pupil through membership in the Future Farmers of America; and

(c) Understand the importance of participating in the community in which the pupil lives and the school in which the pupil is enrolled.

Sec. 4. NAC 389.523 is hereby amended to read as follows:

389.523 A course of study in agricultural mechanical engineering technology ***equipment fabrication systems*** must be designed so that pupils meet the following performance standards by the completion of the final course of instruction:

1. For the area of ***general shop*** safety ~~[:~~

~~(a) Demonstrate and practice]~~ ***, demonstrate*** general shop safety ~~[and those practices specific to the learning activity; and~~

~~(b) Understand,~~] ***procedures, as demonstrated by the ability of the pupil to understand*** personal and group safety while working in an agricultural mechanics environment.

2. For the area of welding ~~[~~:

~~(a) Understand the principles and application of welding and, where applicable, cutting, and be able to explain the role of heat and the process of fusion.~~

~~(b) Practice safety, demonstrate equipment setup and maintenance, appropriate welding procedures and, where applicable, cutting procedures, and practice proper tool selection while using:~~

~~(1)~~] ***, demonstrate the safe practices and proper techniques of welding while performing:***

(a) Oxy-fuel ~~[welding;~~

~~(2)~~] ***cutting;***

(b) Shielded metal arc welding;

~~[(3)~~] ***(c)*** Gas metal ~~[and]~~ arc welding;

~~[(4)~~] ***(d)*** Gas tungsten arc welding; and

~~[(5) Air arc and plasma]~~

(e) Plasma cutting procedures.

~~[(c)~~] ***3.*** For the area of electricity ~~[, understand]~~ ***:***

(a) Understand the principles ~~[of generation, distribution and application]~~ ***and theories*** of electricity in ~~[agricultural and industrial settings, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures during learning activities appropriate to agricultural electrification;~~

~~(2) Recognize]~~ ***agriculture; and***

(b) Apply the principles and theories of ~~[electricity;~~

~~(3) Describe appropriate use and application of electrical conductors and over-current protection;~~

~~(4) Recognize standard components of electrical systems;~~

~~(5) Understand, design and construct electrical circuits; and~~

~~(6) Demonstrate proficiency in the use of electrical meters and test equipment.~~

~~(d)]~~ ***electrical circuits.***

4. For the area of ~~[agricultural industry]~~ water ~~[management, understand the principles and applications of water and wastewater management as they relate to the agricultural and industrial settings, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe]~~ ***and wastewater, understand the management of water and wastewater in agricultural and industrial settings, as demonstrated by the ability of the pupil to demonstrate:***

(a) Safe practices and procedures in the management of water in ~~[the]~~ agricultural and industrial settings;

~~[(2) Understand the theory and design of various water transfer systems; and~~

~~(3) Understand the application of various components relating to water transfer systems.~~

~~(e)]~~ ***and***

(b) Basic pipe fitting skills.

5. For the area of ~~[concrete, understand the principles and applications of concrete in]~~ agricultural ~~[and industrial]~~ construction, ~~[as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe~~ ***understand the principles and applications of agricultural construction, as demonstrated by the ability of the pupil to understand and demonstrate the proper*** practices ***, applications*** and procedures ~~with concrete;~~

~~(2) Know the components and ratios of various mixtures of concrete; and~~

~~(3) Demonstrate knowledge of proper concrete applications and construction.~~

~~(f) For the area of fencing, understand the agricultural and industrial applications of fencing, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures in the construction of agricultural and industrial fencing;~~

~~(2) Describe the application of various types of fencing systems; and~~

~~(3) Understand the design and installation of various types of fencing systems.~~

~~(g) For the area of agricultural and industrial drafting, attain proficiency in agricultural and industrial drafting, as demonstrated by the pupil's ability to:~~

~~(1) Understand the use of various types of drafting plans; and~~

~~(2) Prepare and use drafting plans appropriate to the learning activity.~~

~~(h) For the area of agricultural and industrial buildings, understand the applications of agricultural and industrial buildings, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures associated with the construction of agricultural and industrial buildings;~~

~~(2) Understand different types of buildings used in the agricultural industry;~~

~~(3) Select and design the appropriate building for a specific agricultural application;~~

~~(4) Demonstrate the skills necessary for the appropriate maintenance and repair of agricultural buildings; and~~

~~(5) Construct a selected agricultural building.~~

~~(i)~~] ***for drafting and constructing agricultural projects.***

6. For the area of ~~[small engine power and equipment,]~~ ***single and multiple cylinder engines,*** understand the principles and applications of ~~[small engine power and equipment in an agricultural setting, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use~~] ***single and multiple cylinder engines, as demonstrated by the ability of the pupil to:***

(a) Demonstrate safe practices and procedures associated with the operation, maintenance and repair of small ***gasoline*** engines and equipment;

~~[(2) Show~~]

(b) Demonstrate a working knowledge of essential engine operating systems;

~~[(3)~~] ***and***

(c) Recognize appropriate power attachments and their applications **.** ~~[; and~~

~~(4) Demonstrate the skills necessary for the appropriate maintenance and repair of small gasoline engines and their power attachments.~~

~~(j)~~] ***7. For the area of agricultural machinery, demonstrate safe practices and procedures associated with the operation, maintenance and repair of agricultural machinery and equipment.***

8. For the area of hand and power tools, identify and demonstrate the proper use of hand and power tools in agricultural settings, as demonstrated by the pupil's ability to:

~~[(1)~~] ***(a)*** Identify general hand and power tools;

~~[(2) Show a working knowledge of and demonstrate the safe use of hand and power tools;~~

~~(3) Select and use the appropriate tool for a task;~~] and

~~[(4)]~~ ***(b)*** Demonstrate the ~~[skills necessary for the appropriate]~~ ***proper procedures for the*** maintenance and repair of hand ~~[and power]~~ tools.

~~[(k) For the area of gasoline and diesel power, understand the basic principles, operations and maintenance of gasoline and diesel engines used in agricultural settings, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures with gasoline and diesel engines used in agricultural settings;~~

~~(2) Demonstrate knowledge of the theoretical operation of a multiple cylinder engine; and~~

~~(3) Demonstrate the skills necessary for the appropriate maintenance and repair of multiple cylinder engines.~~

~~(l) For the area of hydraulics, understand the basic principles, operations and maintenance of hydraulic systems used in agricultural settings, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures appropriate for hydraulic systems used in agricultural settings;~~

~~(2) Demonstrate a knowledge of the basic principles of hydraulics;~~

~~(3) Identify the components of hydraulic systems;~~

~~(4) Demonstrate the skills necessary for the appropriate maintenance and repair of hydraulic system; and~~

~~(5) Design and build hydraulic systems to be used in an agricultural application.~~

~~(m) For the area of agricultural industrial machinery, understand and demonstrate basic skills in the operation, maintenance and repair of agricultural industrial machinery, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures associated with the operation, maintenance and repair of agricultural industrial machinery;~~

~~(2) Understand the theoretical operation of agricultural machinery;~~

~~(3) Demonstrate the skills necessary for the appropriate maintenance and repair of agricultural machinery; and~~

~~(4) Demonstrate the skills necessary for the safe operation of agricultural machinery, including tractors.~~

~~(n)~~] ***9.*** For the area of electrical power, ~~[understand and]~~ ***motors and controls,*** demonstrate the ***proper procedures associated with the*** operation, maintenance and use of electrical power ***, motors and controls*** in agricultural applications ***.*** ~~[, as demonstrated by the pupil's ability to:~~

~~(1) Understand and use safe practices and procedures associated with the operation, maintenance and repair of electrical power;~~

~~(2) Describe the basic principles and operation of electric motors and controls;~~

~~(3) Design and build an electric system using motors and controls; and~~

~~(4) Demonstrate the skills necessary for the appropriate maintenance and repair of electrical motor and control systems.~~

~~(o)~~] ***10.*** For the area of supervised agricultural experience, ~~[explain]~~ ***describe*** the relationship between a supervised agricultural experience and the preparation that is necessary for a pupil to pursue a career in agriculture, as demonstrated by the ~~[pupil's]~~ ability ***of the pupil*** to actively ~~[engage in]~~ ***develop*** and ~~[manage]~~ ***participate in*** a supervised agricultural experience in a manner that enables the pupil to develop ***the*** skills necessary for a career in agricultural mechanical engineering technology ~~[.~~

~~(p)~~] ***equipment fabrication systems.***

11. For the area of leadership and Future Farmers of America, ~~[recognize]~~ ***participate in leadership training through active membership in the Future Farmers of America, as demonstrated by the ability of the pupil to:***

(a) Recognize the traits of effective leaders and participate in leadership training through ~~[active membership]~~ ***involvement*** in the Future Farmers of America ~~[, as demonstrated by the pupil's ability to understand the basic principles of an organizational framework, communication, group dynamics, team building and the management of meetings.~~

~~(q) For the area of skills necessary to obtain employment, demonstrate:~~

~~(1) Skills necessary for solving problems;~~

~~(2) Skills of critical thinking;~~

~~(3) The ability to speak, write and listen effectively;~~

~~(4) The ability to select, apply and maintain appropriate technology necessary for a career;~~

~~(5) Skills of leadership and teamwork;~~

~~(6) An awareness of the ethical behavior appropriate for the workplace;~~

~~(7) An ability to manage effectively resources in the workplace;~~

~~(8) Skills necessary for the planning and development of a career; and~~

~~(9) Skills necessary for retention of a job and continuation of learning throughout a career.]~~ ***;***

(b) Understand the opportunities available to a pupil through membership in the Future Farmers of America; and

(c) Understand the importance of participating in the community in which the pupil lives and the school in which the pupil is enrolled.

NEVADA DEPARTMENT OF EDUCATION

NEVADA STATE BOARD OF EDUCATION
NEVADA STATE BOARD FOR CAREER AND TECHNICAL EDUCATION

LEGISLATIVE REVIEW OF ADOPTED REGULATIONS AS REQUIRED BY ADMINISTRATIVE PROCEDURES ACT, NRS 233B.066
LCB File No. R144-11

NAC389.523, for State Standards for Agriculture Mechanical Engineering Fabrication Systems and new Regulations for Agricultural Mechanical Engineering Technology Power Systems and Agriculture Mechanical Engineering Technology Structural Systems

INFORMATIONAL STATEMENT

The following statement is submitted for adopted amendments to Nevada Administrative Code 389:

1. A description of how public comment was solicited, a summary of public response, and explanation how other interested persons may obtain a copy of the summary.

   Notice of Workshop to Solicit Comments on Proposed Regulations was sent to approximately 200 individuals and educational organizations. A workshop was held on December 9, 2011. There was no public comment.

   The Notice of Intent to Act Upon a Regulation for public hearing and adoption of R144-11; proposed changes for NAC 389.523 was sent to approximately 200 individuals and educational organizations. A public hearing was conducted on February 24, 2012 to provide the opportunity for comments by affected parties and the public. There was no public comment. The State Board of Education adopted the proposed new regulation.

2. The Number of Persons Who:

   a) Attended Each Hearing: First Workshop: 18; First Hearing: 13; Second Hearing: N/A
   b) Testified at Each Hearing: First Workshop: 4; First Hearing: 4; Second Hearing: N/A
   c) Submitted Written Statements: First Workshop: 0; First Hearing: 0; Second Hearing: N/A

   A copy of any written comments may be obtained by contacting Karen Johansen, Administrative Assistant, Nevada Department of Education, 775-687-9225, or by writing to the Nevada Department of Education, 700 East Fifth Street, Carson City, Nevada 89701-5096.

3. A description of how comments were solicited from affected businesses, a summary of the response and an explanation how other interested parties may obtain a copy of the summary.

Comments were solicited through the workshop notice of November 16, 2011; and a public hearing notice of January 19, 2012. At the December 9, 2011 Workshop to Solicit Comments, there was no public comment to the proposed new regulation. At the February 24, 2012 public hearing there was no public comment to the proposed regulation language.

Summary of Comments:

Workshop comments:
There were no public comments at the workshop.

Public Hearing comments:
There were no public hearing comments.

A copy of the summary and/or minutes of the public hearing may be obtained by contacting Karen Johansen, Administrative Assistant, Nevada Department of Education, 775-687-9225, or by writing to the Nevada Department of Education at 700 East Fifth Street, Carson City, Nevada 89701-5096.

4. If the regulation was adopted with or without change to any part of the proposed regulation, a summary of the reasons for adopting.

The Nevada State Board of Education adopted the proposed regulation language at the public hearing held February 24, 2012. The reason for adopting the changes is to prescribe the performance standards for courses of study in agricultural mechanical engineering technology power systems and agricultural mechanical engineering technology structural systems; revising the performance standards for a course of study in agricultural mechanical engineering technology.

5. The estimated economic effect of the adopted regulation on the business that it is to regulate and on the public. These must be stated separately and each case must include:

There is no economic effect on the public or the business it regulates.

There is no cost to the Department of education to adopt these regulations. There is no federal law affecting the proposed regulations. There is no duplication or overlap of state or local governmental agencies. The proposed regulations do not establish a new fee nor increase an existing fee of the regulating agency.

6. The estimated cost to the agency for enforcement of the adopted regulation.

There is no additional cost to the agency for enforcement of this regulation.

7. A description of any regulations of other state or governmental agencies which the proposed regulation overlaps or duplicates and a statement explaining why the duplication or overlapping is necessary. If the regulation overlaps or duplicates a federal regulation, the name of the regulating federal agency.

   No other state or governmental agency regulations will be overlapped or duplicated by the above noted regulation. There is no duplication or overlap of federal regulations.

8. If the regulation includes provisions which are more stringent than a federal regulation, which regulates the same activity, a summary of such provisions.

   There are none.

9. If the regulation provides a new fee or increases an existing fee, the total annual amount the agency expects to collect and the manner in which the money will be used.

   This regulation does not provide for a new fee or increase an existing fee.