** Content Expert Report**

**Physics Education**

**(05-17)**

Education Standards and Practices Board

**Program report status** (check one)**:**

 **[ ]  Initial review [ ]  Continuing Review [ ]  Focus Visit**

|  |  |
| --- | --- |
| **Name of Content Expert:** |       |
| **Content Expert Telephone:** |       |
| **Content Expert Email:** |       |
| **Date Submitted:** |       |
| **Institution Being Evaluated:** |       |
| **Program Being Evaluated:** |       |
| **Degree:** |       |
| **Grade Level(s):** |       |

**Is this program offered at more than one site?** **[ ]  Yes** **[ ]  No**

If yes, list sites where the program is offered:

**Summary of Recommendations**

After completing your review, for each sub-standard listed below, place a check under the column that matches your decision.

|  |  |  |  |
| --- | --- | --- | --- |
| **Standard** | **Met** | **Met With Weakness** | **Not Met** |
| **13050.1** |  |  |  |
| **13050.2** |  |  |  |
| **13050.3** |  |  |  |
| **13050.4** |  |  |  |
| **13050.5** |  |  |  |
| **13050.6** |  |  |  |
| **13050.7** |  |  |  |
| **13050.8** |  |  |  |
| **13050.9** |  |  |  |
| **13050.10** |  |  |  |

**Physics Education**

**Directions:** Please read the Content Area Report (CAR) supplied by the institution.

1. Review program’s response to Section II.1 Areas of Weakness from Prior Review. For each standard in which there was a weakness from the prior review, make a recommendation as to whether that weakness should be removed or retained. If it is to be retained provide a rationale for retaining it in Part I.B. If it has been partially but not fully addressed restate the weakness in Part I. C and provide a rationale.
2. Make a recommendation for each program standard as to whether it has been met, met with weakness, or not met based on the evidence provided. For any standard “met with weakness” or “not met” identify the weakness(es) and provide a rationale.

The program to prepare teachers of science usually follows one of two patterns: (1) the subject major pattern emphasizing one or more areas of the sciences with supporting coursework in other sciences, (minimum of 48 semester hours), or (2) the comprehensive major pattern which is a balanced study across the science areas. Programs must meet the appropriate section of Standard 1 (biology or chemistry or earth science or composite/general science or physical science or physics) and also Standards 2 through 10 which apply to all majors.

Secondary teachers with majors in biology, chemistry, earth science or physics (minimum of thirty two semester hours) or physical science and other composite science degrees (minimum of forty two semester hours) will be licensed to teach in each specific science discipline in which the individual has the **minimum** preparation for that specific science discipline aligned with the North Dakota standards for the areas (twelve semester hours).

**Part I: Areas of Weakness from Prior Review \*\*\***

**XXXXX.X** *Write the standard and the original weakness here.*

A. **Content Expert Decision**: Should the weakness be removed, retained, or restated and retained? Check one only.

      Weakness Should Be Removed      Weakness Should Be Retained

      Restated Weakness

B. **For Decisions of “Weakness Should Be Retained”:** Provide a rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs.

i. **Rationale:**

C. **For Decisions of “Restated Weakness”:** Write the new language for the weakness. Provide a rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs.

1. **Restated Weakness:**

ii. **Rationale:**

***\*\*\*Note: This template can be copied and pasted into the document multiple times when more than one area of weakness was cited in a prior review.***

**Part II Program Standard Recommendations**

**13050.1 Physics** The physics program requires:

1. Systematic and quantitative study of physics including modern physics, mechanics, electricity and magnetism, thermodynamics, optics, and electronics (minimum thirty two semester hours).
2. Laws of physics and their application to various areas of physics and modern technology.
3. Interaction of physics and technology with the ethical and human implications.
4. Chemistry, biology, and earth science (minimum sixteen semester hours; at least four semester hours in each area).
5. Study of mathematics through calculus (minimum two semesters) including an introduction to differential equations.

A. **Content Expert Decision**: Is the program standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs.

i. **Weaknesses:**

ii. **Rationale:**

##### 13050.2 Nature of Science The program requires study of the history and philosophy of science as well as the interrelationships among the sciences.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met       Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs.

i. **Weaknesses:**

ii. **Rationale:**

**13050.3 Inquiry** The program requires study of the processes of science common to all scientific fields.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs.

i. **Weaknesses:**

ii. **Rationale:**

**13050.4 Context of Science** The program requires the study of the effect of social and technological context on the study of science and on the application and valuing of scientific knowledge. The program prepares candidates to relate science to the daily lives and interests of students and to a larger framework of human endeavor and understanding. The program provides the candidate with an understanding of the relationship of science to industry, business, government, and multicultural aspects of a variety of communities.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

**13050.5 Skills of Teaching** The program requires the candidate to demonstrate proficiency in methods of teaching science.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

**13050.6 Curriculum** The program provides candidates with information necessary to identify, evaluate, and apply a coherent, focused science curriculum that is consistent with state and national standards for science education and appropriate for addressing the needs, abilities and interests of students.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

**13050.7 Assessment** The program prepares candidates to use a variety of performance assessment strategies to evaluate the intellectual, social, and personal development of the learner in all aspects of science.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

**13050.8 Environment for Learning** The program prepares candidates to design and manage safe and supportive learning environments in the classroom, laboratory, and field. The program reflects high expectations for the success of all students.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

#### 13050.9 Professional Practice The program prepares candidates to participate in the professional community, improving practice through their personal actions, education, and development. The program uses varied performance assessments of candidate’s understanding and ability to apply that knowledge.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

**13050.10 Technology** The program requires the study of current, appropriate instructional technologies. The program uses varied performance assessments of candidates’ understanding and abilities to apply that knowledge.

A. **Content Expert Decision**: Is the sub-standard met, met with weakness, or not met?

      Met      Met with Weakness      Not Met

B. **For Decisions of “Met with Weakness” or “Not Met”:** Describe the specific weakness identified and the rationale for the decision. This information will guide the institution to provide additional information in their rejoinder, or be used to determine stipulations for the institution to address by the time the next visit occurs. A rationale does not need to be provided for standards “met”.

i. **Weaknesses:**

ii. **Rationale:**

**Curriculum Exhibit Form SFN 14381 (or status sheet):** This form or status sheet provides the opportunity for institutions to document the entire program including general studies, teaching specialty, and professional education. This form is used to document each student transcript that applies for teacher licensure. Please review this form to make sure all of the courses listed above for each sub-standard are listed as a “**Requirement”. If a course is missing or is not a required course, please list below:**

**Content Expert Review of Standard and recommendation to State Board of Examiner (BOE) Team for the Site Visit:** The content expert provides an initial review of the program standard and provides a recommendation to the CAEP/State Board of Examiners for the onsite review. **What additional information should the CAEP/ESPB Team research on-site during the visit?**

This report will be electronically forwarded to the CAEP/State Board of Examiners nine months prior to the scheduled program review visit. If you have any questions or concerns, please contact the Education Standards and Practices Board Executive Director at (701) 328-9646.

**Thank you for taking the time from your busy schedule to help document that our North Dakota institutions of higher education have prepared our teachers for the best possible education for all North Dakota students.**