Program Assessment Form
(Academic Program)

Developmental Math

Created on: 03/12/2020 09:41:00 AM WPST
Last Modified: 06/17/2021 04:53:19 AM WPST
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General Information (Program Assessment Form (Academic Program))
Standing Requirements

**NMC MISSION STATEMENT & ESIP (COLUMN 1 OF THE 5-COLUMN MODEL)**

NMC Mission Statement: Northern Marianas College, through its commitment to student learning, provides high quality, affordable and accessible educational programs and services for the individual and people of the Commonwealth. ESIP for Developmental Math: The purpose of the developmental mathematics program is to effectively provide students the basic mathematics and algebraic skills and offer and provide support to students toward success in subsequent college-level math courses required for their degree or certificate programs.

**OUTCOMES (COLUMN 2 OF THE 5-COLUMN MODEL)**

### Developmental Math Outcome Set

**MA NDU PLO 1**
Perform systematic estimating and calculating the set of real numbers.

**Mapping**

**General Education Outcomes (GELOs):** GEO Quantitative and Scientific Reasoning 6.1, GEO Quantitative and Scientific Reasoning 6.2

**MA NDU PLO 2**
Communicate and translate ideas from verbal to symbolic form and vice-versa for linear equations and inequalities.

**Mapping**

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2

**MA NDU PLO 3**
Read and interpret graphs of linear equations in two variables.

**Mapping**

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2, GEO Quantitative and Scientific Reasoning 6.1, GEO Quantitative and Scientific Reasoning 6.2

**MA NDU PLO 4**
Solve systems of linear equations in two variables.

**Mapping**

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2, GEO Quantitative and Scientific Reasoning 6.1, GEO Quantitative and Scientific Reasoning 6.2

**MA NDU PLO 5**
Demonstrate the use of polynomials and properties of exponents.
### Mapping

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2, GEO Quantitative and Scientific Reasoning 6.1, GEO Quantitative and Scientific Reasoning 6.2

### MA NDU PLO 6

Demonstrate the ability to factor polynomials.

**Mapping**

**General Education Outcomes (GELOs):** GEO Quantitative and Scientific Reasoning 6.1, GEO Quantitative and Scientific Reasoning 6.2

### MA NDU PLO 7

Apply various operations with rational expressions.

**Mapping**

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2, GEO Quantitative and Scientific Reasoning 6.1, GEO Quantitative and Scientific Reasoning 6.2

### Developmental Math Outcome Set _September 2020_

#### PLO 4

Solve systems of linear equations in two variables.

**Mapping**

**Developmental Math Outcome Set:** MA NDU PLO 4, MA NDU PLO 5,

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2

#### PLO 5

Demonstrate the use of polynomials and properties of exponents.

**Mapping**

**Developmental Math Outcome Set:** MA NDU PLO 4, MA NDU PLO 5,

**General Education Outcomes (GELOs):** GEO Critical Thinking 1.1, GEO Critical Thinking 1.2

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### CURRICULUM MAP

**Active Curriculum Map s**

- GELOS & PLOs NDU Math (See appendix)

  Alignment Set GELOS & PLOs NDU Math

  Created 11/10/2020 5:18:30 am WPST

  Last Modified 11/10/2020 5:20:31 am WPST
### 2020-2021 Assessment Cycle

**MEANS OF ASSESSMENT & CRITERIA FOR SUCCESS** *(ASSESSMENT PLAN OR COLUMN 3 OF THE 5-COLUMN MODEL)*

**Mission Statement**

NMC Mission Statement: Northern Marianas College, through its commitment to student learning, provides high quality, affordable and accessible educational programs and services for the individual and people of the Commonwealth. ESIP for Developmental Math: The purpose of the developmental mathematics program is to effectively provide students the basic mathematics and algebraic skills and offer and provide support to students toward success in subsequent college-level math courses required for their degree or certificate programs.

**Measures**

#### Developmental Math Outcome Set_September 2020

**Outcome**

**Outcome: PLO 4**

Solve systems of linear equations in two variables.

**Measure:** Bell-Quizzes on Chapter 7  
*Course level Direct - Other*

**Details/Description:** Bell-Quizzes on chapter 7 will be given to students to assess SLO 2.

**Success Criteria:** At least 70% of the students will be able to evaluate and solve polynomials and quadratic equations.

**Implementation Plan (timeline):** Weeks when Chapter 7 is covered.

**Key/Responsible Personnel:** Mr. Sean Pak, Faculty Member

**Measure:** Chapter 2 On-line Quizzes  
*Course level Direct - Other*

**Details/Description:** Online-Quizzes on chapter 2 will be given to students to assess SLO 2.

**Success Criteria:** At least 70% of the students who are assessed will be able to evaluate and solve simple polynomials and quadratic equations.

**Implementation Plan (timeline):** Weeks when Chapter 2 is covered.

**Key/Responsible Personnel:** Mr. Sean Pak, Faculty Member
| Measure: Test Chapter 2  
<table>
<thead>
<tr>
<th>Course level Direct - Exam</th>
</tr>
</thead>
</table>
| **Details/Description:**  
Test on chapter 2 will be given to students to assess how well students master SLO 2. |
| **Success Criteria:**  
At least 70% of the students who are assessed will be able to evaluate and solve simple polynomials and quadratic equations. |
| **Implementation Plan**  
(timeline):  
Culmination of Chapter 2.  
| **Key/Responsible Personnel:**  
Mr. Sean Pak, Faculty Member |

Outcome: PLO 5  
Demonstrate the use of polynomials and properties of exponents.

| Measure: Bell-Quizzes on Chapter 6  
<table>
<thead>
<tr>
<th>Course level Direct - Other</th>
</tr>
</thead>
</table>
| **Details/Description:**  
Bell-Quizzes on chapter 6 will be given to students to assess SLO 7. |
| **Success Criteria:**  
At least 70% of the students who are assessed will be able to solve systems of linear equations in two variables and verify solutions to the system. |
| **Implementation Plan**  
(timeline):  
Weeks when Chapter 6 is covered.  
| **Key/Responsible Personnel:**  
Mr. Sean Pak, Faculty Member |

| Measure: Online-Quizzes on Chapter 6  
<table>
<thead>
<tr>
<th>Course level Direct - Other</th>
</tr>
</thead>
</table>
| **Details/Description:**  
Online Quizzes on chapter 6 will be given to students to assess SLO 7. |
| **Success Criteria:**  
At least 70% of the students who are assessed will be able to solve systems of linear equations in two variables and verify solutions to the system. |
| **Implementation Plan**  
(timeline):  
Weeks when Chapter 6 is covered.  
| **Key/Responsible Personnel:**  
Mr. Sean Pak, Faculty Member |

| Measure: Test Chapter 6  
<table>
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<tr>
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</tr>
</thead>
</table>
| **Details/Description:**  
Test on chapter 6 will be given to students to assess SLO 7. |
| **Success Criteria:**  
At least 70% of the students who are assessed will be able to solve systems of linear equations in two variables and verify solutions to the system. |
| **Implementation Plan**  
Culmination of Chapter 6.  
|
SUMMARY OF DATA COLLECTED AND USE OF RESULTS (ASSESSMENT FINDINGS OR COLUMNS 4 & 5 OF THE 5-COLUMN MODEL)

Finding per Measure

Developmental Math Outcome Set_September 2020

Outcome: PLO 4
Solve systems of linear equations in two variables.

Measure: Bell-Quizzes on Chapter 7
Course level Direct - Other

Details/Description: Bell-Quizzes on chapter 7 will be given to students to assess SLO 2.

Success Criteria: At least 70% of the students will be able to evaluate and solve polynomials and quadratic equations.

Implementation Plan
(timeline): Weeks when Chapter 7 is covered.

Key/Responsible Personnel: Mr. Sean Pak, Faculty Member

Findings for Bell-Quizzes on Chapter 7

Summary of Findings: The average of the Bell-Quizzes was 88%. 88% of the students who took the quiz had the Acceptable or exceptional level which is above 70%.

Results: Success Criteria Achievement: Exceeded

Recommendations: The average of the Bell-Quizzes reached the target. May use similar instructions including examples and exercises since the goal has been reached.

I think the lecture videos I made and posted for each section in the textbook were helpful for students to achieve the goal.

Reflections/Notes: See recommendations above.
**Measure:** Chapter 2 On-line Quizzes  
*Course level Direct - Other*

**Details/Description:** Online-Quizzes on chapter 2 will be given to students to assess SLO 2.

**Success Criteria:** At least 70% of the students who are assessed will be able to evaluate and solve simple polynomials and quadratic equations.

**Implementation Plan (timeline):** Weeks when Chapter 2 is covered.

**Key/Responsible Personnel:** Mr. Sean Pak, Faculty Member

### Findings for Chapter 2 On-line Quizzes

<table>
<thead>
<tr>
<th>Summary of Findings:</th>
<th>The average of the Online-Quizzes was 89%. 92% of the students who took the class work had the Acceptable or exceptional level which is above 70%.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results:</td>
<td>Success Criteria Achievement: Exceeded</td>
</tr>
<tr>
<td>Recommendations:</td>
<td>The average of the Online-Quizzes reached the target. May use similar instructions including examples and exercises since the goal has been reached. I think the lecture videos I made and posted for each section in the textbook were helpful for students to achieve the goal.</td>
</tr>
<tr>
<td>Reflections/Notes:</td>
<td>See recommendations above.</td>
</tr>
</tbody>
</table>

**Measure:** Test Chapter 2  
*Course level Direct - Exam*

**Details/Description:** Test on chapter 2 will be given to students to assess how well students master SLO 2.

**Success Criteria:** At least 70% of the students who are assessed will be able to evaluate and solve simple polynomials and quadratic equations.

**Implementation Plan (timeline):** Culmination of Chapter 2.

**Key/Responsible Personnel:** Mr. Sean Pak, Faculty Member

### Findings for Test Chapter 2

<table>
<thead>
<tr>
<th>Summary of Findings:</th>
<th>The average of the chapter test together with chapter 6 and 7 was</th>
</tr>
</thead>
</table>
94% of the students who took the test had the Acceptable or exceptional level which is above 70%.

Results: Success Criteria Achievement: Exceeded

Recommendations: The average of the chapter test reached the target.

May use similar instructions including examples and exercises since the goal has been reached.

I think the lecture videos I made and posted for each section in the textbook were helpful for students to achieve the goal.

Reflections/Notes: See recommendations above.

Outcome: PLO 5
Demonstrate the use of polynomials and properties of exponents.

Measure: Bell-Quizzes on Chapter 6
Course level Direct - Other

Details/Description: Bell-Quizzes on chapter 6 will be given to students to assess SLO 7.

Success Criteria: At least 70% of the students who are assessed will be able to solve systems of linear equations in two variables and verify solutions to the system.

Implementation Plan (timeline): Weeks when Chapter 6 is covered.

Key/Responsible Personnel: Mr. Sean Pak, Faculty Member

Findings for Bell-Quizzes on Chapter 6

Summary of Findings: The average of the Bell-Quizzes was 88%.

88% of the students who took the quiz had the Acceptable or exceptional level which is above 70%.

Results: Success Criteria Achievement: Exceeded

Recommendations: The average of the Bell-Quizzes reached the target.

May use similar instructions including examples and exercises since the goal has been reached.

I think the lecture videos I made and posted for each section in the textbook
were helpful for students to achieve the goal.

**Reflections/Notes:**
See recommendations above.

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### Measure: Online-Quizzes on Chapter 6

**Course level Direct - Other**

<table>
<thead>
<tr>
<th>Details/Description:</th>
<th>Online Quizzes on chapter 6 will be given to students to assess SLO 7.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Success Criteria:</strong></td>
<td>At least 70% of the students who are assessed will be able to solve systems of linear equations in two variables and verify solutions to the system.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>Weeks when Chapter 6 is covered.</td>
</tr>
<tr>
<td><strong>Key/Responsible Personnel:</strong></td>
<td>Mr. Sean Pak, Faculty Member</td>
</tr>
</tbody>
</table>

#### Findings for Online-Quizzes on Chapter 6

**Summary of Findings:**
The average of the Online-Quizzes was 84%.

79% of the students who took the class work had the Acceptable or exceptional level which is above 70%.

**Results:**
Success Criteria Achievement: Exceeded

**Recommendations:**
May use similar instructions including examples and exercises since the goal has been reached.

I think the lecture videos I made and posted for each section in the textbook were helpful for students to achieve the goal.

**Reflections/Notes:**
See recommendations above.

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### Measure: Test Chapter 6

**Course level Direct - Exam**

<table>
<thead>
<tr>
<th>Details/Description:</th>
<th>Test on chapter 6 will be given to students to assess SLO 7.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Success Criteria:</strong></td>
<td>At least 70% of the students who are assessed will be able to solve systems of linear equations in two variables and verify solutions to the system.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>Culmination of Chapter 6</td>
</tr>
</tbody>
</table>

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Key/Responsible Personnel: Mr. Sean Pak, Faculty Member

Findings for Test Chapter 6

Summary of Findings: The average of the chapter test together with chapter 6 and 7 was 87%.

94% of the students who took the test had the Acceptable or exceptional level which is above 70%.

Results: Success Criteria Achievement: Exceeded

Recommendations: The average of the chapter test reached the target.

May use similar instructions including examples and exercises since the goal has been reached.

I think the lecture videos I made and posted for each section in the textbook were helpful for students to achieve the goal.

Reflections/Notes: See recommendations above.

Overall Recommendations
No text specified

Overall Reflection
No text specified

OPERATIONAL PLAN (THIS IS WHERE YOU CAN LINK AN OUTCOME TO AN ACTION PLAN WITH OR WITHOUT A SPECIAL BUDGET REQUEST.)

STATUS REPORT
2021-2022 Assessment Cycle

MEANS OF ASSESSMENT & CRITERIA FOR SUCCESS (ASSESSMENT PLAN OR COLUMN 3 OF THE 5-COLUMN MODEL)

SUMMARY OF DATA COLLECTED AND USE OF RESULTS (ASSESSMENT FINDINGS OR COLUMNS 4 & 5 OF THE 5-COLUMN MODEL)

OPERATIONAL PLAN (THIS IS WHERE YOU CAN LINK AN OUTCOME TO AN ACTION PLAN WITH OR WITHOUT A SPECIAL BUDGET REQUEST.)

STATUS REPORT
Pilot Programs/Practice Assessment Cycle (2009, 2016)

MEANS OF ASSESSMENT & CRITERIA FOR SUCCESS (ASSESSMENT PLAN)

ASSESSMENT FINDINGS

OPERATIONAL PLAN

STATUS REPORT (THIS SIMPLY STATES THE STATUS OF YOUR OPERATIONAL PLAN.)
2019-2020 Assessment Cycle

MEANS OF ASSESSMENT & CRITERIA FOR SUCCESS (ASSESSMENT PLAN OR COLUMN 3 OF THE 5-COLUMN MODEL)

SUMMARY OF DATA COLLECTED AND USE OF RESULTS (ASSESSMENT FINDINGS OR COLUMNS 4 & 5 OF THE 5-COLUMN MODEL)

OPERATIONAL PLAN (THIS IS WHERE YOU CAN LINK AN OUTCOME TO AN ACTION PLAN WITH OR WITHOUT A SPECIAL BUDGET REQUEST.)

STATUS REPORT (THIS SIMPLY STATES THE STATUS OF YOUR OPERATIONAL PLAN.)
Appendix

A. GELOS & PLOs NDU Math (Curriculum Map)